

flying safe. **OVERVIEW:** With increasing demands on military medical providers, the benefit of board certified aerospace medicine specialists has previously been brought into question. The recent experience with COVID often placed an aerospace medicine trained physician at the forefront of prevention and reason for the operational forces that do not have the time to stop their mission. It also highlighted the potential pitfalls that can occur when a provider lacks a preventive medicine background and cannot communicate population health to a community. Additionally, the importance of obtaining cultural competency within Naval Aviation cannot be understated when working with this population. **DISCUSSION:** As the potential for conflict arises with near-peer competitors many medical leaders will be at the tip of the spear working as an advisor and caretaker to the aviators within their purview. Establishing care for this community will be unique and the pilot-physician relationship will be increasingly important. The need for military aerospace medicine physicians may increase as they will need to lead and mentor the less experienced flight surgeons in the practice of preventive medicine which may be foreign to someone with a hospital-centric experience. Understanding safety, risk mitigation, and the clinical aspects unique to the aerospace population cannot be learned overnight and training and working within that environment is critical to obtaining the competencies to succeed within the community and gain pilot trust which ultimately leads to safer missions.

Learning Objectives

1. The participant will understand the importance of cultural competency and the pilot-physician relationship which is unique in Aerospace Medicine.
2. The participant will understand the unique role of aerospace medicine providers within the Navy and why board certification is critical to the Navy's medical mission and success.

[508] CIVILIAN AEROSPACE MEDICINE RESIDENCY: MORE THAN 30 YEARS OF EDUCATING PROVIDERS FROM SHUTTLE TO ISS TO COMMERCIAL SPACE

Serena Auñón-Chancellor

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(Education - Program/Process Review)

INTRODUCTION: With more than 30 years as an established American College of Graduate Medical Education (ACGME) accredited two year Post Graduate Medical Education (PGME) provider in aerospace medicine, this civilian based program has a significant footprint in aerospace medical education. Graduates have supported different eras of spaceflight from Shuttle, to International Space Station, and commercial crew missions. Enriched by a faculty with diverse clinical, physiologic, and disciplinary backgrounds, residents are educated through varied activities. **TOPIC:** A unique asset of the program lies in the four streams: (1) aerospace medicine residency; (2) principles of aviation and space medicine; (3) human health and performance; and (4) aerospace medical school concentration. The aerospace medicine residency program leads medical doctors to board certification. The remaining streams provide an inclusive opportunity, accepting learners at all levels and from different clinical backgrounds. They provide structured formal education, allowing those learners to contribute to other aspects of human space flight. In turn, this may serve to inform and enrich the PGME program. **APPLICATION:** The focus of this discussion will be on the value of aerospace medical education activities targeted at preparing for board certification and those that provided structured exposure without immediately leading to certification. Similar to off service placements in undergraduate medical education (UME) and PGME, there is significant value to accessible aerospace medical education at different levels of learner expertise.

Learning Objectives

1. List three levels of learner that may engage in formalized aerospace medicine education activities.
2. Describe the requirements for board certification in Aerospace Medicine by the American Board of Preventative Medicine (ABPM).
3. Describe the difference between a UME and PGME educational interventions.

[509] COMPETENCY BASED MEDICAL EDUCATION AS A FRAMEWORK FOR THE DEVELOPMENT OF AEROSPACE MEDICINE EXPERTISE

Kathleen Samoil

Simon Fraser University, Burnaby, BC, Canada

(Education - Program/Process Review)

INTRODUCTION: As space mission frequency increases and the number of individuals requiring aerospace medicine expertise to inform and provide clinical care there is value in examining the role of competencies as to inform education and evaluation strategies. These concepts can be carried forward to inform the certification process. **TOPIC:** Competency based medical education (CBME) is the current framework of the Accreditation Council for Graduate Medical Education (ACGME). Milestones, competencies, evaluation, and their relation to clinical outcomes at both the program and individual learner level require a strong framework (Nasca, Philibert, Brigham, & Flynn, 2012). This continues the competency structure for undergraduate medical education outlined by the Association of American Medical Colleges (2023). This work is built of the CanMEDS framework of the Royal College of Physicians and Surgeons of Canada (Frank, Snell, & Sherbino, 2015). This model outlines a model for the development of medical expertise through foundational medical knowledge, clinical skills, and professional values (Frank, Snell, & Sherbino, 2015). A key component of CMBE is the role of external and objective evaluation as it relates to the roles of (1) Communicator, (2) Collaborator, (3) Leader, (4) Health Advocate, (5) Scholar, and (6) Professional.

APPLICATION: With the move to CMBE for each of undergraduate, post graduate, and continuing medical education activities there are some core tenets that can be used to inform certification of different health professions including medical doctors, registered nurses, physiotherapists, paramedics and beyond within aerospace medicine. These tenets include the role of the external evaluator as opposed to self-assessed expertise. Cross monitoring, and a system of checks and balances as they relate to up to date, ethical, resourceful, and collaborative clinical care.

Learning Objectives

1. Describe two distinct concepts of a competency based medical education framework.
2. List the six unique roles of the medical expert as first described in CanMEDS.

FRIDAY, MAY 10, 2024

Friday, 05/10/2024
Grand Ballroom ABCD

8:00 AM

[S-89]: WORKSHOP: SPACE MISSION ANALOGS: MEDICAL CARE IN REMOTE MARITIME OPERATIONS

Chair: Brian Pinkston

Workshop OVERVIEW: In the early days of the U.S. Space program, hard lessons were learned through the trials of courageous scientists, engineers, astronauts, and other explorers. One of the most challenging human components of the mission was the safe recovery of astronauts in the hostile environment of the ocean. Pioneers such as NASA flight surgeon, Dr. Bill Carpentier, risked their lives in operational trials to ensure the safety of crew members in maritime operations. Decades of space shuttle missions followed by Soyuz support to the international space station shifted focus from the ocean. However, commercial space operations have returned to the practice of ocean-based recoveries. This has required reinvigoration and retraining in this area as much of the team members with this knowledge have retired. This workshop is intended

to be an introductory, hands-on workshop focused on medical care and safe operations in remote maritime missions. It will cover the following: 1) recovery of crew members in the water including proper techniques to reduce the risk of circumrescue collapse and afterdrop. 2) hypothermia, drowning, and their treatment in the field 3) maritime communications in an emergency and an introduction to rescue systems around the world 4) statistical analysis of common injuries and illnesses aboard ocean-bound vessels as well as their treatments 5) considerations for an appropriate maritime medical kit 6) roles and responsibilities of a vessel's medical officer 7) patient packaging for transport This workshop will be conducted with demonstrations and activities in a classroom, aboard sailboats, and in a controlled water environment.

[510] SPACE MISSION ANALOGS: MEDICAL CARE IN REMOTE MARITIME OPERATIONS

Brian Pinkston¹, Cheryl Lowry¹, Jim Fike², Bonnie Posselt³
¹Kinetic Medical Consultants, St. Petersburg, FL, United States; ²Fike Global Health, Alexandria, VA, United States; ³RAF, London, United Kingdom

(Education - Tutorial/Review)

In the early days of the U.S. Space program, hard lessons were learned through the trials of courageous scientists, engineers, astronauts, and other explorers. One of the most challenging human components of the mission was the safe recovery of astronauts in the hostile environment of the ocean. Pioneers such as NASA flight surgeon, Dr. Bill Carpentier, risked their lives in operational trials to ensure the safety of crew members in maritime operations. Decades of space shuttle missions followed by Soyuz support to the international space station had shifted focus from the ocean. However, commercial space operations have returned to the practice of ocean-based recoveries. This has required reinvigoration and retraining in this area as much of the team members with this knowledge have retired. This workshop is intended to be an introductory, hands-on workshop focused on medical care and safe operations in remote maritime missions. It will cover the following:

1. recovery of crew members in the water including proper techniques to reduce the risk of circumrescue collapse and afterdrop;
2. hypothermia and drowning and their field treatment;
3. maritime communications in an emergency and introduction to rescue systems around the world;
4. statistics for common injuries and illness aboard ocean-bound vessels and treatments;
5. considerations for an appropriate maritime medical kit;
6. roles and responsibilities of a ship's medical officer;
7. patient packaging for transport.

This workshop will be conducted with demonstrations and activities in a classroom, aboard sailboats, and in a controlled water environment.

Learning Objectives

1. By the end of the session, participants will be able to properly call a "mayday" and package a patient for transport in a maritime operation.

2. By the end of the session, the attendees will be able to name the top three injuries that commonly occur aboard a maritime vessel.
3. By the end of the session, each participant will understand the key steps to safely recover an overboard crew member while minimizing the risks of a fatal dysrhythmia or cardiovascular collapse.

[511] SPACE MISSION ANALOGS: MEDICAL CARE IN REMOTE MARITIME OPERATIONS

Brian Pinkston¹, Cheryl Lowry¹, Bonnie Posselt²

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