Fiscal Year: FY 2005
Task Last Updated: FY 11/03/2005

PI Name: Cartreine, James A. Ph.D.

Project Title: Designing a Smart Medical System for Psychosocial Support

Division Name: Human Research

Program/Discipline: NSBRI Teams

Program/Discipline--Element/Subdiscipline: NSBRI Teams--Neurobehavioral and Psychosocial Factors Team

Joint Agency Name: TechPort: No

Human Research Program Elements: None

Human Research Program Risks: None

Space Biology Element: None

Space Biology Cross-Element Discipline: None

Space Biology Special Category: None

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PI Organization Type: UNIVERSITY Phone: 617-851-8913

Organization Name: Brigham and Women's Hospital/Harvard Medical Center

PI Address 1: Program in Behavioral Informatics and eHealth

PI Address 2: Department of Psychiatry

PI Web Page:

City: Boston State: MA

Zip Code: 02215 Congressional District: 8

Comments: NOTE: PI moved to Brigham and Women's Hospital; formerly at Beth Israel Deaconess Medical Center, Boston, MA, per info received December 2011 (Ed.) Name change to Cartreine in summer 2008 (from Carter), per NSBRI information (11/08)

Project Type: GROUND Solicitation: NSBRI

Start Date: 05/01/2001 End Date: 09/30/2005

No. of Post Docs: 0 No. of PhD Degrees: 1

No. of PhD Candidates: 1 No. of Master's Degrees: 1

No. of Master's Candidates: 1 No. of Bachelor's Degrees: 0

No. of Bachelor's Candidates: 0 Monitoring Center: NSBRI

Contact Monitor: Contact Phone:

Contact Email:

Flight Program:

Flight Assignment:

Key Personnel Changes/Previous PI:

COI Name (Institution): Buckey, Jay (Dartmouth College)

Holland, Albert (NASA JSC)

Grant/Contract No.: NCC 9-58-NBPF.002.07

Performance Goal No.:

Performance Goal Text:
INTRODUCTION Although interpersonal conflict can be productive, unmanaged conflict can pose a threat to the success of long-duration missions. This project involves the development of a conflict management training program to teach long-duration crews how to manage intra-crew conflict, crew-ground conflict, and silent conflict, and to mediate between crewmembers who are in conflict. This training is part of a larger network of self-guided interactive multimedia programs to train and assist long-duration flyers in the prevention, assessment, and management of multiple psychosocial problems that can arise on extended missions. The system is intended for use during training and on orbit.

METHODS The project involves three phases. Phase 1: Background Data Collection. Consultation interviews were conducted with 13 veteran long-duration flyers who have lived on the International Space Station, Mir, and Skylab. Interviewees were presented with five hypothetical scenarios, three of which depicted interpersonal conflicts, both within crews and between space and ground, on extended missions. Input was obtained on the best practices for managing such situations, as well as mistakes that a novice might make in handling them. Input was also obtained from clinical experts in interpersonal conflict management and depression treatment. Content of the training program was based on these data. Phase 2: Interactive Multimedia Production. A Virtual Space Station 3-dimensional graphic was created to serve as a portal to multimedia-based training, assessment, and intervention resources. The system is modular and expandable, to accommodate additional content in the future. Original content is being created to teach how to manage conflicts, and presented via interactive video simulations, activities, and didactics. All training and intervention content is guided by an on-camera coach. Phase 3: Formative Evaluation of the system by astronauts at NASA-Johnson Space Center. Formative evaluation of a prototype of the training will be conducted with 10 members of the astronaut corps. They will use portions of the system and provide feedback regarding its usability, acceptability, and perceived value. This data will guide further program development and revisions.

EARTH APPLICATIONS Although this study involves developing countermeasures to assist long-duration flyers, it also provides a model that could be applied in many earthbound settings, both in operational environments and in everyday life.

Rationale for HRP Directed Research:

Research Impact/Earth Benefits:
The system, with simple modifications and revisions, could be adapted for use in other isolated operational environments, such as polar research stations, submarines, commercial ships, oilrigs, and underwater research bases. Furthermore, even greater value could be derived by making similar psychosocial support systems available to the public in settings such as primary care practices, public and mental health centers, schools, social services offices, places of worship, military bases, prisons, and eventually at home or in any location, through broadband Internet.

Task Progress:
In the past year, we have 1) written several scripts for conflict management training simulations, 2) scripted and programmed training on how to do cognitive restructuring (a fundamental aspect of conflict management and cognitive behavioral therapy), 3) further developed the architecture of the system, 4) interviewed several additional long duration flyers about their opinions on best practices, 5) written a 70 page “how to” manual on conflict management to be used in conjunction with the interactive simulations, and 6) begun the usability and acceptability testing in conjunction with the Usability Testing and Analysis Facility. We have also helped to get the current version of the program into use for training astronaut candidates in a live seminar.

Bibliography Type:
Description: (Last Updated: 03/20/2019)

Articles in Peer-reviewed Journals

Presentation
Carter, JA, Buckey, JC, Holland, AW, Hegel, MT, Greenahaglb, L "An interactive multimedia conflict management training program for long-duration space crews" N/A May-2005

Presentation
Carter, JA, Buckey, JC, Holland, AW, Hegel, MT, Greenah, L "A psychosocial training system for long duration spaceflights” N/A Oct-2005