AEROSPACE MEDICAL ASSOCIATION
87TH ANNUAL SCIENTIFIC MEETING

HUMAN PERFORMANCE AND
THE YEAR OF THE AEROSPACE
MEDICINE PROFESSIONAL

HARRAH’S RESORT HOTEL
ATLANTIC CITY, NJ
APRIL 24-28, 2016
AEROSPACE MEDICAL ASSOCIATION
87th Annual Scientific Meeting
Harrah’s Resort Hotel, Atlantic City, NJ
April 24-28, 2016

HUMAN PERFORMANCE AND THE YEAR OF THE AEROSPACE MEDICINE PROFESSIONAL

Among the current challenges facing Aerospace Medicine practitioners are long-duration space travel, spaceflight physiology, aircrew fatigue, legislative removal of medical standards, aircraft and spacecraft cabin environments, un piloted aerial vehicles, mental health in aircrew, medical and ethical guidelines for commercial space flight passengers and crew, and decreased funding and support. How has our understanding and impact on these and other challenges been improved? What key work is filling the knowledge gaps, what research is being done to solve critical problems, what scientific information or activities support a change in viewpoints or policy?

Aerospace medicine is truly multi-disciplinary and international. Our presentations come from diverse experts who will enhance the world’s knowledge and understanding of the current challenges in Aerospace Medicine and demonstrate an impact on improving the health, safety, and human performance of those involved in aviation, space, and extreme environments. Our annual scientific meeting presents an opportunity to learn about the work of our colleagues from around the world, to share the knowledge and wisdom which we gain in our day-to-day work and practice, and is a great way to expand the overall community of aerospace medicine.

AsMA 2016 is THE forum for the latest information on health, safety, and human performance in aerospace environments.

The Program Committee, chaired by Barry Shender, Ph.D., has organized a balanced program of sessions on human performance, aerospace medicine, travel medicine, space medicine, civil and military aviation medicine, and safety.

Register Online now at www.asma.org/annual-meetings/registration to learn about current trends in the aerospace medicine and human performance arena and meet with your colleagues. We hope to see you there.

EDUCATIONAL OBJECTIVES

Based upon responses to a survey provided at the end of the 86th Annual Scientific Meeting in Orlando, FL, the top 6 categories our members indicated a need for more information were: 1. Human Performance/Human Factors; 2. Aerospace Medicine; 3. Travel Medicine; 4. Space Medicine; 5. Operational Medicine; and 6. Accident Investigation.

The 87th Annual Scientific Meeting program will be focused on these six major categories. Sessions will cover the latest findings in the fields of aviation and space medicine, human performance, and related fields such as aerospace nursing, aerospace physiology, and human systems integration.

Abstracts are centered on the meeting objectives, which are aligned with the theme. The participant will:

- Learn about evolving trends and best practices in aerospace medicine;
- Apply principles of evidence-based medicine, operational risk management, and aeromedical decision-making in aircrew selection and clinical aerospace medicine practice;
- Analyze mechanical, human performance, and systems integration factors in aviation mishaps and safety programs;
- Identify mechanical, biological, social, cognitive, environmental stress, and systems factors that impact on optimal human performance and decision making in the full spectrum of aerospace operations;
- Apply ethical principles to aerospace medicine decision-making and foster competency in professionalism and systems-based practice in the application of aerospace medicine skills, teamwork, and interoperability in a multi-discipline professional environment.

KEY TOPICS

- Aerospace Medicine Board Review, Aeromedical Grand Rounds, and “RAM Bowl”
- Pilot Mental Health
- Hypoxia, acceleration, and high altitude medical issues
- Unmanned aircraft systems
- Spatial disorientation
- Aerospace dentistry
- Crashworthy systems
- Neurophysiology
- Injury mitigation
- Patient safety and air transport medicine issues
- In-flight medical events
- Commercial spaceflight medical considerations
- Long-duration spaceflight/deep space exploration
- Human Systems Integration
- Human performance in aviation
- Aviation safety in civil and military settings
- Aviation Medicine Case Studies
- French, German, and Spanish language aerospace panels
- FAA Seminars for AMEs

EDUCATIONAL BENEFITS

- CME credits—AsMA is accredited by the Accreditation Council for Continuing Medical Education to provide continuing medical education for physicians.
- AsMA designates this live activity for a maximum of 24 AMA PRA Category 1 Credits™. Physicians should claim only the credit commensurate with the extent of their participation in the activity.
- Nurses may receive CEUs from the Montana Nursing Association. Sessions available for credit will be identified in the program.
- MOC Available! Maintenance of Certification modules: Workshops, Panels, and Slide Sessions have been designated for MOC. At least 20 non-concurrent hours of MOC training will be available.
- The Aerospace Medicine Board Review series will review core topics in Aerospace Medicine and is designed to prepare Aerospace Medicine specialists for the ABPM re-certification exam. Topics are presented in three sessions each year by specialists in the field and adhere to the ABPM Study Guide outline, which will be covered in its entirety over the course of three consecutive years. Combined with the annual RAM Bowl and Aerospace Medicine Grand Rounds sessions, these board review sessions will address the preventive medicine core topic areas and the required knowledge areas of Human Factors, Egress, and Disaster; Epidemiology and Biostatistics, Review of Respiratory and Metabolic Diseases; Pilot Selection and Retention, Evaluation and Risk Assessment, and Civil Aviation Regulations.

PROFESSIONAL DEVELOPMENT

Several sessions highlight professional development, one of the core competencies for Maintenance of Certification, including the Epidemiology Workshop, the MOC sessions, and the panel on Aeromedical Ethics.
OTHER BENEFITS
• Networking with Peers
• Scientific and Technical Exhibits
• Constituent and Affiliate Organization Luncheons and Awards
• Spouses Program

SPECIAL SUNDAY WORKSHOPS
1. Aircrew Fatigue: Causes, Consequences, and Countermeasures
   Sunday 9:00 a.m. – 4:00 p.m.
   6 AMA PRA Category 1 Credits™.
   This workshop will outline the importance of addressing fatigue as a danger in aviation, the basic physiological mechanism underlying fatigue, and the most common causes of fatigue in air transport and other settings. Ways to recognize fatigue in operational environments and information about the efficacy of various countermeasures, including specific information about countermeasure techniques such as proper work/rest schedules, adequate sleep, napping strategies, rest breaks, circadian entrainment, stimulants, and others, will be provided. Presented by Dr. John Caldwell and Dr. Lynn Caldwell.

2. Introduction to Epidemiology
   Sunday 9:00 a.m. – 5:00 p.m.
   8 AMA PRA Category 1 Credits™.
   This course acquaints people familiar with statistics with the special application of statistics used to analyze rare events. The principle topic will be aerospace mishaps. While the topic is specific, the course material includes most of the topics necessary for a thorough review of statistics and epidemiology for the Specialty Board examinations conducted by the American Board of Preventive Medicine. The course is oriented to professionals in aerospace medicine, mishap analysis, aerospace psychology, aerospace physiology, flight medicine, aviation medicine, aviation safety analysis, aerospace engineering, human factors engineering, and anyone else involved in the analysis of aviation mishaps or rare events. It will be taught from an aerospace mishap analysis perspective. The course will include 6 hours of classroom lecture by members of the International Association of Military Flight Surgeon Pilots and 2 hours of guided practice with problems taken from real life analyses. Learners must bring a portable computer with the appropriate EpiInfo™ program for the operating system loaded. Please note that EpiInfo™ does not have a Macintosh compatible option, so Apple products will not permit the guided practice portion of the course to be completed. A fully charged computer battery will be needed, but WiFi access is not required. The EpiInfo™ program can be downloaded from the CDC web site for free: https://wwwn.cdc.gov/epiinfo/html/downloads.htm.

3. Aerospace Medicine Faculty Development Workshop
   Sunday, 12:00 – 3:00 p.m.
   3 AMA PRA Category 1 Credits™.
   This workshop, chaired by Col. Patrick Storms and Dr. Richard Allnut of the USAF School of Aerospace Medicine, will provide presentations on current topics of interest to the international faculty of aerospace medicine residencies and fellowships. These presentations may also be of interest to faculty of other preventive medicine residencies, including general preventive medicine and occupational medicine. The presenters are current faculty of aerospace medicine programs within and outside of the United States. They will present topics aimed at improving teaching skills and providing proven methods for evaluating residents and will address international considerations in aerospace medicine residency training. Current and future faculty members may benefit from these presentations and are invited to attend. Continuing Medical Education and Maintenance of Certification credit will be available for completion of this workshop.

KEY SPEAKERS

62nd BAUER LECTURER
Monday, April 25 (Wyle, sponsor)
Douglas Robb, Lt. Gen. (Ret.), USAF, MC
First Director, Defense Health Agency
“Aerospace Medicine: Adapt or Perish”

3rd REINARTZ LECTURER
Tuesday, April 26 (Reinartz Fund, sponsor)
Frank K. Butler, Jr., CAPT (Ret.), MC, USN
Director, Prehospital Trauma Care Division, Joint Trauma System
“The Top Ten Lifesaving Advances in Aeromedical Evacuation from 14 Years of Conflict.”

51st ARMSTRONG LECTURER
Thursday, April 28 (Environmental Tectonics Corporation, sponsor)
Arnaud Desjardin
Deputy Head of the Investigations Dept., Bureau d’Enquêtes et d’Analyses pour la sécurité de l’aviation civile (BEA), Paris-Le Bourget, France
“BEA’s Safety Investigation into the German Wings accident - Findings and Lessons Learned.”
ONE MEETING FOR OPPORTUNITIES, NETWORKING AND EDUCATION

Opportunities
Opportunities to learn about the latest products and services from our many technical and scientific exhibitors; to experience three plenary lectures; to govern during the business luncheon, where you have the opportunity to help guide our association; to honor the best and the brightest among your fellow professionals during awards luncheons and the honors night banquet; to socialize through the spouses program, which is open to all spouses and friends of AsMA members—all at one meeting!

Networking
Perhaps the greatest benefit of our meeting because we bring together the international experts from all aspects of the aerospace community in one place. Ideas for research, careers, projects, and presentations are forged during our meeting. And the friendships made will last a lifetime.

Education
The primary objective of the Aerospace Medical Association’s Annual Scientific Meeting. Designed from meeting evaluation forms, periodic surveys, and abstracts submitted, our meeting provides the latest results in sessions designed for aerospace medicine professionals under one roof. The scientific program will benefit residents, medical and graduate students, and advanced undergraduates who have an interest in aerospace medicine. Professional development and the other core competencies as outlined by the American Board of Preventive Medicine will be highlighted throughout the meeting. Continuing education credits are available for participants.

The AsMA is international in both membership and scope of interest, providing opportunities to connect and exchange ideas with some of the world’s foremost medical specialists and internationally renowned scientists in the field of Aerospace Medicine and Human Performance. If you are interested in the multidisciplinary approach to working with humans in flight and challenging environments, whether as a physician, physiologist, researcher, engineer, technician, nurse, student, or pilot, (or even a racecar, wheelbarrow, boot, top hat, thimble, steamship, or a scotty dog!) You should be one of us!

No need to turn on the “Water Works” or turn off the “Electric Company”! Just open the Community Chest and use your Income Tax Refund, Bank Error in Your Favor, Life Insurance Matures, or even Your Building Loan Matures card to Register Now!

ADVANCE TO ATLANTIC CITY!
Contribute to your Association and meet your fellow Aerospace Professionals

YOU’VE WON 2ND PLACE IN A BEAUTY CONTEST!
Spouses Program
The WING of AsMA, a volunteer spouse organization, sponsors a program to share the cultural and educational experiences of the host city with old and new friends. There is a Hospitality Room, a Welcoming Reception on Monday, April 25, and a Luncheon on Wednesday, April 27. One tour is planned. The Tuesday Tour of Old Atlantic City will be guided by a bus tour highlighting the Golden era of the 1920’s in Atlantic City, when the city was the premier place to visit with grand hotels, a beach teeming with visitors, “Speak-easies”, and a free-wheeling nightlife. We will enjoy lunch (included) at an historic Irish Pub and then return to Harrah’s.

ADVANCE TO GO!
The Richard B. “Dick” Trumbo Preventive Medicine 5K Walk/Run will be held on Monday, April 25. The start time is 6 a.m. The fee is $10 and tickets must be purchased in advance.

THERE IS NO FEE FOR VALET PARKING AT THE CONFERENCE CENTER, FOLLOWED BY THE MARINA TOWER, HARBOR TOWERS. THE BAYVIEW TOWER IS CLOSEST TO THE CONFERENCE CENTER. THE ASMA ROOM BLOCK OFFERS ROOMS IN THE BAYVIEW, MARINA, AND HARBOR TOWERS. THE BAYVIEW TOWER IS CLOSEST TO THE CONFERENCE CENTER, FOLLOWED BY THE MARINA TOWER, AND THE HARBOR TOWER IS FARDEST AWAY FROM THE CONFERENCE CENTER. ALL THE STANDARD AMENITIES ARE AVAILABLE, INCLUDING IN-ROOM HIGH-SPEED INTERNET ACCESS.

COMMUNITY CHEST
Attention AsMA Members! If you receive a paper copy of the journal in your mailbox each month, please bring your March Program Issue with you to the meeting this year. If you don’t want to bring the Program issue, that’s okay! You can pay $10 to pick up a copy with your registration. The program will be available for free online and through the mobile app at the meeting. Note: Nonmembers and those who receive only the electronic version of the journal will be entitled to one copy of the program without charge.

PLEASE NOTE:
Event tickets must be purchased in advance. The hotel requires us to cut off tickets sales 72 hours before each event.
ADVANCE REGISTRATION FORM
Aerospace Medical Association 87th Annual Scientific Meeting
Atlantic City, NJ, April 24 - 28, 2016

Information for our records

Name: Degree/Credentials: NEW!!!! Early Bird Registration runs January 1 – February 1.
Organization: Title:

We strongly encourage online registration at www.asma.org/annual-meetings/registration

Street Address
City: State/Country: Zip Code:

Spouses who have registered with the Wing and require CME credits may do so at the AsMA Member fee.

E-mail:
Telephone Number: Fax Number:

☐ Please indicate if this is an address change to your AsMA Membership Record

Online registration is available at www.asma.org/annual-meetings/registration

You must be an active member of AsMA in order to register at the member fee. Registration fee does not include membership dues.

Are you a first time attendee, or new member? ☐ YES ☐ NO Special dietary requirement: ________________

If you are being funded by the U.S. DoD please indicate Branch: ☐ Army ☐ Navy ☐ Air Force ☐ Coast Guard

<table>
<thead>
<tr>
<th>Registration Fee</th>
<th>Early Bird† 1/1 – 2/1</th>
<th>Advance 2/1 – 4/15</th>
<th>At-The-Door 4/16 – 4/28</th>
<th>Registration Fee Remitted</th>
</tr>
</thead>
<tbody>
<tr>
<td>☐ Member</td>
<td>$355</td>
<td>$430</td>
<td>$530</td>
<td></td>
</tr>
<tr>
<td>☐ Non-Member</td>
<td>$630*</td>
<td>$705*</td>
<td>$805*</td>
<td></td>
</tr>
<tr>
<td>☐ Non-Member Presenter</td>
<td>$530*</td>
<td>$605*</td>
<td>$705*</td>
<td></td>
</tr>
<tr>
<td>☐ Residents</td>
<td>$275</td>
<td>$350</td>
<td>$350</td>
<td></td>
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<tr>
<td>☐ Students</td>
<td>$50</td>
<td>$100</td>
<td>$100</td>
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<tr>
<td>§FAA-AME Seminar</td>
<td>$235</td>
<td>$310</td>
<td>$310</td>
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</tbody>
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*Go to www.asma.org to become a member and take advantage of the reduced registration rates, receive the official Aerospace Medical Association journal and other membership benefits.
†Early Bird Registration must be paid in full (including all events and meal functions) at the time of registration.
§Fee Covers AsMA overhead costs. CME credit for the FAA Seminar only is included.

Add AMA PRA Cat 1 Credit(s)™ and MOC below and gain full access to the AsMA meeting and associated CME.

| Add AMA PRA Cat 1 Credit(s)™ | $150 | $150 | $150 |
| Add Non-Member AMA PRA Cat 1 Credit(s)™ | $200 | $200 | $200 |
| Add Member AMA PRA Category 1 Credit(s)™ & MOC | $200 | $200 | $200 |
| Add Non-Member AMA PRA Category 1 Credit(s)™ & MOC | $250 | $250 | $250 |

Subtotal for Registration Fee ►

Fax registration form with credit card information to: 703-739-9652.

Payment must accompany form to be registered in advance (see reverse for workshops and events).
ADVANCE REGISTRATION FORM
Aerospace Medical Association 87th Annual Scientific Meeting
Atlantic City, NJ, April 24 - 28, 2016

Note: Workshops are Limited. Only one per day, per attendee. Register Early.

<table>
<thead>
<tr>
<th>Date</th>
<th>Workshop Name</th>
<th>Fee</th>
<th>Amount Paid</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sunday, April 24, 9:00 a.m.-4:00 p.m.</td>
<td>Workshop #1 “Aircare Fatigue” (MAX 75)</td>
<td>$150</td>
<td></td>
</tr>
<tr>
<td>Sunday, April 24, 9:00 a.m.-5:00 p.m.</td>
<td>Workshop #2 “Introduction to Epidemiology” (MAX 100)</td>
<td>$200</td>
<td></td>
</tr>
<tr>
<td>Sunday, April 24, 12:00 p.m.-3:00 p.m.</td>
<td>Workshop #3 “Aerospace Medicine Faculty Development (MAX 50)</td>
<td>$75</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Date</th>
<th>Events</th>
<th>No. of Tickets</th>
<th>Fee Per Ticket</th>
<th>Total Fee</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Additional Meeting Program (Only for AsMA members who receive their journal by mail)</td>
<td></td>
<td></td>
<td>$10</td>
</tr>
<tr>
<td>Sunday, April 24</td>
<td>AsMA Welcome to Atlantic City (Note: All attending event must have tickets)</td>
<td></td>
<td></td>
<td>$10</td>
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<tr>
<td>Monday, April 25</td>
<td>Civil Aviation Medical Association Luncheon (advance purchase only)</td>
<td></td>
<td></td>
<td>$45</td>
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<tr>
<td>Monday, April 25</td>
<td>Society of USAF Flight Surgeons Luncheon (advance purchase only)</td>
<td></td>
<td></td>
<td>$45</td>
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<tr>
<td>Monday, April 25</td>
<td>U.S. Navy Luncheon (advance purchase only)</td>
<td></td>
<td></td>
<td>$45</td>
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<tr>
<td>Monday, April 25</td>
<td>U.S. Army Aviation Medical Association Luncheon (advance purchase only)</td>
<td></td>
<td></td>
<td>$45</td>
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<tr>
<td>Monday, April 25</td>
<td>Aerospace Human Factors Association Luncheon (advance purchase only)</td>
<td></td>
<td></td>
<td>$45</td>
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<tr>
<td>Monday, April 25</td>
<td>Corporate and Sustaining Affiliate Luncheon (advance purchase only)</td>
<td></td>
<td></td>
<td>$45</td>
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<tr>
<td>Monday, April 25</td>
<td>Fellows Dinner (advance purchase only) (MUST be a Fellow or guest of AsMA Fellow)</td>
<td></td>
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<td>$85</td>
</tr>
<tr>
<td>Tuesday, April 26</td>
<td>Associate Fellows Breakfast (advance purchase only)</td>
<td></td>
<td></td>
<td>$45</td>
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<tr>
<td>Tuesday, April 26</td>
<td>AsMA Annual Business Meeting (Free Attendance; Ticket required for meal) (advance purchase only)</td>
<td></td>
<td></td>
<td>$45</td>
</tr>
<tr>
<td>Tuesday, April 26</td>
<td>Access to Both Events: Reception to Honor International Members and Associate Fellows/Fellows Reception</td>
<td></td>
<td></td>
<td>$45</td>
</tr>
<tr>
<td>Wednesday, April 27</td>
<td>Aerospace Physiology Society Luncheon</td>
<td></td>
<td></td>
<td>$45</td>
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<tr>
<td>Wednesday, April 27</td>
<td>Society of NASA Flight Surgeons Luncheon</td>
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<td></td>
<td>$45</td>
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<tr>
<td>Wednesday, April 27</td>
<td>Aerospace Nursing Society Luncheon</td>
<td></td>
<td></td>
<td>$45</td>
</tr>
<tr>
<td>Wednesday, April 27</td>
<td>Iberoamerican Association of Aerospace Medicine Luncheon</td>
<td></td>
<td></td>
<td>$45</td>
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<tr>
<td>Thursday, April 28</td>
<td>Space Medicine Association Luncheon</td>
<td></td>
<td></td>
<td>$45</td>
</tr>
<tr>
<td>Thursday, April 28</td>
<td>AsMA Honors Night Banquet (Black Tie Optional)</td>
<td></td>
<td></td>
<td>$85</td>
</tr>
</tbody>
</table>

Subtotal of Events

Total Amount Due (Registration Subtotal + Workshop + Subtotal of Events)

Method of Payment
Check Number:

- Check
- AMEX
- Discover
- Mastercard
- Visa
- Diners

Name as it appears on card: (Please Print)

Credit Card No: Expiration Date:

Signature

Approval (Official Use Only):

Fax with credit card information to:
703-739-9652

Or mail with payment to:
Aerospace Medical Association
320 S. Henry Street
Alexandria, VA 22314-3579.

Payment must accompany form. All payments are in U.S. funds. Registrants submitting via fax must include credit card information. Please remember to include both sides when faxing. Use only one method to register.

PAYMENT MUST ACCOMPANY FORM TO BE REGISTERED IN ADVANCE.
<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
</tr>
</thead>
<tbody>
<tr>
<td>8:00 a.m.</td>
<td>OPENING CEREMONIES AND 62nd LOUIS H. BAUER LECTURE — &quot;Aerospace Medicine: Adapt or Perish&quot; (Wildwood 27-28)</td>
</tr>
<tr>
<td>9:00 a.m.</td>
<td>HP/SLIDE: Hypoxia—Prediction &amp; Prevention</td>
</tr>
<tr>
<td>10:30 a.m.</td>
<td>HP/PANEL: Respiratory Impacts of High-Performance Flight</td>
</tr>
<tr>
<td>12:00 noon</td>
<td>SPECIAL LUNCHEONS—CAM, Navy, Air Force, Army, Aerospace Human Factors, Corporate and Sustaining Forum</td>
</tr>
<tr>
<td>2:30 p.m.</td>
<td>OTHER/PANEL: Intriguing Figures in Aeromedical History</td>
</tr>
<tr>
<td>3:30 p.m.</td>
<td>SAFETY/SLIDE: Neck Injuries in Aviation</td>
</tr>
<tr>
<td>4:30 p.m.</td>
<td>OTHER/PANEL: AEROSPACE MEDICAL ASSOCIATION LUNCHEON AND BUSINESS MEETING</td>
</tr>
<tr>
<td>5:30 p.m.</td>
<td>CLINICAL/SLIDE: Aeromedical Effects of Microgravity</td>
</tr>
<tr>
<td>6:00 p.m.</td>
<td>CLINICAL/SLIDE: Total Exposure Health Initiative</td>
</tr>
<tr>
<td>7:00 p.m.</td>
<td>OTHER/PANEL: Complex Problems in USAF</td>
</tr>
<tr>
<td>8:00 p.m.</td>
<td>CLINICAL/SLIDE: Aerospace Medicine: Adapt or Perish</td>
</tr>
<tr>
<td>9:00 p.m.</td>
<td>OTHER/PANEL: Aerospace Dentistry</td>
</tr>
<tr>
<td>10:00 p.m.</td>
<td>CLINICAL/SLIDE: Aerospace Medicine: Adapt or Perish</td>
</tr>
<tr>
<td>11:00 p.m.</td>
<td>OTHER/PANEL: Aerospace Dentistry</td>
</tr>
<tr>
<td>12:00 a.m.</td>
<td>CLINICAL/SLIDE: Aerospace Medicine: Adapt or Perish</td>
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