Fiscal Year:	FY 2013	**Task Last Updated:**	FY 04/01/2015
PI Name:	Wessells, Hunter B. M.D.		
Project Title:	First Clinical Test of Feasibility of Ultrasound to Reposition Kidney Stones		
Division Name:	Human Research		
Program/Discipline:			
Program/Discipline--Element/Subdiscipline:	NSBRI--Smart Medical Systems and Technology Team		
Joint Agency Name:		**TechPort:**	No
Human Research Program Elements:	(1) **ExMC**:Exploration Medical Capabilities		
Human Research Program Risks:	(1) **Medical Conditions**:Risk of Adverse Health Outcomes and Decrements in Performance Due to Medical Conditions that occur in Mission, as well as Long Term Health Outcomes Due to Mission Exposures		
Space Biology Element:	None		
Space Biology Cross-Element Discipline:	None		
Space Biology Special Category:	None		
PI Email:	wessells@u.washington.edu	**Fax:**	FY 206-543-3272
PI Organization Type:	UNIVERSITY	**Phone:**	206-543-3640
Organization Name:	University of Washington		
PI Address 1:	Department of Neurology		
PI Address 2:	1959 NE Pacific Street, Box 356510		
PI Web Page:			
City:	Seattle	**State:**	WA
Zip Code:	98195	**Congressional District:**	7
Comments:			
Project Type:	GROUND	**Solicitation / Funding Source:**	Directed Research
Start Date:	07/01/2013	**End Date:**	12/31/2014
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:**	NSBRI
Contact Monitor:		**Contact Phone:**	
Contact Email:			
Flight Program:			
Flight Assignment:			
Key Personnel Changes/Previous PI:			
COI Name (Institution):	Bailey, Michael (University of Washington) Harper, Jonathan (University of Washington) Dunmire, Barbrina (University of Washington) Coburn, Michael (Baylor College of Medicine) Lingeman, James (Indiana University School of Medicine)		
Grant/Contract No.:	NCC 9-58-SMST00002		
Performance Goal No.:			
Performance Goal Text:			

Task Description:	Kidney stones exert a major burden on the US healthcare system, causing pain, obstruction of the urinary tract, and loss of worker productivity. They are of particular concern in space flight, because microgravity, dehydration, and altered bone metabolism increase the risk of stone development A kidney stone can cause debilitating pain as it passes or worse, become obstructing, and leading to other complications. Thus, developing a non-invasive approach to mitigate against severe complications would be a major advance with potential broad clinical applications on Earth. Dr. Hunter Wessells and colleagues in the Department of Urology and Applied Physics Laboratory at the University of Washington are conducting a research project to determine whether medical ultrasound devices can be used to reposition kidney stones within the human urinary tract. The research team will assess the safety and feasibility through a pilot clinical trial involving 15 subjects undergoing evaluation and treatment of existing kidney stones. The goal of the study is to determine whether kidney stones can be moved within the kidney and what the patient experiences during the repositioning.
Rationale for HRP Directed Research:	
Research Impact/Earth Benefits:	One in 11 Americans have had stones. Most form more than one stone over time. Our goal is an office-based procedure to use ultrasound to image and treat these stones and thereby to avoid surgery and repeated x-ray monitoring. Some of the many applications of the novel technology may include relieving obstructing calculi, pre-positioning of stones for improved surgical outcomes, imaging confirmation of stone number and size, and respositioning small kidney stones of residual fragments to facilitate their passage. There is commercial and clinical interest in the technology as it has the potential to change the way stones are treated for many people.
Task Progress:	New project for FY2013. (Ed. note, 4/1/2015: added to Task Book when received information.)
Bibliography Type:	Description: (Last Updated: 11/05/2023)