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Author: Mr. Kwasi Nkansah
University of Toronto, Canada

DEFINING A SPACE MEDICINE REVIEW FRAMEWORK TO FACILITATE SAFE ACCESS TO SUBORBITAL FLIGHT

Abstract

INTRODUCTION Commercial suborbital spaceflight companies are drawing closer to launching operations. These operators will presumably seek to maximize participant numbers whilst maintaining flight safety. Space agencies have historically operated a comprehensive process of medical flight certification. However, these have been designed to be stringent and involve a range of invasive, expensive and time-consuming assessments. As yet, no appropriate and streamlined medical flight certification has been developed to prepare passengers for short-duration commercial suborbital spaceflight in the context of the possibility of inclusion of the elderly and passengers with disabilities or pre-existing medical conditions. OBJECTIVE 1. Identify pertinent health risks for passengers in suborbital spaceflight. 2. To define a streamlined medical protocol for the general public to participate in suborbital flight. METHODOLOGY Literature review, critical analysis and narrative synthesis of space medicine methods, countermeasures and medical risks. Developing a guided risk assessment for the purpose of creating safe clinical practice guidelines that is flight profile tailored. Definition of an artificial intelligence-based clinical support system tool. RESULTS We defined risks and conditions likely to be encountered in suborbital flyers, designed a concept of a CDSS for individual medical risk assessment and screening, and generated a framework of medical support and countermeasures to maximize flight safety. The framework proposes the assessment of passengers using an artificial intelligence-based clinical support system tool CDSS tool to predict health risks using pre-flight medical examination and health record data. CONCLUSION We present a streamlined space medicine review framework designed to safely facilitate broader access to space on suborbital flight that optimizes and improves upon current space medicine review processes and incorporates an AI tool.