

## Abstracts Not Presented

Every year, there are abstracts that could not be presented at our annual meeting for a variety of reasons. The fact that the abstracts were printed in the April 2023 issue of *Aerospace Medicine and Human Performance* does not guarantee that they were presented, only that they were accepted for presentation. It is important to remember that if an abstract was not presented, it should not be referenced. A total of 23 abstracts out of a possible 520 abstracts were not presented (~4.4%), which is lower than average for our meeting. There were also corrections to the published abstracts.

The following abstracts were withdrawn or not presented:

### [35] PHYSIOLOGICAL CEREBRAL ALTERATIONS UNDER HYPOBARIC/HYPOXIC EXPOSURE - A NEUROIMAGING EXCURSION

Sven Kühn, Hans Jürgen Noblé, Sven-Erik Kühn

### [73] SEDATING ANTIHISTAMINE USE IN GENERAL AVIATION ACCIDENTS: CASE REPORT AND TRENDS

Michelle Watters

### [77] EFFECT OF AGE AND FLYING EXPERIENCE ON HEART RATE RESPONSE OF FIGHTER AIRCREW DURING HIGHG EXPOSURE IN THE HIGH PERFORMANCE HUMAN CENTRIFUGE

Ajay Kumar

### [78] WORK OF BREATH EFFECTS ON SUSTAINED ATTENTION & EXECUTIVE CONTROL PERFORMANCE

Rachel Goehring, Tim Halverson, Bruce Johnson, Robert Wentz, Christopher Myers, Nicholas Napoli

### [93] THE EFFECT OF HYPERBARIC OXYGEN THERAPY ON BLOOD PARAMETERS AND BIOCHEMICAL MARKERS IN PATIENTS WITH DIABETIC FOOT

Erdinc Ercan, Gamze Aydin, Bulent Erdogan

### [155] GLOBAL HEALTH INNOVATION GAP ANALYSIS: AVOIDING THE NEXT PANDEMIC

Diego M. Garcia, Charles A. DeJohn, Kris Belland

### [189] AAMIMO GRAND ROUNDS PRESENTATIONS

AAMIMO Physician

### [214] THE ROLE OF SAFETY CULTURE IN ENHANCING AN AIRLINE SAFETY MANAGEMENT SYSTEM

Patricia Demasi

### [257] HUMAN FACTORS CONSIDERATIONS TO MITIGATE FATIGUE EFFECTS IN SPACEFLIGHT OPERATIONAL PERFORMANCE

Erin Flynn-Evans

### [309] OPPORTUNITIES FOR PRECISION HEALTH UTILIZATION TO SUPPORT ASTRONAUT HEALTH AND PERFORMANCE AT NASA

Lauren Schrader, Carol Mullenax, Corey Theriot

### [354] PREDICTIVE MODEL OF G TOLERANCE AND EFFECTIVENESS OF ANTI-G STRAINING MANEUVER BY USING THE PARAMETERS OF BODY COMPOSITION

Chung-Yu Lai, You-Jin Lin, Yi-Hsiang Hsin, Kwo-Tsao Chiang, Min-Yu Tu, Hung-Wei Huang, Chao-Chien Cheng

### [370] RESPONSES OF SALIVARY A-AMYLASE BEFORE AND AFTER THE HYPOXIA AWARENESS TRAINING

Ke-Ting Pan, Hung-Wei Huang, Wun-Wei Huang, Chao-Chien Cheng, Chung-Yu Lai

### [381] VESTIBULAR FUNCTION ASSESSMENT IN AIRCREW

Oded Ben-Ari

### [417] CONTINUING DEVELOPMENTS IN 5G TELEMEDICINE, TELEMENTORING, AND MEDICAL TRAINING FOR THE REMOTE WARRIOR

Paul Young

### [420] THE ROLE OF DAY- AND NIGHTTIME CONDITIONS IN LASER ILLUMINATION OF AIRCRAFT: RESULTS OF A RISK FACTOR ANALYSIS FOR THE LOS ANGELES AREA 2010-2019

Frank M. Jakobs, Rudolf Schimmel, Diana Hering, Thomas Karlischek, Bernd Eberle

### [426] DESIGN FOR TRUST AND TRUSTWORTHINESS OF FUTURE SPACE MEDICAL SYSTEMS IN HUMAN-AGENT TEAMING: A TRANSDISCIPLINARY APPROACH

Anna Berenika Wojdecka, Don Platt, Rhonda Lyons, Ondrej Doule, Aldo Fabregas, Tibor Balint, K. Jeffrey Myers

### [429] ASSESSMENT OF WET BULB GLOBE TEMPERATURE (WBGT) HEAT STRESS LIMITS FOR APPLICATION IN THE AIR DOMAIN

Andrew S. Weller, Jonathan W. R. Boyd

### [469] THE UNIVERSITY OF MINHO'S SPACE MEDICINE COURSE - LESSONS AND OUTCOMES

Gonçalo Torrinha, Pedro Morgado

### [513] ACUTE CHANGES IN RAT TISSUE AND BLOOD GENE EXPRESSION FOLLOWING EXPOSURE TO FLIGHT-RELEVANT HYPOBARIA

Apurva Borcar, Flaubert Tchantchou, Amol Shetty, Gary Fiskum

### [514] LOW OXYGEN TENSION DOWNREGULATES VIRAL ENTRY GENE EXPRESSION AND UPREGULATES THE TLRIL33-NFKB PATHWAY IN HUMAN BRONCHIAL EPITHELIAL CELLS

Chu-Mei Huang, Yi-Hui Chen

### ERRATA:

[5-43] The co-Chair's name was misspelled. It should be Rowena Christiansen. We apologize for the mistake.

[5-75] The co-Chair for this panel was listed as Adam Lam. It should be Andrew Lam. We apologize for the typo. Additionally, he was unable to attend.

[114] Wendy Olsen presented; original presenter was unable to be there.

[117] Sven Rochelt should have been listed as presenter:

Denis Bron, Janine Rochelt, Nadja Saba, [Sven Rochelt](#)

[130] The co-author for this abstract changed. The author line should read: [Robert Barbera](#), Joseph Yabes.

[184] This was presented by Esther Putman.

[216] & [217] Presentations were swapped. Abstract 217 was presented first and 216 second.

[256] Oded Ben-Ari, the last author, gave the presentation instead of the first author.

[270] This presentation was pre-recorded.

[351] This presentation was pre-recorded.

The abstract below was revised.

### [432] EFFECT OF LOWER BODY NEGATIVE PRESSURE ON OCULAR PERFUSION PRESSURE

[Eric Hall](#), Richard Whittle, Ana Diaz-Artiles

Texas A&M University, College Station, TX, United States

(Original Research)

**INTRODUCTION:** (Same as print). **METHODS:** Twenty-four subjects (12M/12F) were subjected to graded LBNP in 0° supine and 15° head down tilt (HDT) postures from 0 mmHg to -50 mmHg, in 10 mmHg increments. IOP and MAPeye were measured at each condition and OPP calculated as MAPeye - IOP. Dose-response models quantifying the effects of pressure, sex, and posture were constructed over the range of LBNP considered using linear mixed models. **RESULTS:** Between 0 and -50 mmHg of LBNP, OPP significantly increased in 15° HDT from  $70.5 \pm 3.1$  mmHg to  $75.5 \pm 3.1$  mmHg ( $p = 0.010$ ) but showed no significant change in 0° supine ( $p = 0.539$ ). MAPeye significantly decreased from  $89.1 \pm 2.6$  mmHg to  $84.2 \pm 2.7$  mmHg in 0° supine ( $p = 0.016$ ) but remained constant in 15° HDT. IOP decreased significantly from  $22.8 \pm 0.9$  mmHg to  $17.5 \pm 0.9$  mmHg (i.e.,  $1.0 \pm 0.095$  mmHg per 10 mmHg LBNP) in 15° HDT ( $p < 0.001$ ). IOP also decreased from  $19.1 \pm 0.75$  mmHg to  $15.4 \pm 0.76$  mmHg (i.e.,  $0.7 \pm 0.09$  mmHg per 10 mmHg LBNP) in 0° supine ( $p < 0.001$ ). Sex did not have a significant effect on OPP, IOP, or MAPeye. Tilt angle was found to have a significant impact on OPP ( $p < 0.001$ ), MAPeye ( $p < 0.001$ ), and IOP ( $p < 0.001$ ). **DISCUSSION:** The reduction in IOP during increasing LBNP led to the increase in OPP in 15° HDT. Six of the twelve females did not complete the protocol in either 0° supine or 15° HDT conditions past the -30 to -40 mmHg pressure level. Only one male subject was unable to complete the full protocol (at 0° supine). The etiology behind this sex disparity should be well understood prior to long duration space missions. Future work should also seek to understand the relationship between OPP and SANS, and the impact of LBNP on these ocular responses as part of countermeasure development.

[468] An author was added to the abstract: Danielle J. Carroll, University of Colorado, Boulder, Eastern Virginia Medical School. She is the second author.

[509] Ernest Webb presented this abstract as the original presenter, who should have been listed as John Hutchinson, was unable to be there.

[517] Curran Varma, the second author, presented as Andrew Lam was unable to be there.

**Call for Papers:** The abstract submission site opens Sept. 1. The deadline for abstracts is Nov. 1. See the Call for Papers in the front of the journal and on the AsMA website under Meetings.

## Dervay Installed as AsMA President; Orford Is President-Elect

**Joseph P. Dervay, M.D., M.P.H., MMS, FACEP, FAsMA, FUHMS**, was installed as President of AsMA during the Annual Business Meeting, held May 23, 2023 at the Sheraton New Orleans Hotel in



New Orleans, LA. He is currently a Flight Surgeon at the NASA Johnson Space Center, having served there over 25 years. Completing undergrad at Cornell University, and a Doctor of Medicine at Syracuse Upstate Medical Center, he subsequently trained to become a Navy Flight Surgeon, serving aboard the aircraft carrier *USS John F. Kennedy*. He completed an Emergency Medicine Residency at The George Washington University, Space Medicine Fellowship and Aerospace

Medicine Residency at UTMB Galveston/NASA, and Hyperbaric Medicine training at University of Texas Health Science Center, Houston. He has served as Crew Surgeon for numerous Space Shuttle and long-duration International Space Station missions, including support of the 2020 NASA/SpaceX Demo-2 test flight as the first Commercial Crew mission. His roles have included work in Russia at the Star City cosmonaut training center, and support of U.S. astronauts during Soyuz launch and landing activities in Kazakhstan. After 35 years of active and Reserve service with numerous Navy and Marine Corps units worldwide, he retired with the Navy rank of Captain.

Dr. Dervay has been a member of AsMA since 1985 and is a Fellow. Prior to selection as President-Elect, he served 3 years as an AsMA Vice President. Over his years of service to AsMA, he served four 3-year terms on AsMA council as a Member-at-Large, and several years on the Executive Committee. He has been a longstanding member of the Scientific Program Committee and was Scientific Program Chair for the 2007 meeting in New Orleans. He has served as Chair of the Communications, Membership, and Resolutions Committees. He has been a member of numerous Constituent and Affiliate organizations. A more comprehensive biography can be found in the August 2022 issue of *Aerospace Medicine and Human Performance* [AMHP 2022; 93(8):654] or in the August 2022 newsletter (p. N44).

**Robert Orford, M.D., CM, M.S., M.P.H.**, was elected as President-Elect of AsMA during the Annual Business Meeting on May 23, 2023. He will be installed as President next year. Dr. Orford



earned a B.Sc. at McGill University in Montreal, Quebec, Canada, in 1968. He was awarded his M.D. degree, also from McGill University, in 1971. He received his M.S. in Medicine from the University of Minnesota, Mayo Graduate School of Medicine in Rochester, MN, in 1975, and his M.P.H. from the University of Washington in Seattle in 1976. He served an internship from 1971 to 1972 at St. Joseph's Hospital in London, Ontario, Canada, held a Fellowship in Internal Medicine at the

Mayo Graduate School of Medicine from 1972–1975, and served a residency in Preventive Medicine at the University of Washington from 1975–1976.

In 1976, Dr. Orford accepted a position as Medical Officer at the Sarnia Division of Dow Chemical of Canada in Ontario. He left that position in 1977 to become Senior Medical Consultant at the Medical Service Branch of the Occupational Health and Safety

Division of Alberta Labour in Edmonton, where he served until 1979. He then took a position as Director of the Medical Services Branch of Alberta Workers' Health, Safety and Compensation, also in Edmonton, where he served as Executive Director of Occupational Health Services from 1980–1984. In 1985, he became Deputy Minister of the Community Health Division of Alberta Social Services and Community Health, and then in 1986 the Deputy Minister of Community and Occupational Health. In 1988, he served as Director of Occupational Health Services for the University of Alberta Hospitals in Edmonton, and then, in 1989, became Special Clinical Fellow at the Mayo Clinic in Rochester, MN. He is currently Consultant Physician, Mayo Clinic, Scottsdale, Arizona, and Mayo Clinic Healthcare in Partnership with Oxford University Clinic, London, UK, an Assistant Professor at the Mayo Clinic of Medicine, an FAA Aviation Medical Examiner, and an Associate Professor at the University of Texas Medical Branch in Galveston.

Dr. Orford is a Fellow of the Royal College of Physicians and Surgeons of Canada, a Fellow and past Director of the Alberta Occupational Health Society, and a member of the Canadian Occupational Health Society, the American Occupational Health Society, the Occupational Medical Association of Alberta, the Occupational Medical Association of Canada, the Canadian Public Health Association, the American Public Health Association, the Canadian Society of Aviation Medicine, and the Canadian Medical Association. He was awarded a National Health Fellowship from Canada from 1975–1976 and is licensed by the state of Minnesota, the State of Washington, and the province of Alberta. He is a Diplomate of the National Board of Medical Examiners. He is a member of and was President of the Airline Medical Directors Association. He is also a Fellow of the Aerospace Medical Association, serves on its Scientific Program Committee, and was Parliamentarian on AsMA's Council. He is a recipient of AsMA's Boothby-Edwards and Won Chuel Kay Awards.

**Other elected officials are: Vice Presidents:** Anthony Wagstaff, M.B.Ch.B., D.Av.Med., Susan Fondy, M.D., M.P.H., and Rowena Christiansen, M.Emerg.Health., MBA, M.B.B.S. (serving remaining 1 year of Dr. Orford's VP term). **Members-at-Large are:** Wendell Becton, M.D. (serving remaining 1 year of Dr. Christiansen's term), Winton Laslie, M.D., M.P.H. (serving remaining 2 years of Dr. Wagstaff's term), Denise Baisden, M.D., Diego Garcia, M.D., Kathy Hughes, M.D., M.P.H., and Daniel Van Syoc, M.D., M.P.H.

**The Need For SPEED**  
*Farther, faster, together.*

The Aerospace Medical Foundation is working to accelerate its efforts by empowering the next generation of Aerospace Medicine scientists who will take humans to deep space. In order to achieve these objectives, they are setting a goal in the "Need for Speed" campaign of \$5 million by AsMA's 100th Anniversary! Donations can be in cash or in stock and can be made by credit card or PayPal through the [AsMAFoundation.org](http://AsMAFoundation.org) website. **AsMA Members:** consider joining the Heritage Society and include the Foundation in your estate planning.

**Support the Foundation!**

## AEROSPACE MEDICAL ASSOCIATION HONORS NIGHT AWARDS Sheraton New Orleans Hotel, New Orleans, LA, May 25, 2023

Dr. Susan Northrup, President of the Aerospace Medical Association, presented 18 awards to outstanding members during the Honors Night ceremonies at the 93rd Annual AsMA Scientific Meeting, May 25, 2023, at the Sheraton New Orleans Hotel, New Orleans, LA. Eric Olins, M.D., Chair of the Awards Committee, read the citations. The names of the awards' sponsors and representatives, when present, are printed in parentheses.

While the Boothby-Edwards Award was presented, Dr. Simon May, the winner, was unable to be there.



**Susan Northrup, 2022-2023  
AsMA President**

All photos by Pamela C. Day. A photo gallery is available at:  
<https://aeromed.smugmug.com/Honors-Night-AsMA-93rd-Scientific-Meeting-/>.



**2023 LOUIS H. BAUER FOUNDER'S AWARD**  
**Nicholas D. C. Green, OBE, MBBS, Ph.D., D.Av.Med.,  
FRAeS, FASMA, RAF**  
(Gary Toups, Mayo Clinic)



**2023 JOHN ERNSTING AWARD**  
**Melchor J. Antunano, M.D., M.S.**  
(George Anderson, Environmental Tectonics Corp.)



**2023 KENT K. GILLINGHAM AWARD**  
**Richard V. Folga, CAsP, FASMA, FAShFA**  
(Erich Roedig, AMST)



**2023 WALTER AND SYLVIA GOLDENRATH AWARD**  
**Daniel A. Roberts, Col., USAF**  
(Kim Broadwell, AsMA Foundation)



2023 JOHN D. HASTINGS AWARD  
**Roger R. Hesselbrock, B.Sc., M.D., Col.(Ret.), USAF**  
 (David Schall, Civil Aviation Medical Association)



2023 WON CHUEL KAY AWARD  
**Ansa Jordaan, M.D.**  
 (Euntaek Lee, Korean Aerospace Medical Association)



2023 JOE KERWIN AWARD  
**Ashot Sargsyan, M.D., RDMS, RVT**  
 (Keith Kreutzberg, KBR)



2023 MARY T. KLINKER AWARD  
**Elena Schlenker, Lt. Col. (Ret.), USA, RN, MSHS**



2023 SIDNEY D. LEVERETT ENVIRONMENTAL  
 SCIENCE AWARD  
**Angus Rupert, M.D., Ph.D., CAPT(Ret.), MC, USN, FAsMA**  
 (Bob Laurent, Environmental Tectonics Corporation)



2023 ERIC LIJENCANTZ AWARD  
**Kris Lehnhardt, M.D., FRCPC, FACEP, FAsMA**  
 (Jeff Sventek for Aerospace Medical, PLC)



2023 THEODORE C. LYSTER AWARD  
**Daniel L. Van Syoc, M.D., M.P.H., FAsMA**  
 (Jennifer Benincasa, Army Aviation Medical Association)



2023 MARIE MARVINGT AWARD  
**David K. McKenas, M.D., M.P.H.**  
 (René Germa, La Société Francophone de  
 Médecine Aérospatiale)



2023 HARRY G. MOSELEY AWARD  
**Raymond E. King, Psy.D., J.D., FAsMA, and Chris M.  
 Front, Psy.D., FAsMA**  
 (Chris Bates, International Association of Military Flight  
 Surgeon Pilots; Dr. Front was unable to be there)



2023 JOHN PAUL STAPP AWARD  
**Swee Weng "Buzzlite" Fan, MBBS, DAvMed,  
 MMed, M.Sc., FAsMA, CFII**  
 (George Anderson, Environmental Tectonics Corp.)



2023 JOHN A. TAMISIEA AWARD  
**Christopher Flynn, M.D.**  
 (David Schall, Civil Aviation Medical Association)



2023 ARNOLD D. TUTTLE AWARD  
**Elizabeth Damato, BSN, MSN, Ph.D.,  
 and Michael Decker, BSN, Ph.D.**  
 (Keith Kreutzberg, KBR)



**2023 JULIAN E. WARD AWARD**  
**Caleb S. James, D.O., M.P.H., Maj., USAF**  
 (Sanjay Gogate, Society of USAF Flight Surgeons)



**President's Citation 2023:** Kris Belland, D.O., M.P.H., MBA, received the citation for his exceptional work on behalf of AsMA with the International Civil Aviation Organization's Collaborative Arrangement for the Prevention and Management of Public Health Events in Civil Aviation.



**Editor-in-Chief Retiring:** Fred Bonato, Ph.D., announced he will be stepping down at the end of 2023. Dr. Northrup presented him with a clock in recognition of his years of service.



**Passing the Gavel:** Dr. Susan Northrup (left), outgoing President, passes the gavel to Dr. Joe Dervay (right), incoming President.



**Past President's Pin:** Terry Crane, a good friend of Susan Northrup, the outgoing President, pins on the Past President's pin.



**President's Gift:** Joe Dervay presents the Past President's gift to Susan Northrup.

## Abridged Minutes of the Aerospace Medical Association 93rd Annual Business Meeting

Tuesday, May 23, 2023, Sheraton New Orleans Hotel,  
New Orleans, LA



Northrup



Sventek

**Call to Order (Susan Northrup):** A quorum of more than 100 members in attendance was met and the meeting started at 12:00 pm CDT on Tuesday May 24, 2023.

**In Memoriam (Northrup):** Attendees paused to reflect and remember those members of AsMA who passed away since the last AsMA conference in 2022.

**Recognition Of Past Presidents (Northrup):** Past presidents were asked to rise and be acknowledged.

**Report of the President (Northrup):** It has been an amazing year. It has been a challenging year. You will hear the reports from all of the vice presidents and the treasurer that indicate we are back and financially sound. We are being asked our opinions – our opinions matter. Some organizations claimed to know what we were going to do before we did it and used our name [AsMA] in various missives. I would see that in my civilian position and would remark “I didn’t approve of that!” As an organization we carry weight. Please see my full report to the AsMA Council on 21 May.

**Report of the Executive Director (Sventek):** Madame President, Officers, and Members of the Association, it is my pleasure to report that this year was extremely active and very successful. I especially want to recognize all the volunteers that helped move our Association forward. Thank you for your continued strong support for the Aeromedical Association. I would also like to recognize our headquarters office staff and our journal independent contractors. They work hard every day to provide a high quality Scientific Journal as well as outstanding customer service and administrative support to our members. Pam Day retired from our association in early 2023 after serving AsMA for over 42 years. Dr. Fred Bonato, AsMA Journal Editor in Chief and I selected Rachel Trigg, Pam’s long-time assistant, as the new Managing Editor of our Journal. Rachel’s selection generated a need to hire a new assistant to the managing editor and we posted the advertisement through the Indeed Web site, receiving twelve applications. Six were selected for interviews. From those interviews we selected Stella Sanchez to serve as our Assistant Managing Editor, who we are pleased accepted our offer to come work with us. [All the staff stood to be recognized.]

AsMA finished 2022 in good financial shape. We were able to meet all 2022 obligations without pulling money from the AsMA investments. The Joint Annual Scientific Meeting with the UHMS in Reno was very well attended and excess revenue from that meeting was \$591,570. The UHMS’ share of the excess revenue was \$95,595 based upon their percentage of attendees. That left AsMA with excess revenue from Reno of \$495,975.

AsMA also collaborated with the International Academy of Aviation and Space Medicine (Academy), the European Society of Aerospace Medicine (ESAM), and the Francophone Society of Aerospace Medicine (SOFRAMAS) in hosting the 1<sup>st</sup> International Conference in Aerospace Medicine (ICAM), that was conducted September 22-24, 2022 in Paris, France. AsMA was responsible for the registration processes and we shared any excess revenue from the event. The ICAM was designed for a break-even goal of 400 registrants. The final registration total was 845. The ICAM finished with net excess revenue of €245301,10 or \$260,019.17. This net excess revenue was distributed to each of the four

organizations responsible for the ICAM in the following amounts: SOFRAMAS: € 63681,33 (\$67,502.21); IAASM: € 59581,95 (\$63,156.87); ESAM: € 56578,91 (\$59,973.68); AsMA: € 65458,91 (\$69,386.44).

The differences in the amounts distributed included organization-specific liabilities incurred during the ICAM. All organizations agreed to the amounts distributed. The ICAM 2022 was a big educational and financial success!

AsMA, the International Academy of Aviation and Space Medicine (IAASM), the European Society of Aerospace Medicine (ESAM), and the Portuguese Society of Aerospace Medicine (SMAPor) have started meeting to prepare for the 2024 International Congress in Aerospace Medicine (ICAM 2024) in Lisbon, Portugal. I would encourage you to put that on your calendars.

AsMA recently completed the annual financial audit for 2022. The published audit report provides the auditors’ opinion:

“In our opinion, the financial statements referred to above present fairly, in all material respects, the financial position of Aerospace Medical Association as of December 31, 2022 and 2021, and the changes in its net assets and its cash flows for the years then ended in accordance with accounting principles generally accepted in the United States of America.”

AsMA membership has stabilized between 2,000 and 2,100 paid up members. As of today, the AsMA membership is 2,104. The AsMA Council voted to approve the Allied Membership as a permanent membership category as of the Sunday Council Meeting. We will be updating the By Laws and all the membership literature to reflect that in the future. This Allied Membership is designed to expand the AsMA membership to residents of countries with developing economies and low incomes.

For this Scientific meeting in New Orleans, as of this morning, the total registration is 1622 registrants. This represents an increase of 125 attendees or 8.4% increase from the registration at the same time in Reno last year. Revenues from these meetings represent a very large portion of our annual operating budget and we thank all of you for participating in our onsite, in person meetings.

Finally, last July 2022 was the first month where the **electronic version** of the Aerospace Medicine and Human Performance (AMHP) Journal became the default member benefit. This change was approved by the AsMA Council in November 2021. All AsMA members now have access to the electronic journal via the AsMA Members Only section of the AsMA website as part of their membership. If they wish to receive the AMHP journal in print, they must now purchase a subscription to the print journal. A 1-year subscription to the print AMHP journal for an AsMA member is currently set at \$100.

The July invoice for the printing and mailing of the AMHP journal was \$1,599.84. The average cost to print and mail the January, February, April, and May issues of the AMHP journal was \$6,028.60/month. Moving to the electronic journal as the default member benefit appears to save AsMA about \$5,000/month or \$60,000/year.

A comparison of 2021 vs 2022 costs for journal Print/Mail/Handling shows a cost of \$127,021.14 in 2021 vs. a cost of \$87,185.80 in 2022. This is an overall savings of \$39,835.34 year to year. However, this savings was realized in only the last 6 months of 2022. That is an average monthly savings of \$6,639.22 and suggests an annual savings of approximately \$75,000 in Print/Mail/Handling expenses for 2023 and beyond.

**Report of the AsMA Foundation Chair (Kim Broadwell):** Dr. Broadwell thanked the members of AsMA, noting that it is ‘your AsMA Foundation’ and the work of the Foundation could not continue without the members’ support. He expressed the hope that AsMA members who had donated, had received their purple donor ribbons. “You should put it on and wear it. It will make you look more important.” He pointed out the AsMA Foundation funds are doing very well and have weathered the crisis in the stock market. The Foundation has been able to meet all of the award and scheduled scholarship commitments. The endowments, thanks to the conservative management, have recovered from the stock market crater of last year.

We have done good things for 16 years as a Foundation, but the board of directors would like to do more, to take it to the next level. Dr. Broadwell presented the exciting new Foundation Initiative to empower the next generation of aerospace medicine [specialists] to solve the ‘Challenge of Deep Space Exploration.’ We are going to have two major foci of our campaign, first to increase what is available for post graduate education of aerospace medicine specialists. Second to provide seed money for young investigators to take their experiments to commercial space flight companies or to NASA and ask them to ‘fly’ their projects. ‘The Need for Speed’ – to go farther faster together with an endowment goal of 5 million dollars by the AsMA Centennial in 2029.

## GOVERNANCE (Joe Dervay)

**By Laws Committee:** There are no new Bylaw or Policy and Procedures changes reviewed at council.

**Scientific Program Committee:** Their report was given at the opening ceremony by Dr. Ian Mollan.

**Nominating Committee Report (Chuck DeJohn):** The Nominating Committee meets several times per year and does a tremendous job. The President-Elect is Robert Orford; Vice Presidents: Susan Fondy (2 yr), Anthony Wagstaff (2 yr), Rowena Christiansen (1 yr to complete Orford's term); Secretary: J. Karen Klingenberger; Members-at-Large: Kathy Hughes, Dan Van Syoc, Denise Baisden, Diego Garcia, Winton Laslie (2 yr to complete Wagstaff's term), Wendell Becton (1 yr to complete Christiansen's term). There were no further nominations and no significant discussion. The vote was unanimous in approving the slate with no nays or abstentions.

**AsMA Treasurer's report (Casey Pruett):** The Net Income for 2022 stands at -\$14,708 (compared to budgeted \$41,968). However, if there had not been such a negative return on the investment accounts (-\$122,305 unrealized loss on investments), Net Income would have been \$107,597. AsMA has recorded the highest ever total revenue to date, \$1,919,259! AsMA has recorded the highest unrealized loss on its investments to date, -\$122,305! All meeting costs for Reno and Paris have been accounted for (primary revenue generator) and membership remains on target as the secondary revenue generator, with journal revenue in 3<sup>rd</sup> place. The extraordinary "extra" income from the ICAM was recorded separately, only to preserve the traditional "AsMA annual meeting" cost pools to preserve for continued predictive abilities and traditional tracking. The Net Income Loss is driven by \$85K Revenue from Membership and Journal compared to \$167K Expenses from Management and Journal. Reno 2022 is still the largest revenue generator AsMA annual meeting to date, in part due to combined with UHMS. ICAM Paris 2022 generated a healthy additional net operating income of \$260K that was shared across the 4 supporting organizations, resulting in approximately an additional \$69K Net Operating Income for AsMA. Membership is stable and remains the second largest contributor to AsMA revenues at \$68K. By the end of the year, the journal slightly over performed in revenue including open access and classified advertising that were better than expected. The printing costs dropped substantially from an estimated \$130K down to \$87K. Savings should increase with the cessation of the print journal. Slightly higher royalties and archive fees contributed to the expected subscription income for the journal revenue, while printing costs and salaries comprise the highest portion of journal expenses. In 2023 thus far, UBS has seen a positive 2.1%. The goal remains a recommendation to replenish the reserves back to the \$1M level which the expectation to happen within the next 2-3 years. A

video conference interview with Casey Pruett (AsMA Treasurer) for the annual fraud review took place with zero findings. 2023 is starting in a positive direction! The goal remains to have \$1M in the Investment Portfolio to be used for down years and unanticipated expenses. The recommendation is to reassess in fall 2023 after New Orleans results start to finalize.

**Recommendations:** Reassess AsMA financial position after New Orleans and perhaps start replenishing the investment portfolio to regain our \$1M posture (2-4 years?). Use the lessons learned from 2020-2022 and increase revenue with a potential virtual convention, meetings, and workshops, membership incentives, fund raisers. We will also continue to leverage the cost saving efforts from the membership and journal committees.

## EDUCATION AND RESEARCH (Warren Silberman)

**Science & Technology (S&T) Committee:** Chairman is Ryan Mayes. The committee is being reinvigorated and will be producing articles about different technologies. Planetary protection monograph was developed by students with Jeff Myers mentorship.

## INTERNATIONAL SERVICES (Bob Orford)

Allied Membership in AsMA is offered to International Members from low and middle income countries (total of 90 countries as determined by the United Nations) for an annual fee of \$50.00 with free registration to the Annual Scientific Meeting. This program was discussed and it was decided it would be reasonable to extend this program indefinitely. The International Congress on Aviation and Space Medicine (ICASM) will meet in Abu Dhabi this fall. ICASM will alternate every other year with the International Conference in Aerospace Medicine (ICAM). ICAM will be held in Lisbon Portugal from the 3-5<sup>th</sup> of October in 2024.

## REPRESENTATION AND ADVOCACY (Northrup for Barry Shender)

**Resolution 2022 - 01:** Entitled 'Importance of Accredited Training and Board Certification in Aerospace Medicine for the growing Commercial Space Industry', this resolution was approved by the AsMA Council for posting.

Thank you for donating to the Foundation.

The Communications Committee should be acknowledged for elevating our presence in the online world.

**Unfinished Business:** None

**New Business:** None

Motion made and seconded to adjourn meeting at 12:53 CDT.

Respectfully Submitted,

**Jeffrey Sventek, MS, CASp, Executive Director**  
**J. Karen Klingenberger, MD, MPH, MS, Secretary**

## Annual Lectures

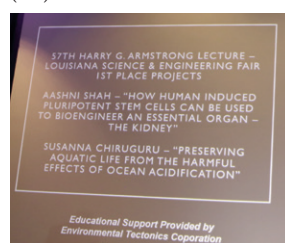


**Top left:** Chris Rocheleau, B.A., MPA (center), receives a memento from Keith Kreutzberg (right), representing the sponsor, KBR, for giving the 68th Louis H. Bauer Lecture as Susan Northrup, AsMA President, looks on.

**Top right:** Aansha Jordan, M.B.Ch.B., B.Sc. (Hons.) Aerospace Medicine, DOMH (left), receives a memento from AsMA President Susan Northrup (right) for presenting the 9th Reinartz Lecture.

**Bottom left:** This year, the 57th Harry G. Armstrong Lecture was given by a pair of students who competed in the Greater New Orleans Science and Engineering Fair. Aashni Shah (center left) and Susanna Chiruguru (center right) receive mementos for their participation from Bob Laurent

(right), representing the sponsor, ETC, while AsMA President Susan Northrup (left) watches. Below is the slide showing the titles of each student's presentation.



**Meeting photo galleries-**For more photos from AsMA's meeting in New Orleans, please visit our Photo Gallery page: <https://aeromed.smugmug.com>. All photos by Pamela C. Day.



## Scholarship Winners



The Anita Mantri, Ph.D., Memorial Scholarship was awarded to Samuel Stephenson (center) by Dr. Kim Broadwell (to the right), representing the AsMA Foundation, along with Dr. and Mrs. Vish Mantri (far right and left of Samuel, respectively) and Dr. Susan Northrup (far left), AsMA President.



The Stanley R. Mohler, M.D., Aerospace Medicine Endowed Scholarship was awarded to Cyril Mani (center) by Kim Broadwell (right), representing the AsMA Foundation, along with Dr. Susan Northrup (left), AsMA President.



The Jeffrey R. Davis, M.D., Aerospace Medicine Endowed Scholarship was awarded to Alexander, Suh, who was unable to be there to accept the certificate from Drs. Jeffrey Davis (left) and Susan Northrup (right), AsMA President.



The AsMA International Scholarship was awarded to Sophie Levasseur (right) and she received the certificate from Dr. Susan Northrup (left), AsMA President.



The Aerospace Medicine Students and Residents Organization's (AMSRO's) Trailblazer Scholarship was awarded to Anaelle Ndoye (left), who received her certificate from Susan Northrup, AsMA President (right). This scholarship, formerly the Diversity Scholarship, is for under-represented or under-served minorities who possess unique qualities, experiences, and perspectives.

## Sunday Welcome Reception



## International Reception



## President's Reception



## RAM Bowl



**Top left:** Al Parmet asked the questions as MC.

**Bottom left:** From left to right, Rahul Suresh, Rebecca Blue, Joanna Nelms, Alex Garbino, and R. Allen Hoffman were the judges.

**Top middle & right:** Walt Dalitsch and Mary Cimrmanic were the referees for the competition.

**Bottom right:** The winning team was the Glove Vanes, made up of Catherine Blasser, U.S. Air Force; Tyler Koss, U.S. Navy; Julissa Mendoza, U.S. Army; Isaish Reeves, UTMB; Jeffrey Rice, U.S. Navy; and William Timberlake, U.S. Air Force. (This year's RAM Bowl teams were mixed.)

