

## TELEMEDICINE IN SPACE FLIGHT – SUMMARY OF A NASA WORKSHOP

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**Background and Problem Definition:** The Exploration Medical Capability Element of the Human Research Program at NASA Johnson Space Center hosted the Telemedicine Workshop in January 2011 to discuss the medical operational concept for a crewed mission to a near-Earth asteroid (NEA) and to identify areas for future work and collaboration. With the increased likelihood of a medical incident on a long duration exploration mission to a near-Earth asteroid, as well as the fact that there will likely be limited medical capabilities and resources available to diagnose and treat medical conditions, it is anticipated that a more structured use of telemedicine will become highly desirable. The workshop was convened to solicit expert opinion on current telemedicine practices and on medical care in remote environments.

**Workshop Objectives:** The workshop brought together leaders in telemedicine and remote medicine from The University of Texas Medical Branch, Henry Ford Hospital, Ontario Telemedicine Network, U.S. Army Institute of Surgical Research, University of Miami, American Telemedicine Association, Doctors Without Borders, and the Pan American Health Organization. The primary objectives of the workshop were to document the medical operations concept for a crewed mission to a NEA, to determine gaps between current capabilities and the capabilities outlined in the operations concept, to identify research required to close these gaps, and to discuss potential collaborations with external-to-NASA organizations with similar challenges.

**Summary of Discussions and Conclusions:** The discussions held during the workshop and the conclusions reached by the workshop participants were grouped into seven categories: Crew Medical Officers, Patient Area in Spacecraft, Training, Electronic Medical Records, Intelligent Care Systems, Consultation Protocols, Prophylactic Surgical Procedures, and Data Prioritization. The key points discussed under each category will be presented.

**Learning Objectives:** The audience will become familiar with the conclusions reached by leaders in telemedicine and remote medicine on the medical operational concept for a human exploration mission to a NEA.

Which one of the following statements is correct?

- a) Prophylactic appendectomies are presently performed on all long duration space flight crew members.
- b) Long duration space flight crews are currently required to have a physician crew member.
- c) Physician astronauts presently do not have access to the electronic medical record system on the ground or on the International Space Station.
- d) All of the above are correct.

The correct answer is c) Physician astronauts presently do not have access to the electronic medical record system on the ground or on the International Space Station.