CURRICULUM VITAE

Kris Lehnhardt
Last updated: Dec 2023

I. GENERAL BIOGRAPHICAL INFORMATION

A. Personal

1. Name: Kris Robert Lehnhardt
2. Citizenship: Canada and USA

B. Education

1. Undergraduate Education:
   - Honours Bachelor of Science, Bio-Medical Sciences, University of Guelph, Guelph, Ontario, Canada (1995 – 1999)

2. Medical Education:
   - Doctor of Medicine, University of Western Ontario, London, Ontario, Canada (1999 – 2003)

3. Postgraduate Training:
   - Royal College of Physicians and Surgeons of Canada Emergency Medicine Residency, University of Western Ontario, London, Ontario, Canada (2003 – 2008)
     - Specialized training opportunities during residency:
       - Aviation & Diving Medicine, Defence Research & Development Canada
       - Aerospace Medicine, NASA Kennedy Space Center
       - Flight Surgeon Course, Canadian Forces, Defence Research & Development Canada
       - Basic Dive Medicine Officer Course, Canadian Forces, Defence Research & Development Canada
   - Space Studies Program, International Space University, Barcelona, Spain (2008)

C. Academic Appointments

1. Faculty Position(s) at Current Institution:
   - Baylor College of Medicine:
     - Associate Professor:
       - Department of Emergency Medicine (2021-2023)
       - Center for Space Medicine (2021-2023)
     - Senior Faculty:
       - Department of Emergency Medicine (2017-2020)
       - Center for Space Medicine (2017-2020)

2. Previous Faculty Position(s) at Other Institutions:
   - Assistant Professor, Department of Emergency Medicine, School of Medicine and Health Sciences, George Washington University (2010 – 2017)
   - Adjunct Professor, Department of Emergency Medicine, Schulich School of Medicine and Dentistry, University of Western Ontario (2008-2010)

3. Courtesy Faculty Appointments at Other Institutions:
    - Adjunct Professor, International Space University (2016 – 2023)
    - Faculty Associate, Space Policy Institute, Elliott School of International Affairs, George Washington University (2012 – 2017)
    - Chair, Human Performance in Space Department, Space Studies Program, International Space University (2015 – 2016)
    - Faculty Member, Centre for Planetary Science and Exploration, University of Western Ontario (2008 – 2015)

D. Other advanced training/experience

1. Other Specialized Training and Certifications:
    - CITI Program Responsible Conduct of Research Course for Principal Investigators (2023)
    - Antarctic Field Safety Course, McMurdo Station, Antarctica (2023)
    - Introductory Course in Undersea & Hyperbaric Medicine, Louisiana State University (2022)
    - High-Altitude Physiological Training Course, NASA Johnson Space Center (2022)
    - Alan Alda Center for Communicating Science Workshop (2018)
    - Introduction to Maritime Safety Course, National Maritime College of Ireland (2017)
    - PADI Enriched Air Nitrox Diver (2016)
    - Instructor, Advanced Trauma Life Support (2016 – 2023)
    - Instructor, Advanced Wilderness Life Support (2016)
    - CITI Program Health Information Privacy and Security for Clinical Investigators (2016)
    - Advanced Wilderness Life Support (2015)
    - Aviation Medical Examiner, Federal Aviation Administration (2015)
    - Basic Life Support for Healthcare Providers (2015)
    - Commonwealth of Virginia EMS Operational Medical Director Course (2014)
    - CITI Program Biomedical Investigators Basic Course (2014)
    - Instructor, Advanced Cardiac Life Support - Experienced Provider (2013)
    - Instructor, Advanced Cardiac Life Support (2013)
    - Advanced Trauma Life Support (2012)
    - PADI Advanced Open Water SCUBA Diver (2011)
    - Private Pilot License – Canada and USA (2010)
    - Pediatric Advanced Life Support (2010)
    - Independent Practitioner, Emergency Medicine Ultrasound (2008)
    - EMS Medical Director's Course, National Association of Emergency Medical Services Physicians (2007)
    - Airway Interventions and Management in Emergencies (AIME) course (2006)
    - Medical Council of Canada Qualifying Examination I and II (2003, 2004)
    - Advanced Cardiac Life Support (2003)
    - United States Medical Licensing Exam, Step 1, 2, & 3 (2001, 2005, 2006)

E. Other information

1. Honors or Awards:

- Eric Liljencrantz Award, Aerospace Medical Association (2023)
    - "For excellence as an educator in aerospace medicine"
- Annual Dean's Distinguished Lecturer, Schulich School of Medicine and Dentistry, Western University, London, Ontario, Canada (2023)
    - Topic: Ad Astra Per Aspera: My Journey to Space Medicine
- Young Alumni Award of Distinction, Schulich School of Medicine and Dentistry, Western University, London, Ontario, Canada (2023)
- NASA Johnson Space Center Director's Commendation Award (2023)
    - "For sustained exceptional service as the Human Research Program Exploration Medical Capability Element Scientist contributing to the NASA Artemis and Mars missions."
- Senior Member, American Institute of Aeronautics and Astronautics [AIAA] (2021)
- NASA JSC Group Achievement Award, NASA Johnson Space Center (2021)
    - "For innovation and determination in planning and implementing the virtual 2021 Human Research Program Investigators Workshop."
- International Space Station Research and Development Conference, Award for Compelling Results in Human Health in Space (2020)
    - Autonomous Medical Officer Support Technology Demonstration Team
- NASA@WORK Certificate of Excellence (2020)
    - "In recognition of your contributions to the 'How Can NASA Best Support COVID-19 Response Efforts?' challenge"
- Fellow, Aerospace Medical Association (2020)
- Best Paper Award, Software and Computing Track, Institute of Electrical and Electronics Engineers [IEEE] Aerospace Conference (2019)
- NASA JSC Group Achievement Award, NASA Johnson Space Center (2018)
    - "For exceptional achievement in bridging the medical capability gap to enable human exploration beyond Low Earth Orbit"
- Associate Fellow, Aerospace Medical Association (2015)
- Faculty Teaching Award, Department of Emergency Medicine, School of Medicine and Health Sciences, George Washington University (2014)
    - Awarded annually by the Emergency Medicine residents to the best faculty educator in the Department
- Fellow, American College of Emergency Physicians (2014)
- Finalist, Space Medicine Association Jeff Myers Young Investigator Award (2012)
- Space Generation Fusion Forum and National Space Symposium Scholarship, Space Generation Advisory Council and Washington Space Business Roundtable (2012)
- Dr. Grant Innes Award, Canadian Association of Emergency Physicians (2009)
    - Awarded at the annual CAEP conference to the best Emergency Medicine research paper in Canada
- International Space University Scholarship (2008)
- Resident Research Award, Division of Emergency Medicine, University of Western Ontario (2007)
- Canadian Space Agency Scholarship, Aerospace Medicine Elective Program, Kennedy Space Center (2006)
- Rocco V. Gerace Award in Emergency Medicine, University of Western Ontario (2003)
- Honour Society Member, University of Western Ontario (2003)

- Dean's Honour List, University of Western Ontario (2000 and 2002)
- Graduated with Distinction, University of Guelph (1999)
- President's Scholarship, University of Guelph (1995-1999)

2. Active Board Certifications:
   - American Board of Emergency Medicine (2009, 2019)
   - Royal College of Physicians and Surgeons of Canada, Emergency Medicine (2008)

3. Other Non-academic Positions:
   - Element Scientist, Exploration Medical Capability, Human Research Program, National Aeronautics and Space Administration [NASA] (2018-2023)
     - Other NASA duties:
       - NASA Medical Officer (rotation), McMurdo Station Medical Clinic, Antarctica (2023)
       - Medical Officer, Neutral Buoyancy Laboratory, Sonny Carter Training Facility, NASA Johnson Space Center (2022-2023)
       - Operational Space Medicine Physician (rotation), Space Medicine Operations Division, NASA Johnson Space Center (2021-2022)
       - Deputy Chief Scientist (rotation), Human Research Program, National Aeronautics and Space Administration [NASA] (2021)
       - Lead, Exploration Medical Integrated Product Team, NASA Johnson Space Center (2018-2019)
   - Medical Specialist Reservist, 1 Canadian Field Hospital Detachment Ottawa, Royal Canadian Air Force, Canadian Armed Forces (2010-2023)
     - Resuscitation and Emergency Medicine Observer-Controller-Trainer (OCT) for Exercise Ready Serpent – rapid deployment of a Role 2 Basic field hospital with simulated medical operations (September 2021)
   - Deputy Element Scientist, Exploration Medical Capability, Human Research Program, National Aeronautics and Space Administration [NASA] (2017-2018)
   - Senior Scientist Manager, Translational Research Institute for Space Health (2017-2018)
   - Chief Resident, Royal College of Physicians and Surgeons of Canada Emergency Medicine Program, University of Western Ontario, London, Ontario, Canada (2007-2008)
   - Medical Researcher, Summer Research Training Program, University of Western Ontario, London, Ontario, Canada (2000-2002)

II. RESEARCH INFORMATION

A. Research Support

- Active:
  - Exploration Medical Capability, Human Research Program, NASA Johnson Space Center
    - Intergovernmental Personnel Agreement between NASA and Baylor College of Medicine

- Role on Project: Lead Scientist, providing subject matter expertise and guidance to team of more than 50 clinicians, scientists, and engineers designing future NASA medical systems for human space exploration.
- Dates: October 2018 to current

- Completed:
  - A Prospective Evaluation of Ketamine + Propofol vs. Ketamine alone for Procedural Sedation for Isolated Orthopaedic Injury in the Pediatric Emergency Department
    - Name of Funding Agency:
      - Physicians Services Incorporated Foundation, Toronto, Ontario, Canada
        - Amount = $20,000
      - Department of Paediatrics, University of Western Ontario, London, Ontario, Canada
        - Amount = $4,000
      - Lawson Health Research Institute, University of Western Ontario, London, Ontario, Canada
        - Amount = $15,000
  - Role on Project: Co-PI
  - Dates of Funding: February to September 2007

B. National Scientific Participation

1. Editorial Contributions (e.g., Journal Editorial Boards, Editor roles, Ad Hoc Reviewer):
   - Manuscript Reviewer:
     - NPJ Microgravity (2022)
     - Space Policy (2018)
     - Acta Astronautica (2013-2018)
     - Aerospace Medicine and Human Performance (2012-2018)
     - Circulation: Cardiovascular Quality and Outcomes (2017)
     - Planetary and Space Science Journal (2009)

2. Review Panels and Selection Committees:
   - NASA representative, Aerospace Medicine Research Alignment and Collaboration (AMRAC) annual meeting, Dayton, OH, USA (May 2022)
     - Included high-ranking officials and leaders from all branches of the U.S. military (Army, Navy, Air Force, Space Force) as well as the Federal Aviation Administration (FAA)
   - Member, NASA Human Research Program Investigators' Workshop Steering Committee (2017 - 2023)
   - Proposal Reviewer, NASA Flight Opportunities Program (2019, 2022)
   - Invited Expert Advisory Panel Member, Translational Research Institute for Space Health funded study entitled "Mixed Reality (MR) Care-Delivery Guidance System to Support Medical Event Management on Long Duration Exploration Missions" (2020-2021)
   - Member, Scientific Program Committee, Aerospace Medical Association (2017-2020)
   - Member, Scientific Program Committee, Humans in Space Symposium, International Academy of Astronautics (2019)

- Member, Space Health Topical Team, Canadian Space Agency (2016-2017)
- Member, Medical Evacuation Working Group, 1 Canadian Field Hospital, Royal Canadian Medical Service, Canadian Armed Forces (2016)
- Invited Subject Matter Expert, United States Governmental Accountability Office study of the Federal Aviation Administration pilot medical certification process (2013)
- Invited Independent Reviewer, Review of NASA's Evidence Reports on Human Health Risks: 2013 Letter Report (2013)

3. Professional Societies:
   - Aerospace Medical Association (AsMA)
     - Space Medicine Association (SMA)
     - Canadian Society of Aerospace Medicine (CSAM)
   - American College of Emergency Physicians (ACEP)
   - Royal College of Physicians and Surgeons of Canada (RCPSC)
   - American Society for Testing and Materials (ASTM)
   - American Institute of Aeronautics and Astronautics (AIAA)
   - Divers Alert Network (DAN)

4. Elected Positions:
   - Member, Life Sciences and Systems Technical Committee, American Institute of Aeronautics and Astronautics [AIAA] (2017- 2023)
   - Member-At-Large, Executive Subcommittee, Commercial Spaceflight Technical Committee, American Society for Testing and Materials [ASTM] International (2017-2023)
   - Voting Member, Commercial Space Transportation Advisory Committee (COMSTAC), Office of Commercial Space Transportation, Federal Aviation Administration (2016-2017)

5. Invited Lectures, Presentations, Research Seminars:

   <u>International</u>
   - Invited panel speaker, International Space Medicine Summit, Rice University, Houston, TX, USA (December 2023)
     - Topic: Significant Science Results from the International Space Station
   - Invited keynote and panel speaker, International Workshop on Artificial Intelligence-Powered Space, Rice University AI Houston Institute, Houston, TX, USA (November 2023)
     - Topic: Achieving Progressively Earth Independent Medical Operations for Deep Space Exploration
   - Invited speaker, North Atlantic Treaty Organization (NATO) Allied Command Transformation (ACT) Think-tank for Information Decision and Execution (TIDE) Sprint meeting – Medical Track (April 2023 – virtual)
     - Topic: Medical Capabilities for Earth and Space
   - Invited panel speaker, US-Africa Partnerships in Space, Science Collaboration at the US-Africa Leaders Summit (December 2022 – virtual)
     - Topic: Telehealth and Medical Capabilities for Earth and Space

- Invited panel speaker, 77th United Nations General Assembly Science Summit (Sept 2022 – virtual)
    - Topic: Space Systems and Achievement of the UN Sustainable Development Goals for 2030 (space and telemedicine)
- Invited keynote speaker, North, Central America, and Caribbean Space Generation Workshop, Space Center Houston, Houston, TX, USA (June 2022)
    - Topic: Advancing Medical System Designs for Space Exploration
- Invited panel moderator and speaker, Space Exploration Track, Space Symposium, Colorado Springs, CO, USA (April 2022)
    - Topic: So, You're Going to Stick People in that Thing?
- Invited speaker, 7th International Scientific Assembly, Saudi Arabian Society of Emergency Medicine, Riyadh, Saudi Arabia (February 2022)
    - Topics:
        - Commonly Missed Fractures in Trauma
        - Management of the Agitated/Combative Patient
        - Altitude Medicine
- Invited keynote speaker, Towards a Lunar Generation: First Moon Village Association Workshop (July 2021 – virtual)
    - Medical Autonomy for Lunar Exploration Activities
- Invited keynote speaker, Healthcare without Boundaries colloquium, Canadian Space Agency and National Research Council Industrial Research Assistance Program (June 2021 – virtual)
    - Medical Capabilities for Deep Space Exploration
- Invited plenary speaker, 23rd International Academy of Astronautics Humans in Space Symposium, Moscow, Russia (April 2021 – virtual)
    - Topic: Autonomous Medical Capabilities for Exploration Spaceflight
- Invited panel speaker, International Space Medicine Summit, Rice University, Houston, TX, USA (October 2020 - virtual)
    - Topic: New Frontiers in Space Medicine
- Invited participant, 2nd International ISS4Mars Workshop (October 2020 - virtual)
    - Topic: Medical Operations for Mars Missions
- Invited panel moderator, International Astronaut Panel, Interactive Space Program, International Space University (July 2020 - virtual)
    - Topic: Space and Public Health
- Invited workshop speaker, World Extreme Medicine conference, Edinburgh, Scotland, United Kingdom (November 2019)
    - Topic: Shooting for the Stars: Medical Capabilities for the Moon and Mars
- Invited panel speaker, International Space Medicine Summit, Rice University, Houston, TX, USA (October 2019)
    - Topic: Maximizing Use of the International Space Station
- Invited speaker, Health in Space Webinar, Space Medicine and Life Sciences Project Group, Space Generation Advisory Council (September 2019)
    - Topic: Dealing with Medical Emergencies in Deep Space
- Invited speaker, US-Russia Technical Interchange Meeting on Using the International Space Station as an Exploration Analog, Institute of Biomedical Problems, Moscow, Russia (September 2019)
    - Topic: Autonomous Medical Officer Support

- Invited panel moderator and speaker, SpaceCom 2018, Houston, TX, USA (November 2018)
    - Topic: Autonomous Medicine
- Invited panel speaker, Human Research Programs: An International Perspective on Space Exploration, European Space Research and Technology Centre [ESTEC], European Space Agency [ESA], Noordwijk, Netherlands (July 2018)
    - Topic: Overview of the NASA Human Research Program
- Invited panel moderator, Space Symposium, Colorado Springs, CO, USA (April 2017)
    - Topic: Human Health and Space Exploration
- Invited expert, Figure 1 on 1 - live, online, worldwide question and answer session for healthcare professionals and students (May 2016) - www.figure1.com
    - Topic: Aerospace and extreme environmental medicine
- Invited panel speaker, Space Generation Advisory Council Fusion Forum, Colorado Springs, CO, USA (April 2016)
    - Topic: Careers in the Space Industry
- Invited speaker, Office of Science and Technology Policy, Executive Office of the President, The White House, Washington, DC, USA (February 2016)
    - Topic: Human health in long-duration, long-distance spaceflight
- Invited plenary speaker, Mars Society Convention, Washington, DC, USA (August 2015)
    - Topic: Introduction to human health in space
- Invited panel moderator, STGlobal Science and Technology in Society Conference, Washington, DC, USA (April 2014)
    - Topic: Health and Medicine
- Invited panel moderator, Humans to Mars Summit, Washington, DC, USA (April 2014)
    - Topic: Biomedical Challenges of Long-Distance and Long-Duration Human Spaceflight
- Invited panel speaker, Humans to Mars Summit, Washington, DC, USA (May 2013)
    - Topic: Public Engagement – Communicating the Value of Mars
- Invited panel speaker, Space Generation Advisory Council Fusion Forum, Colorado Springs, CO, USA (April 2013)
    - Topic: Innovative Space Exploration Strategies
- Invited speaker and panelist, Bringing Space Down to Earth, University of Guelph, Guelph, Ontario, Canada (June 2012)
    - Topic: Brittle Bones and Puffy Faces - The Human Body in Space

National

- Invited panel speaker, Aerospace States Association 4th Annual Policy Summit, Smead Department of Aerospace Engineering Sciences Building, University of Colorado at Boulder, Boulder, CO, USA (July 2023)
    - Topic: The Intersection of Health and Aerospace
- Invited keynote panel speaker, Canadian Space Health Research Network Symposium, Calgary, Alberta, Canada (November 2022)
    - Topic: Leaders on the Frontier of Healthcare
- Invited keynote speaker, American Society for Gravitational and Space Research annual meeting, Houston, TX, USA (November 2022)
    - Topic: From Applied Research to Crew Health and Performance Deliverables

- Invited speaker, Ascension 2022, Students for the Exploration and Development of Space [SEDS] Canada Conference (January 2022 – virtual)
    - Topic: From Small Town Canadian Kid to NASA Doctor
- Invited panel speaker, Emerging Leader Forum (January 2022 – virtual)
    - Topic: From Earth to Space – Healthcare knows no bounds
- Invited panel speaker, 2021 ASCEND Conference, American Institute of Aeronautics and Astronautics [AIAA] (November 2021 – virtual)
    - Topic: Horizon Forecasting - Human Spaceflight Safety Considerations
- Invited panel speaker, SpaceVision 2021, Students for the Exploration and Development of Space Annual Conference, Houston, TX, USA (November 2021)
    - Topics: Mission to Mars and Space Medicine
- Invited speaker, 1st Annual Canadian Association of Wilderness Medicine Conference (November 2020 – virtual)
    - Topic: Planning for a Three-Year "Camping Trip" to Mars
- Invited panel speaker, SpaceVision 2020, Students for the Exploration and Development of Space Annual Conference (November 2020 - virtual)
    - Topic: Health in Space
- Invited panel speaker, National Aeronautics and Space Administration [NASA] and National Institutes of Health [NIH] Joint Workshop on Collaborative Biomedical Research for Earth and Space Benefit, Bethesda, Maryland, USA (October 2018)
    - Topic: NASA Exploration Medical Capability knowledge gaps
- Invited panel speaker, Escape Velocity, Washington, DC, USA (September 2017)
    - Topic: 2017 Space Odyssey – Human Spaceflight
- Invited speaker, Ascension 2017, Students for the Exploration and Development of Space (SEDS) Canada Conference, Toronto, ON, Canada (March 2017)
    - Topic: Keeping people alive and healthy beyond low Earth orbit
- Invited panel speaker, SpaceVision 2016, Students for the Exploration and Development of Space Annual Conference, Purdue University, IN, USA (November 2016)
    - Topic: The next generation of astronauts
- Invited keynote speaker, SpaceVision 2015, Students for the Exploration and Development of Space Annual Conference, Boston, MA, USA (November 2015)
    - Topic: Introduction to human health in space
- Invited panel speaker, Hot Topics in Emergency Medical Services, National Collegiate Emergency Medical Services Foundation Annual Conference, Arlington, VA, USA (February 2013)
- Invited panel speaker, American Institute of Aeronautics and Astronautics, Deep Space: Relaunching American Exceptionalism, Capitol Hill, Washington, DC (July 2012)
    - Topic: Biomedical Challenges of Deep Space Exploration
- Invited panel speaker, Canadian Society of Physician Executives Annual Conference (April 2008)
    - Topic: Medical Leadership and Politics

<u>Regional</u>

- Invited speaker, University of Alberta Space Medicine Club, Edmonton, Alberta, Canada (December 2023 – virtual)
    - Topic: Diving into Space Medicine

- Invited panel speaker, Redwire SpaceX CRS-29 launch event, NASA Kennedy Space Center, Florida, USA (November 2023)
    - Leveraging Space to Transform Medicine and Biotechnology on Earth
- Invited speaker, Harris Health System Circle of Survival Conference, Houston, TX, USA (May 2023)
    - Topic: Medicine in Space – Innovations for Earth and Beyond
- Invited speaker, McMurdo Station Science Series, Antarctica (February 2023)
    - Topic: How can Antarctica help NASA to explore deep space, the Moon, and Mars?
- Invited lecturer, Principles of Aerospace Medicine course, University of Texas Medical Branch, Galveston, TX, USA (July 2021 & 2022 – virtual)
    - Topic: NASA Exploration Medical Capability
- Invited special guest speaker, Owls in Space Symposium, Rice University, Houston, TX, USA (March 2022)
    - Topic: Human Space Exploration Medical Capabilities
- Invited panel speaker, Bioastronautics Mini-Symposia Series, Johns Hopkins University, Baltimore, MD, USA (virtual)
    - Topics:
        - November 2021 - Systems Medicine for Spaceflight
        - October 2022 - Space Surgery
- Invited speaker, Houston Spaceport Frontier Lecture Series, Rice Space Institute, Rice University, Houston, TX, USA (October 2021)
    - Topic: Please State the Nature of the Medical Emergency: Preparing for Medicine on Mars
- Invited speaker, Advances in Medicine seminar series, Texas A&M University Engineering Medicine Program, Houston, TX, USA (October 2021)
    - Topic: Advancing Medical System Designs for Space Exploration
- Invited lecturer, Space Medicine Elective IDPT 8059: Human Spaceflight Factors & Medical Risk Assessment, University of Colorado School of Medicine, CO, USA (February 2021 – virtual)
    - Topic: Introduction to Space Medicine
- Invited lecturer, Space Medicine house course, Duke University, Durham, NC, USA (November 2020 – virtual)
    - Topic: Medical Capability for Human Exploration Spaceflight
- Invited panel speaker, Gateway to Space Symposium, NASA Johnson Space Center, Houston, TX (November 2019)
    - Topic: Apollo to Artemis: Lessons Learned and Future Opportunities
- Invited speaker, U.S. Army Telemedicine and Advanced Technology Research Center Science Seminar, Fort Gordon, GA, USA (April 2019)
    - Topic: Exploration Medical Research at NASA
- Invited lecturer, Politics of Space undergraduate course, University of Colorado, Boulder, CO, USA (February 2018)
    - Topic: Introduction to Aerospace Medicine
- Invited panel speaker, Cork County Library, Cork, Ireland (July 2017)
    - Topic: Training for Extremes

- Invited panel speaker, On the Launchpad: Return to Deep Space, The Atlantic, Washington, DC, USA (May 2017)
    - Topic: Preparing the Mind and Body
- Invited lecturer, Space 101: Introduction to Space, Edmonton Lifelong Learners Association, University of Alberta Faculty of Extension, Edmonton, Alberta, Canada (May 2017)
    - Topic: Introduction to Human Health in Space
- Invited lecturer, Students for the Exploration and Development of Space special event, University of Portland, Oregon, USA (January 2016)
    - Topic: Introduction to human health in space
- Invited lecturer, International Affairs and Technology Policy graduate course, Georgia Institute of Technology, Atlanta, GA, USA (November 2013)
    - Topic: An aerospace medicine perspective on current topics in human spaceflight
- Invited speaker, Faces of Space lecture series, Astronomy and Space Exploration Society, University of Toronto (2010)
    - Topic: Introduction to Aerospace Medicine
- Invited speaker, PAIRO Leadership Program, Professional Association of Internes and Residents of Ontario (2008)
    - Topic: Overcoming Cultural Differences

C. Publications (provide complete citation for each item listed)

1. Full Papers (Peer Review)

    a. Published:

    - Almand A, Ko SY, Anderson A, Keller RJ, Zero M, Anderson AP, Laws JM, **Lehnhardt KR**, Easter BD. A qualitative investigation of space exploration medical evacuation risks. Aerosp Med Hum Perform. 2023; 94(12):875–886. https://doi.org/10.3357/AMHP.6262.2023
    - Russell BK, Burian BK, Hilmers DC, Beard BL, Martin K, Pletcher DL, Easter BD, **Lehnhardt KR**, Levin DR. The value of a spaceflight clinical decision support system for earth-independent medical operations. NPJ Microgravity 2023; 9: 46. https://doi.org/10.1038/s41526-023-00284-1
    - Reichard JF, Phelps SE, **Lehnhardt KR**, Young M, Easter BD. The Effect of Long-Term Spaceflight on Drug Potency and the Risk of Medication Failure. NPJ Microgravity 2023; 9: 35. https://doi.org/10.1038/s41526-023-00271-6
    - Levin DR, Steller JG, Anderson A, Lemery J, Easter BD, Hilmers DC, **Lehnhardt KR**. Enabling Human Space Exploration Missions Through Progressively Earth Independent Medical Operations (EIMO). IEEE Open Journal of Engineering in Medicine and Biology, 2023. DOI**:** 10.1109/OJEMB.2023.3255513
    - Fernandez W, Levin DR, Steller JG, Kerstman E, Lemery J, Zahner C, Davis HE, **Lehnhardt KR**, Easter BD, Kreykes, AJ. Task impairment: A novel approach for assessing impairment during exploration-class spaceflight missions. Journal of Space Safety Engineering, 2023. ISSN 2468-8967. https://doi.org/10.1016/j.jsse.2022.12.005

- Crucian B, Valentine R, Calaway K, Miller R, Rubins K, Hopkins M, Salas Z, Krieger S, Makedonas G, Nelman-Gonzalez M, McMonigal K, Perusek G, **Lehnhardt KR**, Easter BD. Spaceflight Validation of Technology for Point-of-Care Monitoring of Peripheral Blood WBC and Differential in Astronauts during Space Missions. Life Sci Space Res. 2021; 31: 29-33. https://doi.org/10.1016/j.lssr.2021.07.003. PMID: 34689947
- McGuire KM, Easter BD, Mindock JA, Hanson A, Hailey M, Vega L, Antonsen E, **Lehnhardt KR**. Using systems engineering to develop an integrated crew health and performance system to mitigate risk for human exploration missions. Published in 50th International Conference on Environmental Systems (ICES) Proceedings, virtual, 12-15 July 2021. https://ttu-ir.tdl.org/bitstream/handle/2346/87244/ICES-2021-298.pdf
- Zero M, Easter BD, Anderson A, **Lehnhardt KR**. Multidisciplinary expertise for exploration medical system design. IEEE Potentials. 2020; 39(4): 39-45. https://doi.org/10.1109/MPOT.2020.2985764
- Hall MK, Samson PC, Kessler R, **Lehnhardt KR**, Easter BD, Thiel J, Wessells H, Bailey MR, Harper JD. Pearl-unjammed: the Seattle stone maneuver for ureteropelvic junction urolithiasis. JACEP Open. 2020; 1-5. https://doi.org/10.1002/emp2.12047. PMID: 32613205
- Amador JR, Thompson WK, Mindock JA, Urbina MO, McGuire KM, Boley LA, Chavez HL, Rakalina TY, Lee E, Mosher TB, Lumpkins SA, Kerstman EL, **Lehnhardt KR**. Enabling space exploration medical system development using a tool ecosystem. Published in IEEE Aerospace Conference Proceedings, Big Sky, MT, USA, 7-14 March 2020. https://doi.org/10.1109/AERO47225.2020.9172751
- Schlotman TE, **Lehnhardt KR**, Abercromby AF, Easter BD, Downs ME, Akers KS, Convertino VA. Bridging the gap between military prolonged field care monitoring and exploration spaceflight: the compensatory reserve. NPJ Microgravity. 2019; 5 (29). https://doi.org.10.1038/s41526-019-0089-9. PMID: 31815179
- Padaki A, Police Reddy A, **Lehnhardt KR**. The utility of hyperbaric oxygen therapy for human spaceflight – past, present, and future. Acta Astronautica. 2019; 164: 192-196. https://doi.org/10.1016/j.actaastro.2019.08.003
- Hanson A, Mindock J, Okon S, Hailey M, McGuire K, Bardina J, Stewart H, Toscano W, Winther S, Burba T, Rubin D, Lumpkins S, Urbina M, Cerro J, Reilly J, Abdelmelek M, Rubin A, Kockler M, **Lehnhardt KR**. A model-based systems engineering approach to exploration medical system development. Published in IEEE Aerospace Conference Proceedings, Big Sky, MT, USA, 3-8 March 2019. DOI: 10.1109/AERO.2019.8741864
- Padaki A, Redha W, Clark T, Nichols T, Jacoby L, Slivka R, Ranniger C, **Lehnhardt KR**. Simulation training for in-flight medical emergencies improves provider knowledge and confidence. Aerosp Med Hum Perform. 2018; 89(12): 1076–1079. https://doi.org/10.3357/AMHP.4945.2018. PMID: 30487028
- Swaffield TP, Neviaser AS, **Lehnhardt KR**. Fracture risk in spaceflight and potential treatment options. Aerosp Med Hum Perform. 2018; 89(12): 1060–1067. https://doi.org/10.3357/AMHP.5007.2018. PMID: 30487026
- **Lehnhardt KR**, Jacoby LE, Nichols TB, Slivka R, Surrey A. The Elderly vs. the Elements. Critical Decisions in Emergency Medicine 2017; 31(7): 3-10.

- Freese S, Police Reddy A, **Lehnhardt KR**. Radiation Impacts on Human Health During Spaceflight Beyond Low Earth Orbit. REACH – Reviews in Human Space Exploration 2016; 2: 1-7. http://dx.doi.org/10.1016/j.reach.2016.11.002
- Shah A, Mosdossy G, McLeod S, **Lehnhardt KR**, Peddle M, Rieder M. A Blinded, Randomized Controlled Trial to Evaluate Ketamine-Propofol Versus Ketamine Alone for Procedural Sedation in Children. Ann Emerg Med 2011; 57: 425-433. DOI: 10.1016/j.annemergmed.2010.08.032. PMID: 20947210
- **Lehnhardt KR**. Playing the game: a four-year quest to become an emergency resident. Can J Emerg Med 2004; 6 (1): 51-52. DOI: 10.1017/s1481803500008939. PMID: 17433148
- Rockx MA, Fox SA, Stitt LW, **Lehnhardt KR**, McKenzie FN, Quantz MA, Menkis AH, Novick RJ. Is obesity a predictor of mortality, morbidity and readmission after cardiac surgery? Can J Surg 2004; 47 (1); 34-38. PMID: 14997923
- Novick RJ, Fox SA, Stitt LW, Swinamer SA, **Lehnhardt KR**, Rayman R, Boyd WB. Cumulative sum failure analysis of a policy change from on-pump to off-pump coronary artery bypass grafting. Ann Thorac Surg 2001; 72: S1016-21. DOI: 10.1016/s0003-4975(01)02949-6. PMID: 11565718

2. Full Papers (Without Peer Review)

   a. Published:
   - West W, **Lehnhardt KR**. Planning for Health, Sex, and Sleep on a Future Mars Colony. Room – The Space Journal 2017; 2 (12): 38-43.
   - Antonsen E, Garbino A, Reed RD, **Lehnhardt KR**. Commercial Spaceflight Challenges for Emergency Medical Response. J Emerg Med Services 2016; 41 (12); 34-39.

3. Published abstracts within the last five years:

- **Lehnhardt KR**, Suresh R, Thompson M. Coordinated NASA Approach for the Development of Medical Capabilities and Technologies for Deep Space Exploration. Aerosp Med Hum Perform 2023; 94 (4): 237.
  - Panel at the Aerospace Medical Association annual meeting in New Orleans, Louisiana, USA (May 2023)
- Thompson M, **Lehnhardt KR**, Easter BD, Lemery J, Suresh R. Identifying and Closing Medical Capability Gaps for Human Spaceflight Missions Beyond Low Earth Orbit. Aerosp Med Hum Perform 2023; 94 (4): 237.
  - Oral presentation at the Aerospace Medical Association annual meeting in New Orleans, Louisiana, USA (May 2023)
- Lemery J, **Lehnhardt KR**, Easter BD. Earth Independent Medical Operations: Foundations to Advance Long Duration Mission Health. Aerosp Med Hum Perform 2023; 94 (4): 237.
  - Oral presentation at the Aerospace Medical Association annual meeting in New Orleans, Louisiana, USA (May 2023)

- Schkurko C, Perusek G, Nelson E, Calaway K, Miller R, Valentine R, Crucian B, Easter BD, **Lehnhardt KR**. An In-Situ Laboratory Analysis Capability for Exploration Spaceflight. Aerosp Med Hum Perform 2023; 94 (4): 238.
    - Oral presentation at the Aerospace Medical Association annual meeting in New Orleans, Louisiana, USA (May 2023)
- Lemery J, Easter BD, **Lehnhardt KR**, Arai S, Laing C, Krihak M, Odina J, McGuire KM. Long Duration Medical System Foundation for Lunar Orbital and Lunar Surface Exploration Missions. Aerosp Med Hum Perform 2023; 94 (4): 308.
    - Oral presentation at the Aerospace Medical Association annual meeting in New Orleans, Louisiana, USA (May 2023)
- Easter BD, **Lehnhardt KR**, Lemery J. IMPACT-ing Exploration Spaceflight Risk Prediction and Medical System Design. Aerosp Med Hum Perform 2023; 94 (4): 226.
    - Panel at the Aerospace Medical Association annual meeting in New Orleans, Louisiana, USA (May 2023)
- Steller JG, Levin DR, Lemery J, Anderson A, Stratton E, Nelson AM, Kerstman E, Hilmers DC, **Lehnhardt KR**. IMPACT Outputs for a Representative Extended Duration Artemis Mission. Aerosp Med Hum Perform 2023; 94 (4): 226.
    - Oral presentation at the Aerospace Medical Association annual meeting in New Orleans, Louisiana, USA (May 2023)
- Ariana AM, Steller JG, Shair K, Dizon R, Levin DR, Lemery J, Anderson A, Stratton E, Zahner C, Hilmers DC, **Lehnhardt KR**. Derivation of the Most Influential Medical Conditions for an Extended Duration Artemis Mission. Aerosp Med Hum Perform 2023; 94 (4): 227.
    - Oral presentation at the Aerospace Medical Association annual meeting in New Orleans, Louisiana, USA (May 2023)
- Anderson A, Steller JG , Levin DR, Lemery J, Stratton E, Nelson AM, Kreykes A, Zahner C, Kerstman E, Hilmers DC, **Lehnhardt KR**. IMPACT Identified Medical Capabilities with Largest Effect on Medical Risk for Exploration Spaceflight. Aerosp Med Hum Perform 2023; 94 (4): 227.
    - Oral presentation at the Aerospace Medical Association annual meeting in New Orleans, Louisiana, USA (May 2023)
- Stratton S, Steller JG, Levin DR, Lemery J, Anderson A, Nelson AM, Kreykes A, Kerstman E, **Lehnhardt KR**, Easter BD. Future Improvements to IMPACT for Long Duration Exploration Spaceflight. Aerosp Med Hum Perform 2023; 94 (4): 227.
    - Oral presentation at the Aerospace Medical Association annual meeting in New Orleans, Louisiana, USA (May 2023)
- Lemery J, **Lehnhardt KR**, Easter BD. Advancing Exploration Medical Capability Through Coordinated Integration of Research, Demonstrations, and Systems Engineering. Aerosp Med Hum Perform 2023; 94 (4): 164.
    - Oral presentation at the Aerospace Medical Association annual meeting in New Orleans, Louisiana, USA (May 2023)
- Levin DR, Steller JG, Anderson A, Lemery J, Easter BD, Hilmers DC, **Lehnhardt KR**. Enabling Human Spaceflight Exploration Missions Through Progressively Earth Independent Medical Operations. IAC-22,A1,3,5,x70561
    - Oral presentation at the International Astronautical Congress in Paris, France (September 2022)

- **Lehnhardt KR**, Watkins S, Barratt M. Enabling Progressively Earth Independent Medical Operations for Human Space Exploration. Aerosp Med Hum Perform 2022; 93 (3): 218.
    - Panel at the Aerospace Medical Association annual meeting in Reno, Nevada, USA (May 2022)
- Ray K, Ong K, **Lehnhardt KR**, Deutsch L. Decompression Sickness versus Hyperventilation in Hypobaric Physiological Hypoxia Training. Aerosp Med Hum Perform 2022; 93 (3): 176.
    - Oral presentation at the Aerospace Medical Association annual meeting in Reno, Nevada, USA (May 2022)
- Levin DR, Easter BD, **Lehnhardt KR**. Integrating Medical Trainees with Interdisciplinary Research and Design Teams for Space Exploration Medical Care. Aerosp Med Hum Perform 2022; 93 (3): 284.
    - Poster at the Aerospace Medical Association annual meeting in Reno, Nevada, USA (May 2022)
- Phelps SE, Easter BD, **Lehnhardt KR**. Developing the Foundations of an Exploration Class Medical System: Bridging the Gap Between LEO and Mars. Aerospace Research Central, American Institute of Aeronautics and Astronautics [AIAA]. DOI: https://doi.org/10.2514/6.2022-0580
    - Oral presentation at the AIAA Sci-Tech conference in San Diego, CA, USA (January 2022)
- **Lehnhardt KR**. Advancing Future Space Exploration Medical System Design. Aerosp Med Hum Perform 2019; 90 (3): 183.
    - Panel at the Aerospace Medical Association annual meeting in Las Vegas, NV, USA (May 2019)
- Antonsen E, Canga M, Kerstman E, Myers J, **Lehnhardt KR**. The Changing Nature of Medical Risk in Exploration Spaceflight. Aerosp Med Hum Perform 2019; 90 (3): 183.
    - Oral presentation at the Aerospace Medical Association annual meeting in Las Vegas, NV, USA (May 2019)
- Hailey M, **Lehnhardt KR**. Informing the Medical System Model Architecture. Aerosp Med Hum Perform 2019; 90 (3): 184.
    - Oral presentation at the Aerospace Medical Association annual meeting in Las Vegas, NV, USA (May 2019)
- Reyes D, Kerstman E, **Lehnhardt KR**. The Effect of Heroic Medical Care on Mission Medical Outcomes. Aerosp Med Hum Perform 2019; 90 (3): 326.
    - Oral presentation at the Aerospace Medical Association annual meeting in Las Vegas, NV, USA (May 2019)

4. Books

a. Book Chapters Written:

- Mindock J, Lumpkins S, Rubin D, Thaxton S, **Lehnhardt, KR**. (2022). Crew Health and Performance System Overview and Context. In: Eckart, P., Aldrin, A. (eds) Handbook of Lunar Base Design and Development. Springer, Cham. https://doi.org/10.1007/978-3-030-05323-9_5-1

- **Lehnhardt KR**. Dysbarism. In: Brown D, editor. *Scientific American Emergency Medicine*. Hamilton (ON): Decker Intellectual Properties; September 2015. DOI 10.2310/7900.4362 (September 10, 2015).

5. Other Works Communicating Research Results to Scientific Colleagues:

- **Lehnhardt KR**, Hailey M, Barr Y, Huff J, Williams T. Human Health and Performance. The Humans to Mars Report 2018 - https://www.exploremars.org/wp-content/uploads/2016/12/H2MR_18_Web.pdf
- **Lehnhardt KR**. Human Factors. The Humans to Mars Report 2017 - https://www.exploremars.org/wp-content/uploads/2017/05/H2MR_2017_Final_webv1.pdf
- **Lehnhardt KR**, Buckland D. Biomedical Considerations. The Humans to Mars Report 2016 - http://www.exploremars.org/wp-content/uploads/2016/05/H2MR_16_Final_Print_v4i.pdf

6. Other Works Communicating Research Results to General Public:

- **Lehnhardt KR** (contributor). "How to Survive in Space: Engineering Human Spaceflight Exploration Medical Capabilities". Baylor College of Medicine Resonance Podcast. 13 October 2021. https://www.bcm.edu/podcast/resonance/how-to-survive-in-space-engineering-human-spaceflight-exploration-medical-capabilities
- **Lehnhardt KR** (contributor). "Episode 5: Becoming a Space Doctor". SEDScast Podcast. 25 June 2020. https://podcasts.apple.com/us/podcast/05-becoming-a-space-doctor-with-kris-lehnhardt/id1515588935?i=1000479569543
- **Lehnhardt KR** (contributor). "Episode 125: Deep Space Healthcare". Houston, We Have A Podcast, NASA Johnson Space Center. 3 January 2020. https://www.nasa.gov/johnson/HWHAP/deep-space-healthcare
- **Lehnhardt KR** (contributor). "Episode 2: Bodies in Orbit". Moonstruck Podcast. 4 April 2018. https://www.moonstruckpodcast.com/#episode-2
- **Lehnhardt KR** (contributor). "Episode 30: Medicine in Space". Public Health United Podcast. 1 October 2016. https://www.publichealthunited.org/new-podcast-kris-lehnhardt-on-medicine-in-space/
- **Lehnhardt KR**. Extreme Environmental Medicine: A Paradigm Shift for Physicians. Fear No Limit Blog by Blue Marble Exploration (March 2014)
  - http://www.fearnolimit.blogspot.com/2014/03/extreme-environmental-medicine-paradigm.html
- **Lehnhardt, KR**. Health Challenges Facing Humans in Space. The Mars Quarterly 2013; 4 (4): 10-11.
  - http://members.marssociety.org/TMQ/TMQ-V4-I4.pdf
- **Lehnhardt, KR**. The Challenges of Deep Space Exploration. CurioCity by Let's Talk Science (November 2012)
  - http://www.explorecuriocity.org/Content.aspx?contentid=2129

D. Innovation and Commercialization

1. Patents – none at this time
2. Device, software or other development – none at this time
3. Evidence of Impacting Health/Scientific Policy or Clinical Practice Guidelines
    - As a member of the Commercial Spaceflight Technical Committee of the American Society for Testing and Materials [ASTM] International since 2017, I have contributed to the development of consensus human spaceflight industry standards including:
        - ASTM F3568-23 – Standard Guide for Medical Qualifications for Suborbital Vehicle Passengers (https://www.astm.org/f3568-23.html)
        - ASTM F3479-20 – Standard Specification for Failure Tolerance for Occupant Safety of Suborbital Vehicles (https://www.astm.org/f3479-20.html)
        - ASTM F3520-21 – Standard Guide for Training and Qualification of Safety-Critical Space Operations Personnel (https://www.astm.org/f3520-21.html)
    - As a member of the Canadian Space Agency Space Health Topical Team in 2016 and 2017, I contributed to the development of the following report:
        - Canadian Space Exploration - Science and Space Health Priorities for the Next Decade and Beyond (https://s3.ca-central-1.amazonaws.com/sqreports/Canadian_Space_Exploration-Science_and_Space_Health_priorities_for_Next_Decade_and_Beyond_2017.pdf)

III. TEACHING INFORMATION

A. Educational Leadership Roles

- Faculty Advisor, Wilderness Medicine Interest Group, Baylor College of Medicine (2019-2023)
- Faculty Advisor, Wilderness Medicine Interest Group, School of Medicine and Health Sciences, George Washington University (2015-2017)
- Member, Clinical Competency Committee, Department of Emergency Medicine, George Washington University (2013-2017)
- Resident Supervisor, Emergency Medical Services Rotation, Department of Emergency Medicine, George Washington University (2012-2017)
- Director, Fellowship in Extreme Environmental Medicine, Department of Emergency Medicine, George Washington University School of Medicine and Health Sciences (2011-2017)

B. Didactic Coursework

1. Courses Taught at Current Institution (include number of hours and learners):
    - Director, MEERM-629: Introduction to Wilderness Medicine pre-clinical elective, Baylor College of Medicine (2020-2022)
        - 12 hours/semester, approximately 70 students

2. Courses Taught at Other Institutions (include number of hours):
    - Director, Introduction to Human Health in Space graduate course, School of Medicine and Health Sciences, George Washington University (2012-2017)
        - 3 hours/week/semester, approximately 20 students

- Director, Wilderness and Extreme Environmental Medicine 4th Year Elective, School of Medicine and Health Sciences, George Washington University (2011-2017)
    - 2 weeks/year, approximately 25 students
- Chair, Human Performance in Space Department, Space Studies Program, International Space University (2015-2016)
    - 3 weeks/year, approximately 25 participants
- Instructor, Advanced Cardiac Life Support, University of Western Ontario (2005-2009)
    - 2-day courses taught multiple times per year, approximately 50 students

C. Curriculum Development Work

1. Course(s)/Curricula to Which Contributions Have Been Made:
    a) MEERM-629: Introduction to Wilderness Medicine pre-clinical elective, Baylor College of Medicine
    b) Exploration Medical Capability (ExMC) Research Rotation, Johnson Space Center, National Space and Aeronautics Administration (NASA)
    c) Fellowship in Extreme Environmental Medicine, Department of Emergency Medicine, George Washington University School of Medicine and Health Sciences
    d) EHS-6227: Introduction to Human Health in Space graduate course, George Washington University School of Medicine and Health Sciences
    e) Wilderness and Extreme Environmental Medicine 4th Year Elective, George Washington University School of Medicine and Health Sciences

2. Role in Course/Curriculum Development:
    - Faculty contributor to (a) above – student-initiated effort
    - Lead developer for curricula (b) through (e) above

3. Audience(s) for Course(s)/Curricula Developed:
    a) MEERM-629: Introduction to Wilderness Medicine pre-clinical elective – introductory wilderness medicine course for 1st and 2nd year medical students at the Baylor College of Medicine
    b) NASA ExMC Research Rotation – one-month elective rotation for medical students and residents from the Baylor College of Medicine and around the USA to participate in space medicine research
    c) Fellowship in Extreme Environmental Medicine – year-long sub-specialization training program for physicians
    d) EHS-6227: Introduction to Human Health in Space – graduate and undergraduate students with an interest in human spaceflight from both medical and non-medical educational backgrounds
    e) Wilderness and Extreme Environmental Medicine elective – senior medical students from George Washington University plus visiting students from other U.S. medical schools

D. Non-didactic Teaching (include institution where work was done)

1. Resident Training:

- Clinical teaching on shift:
  - Ben Taub General Hospital Emergency Department – 8 hours/week (2018-2023)
  - George Washington University Hospital Emergency Department – 20 hours/week (2010-2017)
- Mentor, Department of Emergency Medicine Residency Program
  - Baylor College of Medicine (2019-2023)
  - George Washington University (2012-2017)
- Research mentor:
  - NASA (2018-2023)
  - George Washington University (2010-2017)
- Instructor, Clinical Learning and Simulation Skills Center, Department of Emergency Medicine, George Washington University School of Medicine and Health Sciences (2010-2017)

2. Clinical Fellow Training (include names of fellows, dates, current location or position)
   - Fellowship in Extreme Environmental Medicine, Department of Emergency Medicine, School of Medicine and Health Sciences, George Washington University

3. Research Fellow Training (as above) – none at this time

4. Graduate Student Training (describe your role, such as major advisor or committee member; provide information about each fellow as above):
   - Visiting Technologist Experience advisor, NASA Space Technology Graduate Researchers Program, NASA Johnson Space Center, Houston, TX, USA (2022)
   - Project Sponsor and Advisor, Space Medical Center Team Project, Masters of Space Studies Program, International Space University, Strasbourg, France (2021-2022)
     - https://isulibrary.isunet.edu/doc_num.php?explnum_id=1903
   - Faculty Advisor, Space Meds @ NASA project, Program and Project Management graduate course, School of Engineering and Applied Science (2012)

E. Faculty Development or Continuing Medical Education – none at this time

F. Lectures and Presentations

<u>International</u>

- Haas C, Lemery J, Harrivel A, **Lehnhardt KR**. Innovative Approaches to Medical System Design for Space Exploration.
  - Oral panel presentation at the AIAA ASCEND Conference, Las Vegas, Nevada, USA (October 2023)
- Panel chair, International Conference of Aerospace Medicine, Paris, France (September 2022)
  - Topic: European Space Agency and NASA Approaches to Deep Space Exploration Medical Care

- Anderson A, Easter B, **Lehnhardt KR**. Comparing and Contrasting Medical Care on the International Space Station and Artemis Missions: The Challenges of Exploration Environments.
    - Oral panel presentation at the International Conference of Aerospace Medicine, Paris, France (September 2022)
- Easter B, Lemery J, Thompson W, **Lehnhardt KR**. Medical System Design for Space Exploration Using a Probabilistic Risk and Trade Space Analysis Tool.
    - Oral panel presentation at the International Conference of Aerospace Medicine, Paris, France (September 2022)
- Golemis A, Easter B, Vaquer S, **Lehnhardt KR**, Green D, Hill A, Scott J. A Comprehensive Medical System Concept for Human Exploration Missions.
    - Oral panel presentation at the International Conference of Aerospace Medicine, Paris, France (September 2022)
- Kaduk S, **Lehnhardt KR**, Weber T, Green D, Easter B, Stuble J. New Medical Technologies to Enable Human Space Exploration Missions
    - Oral panel presentation at the International Conference of Aerospace Medicine, Paris, France (September 2022)
- Panel chair, 2022 NASA Human Research Program Investigators' Workshop (February 2022 - virtual)
    - Topic: Supporting Earth Independent Medical Operations
- Easter B, Phelps S, **Lehnhardt KR**. Exploration Medical Capability Science and Research – Overview and Update.
    - Oral presentation at the 2022 NASA Human Research Program Investigators' Workshop (February 2022 - virtual)
- **Lehnhardt KR**. Easter B. Phelps S. Fleming N. ExMC Strategy and Approach for Achieving Progressively Earth Independent Medical Operations for NASA Human Spaceflight Exploration Missions
    - Oral presentation at the 2022 NASA Human Research Program Investigators' Workshop (February 2022 - virtual)
- Almand A. Anderson A. Keller R. Laws J. **Lehnhardt KR**. Easter B. Spaceflight Medical Evacuation Risk Assessment Principles - A Qualitative Investigation
    - Oral presentation at the 2022 NASA Human Research Program Investigators' Workshop (February 2022 - virtual)
- Lewandowski B. Atkins R. Easter B. **Lehnhardt KR**. Translating HRP Research and Evidence into Actionable Deliverables (THREAD) Pilot Project Results and Outcomes
    - Oral presentation at the 2022 NASA Human Research Program Investigators' Workshop (February 2022 - virtual)
- **Lehnhardt KR**, Easter B. Exploration Medical Capability Science and Research – Overview and Update.
    - Oral presentation at the 2021 NASA Human Research Program Investigators' Workshop (February 2021 - virtual)
- Easter B, **Lehnhardt KR**. Inflight Medical Conditions Risk - Overview and Strategic Approach
    - Oral presentation at the 2021 NASA Human Research Program Investigators' Workshop (February 2021 - virtual)
- Lewandowski B, Atkins R, Easter B, **Lehnhardt KR**. Translating HRP Research and Evidence into Actionable Deliverables (THREAD)

    - Oral presentation at the 2021 NASA Human Research Program Investigators' Workshop (February 2021 - virtual)
- Almand A, Laws J, **Lehnhardt KR**, Easter B. Spaceflight Medical Evacuation Risk Assessment Principles: A Qualitative Investigation from Space and Analog Environments
    - Oral presentation at the 2021 NASA Human Research Program Investigators' Workshop (February 2021 - virtual)
- Yuen A, Velho R, Laws J, Stratton E, Patel K, Christensen B, Demetres M, Easter B, **Lehnhardt KR**. A Qualitative Systematic Review Evaluating the Impact of Elevated Ambient CO_2 in Atmosphere on Pharmaceutical Stability
    - Oral presentation at the 2021 NASA Human Research Program Investigators' Workshop (February 2021 - virtual)
- Panel chair, 2021 NASA Human Research Program Investigators' Workshop (February 2021 - virtual)
    - Topic: Modeling and Monitoring Human Physiology in Spaceflight
- Panel chair, Aerospace Medical Association annual meeting, Las Vegas, NV, USA (May 2019)
    - Topic: Advancing Future Space Exploration Medical System Design
- Panel chair, 2019 NASA Human Research Program Investigators' Workshop, Galveston, TX, USA (January 2019)
    - Topic: Pharmaceutical Research for Exploration Missions
- **Lehnhardt KR**. Exploration Medical Capability Science and Research – Overview and Update.
    - Oral presentation at the 2019 NASA Human Research Program Investigators' Workshop in Galveston, TX, USA (January 2019)
- Daniels V, Bayuse T, Blue R, Antonsen E, **Lehnhardt KR**. Assessment of Drug Stability Using a Ground-Based Analog for Space Radiation.
    - Oral presentation at the 2019 NASA Human Research Program Investigators' Workshop in Galveston, TX, USA (January 2019)
- Battler M, **Lehnhardt KR**, Ozinski G, Allen N. Proposal for a Canadian High-Fidelity, Analogue Mission Simulation Facility for Integrated Science and Technology Field Testing to Optimize Future Space Exploration Efforts.
    - Oral presentation at the Canadian Aeronautics and Space Institute ASTRO 2018 conference in Quebec City, QC, Canada (May 2018)
- Panel co-chair, Aerospace Medical Association annual meeting, Dallas, TX, USA (May 2018)
    - Topic: Space Medicine Operations
- Panel co-chair, NASA Human Research Program Investigators' Workshop, Galveston, TX, USA (January 2018)
    - Topic: Exploration Medical Capability Overview and Goals
- Modi V, **Lehnhardt KR**. Medical Certification Recommendations for Commercial Spaceflight Crewmembers with a History of Spontaneous Pneumothorax.
    - Oral presentation at the European Congress of Aerospace Medicine in Oslo, Norway (September 2016)
- Expert panelist, web-based question and answer session for high school students, Curiocity by Let's Talk Science (October 2012)
    - Topic: Introduction to Aerospace Medicine

National

- Workshop participant, Explore Mars, Elliott School of International Affairs, George Washington University, Washington, DC, USA (December 2023)
    - Topic: 10th Community Workshop for Achievability and Sustainability of Human Exploration of Mars
- Panel speaker, Next Generation STEM Day, National Aeronautics and Space Administration (September 2023 – virtual)
    - Topic: Ask a NASA Scientist
- Workshop participant, Institute for Human and Machine Cognition, Pensacola, FL, USA (October 2018)
    - Topic: Blue Sky Symposium on Minimally Invasive Expeditionary Surgical Care Using Human Inspired Robots
- **Lehnhardt KR,** Hussey S, Zoldak J, Antonsen E. Radiation and Drug Stability.
    - Oral presentation at the NASA Deep Space Gateway Science Workshop, Denver, CO, USA (February 2018)
- Workshop participant, Santa Fe Institute, Santa Fe, NM, USA (February 2018)
    - Topic: Lookahead optimization in artificial and natural systems
- **Lehnhardt KR**, Vazquez ME. Is Radiation Exposure an Important Issue in Suborbital Human Spaceflight?
    - Oral presentation at the Next-Generation Suborbital Researchers Conference in Denver, CO, USA (June 2013)
- **Lehnhardt KR**, Miranda D. The Role of Footwear on Running Gait in a Microgravity Environment.
    - Oral presentation at the Next-Generation Suborbital Researchers Conference in Denver, CO, USA (June 2013)
- **Lehnhardt, KR**. A Unique, Member-Driven Approach to Developing Clinical Operating Guidelines for Emergency Medical Services.
    - Oral presentation at the National Collegiate Emergency Medical Services Foundation Annual Conference in Arlington, VA, USA (February 2013)
- Selected Competitor, Society of Academic Emergency Medicine Clinical Pathological Case Conference, Chicago, Illinois, USA (May 2012)
    - Topic: Congestive Heart Failure Secondary to a Flail Mitral Valve
- **Lehnhardt KR**. Decompression Illness in Space.
    - Oral presentation at the Canadian Space Summit in Kingston, Ontario, Canada (November 2009)
- McCreery G, **Lehnhardt KR**. Aerospace Medicine Training – An Opportunity for Development in Canada.
    - Oral presentation at the Canadian Space Summit in Kingston, Ontario, Canada (November 2009)
- **Lehnhardt, KR**. Aerospace medicine training opportunities in Canada and around the world.
    - Poster presentation at the 6th Canadian Space Exploration Workshop in Saint-Hubert, Quebec, Canada (December 2008)

Regional

- Speaker, Comicpalooza science fiction and pop culture convention, Houston, TX, USA (May 2023)
    - Topic: Medicine at the End of the Earth and in Space
- Panel speaker, Comicpalooza science fiction and pop culture convention, Houston, TX, USA (May 2019)
    - Topic: Star Trek, NASA, and the Medicine of Space
- Lecturer, Mid-Atlantic Student Wilderness Medicine conference, Thomas Jefferson University, Philadelphia, PA (2012)
    - Topic: Hypothermia
- Panel speaker, Space Exploration Series, Centre for Planetary Science and Exploration, University of Western Ontario (2010)
    - Topic: Introduction to Aerospace Medicine

Local

- Guest speaker, Students for the Exploration and Development of Space (SEDS), University of Puerto Rico at Mayagüez (April 2023 – virtual)
    - Topic: Journey to Space Medicine
- Guest speaker, University of Toronto Aerospace Medicine Talks (March 2022 – virtual)
    - Topic: Journey to Space Medicine
- Grand Rounds lecturer, Department of Emergency Medicine, University of Washington, Seattle, WA, USA (October 2021 – virtual)
    - Topic: Medical Capability for Human Exploration Spaceflight
- Guest lecturer, EHS 6227 – Introduction to Human Health in Space graduate course, School of Medicine and Health Sciences, George Washington University, Washington, DC, USA (April 2020, 2021, and 2022)
    - Topic: Engineering medical systems for human space exploration
- Guest lecturer, Aerospace Medicine Clerkship, NASA Johnson Space Center, Houston, TX, USA (April 2018, October 2018, April 2021, October 2023)
    - Topic: Medical Capability for Human Exploration Spaceflight
- Guest lecturer, MESPM 611 – Topics in Human Space Exploration and Medicine, Center for Space Medicine, Baylor College of Medicine, Houston, TX, USA (November 2018, November 2020, November 2021, November 2023)
    - Extreme medicine for space exploration
- Grand Rounds lecturer, Department of Emergency Medicine, Baylor College of Medicine, Houston, TX, USA (May 2020)
    - Topic: Orthopedics and the Emergency Physician
- Guest lecturer, Aerospace Medicine Interest Group, Baylor College of Medicine, Houston, TX, USA (November 2019)
    - Topic: NASA's Exploration Medical Capability
- Grand Rounds lecturer, Division of Emergency Medicine, Western University, London, Ontario, Canada (October 2018)
    - Topic: Emergency Medicine for Space Exploration
- Guest speaker, Baines Middle School Career Day, Missouri City, TX, USA (January 2018)
    - Topic: Medicine and Space
- Grand Rounds lecturer, Department of Cardiology, School of Medicine and Health Sciences, George Washington University, Washington, DC, USA (April 2017)

    - Topic: Controversies in Advanced Cardiac Life Support
- Panel speaker, Preventative Medicine Interest Group, School of Medicine and Health Sciences, George Washington University, Washington, DC, USA (March 2015)
    - Topic: Preventative medicine in emergency medicine and aerospace medicine
- Grand Rounds lecturer, Department of Emergency Medicine, Baylor College of Medicine, Houston, TX, USA (December 2014)
    - Topic: Extreme environmental medicine
- Grand Rounds lecturer, GWU Department of Emergency Medicine (2013)
    - Topic: Aerospace Medicine Physiology and Principles
- Panel speaker, ISU*USA Alumni Association and ExploreMars Space Café, Washington, DC, USA (September 2013)
    - Topic: How will we send humans to Mars?
- Invited speaker, Space Exploration Technologies Corporation (SpaceX), Washington, DC, USA (April 2013)
    - Topic: Introduction to Aerospace Medicine
- Invited speaker, ISU*USA Alumni Association Space Café, Washington, DC (2012)
    - Topic: Can We Really Go To Mars Right Now?
- Grand Rounds lecturer, GWU Department of Emergency Medicine (2012)
    - Topic: Local and Regional Anesthesia for Orthopedic Issues
- Grand Rounds lecturer, GWU Department of Emergency Medicine (2012)
    - Topic: Genitourinary Emergencies
- Guest lecturer, Space Policy Institute, Elliott School of International Affairs, George Washington University, Washington, DC (2012)
    - Topic: Introduction to Aerospace Medicine
- Grand Rounds lecturer, GWU Department of Emergency Medicine (2011)
    - Topic: Hypothermia
- Grand Rounds lecturer, GWU Department of Emergency Medicine (2010)
    - Topic: Introduction to Aerospace Medicine
- Honors. B. Sc. thesis presentation, University of Guelph (1999)
    - Topic: Correlation between electrolyte levels and the progression of polycystic kidney disease in mice

G. Visiting Professorships:

- Visiting Lecturer, Interactive Space Program, International Space University
    - Topic – Space Medicine and Pandemics
        - Virtual (July 2020)
- Visiting Lecturer, Space Studies Program, International Space University
    - Topics - Medicine and Human Performance in Space
        - Lisbon, Portugal (July 2022)
        - Granada, Spain and Strasbourg, France (July 2021 - virtual)
        - Delft, Netherlands (July 2018)
        - Cork, Ireland (July 2017)

IV. PATIENT CARE AND CLINICAL CONTRIBUTIONS

A. Patient Care Responsibilities

- Department-wide:
  - Attending Physician, Department of Emergency Medicine:
    - Ben Taub Hospital, Houston, TX (2018-2023)
    - Veterans Affairs Medical Center, Washington, DC, USA (2015-2017)
    - George Washington University Hospital, Washington, DC, USA (2010-2017)
    - Prince Georges Hospital Center, Cheverly, MD, USA (2010-2012)
    - London Health Sciences Centre, London, Ontario, Canada (2008-2010)
  - Aviation Medicine Clinic, Medical Faculty Associates, Washington, DC (2015-2017)
  - Deployable Advanced Resuscitation Physician, George Washington University Hospital GO Team (2014-2017)
  - Remote and Telemedicine Physician, Maritime Medical Access, Medical Faculty Associates, Washington, DC, USA (2010-2017)
- Section or Specialty:
  - Department of Emergency Medicine, Baylor College of Medicine (2018-2023)
  - Department of Emergency Medicine, George Washington University:
    - Education Section (2015-2017)
    - Emergency Management Section (2010-2017)
- Clinical Service (hours/clinic half days, RVU metrics, etc.):
  - Clinical work in the Emergency Department as an Attending Physician:
    - Houston, TX = 300 hours/year (2018-2023)
    - Washington, DC = 900 hours/year (2010-2017)
    - London, ON, Canada = 500 hours/year (2008-2010)
  - Emergency Medicine locum tenens:
    - Strathroy Middlesex General Hospital, Strathroy, Ontario, Canada (2008-2010)
    - Grey Bruce Health Services (Owen Sound, Southampton, and Markdale sites), Ontario, Canada (2008-2010)
    - South Bruce Grey Health Centre (Kincardine site), Kincardine, Ontario, Canada (2010)
    - St. Marys Memorial Hospital, St. Marys, Ontario, Canada (2008)

B. Clinical Leadership or Business Development

- EMS Medical Director, Emergency Medical Response Group (EMeRG), George Washington University, Washington, DC, USA (2010-2017)

C. Voluntary Health Organization Participation

- Member, Education and Training Committee, Aerospace Medical Association (2013-2023)
  - Awarded the Aerospace Medical Association President's Citation in 2021 – "For exceptional commitment to the mentoring and professional development of student and resident members, promoting aerospace medicine research and expanding collaboration within the aerospace medicine community"

- Volunteer Physician, Medical Support Team, Wings Over Houston Airshow, Houston, TX, USA (2021-2022)
- Volunteer, Medical Reserve Corps, Maryland Responds (2010-2017)
- Chair, PAIRO Trust Fund Committee, Professional Association of Internes and Residents of Ontario (2011)
- Member, PAIRO Trust Fund Committee, Professional Association of Internes and Residents of Ontario (2006-2010)
- Chair, Awards Selection Committee, Professional Association of Internes and Residents of Ontario (2005-2008)
- Member, University of Western Ontario Postgraduate Dean Selection Committee (2008)
- Past-President, Professional Association of Internes and Residents of Ontario (2007-2008)
- President, Professional Association of Internes and Residents of Ontario (2006-2007)
- Chair, Section of Internes and Residents, Ontario Medical Association (2006-2007)
- Member, University of Western Ontario FRCPC Emergency Medicine Residency Training Committee (2006-2007)
- Member, Board of Directors, Canadian Association of Internes and Residents (2003-2007)
- Vice-President, Professional Association of Internes and Residents of Ontario (2005-2006)
- Member, University of Western Ontario CFPC-EM Program Committee (2004-2006)
- Member, University of Western Ontario Postgraduate Medical Education Committee (2004–2006)
- Member, University of Western Ontario FRCPC Emergency Medicine Resident Selection Committee (2003-2006)
- Royal College of Physicians and Surgeons of Canada Representative, Professional Association of Internes and Residents of Ontario (2003-2005)
- Member-at-Large, Board of Directors, Professional Association of Internes and Residents of Ontario (2003-2005)
- Class Vice-President, University of Western Ontario (2002-2003)
- Interviewer, University of Western Ontario Medical School Admissions (2002)
- Class President, University of Western Ontario (2001-2002)
- Chair, Fundraising Committee, Ontario Medical Student Weekend (2000-2001)
- Chair, Tuition Group, Medical Education Taskforce on Tuition and Accessibility, University of Western Ontario (2000-2001)
- Supervisor, University of Guelph First Response Team (1997-1999)

V. SERVICE CONTRIBUTIONS

A. Administrative Assignments

1. Department Administration, Committees, etc.:
   - Medical Director, GW Medical Faculty Associates Training Center, Department of Emergency Medicine, George Washington University (2012-2017)

2. Institution-wide or School Administration, Committees, etc.:
   - Member, Health Sciences Curriculum Committee, George Washington University School of Medicine and Health Sciences (2012-2017)
   - Medical Director, Emergency Health Services Program, School of Medicine and Health Sciences, George Washington University (2012-2017)
   - Member, Chair Search Committee, Department of Clinical Research and Leadership, School of Medicine and Health Sciences, George Washington University (2013-2015)

B. National, Regional or Local Participation in Professional or Voluntary Organizations

- Research Advisor, Astronaut Health and Performance, Andromeda Program, Deep Space Initiative (2023)
  - https://www.deepspaceinitiative.org/
- NASA HUNCH (High schools United with NASA to Create Hardware) Mentor, Biomedical Projects, NASA Johnson Space Center, Houston, TX, USA (2022-2023)
  - https://nasahunch.com
- External Mentor, Zenith Canada Pathways Fellowship (2021-2023)
- Member, Board of Advisors, Students for the Exploration and Development of Space [SEDS Canada] (2020-2023)
- Volunteer, Human Test Subject Program, NASA Johnson Space Center (2018-2023)
- Brooke Owens Fellowship Program - http://www.brookeowensfellowship.org/
  - Mentor (2018-2023)
  - Invited Subject Matter Expert - "Human Life on Mars" Grand Challenge (2020)
- Member, Board of Advisors, Students for the Exploration and Development of Space [SEDS USA] (2016 - 2023)
  - https://seds.org/team
- Mentor, NASA High School Aerospace Scholars, NASA Johnson Space Center (2020)
- Regional Coordinator, Matthew Isakowitz Fellowship Program (2018-2019)
- Remote Flight Surgeon, Mars Desert Research Station, The Mars Society (2011-2014)
- Flight Member and Chief Medical Officer, Astronauts4Hire (2011-2013)
- Member, Program Committee, Canadian Space Summit (2012)
- Member, Board of Directors, Canadian Alumni for the International Space University (2009-2010)
- Operations Support, Canadian Space Leaders Roundtable (2009)

C. Other Pertinent Information (not given above)

Current Medical Staff Appointments (Credentials and Privileges):

- NASA Johnson Space Center, Houston, TX, USA (2020-2023)
- Ben Taub General Hospital, Harris Health System, Houston, TX, USA (2018-2023)

Medical Licenses:

- Texas Medical Board (2018-2023)
- College of Physicians and Surgeons of New Brunswick (2016-2023)

- Virginia Board of Medicine (2013-2018)
- DC Board of Medicine (2010-2018)
- Maryland Board of Physicians (2010-2018)
- College of Physicians and Surgeons of Ontario (2008-2010)

Published abstracts more than five years ago:

- Swaffield T, **Lehnhardt KR**. Novel Fracture Management Options During Spaceflight. Aerosp Med Hum Perform 2018; 89 (3): 229.
    - Oral presentation at the Aerospace Medical Association annual meeting in Dallas, Texas, USA (May 2018)
- Foster M, **Lehnhardt KR**. Rehabilitation Rates Post Long-Duration Spaceflight on the International Space Station. Aerosp Med Hum Perform 2018; 89 (3): 288.
    - Oral presentation at the Aerospace Medical Association annual meeting in Dallas, Texas, USA (May 2018)
- Modi V, DeVoll JR, **Lehnhardt KR**. Continuous Glucose Monitoring and Issuance of First-Class Medical Certificate. Aerosp Med Hum Perform 2017; 88 (3): 326.
    - Oral presentation at the Aerospace Medical Association annual meeting in Denver, Colorado, USA (May 2017)
- Padaki A, Redha W, Clark T, Nichols T, Jacoby L, Slivka R, Ranniger C, **Lehnhardt KR**. Improving Responses to In-Flight Medical Emergencies Through a Simulation-Based Curriculum. Aerosp Med Hum Perform 2017; 88 (3): 228.
    - Oral presentation at the Aerospace Medical Association annual meeting in Denver, Colorado, USA (May 2017)
- Swaffield T, Neviaser A, **Lehnhardt KR**. Fracture Risk in Spaceflight and Potential Treatment Options. IAC-16, A1, 3, 3, x34038
    - Oral presentation at the International Astronautic Congress in Guadalajara, Mexico (September 2016)
- Herrin DM, **Lehnhardt KR**. The History of Medical Clearance for Commercial Space Operations and Recommendations for Next-Generation Clearance and Occupational Safety Practices. Aerosp Med Hum Perform 2016; 87 (3): 314.
    - Oral presentation at the Aerospace Medical Association annual meeting in Atlantic City, New Jersey, USA (May 2016)
- Swaffield T, Buckland D, Slivka R, **Lehnhardt KR**. Ebullism in Space: Fact or Fiction. Aerosp Med Hum Perform 2015; 86 (3): 247.
    - Oral presentation at the Aerospace Medical Association annual meeting in Orlando, Florida, USA (May 2015)
- Zucker R, **Lehnhardt KR**. Mechanisms and Mitigating Factors for the Early Degradation of Medications in Long-Duration Spaceflight. Aerosp Med Hum Perform 2015; 86 (3): 236.
    - Oral presentation at the Aerospace Medical Association annual meeting in Orlando, Florida, USA (May 2015)
- Freese S, **Lehnhardt KR**. The Impact of Radiation on Human Health During Spaceflight Beyond Low Earth Orbit. IAC-14,A1,4,10,x24371.
    - Oral presentation at the annual International Astronautical Congress in Toronto, Canada (September 2014)

- Gallagher M, **Lehnhardt KR**, O'Griofa M. Medical Contingency Preparation and Response for the Mars Desert Research Station Habitat. Aviat Space Environ Med 2014; 85 (3): 355.
    - Oral presentation at the Aerospace Medical Association annual meeting in San Diego, California, USA (May 2014)
- **Lehnhardt KR**, O'Griofa M, Gallagher M. Improving Remote Medical Support Processes for Crew Members at the Mars Desert Research Station. Aviat Space Environ Med 2014; 85 (3): 355.
    - Oral presentation at the Aerospace Medical Association annual meeting in San Diego, California, USA (May 2014)
- Mantri A, Suresh R, Butterfield J, **Lehnhardt KR**. Potential Approaches to Closing Knowledge Gaps in Aerospace Medicine Education and Training. Aviat Space Environ Med 2014; 85 (3): 281.
    - Oral presentation at the Aerospace Medical Association annual meeting in San Diego, California, USA (May 2014)
- Suresh R, Butterfield J, **Lehnhardt KR**, Mantri A. Identifying Knowledge and Training Gaps in Aerospace Medicine as it Relates to Commercial Human Spaceflight. Aviat Space Environ Med 2014; 85 (3): 281.
    - Oral presentation at the Aerospace Medical Association annual meeting in San Diego, California, USA (May 2014)
- **Lehnhardt KR**, Mantri A, Butterfield J, Suresh R. The Current State of Aerospace Medicine Education in the United States and Around the World. Aviat Space Environ Med 2014; 85 (3): 281.
    - Oral presentation at the Aerospace Medical Association annual meeting in San Diego, California, USA (May 2014)
- Butterfield J, Mantri A, Suresh R, **Lehnhardt KR**. Professional Demographics of Aerospace Medicine Specialists. Aviat Space Environ Med 2014; 85 (3): 280.
    - Oral presentation at the Aerospace Medical Association annual meeting in San Diego, California, USA (May 2014)
- **Lehnhardt, KR**. The Biomedical Challenges of Long-Distance, Long-Duration Human Spaceflight. IAC-12.YPVF.2.6x16335
    - Oral presentation for the Human Space Endeavors Young Professionals Virtual Forum at the annual International Astronautical Congress in Naples, Italy (October 2012)
- **Lehnhardt KR**. Hyperbaric oxygen therapy for human spaceflight. GLEX-2012.10.2.2x12348.
    - Oral presentation at the Global Space Exploration conference in Washington, DC, USA (May 2012)
- **Lehnhardt KR**, Macander D, Marinucci J. The creation of a new fellowship in extreme environmental medicine. Aviat Space Environ Med 2012; 83 (3): 173.
    - Oral presentation at the Aerospace Medical Association annual meeting in Atlanta, Georgia, USA (May 2012)
- Shah A, Mosdossy G, Peddle M, **Lehnhardt KR**, McLeod S, Rieder M. A prospective, blinded, randomized controlled trial to evaluate Ketamine-Propofol vs. Ketamine alone for procedural sedation in the paediatric emergency department.
    - Acad Emerg Med 2009; 16 (4) S1: S5.

        - Opening plenary session at the annual Society for Academic Emergency Medicine meeting in New Orleans, Louisiana, USA (May 2009)
    - Can J Emerg Med 2009; 11 (3): 251.
        - Plenary session at the annual Canadian Association of Emergency Physicians meeting in Calgary, Alberta, Canada (June 2009)
- Lopez Urdiales, J.M., et al. Spaceports: The necessary infrastructure for private spaceflight. IAC-08.D2.2.8.
    - Oral presentation at the annual International Astronautical Congress in Glasgow, Scotland (September 2008)
- Peddle M, **Lehnhardt KR**, McLeod S, Mosdossy G. A prospective analysis of procedural sedation practices among academic emergency physicians. Can J Emerg Med 2007; 9(3): 210.
    - Poster presentation at the annual Canadian Association of Emergency Physicians meeting in Victoria, British Columbia, Canada (June 2007)
- **Lehnhardt KR**, Fox SA, Stitt LW, Quantz M, McKenzie N, Menkis A, Novick RJ. Incidence and predictors of early readmission after cardiac surgery. Can J Cardiol 2002; 18 (Supplement B): B163.
    - Poster presentation at the annual Canadian Cardiovascular Congress meeting in Edmonton, Alberta, Canada (October 2002)
- **Lehnhardt KR**, Lewell MP. Patients who refuse transport: a Canadian perspective. Can J Emerg Med 2002; 4(2): 124.
    - Oral presentation at the annual Canadian Association of Emergency Physicians meeting in Hamilton, Ontario, Canada (April 2002)