

Fiscal Year:	FY 2017	Task Last Updated:	FY 08/31/2018
PI Name:	Roma, Peter Ph.D.		
Project Title:	Identification and Validation of BHP Standard Measures in HERA for Transport		
Division Name:	Human Research		
Program/Discipline:			
Program/Discipline--Element/Subdiscipline:	HUMAN RESEARCH--Behavior and performance		
Joint Agency Name:	TechPort:	No	
Human Research Program Elements:	(1) HFBP :Human Factors & Behavioral Performance (IRP Rev H)		
Human Research Program Risks:	(1) BMed :Risk of Adverse Cognitive or Behavioral Conditions and Psychiatric Disorders (2) Team :Risk of Performance and Behavioral Health Decrements Due to Inadequate Cooperation, Coordination, Communication, and Psychosocial Adaptation within a Team		
Space Biology Element:	None		
Space Biology Cross-Element Discipline:	None		
Space Biology Special Category:	None		
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Zip Code:	77058	Congressional District:	36
Comments:			
Project Type:	GROUND	Solicitation / Funding Source:	Directed Research
Start Date:	12/01/2016	End Date:	09/30/2019
No. of Post Docs:	No. of PhD Degrees:		
No. of PhD Candidates:	No. of Master' Degrees:		
No. of Master's Candidates:	No. of Bachelor's Degrees:		
No. of Bachelor's Candidates:	Monitoring Center: NASA JSC		
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Flight Program:			
Flight Assignment:	NOTE: Extended to 9/30/2019 (original end date was 7/01/2018) per D. Arias/HFBP at JSC (Ed., 9/13/18) NOTE: Extended to 9/30/2018 (original end date was 7/01/2018) per D. Arias/HFBP at JSC (Ed., 8/31/18)		
Key Personnel Changes/Previous PI:	August 2018: Original Principal Investigator (PI) was Tom Williams, PhD, who became HFBP Element Scientist shortly after the award was made; Jason Schneiderman became the interim PI until July 10, 2017, when Dr. Peter Roma came to Johnson Space Center and became Principal Investigator. In addition, CoInvestigator William Vessey, Ph.D., is no longer on the project; Sandra Whitmire, Ph.D., is now a CoInvestigator.		
COI Name (Institution):	Schneiderman, Jason Ph.D. (BHP Research Laboratory, KBRwyle, NASA/Johnson Space Center) Landon, Lauren Ph.D. (BHP Research Laboratory, KBRwyle, NASA/Johnson Space Center) Whitmire, Sandra Ph.D. (BHP Laboratory, KBRwyle/NASA Johnson Space Center)		
Grant/Contract No.:	Directed Research		
Performance Goal No.:			
Performance Goal Text:			

	<p>NOTE (August 2018): Original Principal Investigator (PI) was Tom Williams, PhD, who became Human Factors & Behavioral Performance (HFBP) Element Scientist shortly after the award was made; Jason Schneiderman became the interim PI until July 10, 2017, when Dr. Peter Roma came to Johnson Space Center and became Principal Investigator. At that time, title was changed to "Identification and Validation of BHP Standard Measures in HERA for Transport" (original title was "Identification and Validation of BHP Standard Measures").</p> <p>The BHP (Behavioral Health and Performance) Standard Measures will build upon the initial use and identification of Behavioral Core Measures (BCM), whose purpose was to evaluate the feasibility and acceptability of these outcome measures (Dinges; NNJ13ZSA002N-BMED; project title: "Standardized Behavioral Measures for Detecting Behavioral Health Risks during Exploration Missions") in high fidelity analogs. The task proposed here provides an opportunity to continue using standardized measures in order to operationalize their efficiency and effectiveness, ensure consistent measurement of these key metrics, and facilitate the analysis and understanding of these measures in assessing risk. The development and use of these expanded standardized measures are needed now to develop astronaut norms in order to determine their efficacy and ability to objectively detect, assess, and manage off nominal events; and predict future off nominal events that may compromise a mission and increase the risk of behavioral health and performance decrements. This advances our need for individualized, real-time tools that provide rapid feedback and assessment that are needed for exploration class missions. The use of BHP Standard Measures across analogs and analog missions, allows NASA Human Research Program (HRP) to determine a baseline for assessing and monitoring specific countermeasures; and increases the construct and predictive validity of countermeasures for assessing risk and for their monitoring of behavioral health and performance in spaceflight.</p> <p>Specific Aims for the current proposal include:</p> <p>Aim 1. Provide a set of BHP standard measurements for investigators to use in proposed projects. Significance: This allows NASA HRP to streamline and make more efficient the use of multiple measurements collected on research participants during analog research and helps to ensure a reduced burden on these research participants by using a "standard" set of measures for data sharing by multiple principal investigators (PIs).</p> <p>Aim 2. Enable comparison of multiple missions across spaceflight analog campaigns to quantify risk using reliable metric-based data. Significance: The "standardized measures" increases the generalization of findings across research analogs, increasing the validity and reliability of measures used to quantify, characterize, and assess the impact of spacelike analogs on prevalence of behavioral health issues, incidence rates, longer term health, and performance errors. This allows generation of reliable and sensitive metrics that can be used systematically to inform accurate risk assessment and mitigation status for future exploration spaceflight missions.</p> <p>Aim 3. Provide database for data-mining and integrative modeling and increase research data quality and transfer to the Life Sciences Data Archive (LSDA). Significance: Collection of "Standardized Measures" allows for greater consistency and fidelity of data collected, enhancing the data archiving capabilities of analog outcomes, increasing accessibility of data for NASA use, metrics assessment associated with red to yellow, and yellow to green risk status, and trending, and increasing the probability that the standardized set of measures are appropriately archived in a timely manner. Although data management agreements require PIs to submit their data after completion of their research, the exact format and timeliness of that data submission varies greatly among PIs. The collection of "standardized measures" via internal directed studies helps to ensure more timely, valid, and accessible data resources to help guide risk reduction.</p>
<p>Rationale for HRP Directed Research:</p>	<p>This research is directed because NASA must define complete scientific activities in a short time and there is insufficient time to issue a solicitation. This task is in direct response to both the August 2014 HSRB requirement and the baselined HRP Path to Risk Reduction milestone of providing standard measures to monitor crew health and performance. This will allow HRP to establish, evaluate, and manage a common set of measures for use in spaceflight and analog research to: develop baselines, systematically characterize risk likelihood and consequences, and assess effectiveness of countermeasures that work for human factors and behavioral performance risk factors. This proposal qualifies for a directed study due to the urgent, time-sensitive need to provide "standard measures" as the foundation to achieve consistent research measure for data-sharing in HERA (Human Exploration Research Analog) and to meet the highly constrained, operationally-focused data gathering and analysis that allows for greater consistency in the research methods that are specific to NASA HRP standard measures development. Additionally, the set of BHP standardized measures in the HERA analogy reflects the more operational nature of the measures while allowing the multiple and frequent internal and external collaborations required to execute this study. The directed nature of this study also allows NASA to provide the unique research and support expertise that is needed to integrate and manage the data from all of the various participating studies to achieve HRP's intent and support to the Flight Analogs Project (FAP) within a highly constrained time schedule. Completion of the required research, support to both analog and operational requirements, and vetting of the evidence-based standards makes the solicitation process prohibitive. In addition, our group, the BHP Lab has already performed similar work across various analogs in support of previous NASA research and the use of the BHP Lab offers considerable efficiencies that are realized by building upon our existing work and that expertise. Finally, two panels of extramural subject matter experts with experience in critical task identification in academic, military, and spaceflight analog settings met at Johnson Space Center (JSC) and provided recommendations consistent with the enclosed project related to team processes (November 2015) and psychometric assessment of cognition (April 2016).</p>
<p>Research Impact/Earth Benefits:</p>	
<p>Task Progress:</p>	<p>New project for FY2017.</p> <p>NOTE (August 2018): Original Principal Investigator (PI) was Tom Williams, PhD, who became Human Factors & Behavioral Performance (HFBP) Element Scientist shortly after the award was made; Jason Schneiderman became the interim PI until July 10, 2017, when Dr. Peter Roma came to Johnson Space Center and became Principal Investigator.</p>
<p>Bibliography Type:</p>	<p>Description: (Last Updated: 07/05/2023)</p>