

<b>Fiscal Year:</b>	FY 2015	<b>Task Last Updated:</b> FY 08/14/2015	
<b>PI Name:</b>	Dinges, David F. Ph.D.		
<b>Project Title:</b>	Standardized Behavioral Measures for Detecting Behavioral Health Risks during Exploration Missions		
<b>Division Name:</b>	Human Research		
<b>Program/Discipline:</b>			
<b>Program/Discipline--Element/Subdiscipline:</b>	HUMAN RESEARCH--Behavior and performance		
<b>Joint Agency Name:</b>	<b>TechPort:</b>	No	
<b>Human Research Program Elements:</b>	(1) <b>HFBP</b> :Human Factors & Behavioral Performance (IRP Rev H)		
<b>Human Research Program Risks:</b>	(1) <b>BMed</b> :Risk of Adverse Cognitive or Behavioral Conditions and Psychiatric Disorders (2) <b>Team</b> :Risk of Performance and Behavioral Health Decrements Due to Inadequate Cooperation, Coordination, Communication, and Psychosocial Adaptation within a Team		
<b>Space Biology Element:</b>	None		
<b>Space Biology Cross-Element Discipline:</b>	None		
<b>Space Biology Special Category:</b>	None		
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<b>Comments:</b>			
<b>Project Type:</b>	FLIGHT,GROUND	<b>Solicitation / Funding Source:</b>	2013-14 HERO NNJ13ZSA002N-BMED Behavioral Health & Performance
<b>Start Date:</b>	07/21/2015	<b>End Date:</b>	07/20/2018
<b>No. of Post Docs:</b>	<b>No. of PhD Degrees:</b>		
<b>No. of PhD Candidates:</b>	<b>No. of Master' Degrees:</b>		
<b>No. of Master's Candidates:</b>	<b>No. of Bachelor's Degrees:</b>		
<b>No. of Bachelor's Candidates:</b>	<b>Monitoring Center:</b> NASA JSC		
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<b>Flight Program:</b>	ISS		
<b>Flight Assignment:</b>			
<b>Key Personnel Changes/Previous PI:</b>			
<b>COI Name (Institution):</b>	Basner, Mathias M.D. ( University of Pennsylvania ) Goel, Namni Ph.D. ( University of Pennsylvania ) Gur, Ruben Ph.D. ( University of Pennsylvania ) Kayser, Matthew M.D. ( Hospital of the University of Pennsylvania ) Mollicone, Daniel Ph.D. ( Pulsar Informatics, Inc. ) Stuster, Jack Ph.D. ( Anacapa Sciences, Inc. )		
<b>Grant/Contract No.:</b>	NNX15AK76A		
<b>Performance Goal No.:</b>			

<b>Performance Goal Text:</b>	
<b>Task Description:</b>	<p>The behavioral health of the crew during a mission to Mars mission could challenged due to the conditions required by the flight. However there is no standardized method to detect and quantify the magnitude of the risk or its likelihood. The overarching goal of this project is to build on a successful record of unobtrusive, software-based measurement of behavioral health indicators (e.g., mood, cognitive function, physical and mental fatigue, sleep quality) to develop an integrated standardized suite of behavioral health measurement tools that would be quite feasible to implement within the constraints of spaceflight research, ground-based analogs (both short- and long-duration), and prolonged missions in isolated, confined, extreme environments lasting up to 12 months or longer. Achievement of this goal would permit a more rapid and reliable assessment and quantification of the Risk of Adverse Behavioral Conditions Psychiatric Outcomes for exploration class missions. The suite of behavioral medicine measures we are developing will be integrated on Apple's iPad platform for their standardized use in ground analogs relevant to the spaceflight context (i.e., Standardized Behavioral Measures Tool or SBMT). It will include (a) the Cognition battery, (b) Visual Analog Scales (VAS) of perceived mental and physical exhaustion, fatigue, stress, workload, conflict and sleep quality, (c) actigraphy for monitoring sleep/wake activity, (d) an audio journal, (e) the Space Dock task as an operational performance measure, and (f) additional non-invasive measures relevant to behavioral medicine informed by a comprehensive literature review. The SBMT will be evaluated for its including the task of taking the information on measurement feasibility, flexibility, and acceptability during post-mission assessments in the participants studied in Human Exploration Research Analog (HERA), Hawai'i Space Exploration Analog and Simulation (HI-SEAS), and on International Space Station (ISS). It will be improved as needed, and an operational procedures document will be developed to make it use convenient and unobtrusive for detecting the incident rate of behavioral health risks in space and on Earth.</p>
<b>Rationale for HRP Directed Research:</b>	
<b>Research Impact/Earth Benefits:</b>	
<b>Task Progress:</b>	New project for FY2015.
<b>Bibliography Type:</b>	Description: (Last Updated: 03/24/2024)