Chapter 1. Institutional and Programmatic Health and Medical Requirements and Responsibilities for Human Space Exploration

1.1 Overview

1.1.1 As stated in NASA Policy Directive (NPD) 8900.5, NASA Health and Medical Policy for Human Space Exploration, it is NASA policy to provide a safe and healthy environment for crewmembers, including provision of health, medical care, environmental systems, programs, and countermeasures for all mission phases; establishment of health and medical, human performance, habitability, and environmental standards; and sponsorship of health-related and clinical research.

1.1.2 This NPR establishes health and medical requirements for human space flight and the responsibilities for their implementation.

1.1.3 The policies for NASA medical operations and astronaut care are provided in NPD 8900.1, NASA Medical Operations Responsibilities in Support of Human Space Flight Programs, and NPD 8900.3, Astronaut Medical and Dental Observation Study and Care Program.

1.1.4 The policy for protection of human research subjects is provided in NPD 7100.8, Protection of Human Research Subjects.

1.1.5 The requirements for implementation of the Health and Medical Technical Authority are provided in NPR 7120.11, NASA Health and Medical Technical Authority (HMTA) Implementation.

1.2 NASA Health and Medical Standards for Human Space Exploration

1.2.1 NASA health, human performance, and medical standards for human space exploration will be established according to the process presented in Appendix C.

1.2.2 Health, human performance, and medical standards for human space exploration will be established and documented as follows:

a. NASA-STD-3001, NASA Space Flight Human System Standard, Volume 1 - Crew Health establishes standards to ensure a healthy and safe environment for crewmembers and to provide crewmembers with optimal health and medical practices and systems during all phases of space flight. These include appropriate levels of medical care, permissible exposure limits, fitness-for-duty criteria, and permissible outcome limits as a means of defining successful operating criteria for the human system.

b. NASA-STD-3001, NASA Space Flight Human System Standard, Volume 2 - Human Factors, Habitability and Environmental Health addresses habitability and environmental health, focuses on human physical and cognitive capabilities and limitations and defines standards for spacecraft (including vehicles, habitats, and suits), internal environments, in-space facilities, payloads, and related equipment, hardware, and software systems with which the crew interfaces during space operations.
c. OCHMO 80771201MED, NASA Crewmember Medical Standards, establishes and documents standards that address health and medical screening, evaluation, and certification of crewmembers.

1.2.3 The health, human performance, and medical standards described in 1.2.2 applies to all NASA human space flight programs and NASA-contracted human space flight programs, as specified in contractual specifications.

1.2.4 Management and privacy of medical information and data are as follows:

a. Collection, control of records, communications, and public release of all astronaut medical care, biomedical, and medical research data will comply with the privacy requirements of NPR 1382.1, NASA Privacy Procedural Requirements, and the provisions of the Privacy Act of 1974, as amended.

b. Records will be disposed of in accordance with NPR 1441.1, NASA Records Retention Schedules.

c. Requests, reviews, and potential release of human medical and research data will also comply with the established NASA policy (JSC-66306, Data Sharing Policy for Release of NASA Protected Health and Research Information).

1.3 Institutional and Programmatic Roles and Responsibilities

1.3.1 General

a. The roles and responsibilities of senior management are defined in part in NPD 1000.0, NASA Governance and Strategic Management Handbook, and NPD 1000.3, The NASA Organization.


c. The NASA CHMO shall serve as the office of primary responsibility providing leadership, policy direction, assessment, and coordination of the technical requirements and process compliance verification for this NPR.

1.3.2 The CHMO shall:

a. Promulgate health and medical policy for human space flight.

b. Serve as the NASA Health and Medical Technical Authority (HMTA).

c. Ensure Agency-wide implementation of HMTA (including HMTA awareness), as described in NPR 7120.11, NASA Health and Medical Technical Authority (HMTA) Implementation.

d. Establish and maintain human health, human performance, and medical standards for space flight.

e. Establish and maintain mission-specific human health, human performance, and medical standards for space flight for commercial space flight in collaboration with the Federal Aviation Administration.

f. Review and approve all human health-related, human performance, and medical requirements for space exploration.

g. Review and deliberate on requests for waivers/deviations to human health-related, human performance, and medical requirements originated by human space flight programs and projects.

h. Review and approve all human health-related and human performance research and technology recommendations and deliverables that enable human space exploration.

i. Approve operational implementation of research and technology deliverables that enable human space exploration.

j. Approve operational use of health and medical systems and technologies prior to their use in space exploration.

k. Consult with the Science Mission Directorate (SMD) to ensure that human health and medical-related planetary protection requirements for space exploration are coordinated with existing health and medical policy for human space exploration.

1.3.3 The Associate Administrator of the Human Exploration and Operations Mission Directorate (HEOMD) shall:

a. Support the formulation of human health-related, human performance, and medical requirements that meet Agency-level human system standards.

b. Designate a senior manager for space crew health and safety to advise the Mission Directorate Associate Administrator (AA) on crew health and medical issues.
c. Recommend requirements for health, human performance, medical care, and environmental systems, programs, and countermeasures for all mission phases and establish milestones for deliverables.

d. Provide on-orbit resources necessary to meet these milestones.

e. Recommend policies applicable to crew health and medical matters.

f. Implement human health-related, human performance, and medical requirements.

g. Review space medicine operations and results on a periodic basis.

h. Define, plan, conduct, and oversee NASA-sponsored, human health-related research, and technology development.

i. Develop human health-related research and technology deliverables to an appropriate stage of readiness level for final review, approval and implementation and recommend timelines for implementation.

j. Oversee the implementation of health-related research and technology deliverables once approved.

3.4 The AA for the Science Mission Directorate (SMD) shall coordinate with the CHMO regarding health and medical issues related to planetary protection for human space exploration.

1.3.5 The Johnson Space Center (JSC), through the Center Director or designee, shall:

a. Concur with the CHMO appointment of a JSC Chief Medical Officer (CMO).

b. Develop a JSC HMTA Implementation/Awareness Plan, as described in NPR 7120.11, NASA Health and Medical Technical Authority (HMTA) Implementation.

c. Medically screen, evaluate, and certify crewmembers.

d. Conduct clinical evaluations and monitor astronaut health at regular intervals to determine medical status during ground-based training and space flight.

e. Provide medical care to maintain the crewmember's ability to perform assigned duties before, during, and after space flight.

f. Provide health maintenance and preventive care to maintain the crewmember's ability to perform assigned duties before, during, and after space flight.

g. Provide post-flight health rehabilitation to assist the astronaut to return to functional baselines in the areas of physical fitness and physiological and behavioral health.

h. Provide mission-specific medical and behavioral health training for crewmembers.

i. Provide programs aimed at maintaining the health status and performance of crewmembers to enable the ability to function and perform all assigned duties over the duration of their career as an astronaut.

j. Establish, implement, and update a program of preventative medicine based on research findings, health and medical lessons-learned, current standards of medical practice, risk management data (health effects), and expert recommendations.

k. Develop and manage the Lifetime Surveillance of Astronaut Health.

l. Establish, document, and implement a NASA policy which allows for request, review of, and potential release of human medical and research data.

1.3.6 The JSC CMO shall:

a. Exercise HMTA for activities conducted at JSC and delegated human space flight HMTA activities at other NASA Centers, as described in NPR 7120.11, NASA Health and Medical Technical Authority (HMTA) Implementation.

b. Assign a point of contact for human space flight HMTA issues at other NASA Centers as, described in NPR 7120.11, NASA Health and Medical Technical Authority (HMTA) Implementation.

c. Provide recommendations for health and medical and environmental and human factors standards and requirements.

1.3.7 Per NPR 7120.11, Health and Medical Technical Authority Implementation, the CMOs at Centers other than JSC, shall:

a. Establish interfaces with assigned points of contact from the JSC.

b. Assist with the identification and resolution of HMTA human space flight issues.
c. Provide recommendations for health and medical and environmental and human factors standards and requirements.

1.3.8 Clinical decision will be made in accordance with the NASA Medical Policy Board (MPB) and Aerospace Medicine Board (AMB) responsibilities, as specified in NPD 1000.3, The NASA Organization.