PROGRESS REPORT
NASA Cooperative Agreement
For
Aerospace Medicine Residency Training
The University of Texas Medical Branch
June 1, 2012

This report covers Cooperative Agreement NNX10AT57A for the period of November 2011 through August 2012. During the grant period, there were a total of 7 aerospace medicine residents supported by this grant. Since 1996, 27 residents and fellows have been hired from this program to work at NASA-JSC (Attachment A).

UTMB and Preventive Medicine and Community Health (PMCH)

The aerospace medicine residency program at UTMB continues to thrive, and the overall outlook has been strengthened by continuing programs at NASA-JSC, commercial spaceflight activities associated with the FAA Center of Excellence in Commercial Space Transportation, and operational partnerships in commercial spaceflight. The primary physician faculty in aerospace medicine includes Drs. James Vanderploeg, Richard Jennings, and Tarah Castleberry. The residency program coordinator at JSC is Dr. Josef Schmid, and Dr. Laura Rudkin coordinates the graduate program. We partner with Wyle through the NASA Bioastronautics Contract to employ 12 UTMB physicians and psychologists in the Flight Analog Research Unit/Medical Monitoring, Advanced Medical Projects, and operational ISS medical support in Houston, Russia, and Kazakhstan. In addition, the program is supported by a very large cadre of adjunct faculty members. The Charles A. Berry Space Medicine Library provides valuable didactic resources for the residents, other faculty members, space science students, and NASA physicians. Astronaut physician Dr. William Thornton recently donated a large portion of his papers and spaceflight related photographs and materials to the library. Since 2009, the NSBRI, under a cooperative agreement NASA (NCC 9-58), provided seed funds for resident space-based research. We consider early research experience in space-related issues important to NASA and this effort produces specialists with additional skills for support of the human space program. The recent creation of the UTMB Center for Polar Medical Operations (CPMO) and employment of former astronaut Dr. Scott Parazynski as its director offers another avenue for the residents to learn about remote medical care and telemedicine support in an austere analog environment.

UTMB partnerships with commercial spaceflight companies Virgin Galactic, Space Adventures, and Zero-G Corporation have enabled the residents to participate in zero-g parabolic flights, spaceflight participant medical evaluations at UTMB, GCTC and IBMP, plus Soyuz launches at Baikonur, Kazakhstan, that we would not normally be available. In addition, residents have been able to conduct space-related science from studies conducted on the Virgin Galactic Founders. UTMB is part of the FAA’s Center of Excellence in Commercial Space Transportation with 8 other universities including Stanford University, the University of Colorado, and 33 academic, commercial and government entities (including NASA-JSC and NASA-KSC). This center provides training and research opportunities for residents, and UTMB already has 7 medical tasks approved and funded by the FAA Office of Commercial Space Transportation. Residents directly participate in each of these efforts. Residents have also been working directly with Dr. Jon Clark to provide planning, medical monitoring and on-scene EMS care for the Stratos Project high altitude record parachute jump attempt.
In 2011, the residency received continued five-year accreditation from the RRC of the Accreditation Council for Graduate Medical Education (ACGME), and our next review will be in November 2015. We are currently complying with new RRC requirements for preventive medicine residency program that took effect on July 1, 2011. Our MPH program has been certified by the Council for Education in Public Health (CEPH) since October 2006, and in 2009 we received the maximum accreditation of seven years. In 2012, the UTMB Preventive Medicine and Community Health program was selected by the Association for Prevention, Teaching and Research (APTR) for its outstanding Educational Program of the Year Award. This award honors innovative programs, departments or academic institutions involvement in advancing undergraduate or graduate medical education in prevention and public health which promotes further interest in the discipline. The program also recently teamed with Wyle to help coordinate the international students and residents that participate in the 4 week clinical and research electives conducted by NASA-JSC.

UTMB moved to a new Aerospace Medicine Center in August, 2011 that is integrated with a large multispecialty clinic, and the clinical aerospace medicine cases available for resident involvement should increase dramatically.

RESIDENCY

The residency program hosts monthly Aerospace Medicine Grand Rounds presentations and those presented during this agreement period can be seen in Attachment B. The presentations offer Accreditation Council on Continuing Medical Education (CME) credits to the NASA physicians who attend or view the program through the teleconference network. The presentations are presently available at NASA-JSC, NASA-KSC, NASA-HQ, MIT, U.S. Army at Fort Rucker, the Navy’s Aerospace Medicine residency program in Pensacola, the Mayo Clinic Scottsdale, the Mayo Clinic Rochester, the University of Colombia, Bogotá, and Star City, Russia. Presentations are also available through video streaming on the internet and are available back to 2000 through web archives of the USRA-Houston at http://www.dsls.usra.edu/archive.html

The residency hosts an Aerospace Medicine Journal Club meeting each month. A list of book chapters from the new Davis book *Fundamentals of Aerospace Medicine* and journal articles may be found in Attachment C. Journal Club is available via Skype and is open to the aerospace medicine community, including the military residencies. NASA-JSC physicians and physician contractors attend Journal Club.

The residents must complete a capstone project or thesis to obtain their Master of Public Health (MPH), and the MPH or its equivalent is required to complete the Aerospace Medicine residency. Two residents completed their capstone during this agreement period. A list of the UTMB and military resident capstone projects may be found in Attachment D.

The residency obtains financial support under a cooperative agreement with NASA and from the UT System. The NASA funds are consumed by residency salary requirements and provide minimal support for faculty, support staff, residency infrastructure, or travel. A supplemental grant request has been submitted to NASA and remains on file should NASA funding become available.

HONORS and AWARDS 2011-2012

Stanley R. Mohler Endowed Scholarship presented by the AsMA Foundation: Jennifer
Law. This scholarship is presented by the AsMA Foundation to an outstanding student or resident to support their studies in aerospace medicine. There were 5 candidates for 2012.

Life Sciences and Bioengineering Branch of the Aerospace Medical Association. Ross McFarland Award: Becky Blue. This award is presented by the LSBEB of AsMA to the author of the best student paper accepted by the AsMA Scientific Program Committee that covers a significant achievement in biomedical engineering. There are no nominations for this award—the best abstract from those submitted by students each year is selected by a committee based on scientific merit, clarity of presentation, application of findings, and scope of interest in the outcome. The award is sponsored by Gentex.

Society of NASA Flight Surgeons Outstanding Student and Resident Award: Jennifer Law, for her work with shoulder problems in the EMU during EVA training and spaceflight.

Space Medicine Association, Jeff Myers Young Investigator Award: Becky Blue. This award is presented to an individual making their first presentation at the AsMA Annual Scientific Meeting and is based on the presentation, written documentation, and an interview. There were over 90 first time presenters eligible for this award in 2012.

Julian A. Ward Memorial Award for outstanding performance in residency presented by the Aerospace Medical Assn and sponsored by the Society of Air Force Flight Surgeons: Chuck Mathers. This coveted national award is selected by the Aerospace Medical Association Awards Committee and presented to the resident who made the most contribution to the field of aerospace medicine during residency training.

Outstanding Overall Resident UTMB, runner-up. Jennifer Law.

ALUMNI AND RESIDENTS
A listing of previous residents and current residents may be found in Attachment A. A more detailed listing of current residents may be found in Attachment E. During the period, four residents, Leigh Lewis, Charles Mathers, Anil Menon, and Jennifer Law completed aerospace medicine training utilizing funding through the cooperative agreement. We continue to fill the medical needs at NASA with excellent physicians that do not require extensive training or time delay prior to being productive at NASA. To date, a total of 27 UTMB/NASA-JSC Space Medicine Fellows and Aerospace Medicine residents have been hired at NASA-JSC or with NASA contractors following completion of the program.

During this period, there were 3 UTMB/NASA-JSC residents in the four year combined IM/AM program and 4 in the two-year traditional space track. A total of 48 military aerospace medicine residents have studied and received an MPH degree in the UTMB Aerospace Medicine Residency Program. These residents work closely with UTMB residents and participate in a variety of aerospace medicine activities during their year at UTMB. These residents are not funded by NASA, but their operational experience and service experience greatly benefit the UTMB/NASA-JSC residents. In addition, the program provides a valuable service to our military.

COMMUNITY SERVICE
During training, the residents are encouraged to participate in medically-related community service activities. In this grant period, the residents supported the 2011 Wings Over Houston Air Show and began planning for the October 2012 medical support for the Wings over Houston
Airshow. Becky Blue was the resident coordinator for 2011 and new resident David Reyes will be the coordinator for 2012. Residents also covered the Houston Marathon in 2012 and did clinical preceptorships at the St. Vincent’s House Primary Care free clinic. UTMB ASM residents will provide care at the 2012 U.S. Grand Prix in Austin, Texas. We encourage this type of activity to facilitate training in point-of-injury care that would be needed should there be a training accident at GCTC, an aircraft accident, or a launch and landing contingency.

**PERFORMANCE ON AMERICAN BOARD OF PREVENTIVE MEDICINE-AEROSPACE EXAMINATION**

The record of the residents on the preventive medicine certification examination offered by the American Board of Preventive Medicine continues to be outstanding. The results for the last seven years are listed below. Residents will sit for the 2010 examination in October.

- 2003  4/4 Passed
- 2004  0/0
- 2005  1/2 Passed
- 2006  3/3 Passed
- 2007  2/2 Passed
- 2008  1/1 Passed
- 2009  2/2 Passed (2 others passed IM Boards)
- 2010  1/2 Passed (1 that failed left program 7 years ago)
- 2011  1/1 Passed

**RESIDENT PRESENTATIONS/PUBLICATIONS/ABSTRACTS/AWARDS 2012**

**PRESENTATIONS**

AsMA Annual Scientific Meeting, Atlanta GA, 2012

**Becky Blue**: Commercial Spaceflight Passenger Tolerance of Acceleration Exposure During Centrifuge-Simulated Suborbital Flight

**Jennifer Law**: Emergency Medical Planning for Commercial Spaceflight Events: Medical Conditions, Medical Utilization, and Staffing Needs

Both of these papers have been submitted and accepted in *Aviation Space and Environmental Medicine* which makes both Becky and Jennifer eligible for the $2000 AsMA Fellow's Award, sponsored by the Fellows and the AsMA Foundation.

Grand Rounds Presentations:

**Anil Menon and James Cushman** “Vertigo in an F-15 Pilot”

**Becky Blue and James Pattarini** “Coarctation of the Aorta in a Civil Aviation Pilot”
OTHERS:

Menon:
Mass Gathering Medicine, trauma symposium, Dhaka Bangladesh, July 2011.
Altitude medicine, UT Houston medical school, August 2011
Point-of-Injury Burn Care. Aerospace Medicine Grand Rounds, USRA Houston, August 2011
Aerospace Medicine, Kaiser Permanente/Stanford EM Grand Rounds, 2011

PUBLICATIONS:

Menon:
Confessions of a wilderness medicine fellow: I can’t live without my Smartphone, can you? *Kaiser Permanente Journal*


Patient and physician willingness to use personal health records in the ED. *Western J Emerg Med*, 2012


Blue:


Blue RS. Coarctation of the Aorta. Accepted for publication, anticipated 2013: Federal Air Surgeon's Medical Bulletin

Mathers:

Law:
Emergency medical planning for commercial spaceflight events. Accepted for publication Aviat Space Environ Med.

ABSTRACTS:


Law J. Emergency medical planning for commercial spaceflight events. Aviat Space Environ Med. 2012;83:304

FAA COE RESEARCH
Definition and Design of Medical & Physiological Database Law and Mathers
Application of JSC’s Human System Risk Management Approach to Commercial Suborbital & Orbital Flights Law and Mathers
Flight Crew Medical Standards & Passenger Acceptance Criteria Lewis and Mathers
Wearable Biomedical Monitoring Equipment Menon
Testing & Training of Personnel and Equipment Evaluation in High-G profiles using NASTAR Centrifuge Pattarini and Blue

RESIDENTS IN AEROSPACE MEDICINE RAM BOWL

In May 2012, the residents participated in the 5th Annual Residents in Aerospace Medicine “RAM Bowl” and defeated 3 teams from the U.S. Air Force and 3 teams from the U.S. Army/Navy program to capture the traveling Louis Bauer "RAM Bowl" Trophy. UTMB has won this competition 4 times. This event was attended by approximately 250 and was a highlight of the scientific meeting.
# Aerospace Medicine Residents

**Since 1996**

<table>
<thead>
<tr>
<th>Resident Name</th>
<th>Training Yrs</th>
<th>Program Completed</th>
<th>Location</th>
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</thead>
<tbody>
<tr>
<td>Jones, Jeff (MS)</td>
<td>1996-1998</td>
<td>Yes</td>
<td>Flight Surgeon, NASA-Johnson Space Center, Houston, TX</td>
</tr>
<tr>
<td>Hart, Stephen (MS)</td>
<td>1997-1999</td>
<td>Yes</td>
<td>Flight Surgeon, NASA-Johnson Space Center, Houston, TX</td>
</tr>
<tr>
<td>Locke, Jim (MS)</td>
<td>1997-1999</td>
<td>Yes</td>
<td>Flight Surgeon, NASA-Johnson Space Center, Houston, TX</td>
</tr>
<tr>
<td>Arenare, Brian (MS)</td>
<td>1998-2000</td>
<td>Yes</td>
<td>Medical Officer, Kelsey-Seybold/NASA-Johnson Space Center, Houston, TX</td>
</tr>
<tr>
<td>Sheehan, Mark (MS)</td>
<td>1998-2000</td>
<td>Yes</td>
<td>Physician- UTMB/Wyle, Flight Analog Research Unit/Medical Monitoring, Houston, TX</td>
</tr>
<tr>
<td>Brady, Charles (MS)</td>
<td>1998-2000</td>
<td>Yes</td>
<td>Physician Astronaut, NASA-Johnson Space Center, Houston, TX (Deceased)</td>
</tr>
<tr>
<td>Feinberg, Mike (MS)</td>
<td>1999-2000</td>
<td>Yes</td>
<td>Aerospace Medicine, California</td>
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<tr>
<td>Bacal, Kira (MS)</td>
<td>1999-2001</td>
<td>Yes</td>
<td>Flight Surgeon, NASA-JSC, Houston, TX (initial)</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>Mauri Ora Associates-Health Care Consultant, New Zealand (current)</td>
</tr>
<tr>
<td>Roden, Sean (MPH)</td>
<td>2000-2002</td>
<td>Yes</td>
<td>Flight Surgeon- UTMB/Wyle, Houston, TX (initial)</td>
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<td>Flight Surgeon- NASA/Johnson Space Center, Houston, TX (previous)</td>
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<td>Physician- Bryan, TX (current)</td>
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<tr>
<td>Stepanek, Jan (MPH)</td>
<td>2000-2002</td>
<td>Yes</td>
<td>Physician/Director- Executive Health Program, Mayo Clinic, Scottsdale, AZ</td>
</tr>
<tr>
<td>Schmid, III, Josef (MPH)</td>
<td>2000-2002</td>
<td>Yes</td>
<td>Flight Surgeon, NASA-Johnson Space Center, Houston, TX</td>
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<tr>
<td>Cho, Won-Suk (MPH)</td>
<td>2000-2004</td>
<td>Yes</td>
<td>Unknown</td>
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<tr>
<td>Gilmore, Stevan (MPH)</td>
<td>2001-2003</td>
<td>Yes</td>
<td>Flight Surgeon, NASA- JSC, Houston, TX</td>
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<tr>
<td>Herrera, David</td>
<td>2001-2003</td>
<td>Yes</td>
<td>Unknown</td>
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<tr>
<td>Patton, Thomas (MPH)</td>
<td>2002-2004</td>
<td>Yes</td>
<td>United States Navy</td>
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<tr>
<td>Langell, John (MPH)</td>
<td>2002-2004</td>
<td>Yes</td>
<td>Physician/Assistant Professor of Surgery &amp; Director, Acute Care Surgery- University of Utah</td>
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<tr>
<td>Ashley, Bradford (MPH)</td>
<td>2003-2005</td>
<td>Yes</td>
<td>Physician, Private Consultation- Oregon</td>
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<tr>
<td>Chamberlain, Blake (MPH)</td>
<td>2003-2005</td>
<td>Yes</td>
<td>Flight Surgeon- UTMB/Wyle, Houston, TX</td>
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<tr>
<td>Name</td>
<td>Years</td>
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<tr>
<td>Moynihan, Shannan (MPH)</td>
<td>2003-2005</td>
<td>Flight Surgeon- UTMB/Wyle, Houston, TX (initial)</td>
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<tr>
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<td>Flight Surgeon- NASA-Johnson Space Center, Houston, TX</td>
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<tr>
<td>Louis Andy Davenport (MPH)</td>
<td>2004-2009</td>
<td>F-16 IP Kelly AFB</td>
<td></td>
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<tr>
<td>IM/AM</td>
<td></td>
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<tr>
<td>Aunon, Serena(MPH)</td>
<td>2005-2007</td>
<td>Flight Surgeon- UTMB/Wyle, Houston, TX (initial)</td>
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<tr>
<td></td>
<td></td>
<td>Physician Astronaut- NASA Johnson Space Center (current)</td>
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<tr>
<td>Kerstman, Eric (MPH)</td>
<td>2005-2007</td>
<td>Physician- UTMB/Wyle, Advanced Projects, Houston, TX</td>
<td></td>
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<tr>
<td>Lindgren, Kjell (MPH)</td>
<td>2006-2008</td>
<td>Flight Surgeon- UTMB/Wyle, Houston, TX (initial)</td>
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<tr>
<td></td>
<td></td>
<td>Physician Astronaut- NASA Johnson Space Center (current)</td>
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<tr>
<td>Watkins, Sharmila (MPH) IM/AM</td>
<td>2005-2009</td>
<td>Physician Lead- UTMB/Wyle, Advanced Projects, Houston, TX</td>
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<tr>
<td>Riccitello, Jon (MPH) IM/AM</td>
<td>2005-2009</td>
<td>Staff Physician- Virtual Flight Surgeons, CO</td>
<td></td>
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<tr>
<td>Barr, Yael (MPH) IM/AM</td>
<td>2005-2009</td>
<td>Physician- UTMB/Wyle, Advanced Projects, Houston, TX</td>
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<tr>
<td>Shaskan, Greg (MPH)</td>
<td>2008-2010</td>
<td>Flight Surgeon- UTMB/Wyle, Houston, TX (deceased)</td>
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<tr>
<td>Mathers, Chuck (MPH) IM/AM</td>
<td>2007-2011</td>
<td>Physician- Executive Health Program, Mayo Clinic, Scottsdale, AZ</td>
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<tr>
<td>Lewis, Leigh (MPH) IM/AM</td>
<td>2008-2012</td>
<td>FAA Civil Aerospace Medicine Institute, Mayo Clinic Jacksonville</td>
<td></td>
</tr>
<tr>
<td>Ronak Shah (MPH)</td>
<td>2009-2011</td>
<td>TBD</td>
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**Current Residents**

<table>
<thead>
<tr>
<th>Name</th>
<th>Years</th>
<th>Title</th>
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<tbody>
<tr>
<td>Anil Menon (MPH)</td>
<td>2010-2012</td>
<td>Physician- UTMB/Wyle, Advanced Projects, Houston, TX</td>
</tr>
<tr>
<td>Jennifer Law (MPH)</td>
<td>2010-2012</td>
<td>UTMB</td>
</tr>
<tr>
<td>James Pattarini (IM/AM)</td>
<td>2010-2014</td>
<td>Flight Surgeon- NASA-Johnson Space Center, Houston, TX (July 2012)</td>
</tr>
<tr>
<td>Rebecca Blue</td>
<td>2011-2013</td>
<td>UTMB</td>
</tr>
<tr>
<td>James Cushman</td>
<td>2011-2013</td>
<td>UTMB</td>
</tr>
</tbody>
</table>

**UTMB/NASA-JSC ASM Fellows Hired at NASA:**
- Thomas Marshburn
- Patricia Hilliard-Robertson
- Terrence Pattinson
- Alfred Rossum
2011

January 25, 2011
“Ending the Coronary Artery Disease Epidemic – Making Yourself Heart Attack Proof”
Caldwell B. Esselstyn, Jr., M.D.,
Cardiology, Cleveland Clinic Wellness Institute, Lyndhurst, OH

February 22, 2011
“Human Performance Enhancement Technology to Prevent Spatial Disorientation and Motion Sickness”
Wesley W O Krueger MD, and Romie Richardson, MD
Advitech, Inc, San Antonio, TX

March 22, 2011
“Spaceflight’s Contribution to Chilean Mine Rescue”
James D. Polk, DO
Chief of Space Medicine, NASA-JSC, Houston, TX

April 26, 2011
“Earthquake! The Stanford Emergency Medical Response to Haiti”
Paul S. Auerbach, MD, MS,
Surgery, Stanford University, Stanford, CA

May 24, 2011
“Effects of Light and Potential Applications With NASA”
Steven W. Lockley, PhD
Assistant Professor, Division of Sleep Medicine
Brigham and Women’s Hospital, Harvard, Boston, MA

June 28, 2011
“The Integrated Medical Model: A Risk Assessment and Decision Support Tool for Human Space Flight”
Eric L. Kerstman, MD, MPH
Physician- Advance Projects, CSG
UTMB/Wyle Integrated Science & Engineering, Houston, TX

July 26, 2011
“A Transport-Kinetics Computational Model for Simulation of Renal Stone Growth in 1g and Microgravity”
Mohammad (Mo) Kassemi, PhD
Chief Scientist, National Center for Space Exploration Research
NASA Glenn Research Center, Cleveland, OH

August 23, 2011
“Point of Care Treatment of Burns”
Anil S. Menon, MD, MPH
Aerospace Medicine Resident
University of Texas Medical Branch, Galveston, TX
September 27, 2011
“Impacts of Altered Gravity on Male and Female Reproductive Health”
Joseph S. Tash, Ph.D.
Professor
University of Kansas Medical Center, Kansas City, KS

October 25, 2011
"Behavioral Adaptation to Space Flight”
Michael R. Barratt, MD
Physician Astronaut
NASA Johnson Space Center, Houston, TX

November 22, 2011 (Ethics CME)
"Cultural Competence, Culture/Medicine/Technology, Medical Error, or Professional Integrity”
Rebecca J Hester, MA, PhD and Jerome Crowder, PhD
Institute for Medical Humanities
University of Texas Medical Branch, Galveston, TX

December 2011
Winter Holiday Break

2012

January 24, 2012
“Brain Music Treatment”
Galina Mindlin, M.D., Ph.D
Assistant Clinical Professor, Psychiatry
Columbia University, New York, NY

February 28, 2012
“From Space to the Battlefield: Harnessing the Respiratory Pump for Treatment of Hypovolemic Hypotension”
Victor A. Convertino, Ph.D.
US Army Institute of Surgical Research, Fort Sam Houston, TX

March 27, 2012
“Consequences of Medication Shelf Life for Spaceflight and Remote Operations”
Virginia E. Wotring
Universities Space Research Association, Division of Space Life Sciences
NASA Johnson Space Center, Houston, TX

April 24, 2012
“Report on National Space Biomedical Research Institute”
Jeffrey P. Sutton, M.D., Ph.D.
Director
National Space Biomedical Research Institute, Houston, TX

May 22, 2012
“NASA'S Spaceflight Visual Impairment Intracranial Pressure (VIIP) Risk: Clinical Correlations and Pathophysiology”
William J. Tarver, MD
Deputy Chief and Medical Director, NASA Clinical Services Branch
NASA Johnson Space Center, Houston, TX

Christian Otto, MD
Visual Impairment and Intracranial Pressure Project Lead Scientist
Universities Space Research Association, Division of Space Life Sciences
NASA Johnson Space Center, Houston TX

June 26, 2012
Melchor J. Antuñano, MD, MS
Director, Civil Aerospace Medical Institute
Federal Aviation Administration, Oklahoma City, OK

July 24, 2012
Gailen D. Marshall, Jr., MD, PhD, FACP
Professor of Medicine and Pediatrics
Vice Chair for Research
Director, Division of Clinical Immunology and Allergy
Chief, Laboratory of Behavioral Immunology Research
Department of Medicine, University of Mississippi Medical Center
Jackson, MS

August 28, 2012
TBD

September 25, 2012
Jay A. Johannigman MD
Division of Trauma and Critical Care
Department of Surgery
University Hospital, Cincinnati Ohio

October 23, 2012
TBD

November 27, 2012
TBD

December, 2012
Winter Holiday
2011

January 10, 2011
Article: "Oxygen Consumption at Altitude as a Risk Factor for Altitude Decompression Sickness", Webb, J T; Krock, L P; and Gernhardt, M L., ASEM; Nov. 2010, 81(11) Pgs (987-992): A37-A44
Reviewer: James Pattarini, MD

Chapter 9 - Aerospace Toxicology & Microbiology
Chapter 19 - Infectious Diseases
Chapter 28 - The Practice of International Aerospace Medicine
Reviewer: Leigh Lewis, MD, MPH

February 7, 2011
Article: "The Martian chronicles: remotely guided diagnosis and treatment in the Arctic Circle.” Otto, C; Comtois, JM; Sargsyan, A; prep: Menon, A; Surg Endosc; March 13; 2010; DOI 10.1007/s00464-010-0917-1
Reviewer: Anil Menon, MD

Chapter: 11 – Pilot Health and Aeromedical Certification
Chapter: 13 – Clinical Aerospace Cardiovascular Medicine
Chapter: 14 – Ophthalmology in Aerospace Medicine
Reviewer: Jennifer Law, MD

March 7, 2011
Article: “Risk of Renal Stones during Spaceflight Countermeasure Development” ASEM; Vol. 81, No.6, June 2010, pgs 606 – 607
Reviewer: Yvette Guzman, MD

Chapter: 18 – Endocrine System and Nephrology
Chapter: 22 – Women’s Health Issues in Aerospace Medicine
Chapter: 23 – An Introduction to Human Factors in Aerospace
Reviewer: Chuck Mathers, MD, MPH

April 4, 2011
Article: “Sedentary Long-Duration Head-Down Bed Rest and ECG Repolarization Heterogeneity” ASEM ; April, 2011, Vol 82; pgs 416 – 423
Reviewer: Susan Fondy, MD

Chapter: 21 – Occupational and Environmental Medical Support to the Aviation Industry
Chapter: 25 – Aircraft Accidents: Investigation and Prevention
Chapter: 27 – Aerospace Medicine in Unique Environments
Reviewer: RAM Bowl Practice
May 2, 2011
AsMA Conference

June 6, 2011
Article: "Characterization of Airway Device Cuff Volumes at Simulated Altitude"; ASEM; Vol. 82, #5, Section I; May, 2011 pgs 555-558; Author: Law, J; Bair, A; Capra, J; Holder, A; Allen, R Reviewer: Reviewer: Jennifer Law, MD, MPH

July 2011

July 11, 2011
Article: "Weight Loss in Humans in Space"; ASEM; Vol. 82, #6, June, 2011 pgs 615-621; Author Matsumoto, A; Storch, KJ; Stolfi, A; Mohler, SR; Frey, MA; Stein, TP Reviewer: Susan Fondy, MD

Chapter 1 – The Beginnings Past and Present
Chapter 21 – Occupational and Environmental Medical Support to the Aviation Industry
Chapter 29 – Aviation, Government Space, Biomedical Innovations, and Education
Chapter 30 – Commercial Human Space Flight
Reviewer: Jennifer Law, MD, MPH

August 3, 2011
Article: "Visual Side Effects of Scopolamine/Dextroamphetamine Among Parabolic Fliers"; ASEM Jrn, July, 2011; Vol. 82, #7, June, 2011 pgs 683-688; Author Makowski,, AL; Lindgren, K; Locke, JP Reviewer: Chuck Mathers, MD, MPH

Chapter 2- Respiratory Physiology and Protection Against Hypoxia
Chapter 4 – Human Response to Acceleration
Chapter 12 – Respiratory Diseases Aeromedical Implications
Reviewer: Leigh Lewis, MD, MPH

September 6, 2011
Article: "Tolerance to Extended Galvanic Vestibular Stimulation Optimal Exposure for Astronaut Training"; ASEM Jrn, August, 2011; Vol. 82, #8, June, 2011 pgs 770-774; Author Dilda, Valentina; MacDougal, Hamish G; Moore, Steven T. Reviewer: Rebecca Blue, MD

Chapter 3 - Physiology of Decompressive Stress
Chapter 15 – Otolaryngology in Aerospace Medicine
Chapter 20 – Dental considerations in Aerospace Medicine
Reviewer: James Pattarini, MD

October 3, 2011

Chapter 5 – Vibration and Acoustics
Chapter 14 – Ophthalmology in Aerospace Medicine
Reviewer: Anil Menon

November 7, 2011

Author(s) Powell, D M C; Spencer, M B; Petrie, K J
Reviewer: Jim Pattarini

Chapter 6 – Spatial Orientation in Flight
Chapter 16 – Aerospace Neurology
Reviewer: Jim Cushman

December 5, 2011
Article: "Space Adaptation Back Pain A Retrospective Study"; (slated for publication) - Avia Space & Enviro Med; Vol 83, No 1, Jan, 2012
Reviewer: Anil Menon

Chapter 7 - Thermal Stress
Chapter 8 – Cosmic Radiation
Chapter 27 – Aerospace Medicine Issues in Unique Aircraft Types
Reviewer: Chuck Mathers

2012

January 9, 2012
Article: "Pre-Dive Exercise and Post-Dive Evolution of Venous Gas Emboli"; Avia Space & Enviro Med; Vol 83, No 1, Jan, 2012 – Reviewer: Becky Blue
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Chapters - Fundamentals of Aerospace Medicine-4th Edition:
Chapter 9 - Aerospace Toxicology & Microbiology
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February 6, 2012
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March 5, 2012
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April 2, 2012
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Reviewer: Chuck Mathers

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Chapter: 23 – An Introduction to Human Factors in Aerospace
Chapter: 26 – Aviation Medicine in Unique Environments
Reviewer: James Pattarini

May 7, 2012
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Reviewer: Jim Cushman

Chapters - Fundamentals of Aerospace Medicine-4th Edition:
Chapter: 25 – Aircraft Accidents: Investigation and Prevention
Reviewer: Becky Blue

June 4, 2012 –
TBD
**Aerospace Medicine Residency**  
**Master of Public Health**  
**CAPSTONE COMMITTEES AND TITLES**  
**2005 – Present**

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Alan Barrett | West Nile Virus Vaccination: Current threats and Future Considerations |
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<tr>
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