SPACE LIFE SCIENCES SYMPOSIUM (A1)
Medical Care for Humans in Space (3)

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ASSESSMENT OF MEDICAL RISK FACTORS FOR PROSPECTIVE PASSENGERS OF SUBORBITAL AND SHORT-DURATION ORBITAL COMMERCIAL SPACE FLIGHTS

Abstract

This presentation will describe several proposed approaches to preserve the health and promote medical safety of passengers who intend to participate in commercial suborbital flights and short-duration orbital flights (up to 4 weeks). Medical screening guidance proposed by the Aerospace Medical Association, the Federal Aviation Administration and the International Academy of Astronautics will be discussed. Space flight is associated with a number of physiological and psychological changes that may cause and/or worsen certain pre-existing medical conditions that could compromise a passenger's health and safety. These medical conditions include significant deformities (congenital or acquired) of the musculoskeletal system, diseases, illnesses, injuries, infections, tumors, treatments (pharmacological, surgical, prosthetic, or other), or other physiological or pathological conditions that could: 1) result in an inflight medical emergency, 2) result in an inflight death, 3) compromise the health and safety of other passengers or space vehicle occupants, 4) interfere with the proper use (don and doff) and operation of personal protective equipment, 5) interfere with emergency procedures (including evacuation), or 6) compromise the safety of the entire flight. Therefore, it is very important to identify those medical conditions and/or physiological predisposing-factors that could be adversely impacted by exposure to the environmental and operational risk factors encountered during launch, inflight and landing. Such risk factors include acceleration, barometric pressure, microgravity, ionizing radiation, non-ionizing radiation, noise, vibration, temperature and humidity, cabin air composition and contaminants, confinement, etc. It is also important to do everything possible to: 1) eliminate self-imposed stress factors such as alcohol and drug use/abuse, self-medication, fatigue, dehydration, etc.), 2) prevent and/or be prepared to deal with unexpected inflight medical emergencies (due to acute illnesses or trauma), 3) prevent and/or treat space motion sickness. The ultimate success of the emerging commercial human spaceflight industry will depend (to a great extent) upon their organizational actions to demonstrate a firm commitment to prevent the occurrence of adverse health and medical safety outcomes among their paying space passengers.