

MEDICAL DATA ARCHIECTURE PROJECT STATUS

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ABSTRACT

The Medical Data Architecture (MDA) project supports the Exploration Medical Capability (ExMC) risk to minimize or reduce the risk of adverse health outcomes and decrements in performance due to in-flight medical capabilities on human exploration missions. To mitigate this risk, the ExMC MDA project addresses the technical limitations identified in ExMC Gap Med 07: We do not have the capability to comprehensively process medically-relevant information to support medical operations during exploration missions. This gap identifies that the current International Space Station (ISS) medical data management includes a combination of data collection and distribution methods that are minimally integrated with on-board medical devices and systems. Furthermore, there are variety of data sources and methods of data collection. For an exploration mission, the seamless management of such data will enable an increasingly autonomous crew than the current ISS paradigm. The MDA will develop capabilities that support automated data collection, and the necessary functionality and challenges in executing a self-contained medical system that approaches crew health care delivery without assistance from ground support.

To attain this goal, the first year of the MDA project focused on reducing technical risk, developing documentation and instituting iterative development processes that established the basis for the first version of MDA software (or Test Bed 1). Test Bed 1 is based on a nominal operations scenario authored by the ExMC Element Scientist. This narrative was decomposed into a Concept of Operations that formed the basis for Test Bed 1 requirements. These requirements were successfully vetted through the MDA Test Bed 1 System Requirements Review, which permitted the MDA project to begin software code development and component integration. This paper highlights the MDA objectives, development processes, and accomplishments, and identifies the fiscal year 2017 milestones and deliverables in the upcoming year.