

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

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DESIGN SOLUTIONS FOR MEDICAL CHALLENGES ON SURFACE EVA

**Abstract**

As exploration-class missions look towards the Moon and Mars as next destinations with a view towards establishing permanent surface operations, we need to evolve our approach toward surface EVAs (Extravehicular Activities), in particular contingency planning for eventual medical emergencies that will occur while in the field. In Project PoSSUM's EVA 102 Operational Space Medicine Class, non-medical participants are taught basic principles of medical assessment, triage and treatment in an austere environment, as well as surface EVA operations, and design principles for remote and space environments. The participants are then challenged to design solutions for specific medical conditions that may occur while on EVA, where immediate return-to-base is not an option. The design solutions for various medical problems that could be encountered on EVA from this year's class are presented, along with design considerations, trade-offs, lessons learned, future iterations, and next steps.