

AsMA 2022 Panel

TITLE: CLINICAL DECISION SUPPORT FOR EXPLORATION SPACE FLIGHT: SOFTWARE AUGMENTATION TO ENHANCE PROGRESSIVELY EARTH-INDEPENDENT MEDICAL OPERATIONS

Dana Levin
IPA, Johnson Space Center

BODY: This panel identifies the challenges of supporting medical events in deep space using integrated systems software to augment existing capabilities during increasingly Earth-independent missions where an asynchronous communication environment becomes routine. An interdisciplinary team of software designers, physicians, human factors engineers, and computational modelers applied their respective expertise to develop a roadmap for supporting the crew making medical decisions in more autonomous fashion with time-delayed ground support.

The first presentation describes predictive modeling implemented to assist medical system design and address risk reduction using robust clinical decision support software. The second presentation details how operational and environmental challenges guide assumptions and, in turn, by what means requirements for medical decision-making in deep space are derived. The third presentation describes and defines the skills and capabilities an exploration spaceflight medical officer will need to perform effectively during extended-duration spaceflight missions. The fourth presentation covers the potential models and function of the software element for supporting clinical decisions. The final presentation covers how these elements may work together with ground support to provide comprehensive care despite deep space travel's extreme challenges and limitations.

1,322 of 2,500 permitted characters

NF-1676 20210023283: Predictive Modelling to Assess and Address Challenges and Limitations Associated with Clinical Care and Decision Support in Deep Space – *McIntyre, Levin*

136 of 150 permitted characters

NF-1676 20210023285: How Environment and Operational Considerations Must Guide Requirements Development for Clinical Decision Support In Deep Space - *Burian, Russell, Levin*

127 of 150 permitted characters

NF-1676 20210023281: The Deep Space Medical Officer: Knowledge Skills and Abilities of Crew Medical Officers on Deep Space Missions – CRT Working Group (*Levin, Steller, Zahner, Kreykes, Nelson, Dukes, Hilmers*)

111 of 150 permitted characters

NF-1676 20210023282: Clinical Decision Support Software Models and Capabilities – *Russell, Burian, Levin*

59 of 150 permitted characters

NF-1676 20210023284: Computer in the Loop: A Paradigm for Software Augmentation of
Terrestrial Medical Support in Asynchronous Communication Environments –
Levin, Russell, Burian

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