



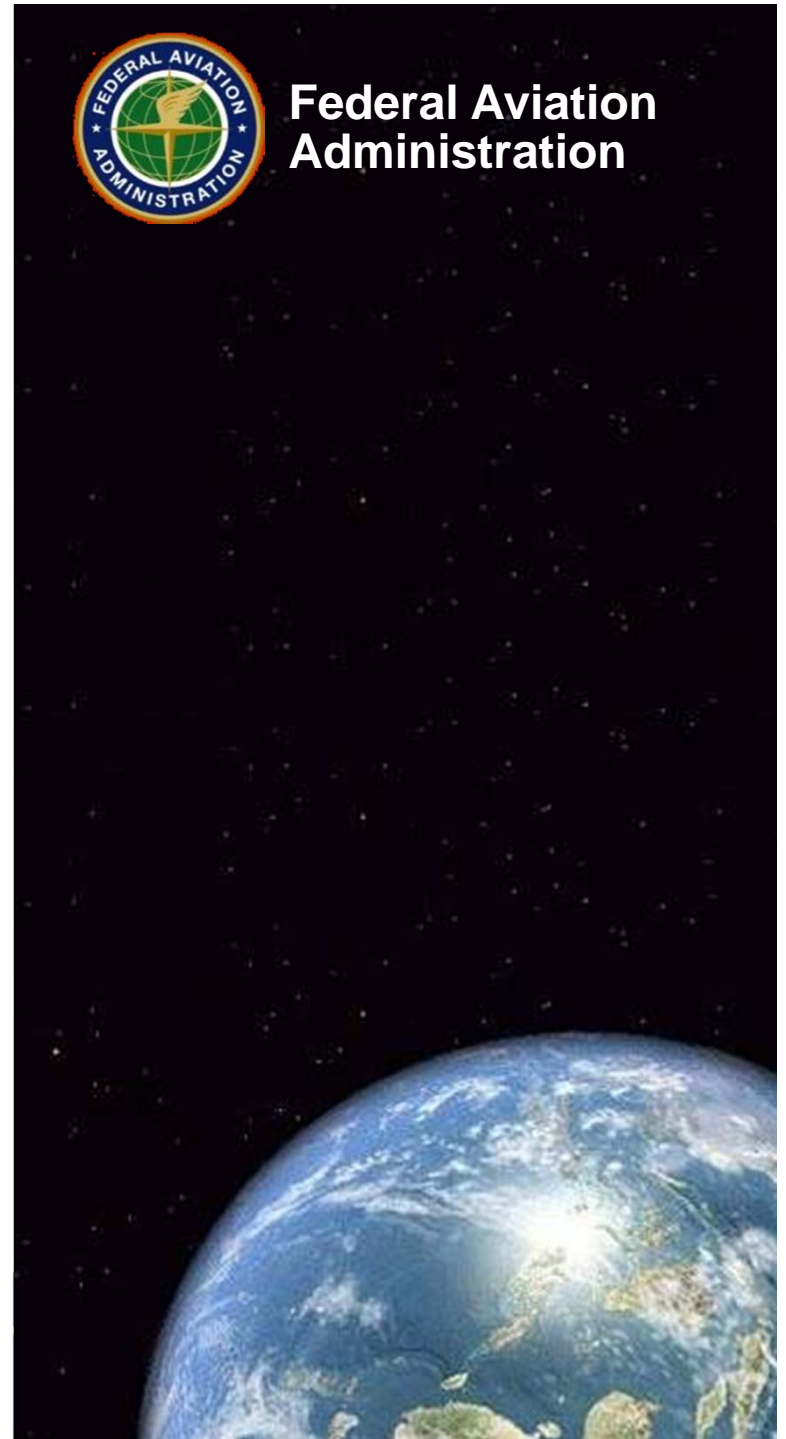
**Federal Aviation
Administration**

COE CST First Annual Technical Meeting:

1. Physiologic Database Definition & Design

James Vanderploeg, MD

November 10, 2011



Overview

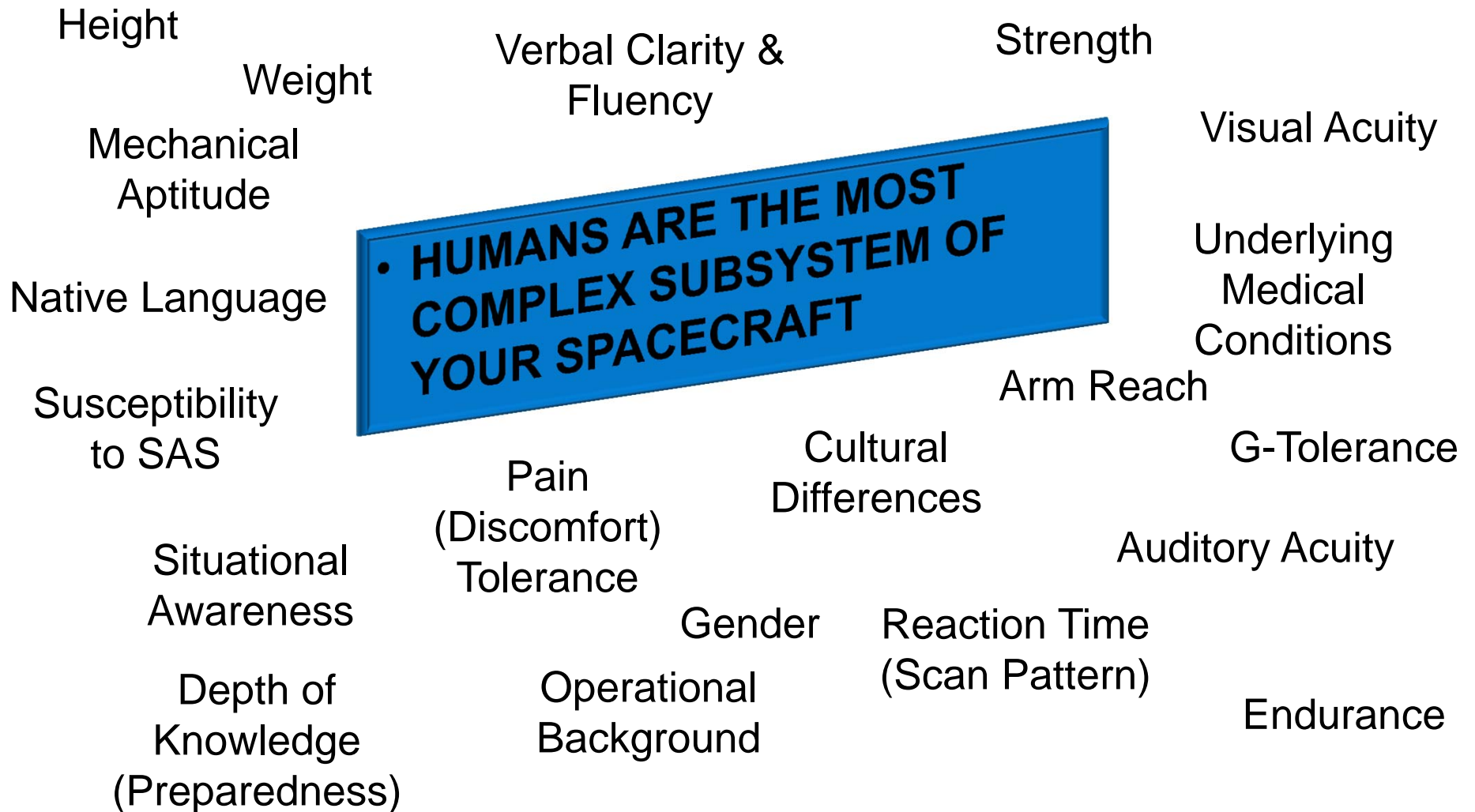
- Team Members
- Purpose of Task
- Schedule & Milestones
- Next Steps
- Contact Information



Team Members

- UTMB
 - PI: Jim Vanderploeg, MD (UTMB Aerospace Med.)
 - Student: Jennifer Law, MD (UTMB Aerospace Med.)
 - Student: Charles Mathers, MD (UTMB Aerosp. Med.)
 - Co-I: Richard Jennings, MD (UTMB Aerospace Med)
- NASA Johnson Space Center
 - Mary Van Baalen
 - Dr. John Charles
 - Dr. Jeffrey Davis
- Wyle Integrated Science & Engineering
 - Eric Kerstman, MD
 - Christine Smith
- FAA CAMI
 - Dr. Melchor Antunano

Understanding Human Complexity



Purpose of Task

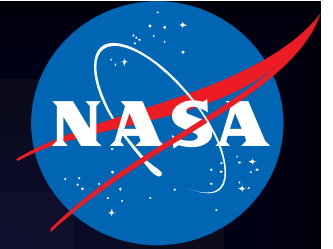
- Purpose:
 - Create a database of medical & physiological data from commercial crew and spaceflight participants
- Objectives:
 - Identify the appropriate data elements
 - Recommend a scalable design for the database
 - Establish security, approved access, appropriate uses of data
- Goals
 - Initial step is to begin defining the requirements and elements through a workshop of stakeholders

Existing Data Sets

- Longitudinal Study of Astronaut Health (LSAH)
- Historical data in Integrated Medical Model (IMM)
- Individual NASA research experiments data
- Flight Surgeon post-flight astronaut debrief data
- Data from experiments performed on Life Science research Shuttle missions

Problems with Existing Data Sets

- Small numbers of astronauts so de-identification is difficult
- Getting data out of the LSAH is difficult
- No integration among the data sets
- No standardization among the data sets



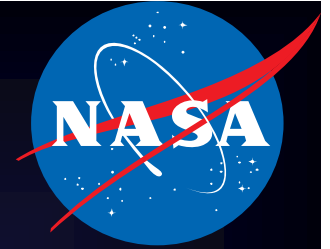
FAA – NASA

COMMERCIAL SPACE FLIGHT BIOMEDICAL DATA
ACQUISITION AND MANAGEMENT PROPOSAL

Jeffrey R. Davis, MD (NASA)

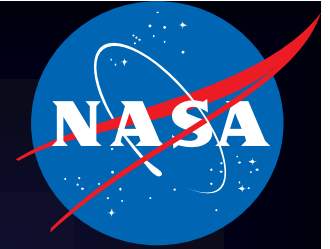
COMSTAC
RLV Working Group
October 10, 2007

COMMERCIAL SPACE FLIGHT BIOMEDICAL DATA



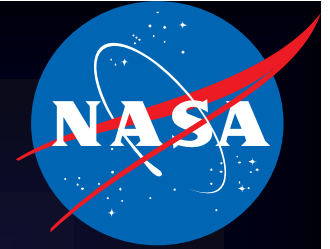
- NASA goals are to:
 - Encourage and support the emerging commercial space flight industry
 - Provide opportunities to expand the body of evidence characterizing human responses to space consistent with the proposed Enhanced Longitudinal Study for Astronaut Health (LSAH)
 - LSAH data gathering captures and studies all relevant medical data necessary to identify and ameliorate the health risks associated with human space flight to enable future human space exploration initiatives
 - Including commercial space flight participants will give NASA a better understanding of the physiological effects of space flight and further define what is required to safely fly humans in space

COMMERCIAL SPACE FLIGHT BIOMEDICAL DATA

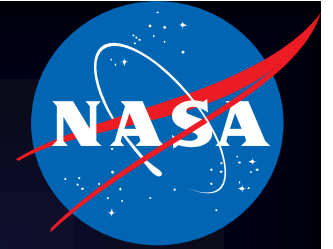


- **NASA and the FAA are proposing to establish an MOA** in which:
 - NASA will provide a data management, archive, and reporting system for commercial space flight participant biomedical monitoring data as a supplement to its enhanced LSAH database
 - NASA will establish an administrative structure to receive, manage, organize, and report the data
 - NASA will provide non-attributable (individual and/or company) commercial space flight passenger biomedical monitoring data to the FAA and participating operators upon request (at NASA cost)
 - NASA will provide operator-specific commercial space flight passenger biomedical monitoring data to each operator based on established agreements with that operator
 - FAA will provide non-attributable (individual and/or company) space flight crew certification and biomedical monitoring data to NASA upon request

COMMERCIAL SPACE FLIGHT BIOMEDICAL DATA



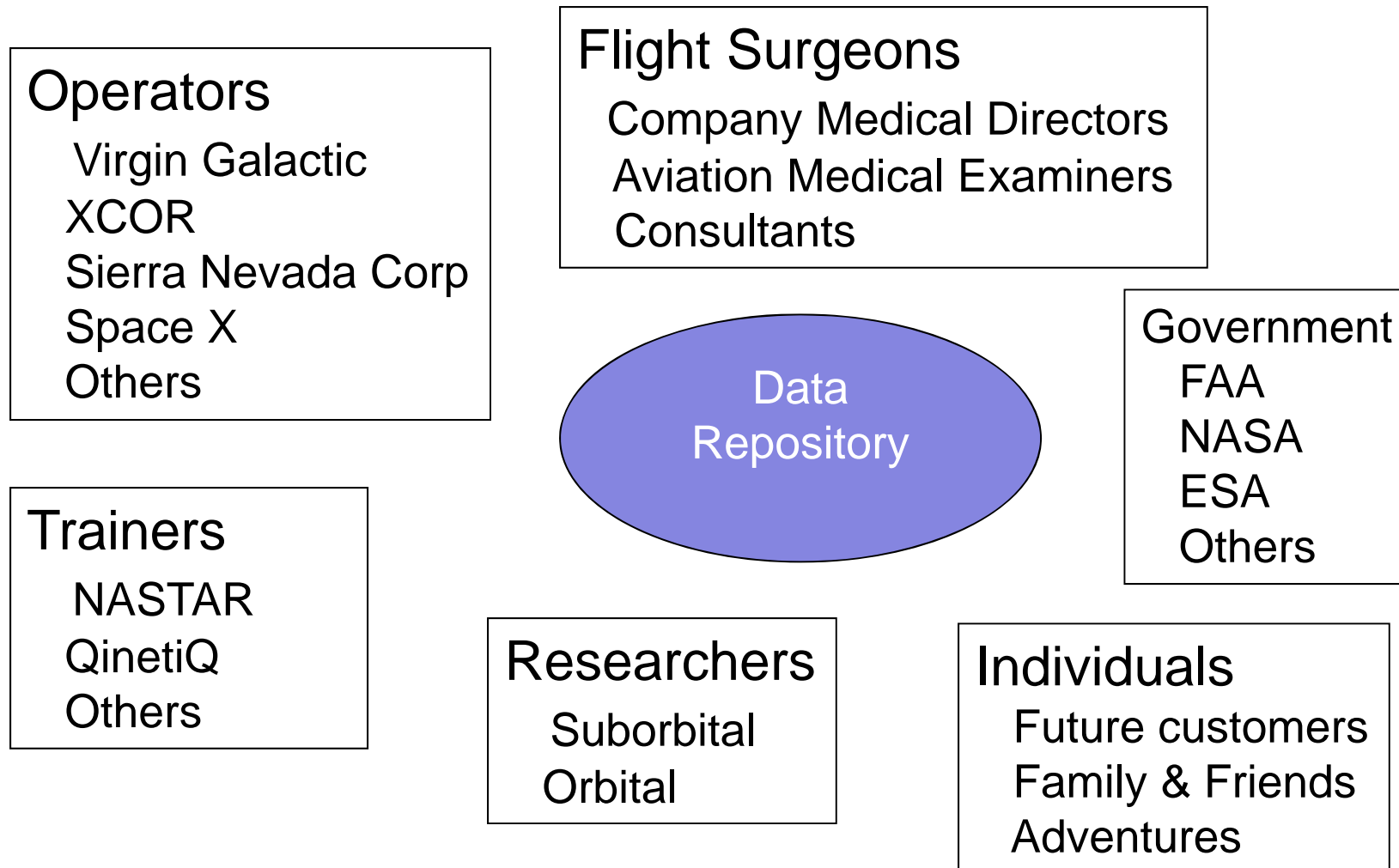
- NASA and the FAA are proposing to establish an MOA in which (continued):
 - FAA will oversee the collection and management of commercial space flight crew certification and biomedical monitoring data
 - NASA and the FAA will jointly analyze and utilize commercial space flight certification and biomedical monitoring data to better define medical risk factors involved with space flight crews and space flight participants before, during, and after space flight.
 - NASA and the FAA will jointly identify collaborative projects and approve project plans for collection and management of commercial space flight participant data
 - NASA and the FAA will jointly oversee the collection and management of commercial space flight participant data on a periodic basis



COMMERCIAL SPACE FLIGHT BIOMEDICAL DATA

- Benefit of data collection and analysis to commercial space flight operators
 - Gain greater insight into the medical risks, thereby reducing risk
 - Operators
 - Insurers
 - Enhance risk mitigation for space flight participants

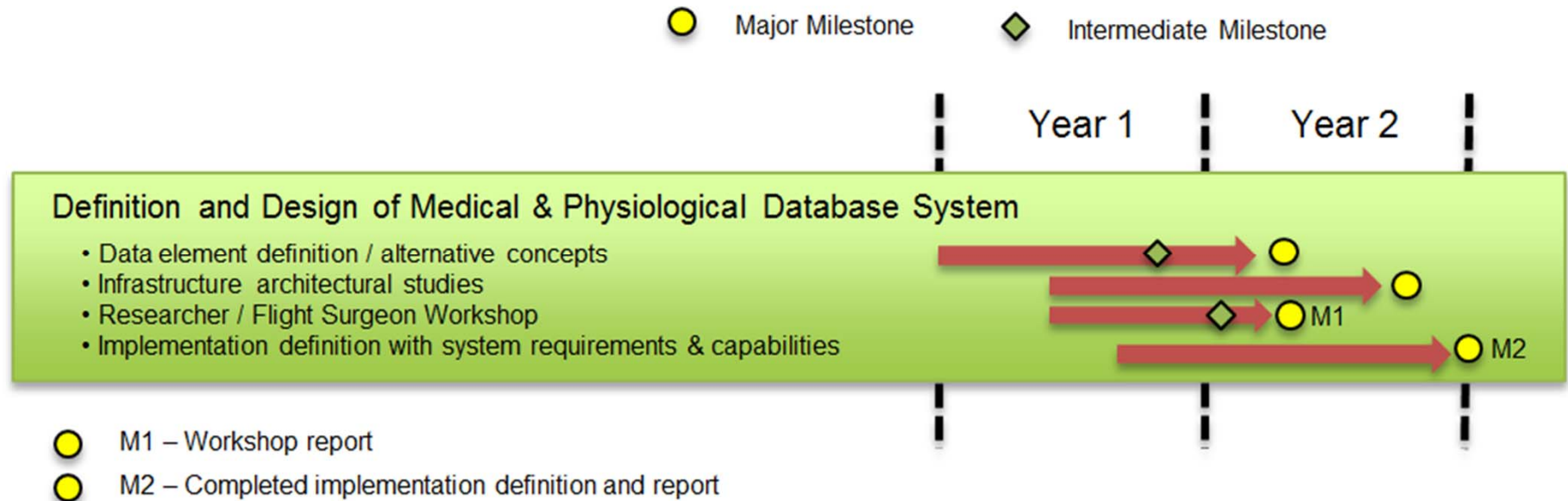
Stakeholders



Next Steps

- Identify stakeholders (in progress)
- Initial draft of data elements (in progress)
- Identify hosting options and resources
- Initial draft of security, confidentiality, and access requirements
- Conduct workshop in Spring 2012
- Draft report – mid 2012
- Final report and recommendations – Dec. 2012

Schedule & Milestones



Contact Information

- Jim Vanderploeg, MD, MPH
2.102 Ewing Hall, UTMB
301 University Blvd.
Galveston, Texas 77555-1110
Phone: 1-409-747-5357
Fax: 1-409-747-6129
Email: jmvander@utmb.edu