Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Defense Health Agency											Date: March 2022	
Appropriation/Budget Activity 0130: *Defense Health Program I* BA 2: *RDT&E*					R-1 Program Element (Number/Name) PE 0601117DHA *I Basic Operational Medical Research Sciences*							
COST ($ in Millions)	**Prior Years**	**FY 2021**	**FY 2022**	**FY 2023 Base**	**FY 2023 OCO**	**FY 2023 Total**	**FY 2024**	**FY 2025**	**FY 2026**	**FY 2027**	**Cost To Complete**	**Total Cost**
Total Program Element	74.639	8.913	25.090	39.568	0.000	39.568	40.121	41.210	41.436	41.633	Continuing	Continuing
100A: *Congressional Special Interests*	0.000	0.000	15.999	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
371: *GDF - Basic Operational Medical Research Science*	51.415	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
371A: *GDF - BOMRS (Combat Casualty Care)*	23.224	1.304	1.328	1.356	0.000	1.356	1.381	1.410	1.437	1.466	Continuing	Continuing
371B: *GDF - BOMRS (Military Operational Medicine)*	0.000	5.498	5.609	5.720	0.000	5.720	5.836	5.953	6.072	6.193	Continuing	Continuing
371E: *GDF - BOMRS (Military Infectious Disease)*	0.000	2.111	2.154	2.197	0.000	2.197	2.241	2.285	2.331	2.378	Continuing	Continuing
371F: *GDF - BOMRS (Defense Research Sciences)*	0.000	0.000	0.000	30.295	0.000	30.295	30.663	31.562	31.596	31.596	Continuing	Continuing

Note

n/a

A. Mission Description and Budget Item Justification

Guidance for Development of the Force (GDF) -Basic Medical Research Sciences: This program element (PE) provides support for basic medical research directed toward greater knowledge and understanding of the fundamental principles of science and medicine that are relevant to the improvement of Force Health. Research in this PE is designed to address areas of interest to the Secretary of Defense regarding Service Member Health, capabilities identified through the Joint Capabilities Integration and Development System, and sustainment of DoD and multi-agency priority investments in science, technology, research, and development.

GDF basic research (PE 0601117) program development and execution is peer-reviewed and coordinated with all of the Military Services, appropriate Defense agencies or activities and other federal agencies, to include the Department of Veterans Affairs, and the Department of Health and Human Services. Funds in this PE are for basic research that promises to provide important new approaches to complex military medical problems. As the research efforts mature, the most promising efforts will transition to applied research (PE 0602115) or technology development (PE 0603115) funding.

Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Defense Health Agency	Date: March 2022
Appropriation/Budget Activity 0130: *Defense Health Program I* BA 2: *RDT&E*	**R-1 Program Element (Number/Name)** PE 0601117DHA *I Basic Operational Medical Research Sciences*

B. Program Change Summary ($ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Previous President's Budget	8.913	9.091	39.568	0.000	39.568
Current President's Budget	8.913	25.090	39.568	0.000	39.568
Total Adjustments	0.000	15.999	0.000	0.000	0.000
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	15.999			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			

Congressional Add Details ($ in Millions, and Includes General Reductions)	FY 2021	FY 2022
Project: 100A: *Congressional Special Interests*		
Congressional Add: *GDF - Restore Core Research Funding Reduction*	-	15.999
Congressional Add Subtotals for Project: 100A	-	15.999
Project: 371F: *GDF - BOMRS (Defense Research Sciences)*		
Congressional Add: *Add input*	0.000	0.000
Congressional Add Subtotals for Project: 371F	0.000	0.000
Congressional Add Totals for all Projects	0.000	15.999

Exhibit R-2A, RDT&E Project Justification: PB 2023 Defense Health Agency			Date: March 2022
Appropriation/Budget Activity 0130 / 2	R-1 Program Element (Number/Name) PE 0601117DHA / *Basic Operational Medical Research Sciences*	Project (Number/Name) 100A / *Congressional Special Interests*	

COST ($ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
100A: *Congressional Special Interests*	0.000	0.000	15.999	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing

A. Mission Description and Budget Item Justification

This is program increase due to GDF restoral in the FY22 enacted budget.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Title: GDF - Restore Core Research Funding Reduction	0.000	-	-	-	-
Accomplishments/Planned Programs Subtotals	0.000	-	-	-	-

	FY 2021	FY 2022
Congressional Add: GDF - Restore Core Research Funding Reduction	-	15.999
FY 2022 Plans: This is a program increase due to GDF restoral in the FY22 enacted budget.		
Congressional Adds Subtotals	-	15.999

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2023 Defense Health Agency			Date: March 2022
Appropriation/Budget Activity 0130 / 2	R-1 Program Element (Number/Name) PE 0601117DHA / *Basic Operational Medical Research Sciences*	Project (Number/Name) 371 / *GDF - Basic Operational Medical Research Science*	

COST ($ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
371: *GDF - Basic Operational Medical Research Science*	51.415	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing

A. Mission Description and Budget Item Justification

Basic research described here focuses on enhancement of knowledge to support capabilities identified through the Joint Capabilities Integration and Development System process and sustainment of DoD and multi-agency priority investments in science, technology, research, and development as stated in the National Defense Strategy, the National Research Action Plan for Improving Access to Mental Health Services for Veterans, Service Members, and Military Families, and the National Strategy for Combating Antibiotic Resistance. This project supports basic research in the following areas:

• Military Infectious Diseases basic research supports development of protection and treatment products for military relevant emerging infectious diseases.

• Military Operational Medicine basic research efforts seek to develop medical countermeasures against operational stressors, prevent musculoskeletal, neurosensory, and psychological injuries during training and operations, and to maximize health, performance and readiness of Service Members.

• Combat Casualty Care efforts are focused on optimizing survival and recovery of injured Service Members across the spectrum of care from point of injury through en route and facility care.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Title: Project 371 GDF – Basic Operational Medical Research Sciences ***Description:*** Provide support for basic medical research directed toward attaining greater knowledge and understanding of fundamental principles of science and medicine relevant to the improvement of medical care in operationally relevant environments.	0.000	-	-	-	-
Accomplishments/Planned Programs Subtotals	0.000	-	-	-	-

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2023 Defense Health Agency			Date: March 2022
Appropriation/Budget Activity 0130 / 2	R-1 Program Element (Number/Name) PE 0601117DHA / *Basic Operational Medical Research Sciences*	Project (Number/Name) 371A / *GDF - BOMRS (Combat Casualty Care)*	

COST ($ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
371A: *GDF - BOMRS (Combat Casualty Care)*	23.224	1.304	1.328	1.356	0.000	1.356	1.381	1.410	1.437	1.466	Continuing	Continuing

A. Mission Description and Budget Item Justification

Basic research described here focuses on the enhancement of knowledge to support capabilities identified through the Joint Capabilities Integration Development System process and sustainment of DoD and multi-agency priority investments in science, technology, research and development. This project supports combat casualty care basic research with the goal of optimizing Warfighter survival and recovery from combat-related injury in current and future operational scenarios by driving medical innovation through development of knowledge and materiel solutions for the acute and early management of combat-related trauma, including point of injury, en route, and facility-based care.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Title: Combat Casualty Care	1.304	1.328	1.356	0.000	1.356
Description: Combat Casualty Care basic research activities are focused on pre-hospital tactical combat casualty care (TCCC) toward improved Warfighter survival of casualties with potentially survivable wounds. ***FY 2022 Plans:*** Conduct combat casualty care-relevant basic research focused on pre-hospital tactical combat casualty care (TCCC), such as defining biological and pathophysiological mechanisms of the acute effects of trauma including that of life threatening external, junctional (arm pit and groin), and internal (abdomen and chest) bleeding; abnormal blood clotting due to excessive blood loss; and compromised breathing due trauma to the thorax or airways. ***FY 2023 Base Plans:*** Will continue to conduct combat casualty care-relevant basic research focused on TCCC, such as defining biological and pathophysiological mechanisms of the acute effects of trauma including that of life threatening external, junctional (arm pit and groin), and internal (abdomen and chest) bleeding; abnormal blood clotting due to excessive blood loss; and compromised breathing due trauma to the thorax or airways. ***FY 2023 OCO Plans:*** N/A ***FY 2022 to FY 2023 Increase/Decrease Statement:***					

Exhibit R-2A, RDT&E Project Justification: PB 2023 Defense Health Agency		Date: March 2022
Appropriation/Budget Activity 0130 / 2	**R-1 Program Element (Number/Name)** PE 0601117DHA / *Basic Operational Medical Research Sciences*	**Project (Number/Name)** 371A / *GDF - BOMRS (Combat Casualty Care)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Funding change reflects planned lifecycle of this effort. Increase due to inflation.					
Accomplishments/Planned Programs Subtotals	1.304	1.328	1.356	0.000	1.356

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2023 Defense Health Agency			Date: March 2022
Appropriation/Budget Activity 0130 / 2	R-1 Program Element (Number/Name) PE 0601117DHA / *Basic Operational Medical Research Sciences*	Project (Number/Name) 371B / *GDF - BOMRS (Military Operational Medicine)*	

COST ($ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
371B: *GDF - BOMRS (Military Operational Medicine)*	0.000	5.498	5.609	5.720	0.000	5.720	5.836	5.953	6.072	6.193	Continuing	Continuing

A. Mission Description and Budget Item Justification

Basic research described here focuses on the enhancement of knowledge to support capabilities identified through the Joint Capabilities Integration Development System process and sustainment of DoD and multi-agency priority investments in science, technology, research and development. This project supports military operational medicine basic research with the goal of maximizing the health, readiness, and performance of Service Members and their families by the development of effective biomedical countermeasures against operational stressors, and prevention and treatment physical and psychological injuries during training and operations.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Title: Military Operational Medicine	5.498	5.609	5.720	0.000	5.720
Description: Military Operational Medicine basic research efforts are focused on increasing fundamental knowledge and understanding to support the development of medical countermeasures in the areas of: musculoskeletal injury prevention and treatment; blunt, blast, accelerative and neurosensory injury; psychological health and resilience; performance in extreme environments; and optimized cognition and fatigue mitigation.					
FY 2022 Plans: Conduct basic research in military operational medicine-relevant areas to include injury prevention and recovery related to blunt, blast, and accelerative injuries, optimized cognition and fatigue management, physiological health and resilience related to musculoskeletal injuries, and performance in extreme environments.					
FY 2023 Base Plans: Continue to conduct basic research with focus on injury prevention and recovery related to blunt, blast, and accelerative injuries; injury prevention and recovery related to musculoskeletal injury; performance nutrition and weight balance; operational systems toxicology for environmental health hazards; and, fatigue, cognitive health and performance.					
FY 2023 OCO Plans: N/A					
FY 2022 to FY 2023 Increase/Decrease Statement:					

Exhibit R-2A, RDT&E Project Justification: PB 2023 Defense Health Agency		Date: March 2022
Appropriation/Budget Activity 0130 / 2	**R-1 Program Element (Number/Name)** PE 0601117DHA / *Basic Operational Medical Research Sciences*	**Project (Number/Name)** 371B / *GDF - BOMRS (Military Operational Medicine)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Increase is due to inflation.					
Accomplishments/Planned Programs Subtotals	5.498	5.609	5.720	0.000	5.720

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

n/a

D. Acquisition Strategy

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2023 Defense Health Agency			Date: March 2022
Appropriation/Budget Activity 0130 / 2	R-1 Program Element (Number/Name) PE 0601117DHA / *Basic Operational Medical Research Sciences*	Project (Number/Name) 371E / *GDF - BOMRS (Military Infectious Disease)*	

COST ($ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
371E: *GDF - BOMRS (Military Infectious Disease)*	0.000	2.111	2.154	2.197	0.000	2.197	2.241	2.285	2.331	2.378	Continuing	Continuing

A. Mission Description and Budget Item Justification

Basic research described here focuses on the enhancement of knowledge to support capabilities identified through the Joint Capabilities Integration Development System process and sustainment of DoD and multi-agency priority investments in science, technology, research and development. This project supports military infectious diseases basic research toward the goal of preventing and treating infectious disease threats to eliminate their impacts on operational readiness.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Title: Military Infectious Diseases	2.111	2.154	2.197	0.000	2.197
Description: Military infectious diseases basic research activities support efforts in military relevant emerging infectious diseases threats. ***FY 2022 Plans:*** Conduct basic research in emerging infectious diseases to respond to new and emerging infectious diseases threats and accelerate promising, innovative countermeasures. ***FY 2023 Base Plans:*** Will continue to conduct basic research in emerging infectious diseases to respond to new and emerging infectious diseases threats and accelerate promising, innovative countermeasures. ***FY 2023 OCO Plans:*** N/A ***FY 2022 to FY 2023 Increase/Decrease Statement:*** Increase due to inflation.					
Accomplishments/Planned Programs Subtotals	2.111	2.154	2.197	0.000	2.197

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

n/a

Exhibit R-2A, RDT&E Project Justification: PB 2023 Defense Health Agency		Date: March 2022
Appropriation/Budget Activity 0130 / 2	**R-1 Program Element (Number/Name)** PE 0601117DHA / *Basic Operational Medical Research Sciences*	**Project (Number/Name)** 371E / *GDF - BOMRS (Military Infectious Disease)*

D. Acquisition Strategy

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2023 Defense Health Agency			Date: March 2022
Appropriation/Budget Activity 0130 / 2	R-1 Program Element (Number/Name) PE 0601117DHA / *Basic Operational Medical Research Sciences*	Project (Number/Name) 371F / *GDF - BOMRS (Defense Research Sciences)*	

COST ($ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
371F: *GDF - BOMRS (Defense Research Sciences)*	0.000	0.000	0.000	30.295	0.000	30.295	30.663	31.562	31.596	31.596	Continuing	Continuing

A. Mission Description and Budget Item Justification

Funding and mission realignment of US Army Medical Research and Development Command transfer to the Defense Health Agency in order to meet Congressional intent as outlined in NDAA 2019 (Section 711) and NDAA 2020 (Section 737) in support of Defense Research Sciences.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Title: GDF - BOMRS (Defense Research Sciences)	0.000	0.000	30.295	0.000	30.295
Description: Programmatic transfer in accordance with the 711/737 US Army Medical Research and Development Command transfer to Defense Health Agency in support of Defense Research Sciences from Army PE 0601102A. ***FY 2022 Plans:*** N/A ***FY 2023 Base Plans:*** Efforts will focus on Basic Research in support of medical problems related to infectious diseases, operational medicine and combat care. ***FY 2023 OCO Plans:*** N/A ***FY 2022 to FY 2023 Increase/Decrease Statement:*** Funding increase for this Project was due to transfer/realignment from Army.					
Accomplishments/Planned Programs Subtotals	0.000	0.000	30.295	0.000	30.295

	FY 2021	FY 2022
Congressional Add: Add input	0.000	0.000
FY 2021 Accomplishments: Add input		
FY 2022 Plans: Add input		
Congressional Adds Subtotals	0.000	0.000

Exhibit R-2A, RDT&E Project Justification: PB 2023 Defense Health Agency		Date: March 2022
Appropriation/Budget Activity 0130 / 2	**R-1 Program Element (Number/Name)** PE 0601117DHA / *Basic Operational Medical Research Sciences*	**Project (Number/Name)** 371F / *GDF - BOMRS (Defense Research Sciences)*

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Defense Health Agency											Date: March 2022	
Appropriation/Budget Activity 0130: *Defense Health Program I* BA 2: *RDT&E*					R-1 Program Element (Number/Name) PE 0602115DHA *I Applied Biomedical Technology*							
COST ($ in Millions)	**Prior Years**	**FY 2021**	**FY 2022**	**FY 2023 Base**	**FY 2023 OCO**	**FY 2023 Total**	**FY 2024**	**FY 2025**	**FY 2026**	**FY 2027**	**Cost To Complete**	**Total Cost**
Total Program Element	494.078	72.573	162.745	174.009	0.000	174.009	161.901	171.340	174.319	175.923	Continuing	Continuing
200A: *Congressional Special Interests*	0.000	0.000	88.721	0.000	-	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
216: *Anomalous Health Incidents (AHI)*	0.000	0.000	0.000	15.000	0.000	15.000	0.000	0.000	0.000	0.000	Continuing	Continuing
246A: *Combating Antibiotic Resistant Bacteria (CARB) - WRAIR Discovery and Wound Program (Army)*	11.824	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
306B: *Advanced Diagnostics & Therapeutics Research & Development (AF)*	20.113	0.151	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
306D: *Biomedical Impact and Readiness Optimization of Air & Space Operations (AF)*	6.080	4.064	4.299	4.385	0.000	4.385	4.473	4.567	4.658	4.751	Continuing	Continuing
372: *GDF - Applied Biomedical Technology*	399.163	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
372A: *GDF - ABT (Combat Casualty Care)*	0.000	14.855	15.151	17.459	0.000	17.459	18.789	19.125	19.468	19.817	Continuing	Continuing
372B: *GDF - ABT (Military Operational Medicine)*	0.000	26.255	26.779	34.706	0.000	34.706	35.357	36.061	36.785	37.523	Continuing	Continuing
372C: *GDF - ABT (Medical Simulation & Training/Health Informatics)*	0.000	10.611	10.826	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
372D: *GDF - ABT (Clinical and Rehabilitation Medicine)*	0.000	7.064	7.204	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
372E: *GDF - ABT (Military Infectious Disease)*	0.000	8.607	8.779	18.995	0.000	18.995	18.396	18.804	19.220	19.644	Continuing	Continuing
372F: *GDF - ABT (Radiological Health Effects)*	0.000	0.966	0.986	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing

Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Defense Health Agency										Date: March 2022		
Appropriation/Budget Activity 0130: *Defense Health Program I* BA 2: *RDT&E*					R-1 Program Element (Number/Name) PE 0602115DHA *I Applied Biomedical Technology*							
372G: *GDF - ABT (Medical Technology)*	0.000	0.000	0.000	83.464	0.000	83.464	84.886	92.783	94.188	94.188	Continuing	Continuing
447A: *Military HIV Research Program (Army)*	56.898	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing

A. Mission Description and Budget Item Justification

This program element (PE) provides applied research funding to refine concepts and ideas into potential solutions for military health and performance problems, with a view toward evaluating technical feasibility. Research in this PE is designed to address areas of interest to the Secretary of Defense regarding Wounded Warriors, capabilities identified through the Joint Capabilities Integration and Development System, and sustainment of DoD and multi-agency priority investments in science, technology, research, and development. Medical research, development, test, and evaluation (RDT&E) priorities for the Defense Health Program (DHP) are guided by, and will support, the National Defense Strategy, the National Research Action Plan for Improving Access to Mental Health Services for Veterans, Service Members, Military Families, the National Strategy for Combating Antibiotic Resistance, and the National Strategy for Biodefense.

Program development and execution is peer-reviewed and coordinated with all of the Military Services, appropriate Defense agencies or activities and other federal agencies, to include the Department of Veterans Affairs and, the Department of Health and Human Services. Funds in the PE support studies and investigations leading to candidate solutions that may involve use of animal models for testing in preparation for initial human testing. As research efforts mature, the most promising efforts will transition to technology development (PE 0603115) funding.

B. Program Change Summary ($ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Previous President's Budget	72.573	74.024	174.009	0.000	174.009
Current President's Budget	72.573	162.745	174.009	0.000	174.009
Total Adjustments	0.000	88.721	0.000	0.000	0.000
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	88.721			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			

Congressional Add Details ($ in Millions, and Includes General Reductions)	FY 2021	FY 2022
Project: 200A: *Congressional Special Interests*		
Congressional Add: *462 - GDF - Restore Core Research Funding Reduction*	-	78.721
Congressional Add: *200A - Armed Forces Institute of Regenerative Medicine III*	-	10.000

Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Defense Health Agency	Date: March 2022
Appropriation/Budget Activity 0130: *Defense Health Program I* BA 2: *RDT&E*	**R-1 Program Element (Number/Name)** PE 0602115DHA *I Applied Biomedical Technology*

Congressional Add Details ($ in Millions, and Includes General Reductions)	FY 2021	FY 2022
Congressional Add Subtotals for Project: 200A	-	88.721
Project: 216: *Anomalous Health Incidents (AHI)*		
Congressional Add: *Anomalous Health Incidents (AHI)*	0.000	0.000
Congressional Add Subtotals for Project: 216	0.000	0.000
Project: 372G: *GDF - ABT (Medical Technology)*		
Congressional Add: *Add input*	0.000	0.000
Congressional Add Subtotals for Project: 372G	0.000	0.000
Congressional Add Totals for all Projects	0.000	88.721

Exhibit R-2A, RDT&E Project Justification: PB 2023 Defense Health Agency			Date: March 2022
Appropriation/Budget Activity 0130 / 2	R-1 Program Element (Number/Name) PE 0602115DHA / *Applied Biomedical Technology*	Project (Number/Name) 200A / *Congressional Special Interests*	

COST ($ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
200A: *Congressional Special Interests*	0.000	0.000	88.721	0.000	-	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing

A. Mission Description and Budget Item Justification

This is a program increase due to GDF restoral in the FY22 enacted budget.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022
Congressional Add: 462 - GDF - Restore Core Research Funding Reduction ***FY 2022 Plans:*** This is a program increase due to GDF restoral in the FY22 enacted budget.	-	78.721
Congressional Add: 200A - Armed Forces Institute of Regenerative Medicine III ***FY 2022 Plans:*** Congressional Add	-	10.000
Congressional Adds Subtotals	-	88.721

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2023 Defense Health Agency			Date: March 2022
Appropriation/Budget Activity 0130 / 2	R-1 Program Element (Number/Name) PE 0602115DHA / *Applied Biomedical Technology*	Project (Number/Name) 216 / *Anomalous Health Incidents (AHI)*	

COST ($ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
216: *Anomalous Health Incidents (AHI)*	0.000	0.000	0.000	15.000	0.000	15.000	0.000	0.000	0.000	0.000	Continuing	Continuing

A. Mission Description and Budget Item Justification

Add input

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Title: Anomalous Health Incidents (AHI) ***Description:*** Add input ***FY 2022 Plans:*** Add input ***FY 2023 Base Plans:*** Add input ***FY 2023 OCO Plans:*** Add input ***FY 2022 to FY 2023 Increase/Decrease Statement:*** Add input	0.000	0.000	15.000	0.000	15.000
Accomplishments/Planned Programs Subtotals	0.000	0.000	15.000	0.000	15.000

	FY 2021	FY 2022
Congressional Add: Anomalous Health Incidents (AHI) ***FY 2021 Accomplishments:*** Add input ***FY 2022 Plans:*** Add input	0.000	0.000
Congressional Adds Subtotals	0.000	0.000

C. Other Program Funding Summary ($ in Millions)

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2023 Defense Health Agency		Date: March 2022
Appropriation/Budget Activity 0130 / 2	**R-1 Program Element (Number/Name)** PE 0602115DHA / *Applied Biomedical Technology*	**Project (Number/Name)** 216 / *Anomalous Health Incidents (AHI)*

C. Other Program Funding Summary ($ in Millions)

Remarks

D. Acquisition Strategy

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2023 Defense Health Agency			Date: March 2022
Appropriation/Budget Activity 0130 / 2	**R-1 Program Element (Number/Name)** PE 0602115DHA / *Applied Biomedical Technology*	**Project (Number/Name)** 246A / *Combating Antibiotic Resistant Bacteria (CARB) - WRAIR Discovery and Wound Program (Army)*	

COST ($ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
246A: *Combating Antibiotic Resistant Bacteria (CARB) - WRAIR Discovery and Wound Program (Army)*	11.824	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing

A. Mission Description and Budget Item Justification

At the President's direction in late 2013, a National Strategy was created to address the critical issue of antimicrobial resistance. This strategy was devised using an interagency approach and ultimately approved at the executive level (2014). Inherent in this work are DoD sponsored efforts to support the DoD's beneficiaries, but also complement national efforts to prevent, detect, and control illness and death related to infections caused by antibiotic-resistant bacteria. One critical need identified is for new therapeutics, to include antibiotics. This effort's focus is on the development of new/novel antibiotics, especially those targeting the most resistant and worrisome Gram negative bacterial pathogens, using existing expertise at the Walter Reed Army Institute of Research (WRAIR), and leveraging other WRAIR capabilities to evaluate viable candidate targets for advanced discovery. This project supports (both directly and indirectly) Global Health Security Agenda priorities to respond rapidly and effectively to biological threats of international concern.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Title: Combating Antibiotic Resistant Bacteria (CARB) - WRAIR Discovery and Wound Program (Army) ***Description:*** Focus on continued establishment of in-house capabilities for an antibacterial drug discovery program directed toward military relevant drug-resistant bacteria that a) encompasses assessment of external products/candidates/leads that may meet DoD requirements, b) opens active intramural based discovery efforts of new potential products/candidates/leads for development, and c) fosters partnerships with external collaborators to develop/co-develop new potential antibacterial treatment therapeutics.	0.000	-	-	-	-
Accomplishments/Planned Programs Subtotals	0.000	-	-	-	-

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

An Acquisition Strategy will be developed to support future Milestone B when a clinical development candidate is identified and reaches Technology Readiness Level (TRL)-6.

Exhibit R-2A, RDT&E Project Justification: PB 2023 Defense Health Agency			Date: March 2022
Appropriation/Budget Activity 0130 / 2	R-1 Program Element (Number/Name) PE 0602115DHA / *Applied Biomedical Technology*	Project (Number/Name) 306B / *Advanced Diagnostics & Therapeutics Research & Development (AF)*	

COST ($ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
306B: *Advanced Diagnostics & Therapeutics Research & Development (AF)*	20.113	0.151	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing

A. Mission Description and Budget Item Justification

This project provides applied research funding needed to increase efficiency and efficacy of care across the spectrum of Advanced Diagnostics and Therapeutics requirements to improve and enhance clinical Diagnosis, Identification, Quantification and Mitigation (DIQM) methods, technique protocols, guidelines and practices for all Department of Defense (DoD) wounded, ill, and/or injured beneficiaries.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Title: Advanced Diagnostics & Therapeutics Research & Development (AF) ***Description:*** This project provides applied research funding needed to perform research in the area of diagnostic assay development / refinement for diseases of operational significance. Project funds seek to promote 'omic'-informed personalized medicine with an emphasis on targeted prevention, diagnosis, and treatment. The delivery of pro-active, evidence-based, personalized medicine will improve health in Warfighters and beneficiaries by providing care that is specific to the situation and patient, to include preventing disease or injury, early and accurate diagnosis, and selection of appropriate and effective treatment. Personalized medicine will reduce morbidity, mortality, mission impact of illness / injury, and healthcare costs while increasing health and wellness of the AF population and efficiency of the healthcare system. This applied research supports multiple focus areas, each of which represents an identified barrier / gap which must be addressed for successful implementation of 'omic-informed personalized medicine.	0.151	-	-	-	-
Accomplishments/Planned Programs Subtotals	0.151	-	-	-	-

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

Accomplishments: Mesenchymal Stem Cell (MSC)-derived exosomes were examined as modulators of 1) peripheral nerve regeneration and 2) repair from radiofrequency-induced auditory dysfunction. Raman microscopy was evaluated for the rapid detection of microbial water contamination.

Exhibit R-2A, RDT&E Project Justification: PB 2023 Defense Health Agency		Date: March 2022
Appropriation/Budget Activity 0130 / 2	**R-1 Program Element (Number/Name)** PE 0602115DHA / *Applied Biomedical Technology*	**Project (Number/Name)** 306B / *Advanced Diagnostics & Therapeutics Research & Development (AF)*

D. Acquisition Strategy

Broad Area Announcements (BAA) and Intramural calls for proposals are used to award initiatives in this project following determinations of scientific and technical merit, validation of need, prioritization, selection and any necessary legal and / or regulatory approvals (IRB, etc.).

Exhibit R-2A, RDT&E Project Justification: PB 2023 Defense Health Agency			Date: March 2022
Appropriation/Budget Activity 0130 / 2	R-1 Program Element (Number/Name) PE 0602115DHA / *Applied Biomedical Technology*	Project (Number/Name) 306D / *Biomedical Impact and Readiness Optimization of Air & Space Operations (AF)*	

COST ($ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
306D: *Biomedical Impact and Readiness Optimization of Air & Space Operations (AF)*	6.080	4.064	4.299	4.385	0.000	4.385	4.473	4.567	4.658	4.751	Continuing	Continuing

A. Mission Description and Budget Item Justification

This project provides applied research to define and develop medical attribute-linked solutions to better address Air Force operational readiness and mission effectiveness. This research develops approaches aimed at increasing the understanding of full spectrum factors impacting health and performance across Air Force operating environments, to include critical Air Force-supported mission areas of air and space superiority, aeromedical evacuation, communications and intelligence systems, global information operations, reconnaissance and electronic-combat aircraft. Includes research in operationally relevant Air and Space environments pertaining to: in Biomedical Impact of Air and Space, Biotechnology for Health and Performance, Cognitive and Physiological Performance, and Health and Performance Sensing and Assessment.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Title: Biomedical Impact and Readiness Optimization of Air & Space Operations (AF)	4.064	4.299	4.385	0.000	4.385
Description: Applied research to develop approaches to increase the understanding of the underlying medical and biological mechanisms of health in operating environments that link to optimizing mission performance and readiness. Research will identify metrics of cognitive, behavioral, physiological, sensory and motor attributes. This will shape medically relevant screening, risk-assessment, retention and return-to-duty criteria through data driven risk analysis and mitigation actions, and enhance the delivery of Air Force operational care.					
FY 2022 Plans: Develop models of health and performance relevant to Air Force operational environments using attribute-linked data to assess and mitigate risks impacting mission readiness. Continue to characterize relevant biomarkers, chemical, environmental and medical attributes that optimize mission performance. Continue to evaluate enroute care relevant safety issues and patient outcomes. Understand health impact of arctic operations.					
FY 2023 Base Plans: Enhance knowledge base regarding medical equipment performance in CREMO environment. Enhance medical understanding for cognitive sustainment of airman and guardians. Further evaluation of genetic predisposition to hypoxia induced cognitive decrement.					
FY 2023 OCO Plans:					

Exhibit R-2A, RDT&E Project Justification: PB 2023 Defense Health Agency		Date: March 2022
Appropriation/Budget Activity 0130 / 2	**R-1 Program Element (Number/Name)** PE 0602115DHA / *Applied Biomedical Technology*	**Project (Number/Name)** 306D / *Biomedical Impact and Readiness Optimization of Air & Space Operations (AF)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
N/A ***FY 2022 to FY 2023 Increase/Decrease Statement:*** Increased funding due to realignment within Defense Health Program, Research, Development, Test and Evaluation (DHP RDT&E), Program Element (PE) 0602115DHA, from Project Codes 306B to 306D reflect deliberate focus on future readiness mission.					
Accomplishments/Planned Programs Subtotals	4.064	4.299	4.385	0.000	4.385

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

Accomplishments: COVID-19 and viral detection within operational spaces, parametric high fidelity whole body human injury computational modeling, identification of operational vibration health risk mechanisms and mitigation strategies, quantified attributes associated with adaptations to stressors of high performance flight, and catalog the neural time course to recovery from hypoxic exposure.

D. Acquisition Strategy

Air Force Contracting, Interagency Agreements, and Inter-service Support Agreements with the U.S. Army, U.S. Navy, and the Department of Homeland Security are used to support ongoing scientific and technical efforts within this program. These agreements are supplemented with Broad Area Announcements (BAA) and Intramural calls for proposals, which are used to award initiatives in this project following determinations of scientific and technical merit, validation of need, prioritization, selection and any necessary legal and / or regulatory approvals (IRB, etc.).

Exhibit R-2A, RDT&E Project Justification: PB 2023 Defense Health Agency			Date: March 2022
Appropriation/Budget Activity 0130 / 2	R-1 Program Element (Number/Name) PE 0602115DHA / *Applied Biomedical Technology*	Project (Number/Name) 372 / *GDF - Applied Biomedical Technology*	

COST ($ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
372: *GDF - Applied Biomedical Technology*	399.163	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing

A. Mission Description and Budget Item Justification

Guidance for Development of the Force - Applied Biomedical Technology: Applied biomedical technology research will focus on refining concepts and ideas into potential solutions for military problems and conducting analyses of alternatives to select the best potential solution for further advanced technology development. Applied research is managed by the Joint Program Committees in the following areas: 1- Military Infectious Diseases applied research is developing protection and treatment capabilities for military relevant emerging infectious diseases and wound infections. 2- Military Operational Medicine applied research goals are to develop medical countermeasures against operational stressors, prevent and treat musculoskeletal, neurosensory, and psychological injuries during training and operations, and to maximize health, performance and readiness of Service members. 3- Combat Casualty Care applied research is focused on optimizing survival and recovery in injured Service members across the spectrum of care from point of injury through en route and facility care.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Title: GDF Applied Biomedical Technology ***Description:*** Focus is on refining concepts and ideas into potential solutions to military problems and conducting analyses of alternatives to select the best potential solution for further advanced technology development. ***FY 2022 Plans:*** N/A - $0 ***FY 2023 Base Plans:*** N/A - $0 ***FY 2023 OCO Plans:*** N/A - $0 ***FY 2022 to FY 2023 Increase/Decrease Statement:*** N/A - $0	0.000	0.000	0.000	0.000	0.000
Accomplishments/Planned Programs Subtotals	0.000	0.000	0.000	0.000	0.000

C. Other Program Funding Summary ($ in Millions)

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2023 Defense Health Agency		Date: March 2022
Appropriation/Budget Activity 0130 / 2	**R-1 Program Element (Number/Name)** PE 0602115DHA / *Applied Biomedical Technology*	**Project (Number/Name)** 372 / *GDF - Applied Biomedical Technology*

C. Other Program Funding Summary ($ in Millions)

Remarks

D. Acquisition Strategy

Evaluate technical feasibility of potential solutions to military health issues. Implement models into data or knowledge and test in a laboratory environment. Technology Transition and Milestone A packages will be developed to facilitate product transition.

Exhibit R-2A, RDT&E Project Justification: PB 2023 Defense Health Agency			Date: March 2022
Appropriation/Budget Activity 0130 / 2	R-1 Program Element (Number/Name) PE 0602115DHA / *Applied Biomedical Technology*	Project (Number/Name) 372A / *GDF - ABT (Combat Casualty Care)*	

COST ($ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
372A: *GDF - ABT (Combat Casualty Care)*	0.000	14.855	15.151	17.459	0.000	17.459	18.789	19.125	19.468	19.817	Continuing	Continuing

A. Mission Description and Budget Item Justification

This project supports applied research with the goal of optimizing Warfighter survival and recovery from combat-related injury in current and future operational scenarios by driving medical innovation through development of knowledge and materiel solutions for the management of combat-related trauma. Applied biomedical research will focus on refining concepts and ideas into potential solutions for military problems and conducting analysis of alternatives to select the best potential solutions for further advanced technology development.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Title: Joint Battlefield Healthcare (Formerly Combat Casualty Care)	14.855	15.151	17.459	0.000	17.459
Description: Joint Battlefield Healthcare (formerly Combat Casualty Care) applied research activities are focused on care the areas of prolonged field care; pre-hospital tactical combat casualty care; battlefield traumatic brain injury/neurotrauma; and burn injury. ***FY 2022 Plans:*** Conduct Joint Battlefield Healthcare (formerly Combat Casualty Care) applied research activities focused on establishing preclinical and clinical effects of prolonged care technologies, early interventions for acute traumatic brain injury, and innovative products for resuscitation and immediate stabilization of combat casualties in a scenario of multi-domain operations. ***FY 2023 Base Plans:*** Will continue Joint Battlefield Healthcare (formerly Combat Casualty Care) applied research activities focused on establishing preclinical and clinical effects of prolonged care technologies, early interventions for acute traumatic brain injury, and innovative products for resuscitation and immediate stabilization of combat casualties in a scenario of multi-domain operations. ***FY 2023 OCO Plans:*** N/A ***FY 2022 to FY 2023 Increase/Decrease Statement:*** Funds moved from Project Code 372C to further support Combat Casualty Care applied research efforts.					
Accomplishments/Planned Programs Subtotals	14.855	15.151	17.459	0.000	17.459

Exhibit R-2A, RDT&E Project Justification: PB 2023 Defense Health Agency		Date: March 2022
Appropriation/Budget Activity 0130 / 2	**R-1 Program Element (Number/Name)** PE 0602115DHA / *Applied Biomedical Technology*	**Project (Number/Name)** 372A / *GDF - ABT (Combat Casualty Care)*

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2023 Defense Health Agency			Date: March 2022
Appropriation/Budget Activity 0130 / 2	R-1 Program Element (Number/Name) PE 0602115DHA / *Applied Biomedical Technology*	Project (Number/Name) 372B / *GDF - ABT (Military Operational Medicine)*	

COST ($ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
372B: *GDF - ABT (Military Operational Medicine)*	0.000	26.255	26.779	34.706	0.000	34.706	35.357	36.061	36.785	37.523	Continuing	Continuing

A. Mission Description and Budget Item Justification

This project supports applied research with the goal of maximizing the health, readiness, and performance of Service members and their families by the development of effective biomedical countermeasures against operational stressors, and prevention and treatment physical and psychological injuries during training and operations. Applied biomedical research will focus on refining concepts and ideas into potential solutions for military problems and conducting analysis of alternatives to select the best potential solutions for further advanced technology development.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Title: Military Health and Recovery (Formerly Military Operational Medicine)	26.255	26.779	34.706	0.000	34.706
Description: Studies, investigations, and non-system specific technology effort focus on: injury prevention and recovery; optimized cognition and fatigue management; psychological health and resilience; and performance in extreme environments. Activities will continue to focus on: injury prevention and recovery related to blunt, blast, and accelerative injuries; injury prevention and recovery related to musculoskeletal injury; fatigue, cognitive health and performance; human operator health and performance in complex systems; performance nutrition and weight balance; operational systems toxicology for environmental health hazards; protection and performance sustainment in extreme environments; and optimization of psychological health and resilience. ***FY 2022 Plans:*** Support efforts focused on: injury prevention and recovery related to blunt, blast, and accelerative injuries, as well as musculoskeletal injury; fatigue, cognitive health and performance; human operator health and performance in complex systems; performance nutrition and weight balance; operational systems toxicology for environmental health hazards; protection and performance sustainment in extreme environments; and optimization of psychological health and resilience. ***FY 2023 Base Plans:*** Efforts will continue to focus on: injury prevention and recovery related to blunt, blast, and accelerative injuries, as well as musculoskeletal injury; fatigue, cognitive health and performance; human operator health and performance in complex systems; performance nutrition and weight balance; operational systems toxicology					

Exhibit R-2A, RDT&E Project Justification: PB 2023 Defense Health Agency		Date: March 2022
Appropriation/Budget Activity 0130 / 2	**R-1 Program Element (Number/Name)** PE 0602115DHA / *Applied Biomedical Technology*	**Project (Number/Name)** 372B / *GDF - ABT (Military Operational Medicine)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
for environmental health hazards; protection and performance sustainment in extreme environments; and optimization of psychological health and resilience. ***FY 2023 OCO Plans:*** N/A ***FY 2022 to FY 2023 Increase/Decrease Statement:*** Funds moved from Project Code 372D to further support Military Operational Medicine musculoskeletal injury prevention & treatment applied research efforts.					
Accomplishments/Planned Programs Subtotals	26.255	26.779	34.706	0.000	34.706

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2023 Defense Health Agency			Date: March 2022
Appropriation/Budget Activity 0130 / 2	R-1 Program Element (Number/Name) PE 0602115DHA / *Applied Biomedical Technology*	Project (Number/Name) 372C / *GDF - ABT (Medical Simulation & Training/Health Informatics)*	

COST ($ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
372C: *GDF - ABT (Medical Simulation & Training/Health Informatics)*	0.000	10.611	10.826	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing

A. Mission Description and Budget Item Justification

Conduct studies and experimentation to meet a military medical need. Efforts are directed toward expanding and applying knowledge to develop or improve devices, systems, processes or methods that support medical simulation to increase military medical personnel's knowledge, skills and abilities to deliver combat casualty care support to manage patient injury and illness and to conduct patient movement from point of injury through role of care four.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Title: Medical Simulation Technologies (Formerly Medical Simulation Technologies & Training/Health Informatics)	10.611	10.826	0.000	0.000	0.000
Description: Studies, investigations, and non-system specific technology efforts focused on tissue models, technologies that simulate medical condition progress over time, technologies that simulate injury, technologies that replicate warfighter bio-physiology, and, technologies that simulate high-fidelity combat casualty care scenarios. Activities will continue to focus on tissue models that accurately simulate the feel, pliability, flexibility, and responsiveness of live tissue; technologies that simulate the degradation or worsening of a medical condition over time, as well as simulate the improvement of a medical condition over time; technologies that simulate injury, especially hemorrhage, fractures, and ocular damage; technologies that accurately reflect warfighter bodily characteristics and are rugged enough to simulate patient care and movement throughout the entire continuum of care; technologies that simulate combat scenarios to provide realistic environments; and, technologies that simulate patient movement through the continuum of care.					
FY 2022 Plans: Conduct studies and experimentation to meet a military medical need. Efforts are directed toward expanding and applying knowledge to develop or improve devices, systems, processes or methods that support medical simulation to increase military medical personnel's knowledge, skills and abilities to deliver combat casualty care support to manage patient injury and illness and to conduct patient movement from point of injury through role of care four.					
FY 2023 Base Plans:					

Exhibit R-2A, RDT&E Project Justification: PB 2023 Defense Health Agency		Date: March 2022
Appropriation/Budget Activity 0130 / 2	**R-1 Program Element (Number/Name)** PE 0602115DHA / *Applied Biomedical Technology*	**Project (Number/Name)** 372C / *GDF - ABT (Medical Simulation & Training/Health Informatics)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Funds moved to Project Codes 372A and 372E to support Combat Casualty Care and Military Infectious Diseases (wound infections) applied research efforts. ***FY 2023 OCO Plans:*** N/A ***FY 2022 to FY 2023 Increase/Decrease Statement:*** Funding change reflects planned lifecycle of this effort.					
Accomplishments/Planned Programs Subtotals	10.611	10.826	0.000	0.000	0.000

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2023 Defense Health Agency			Date: March 2022
Appropriation/Budget Activity 0130 / 2	R-1 Program Element (Number/Name) PE 0602115DHA / *Applied Biomedical Technology*	Project (Number/Name) 372D / *GDF - ABT (Clinical and Rehabilitation Medicine)*	

COST ($ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
372D: *GDF - ABT (Clinical and Rehabilitation Medicine)*	0.000	7.064	7.204	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing

A. Mission Description and Budget Item Justification

Clinical and rehabilitative medicine activities for products to transition to technology development in the areas of neuromusculoskeletal injury, pain management, regenerative medicine, and sensory systems.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Title: Clinical and Rehabilitation Medicine	7.064	7.204	0.000	0.000	0.000
Description: Applied research in neuromusculoskeletal injuries to advance the diagnosis, treatment and rehabilitation outcomes after Service-related injuries continues to progress. Targets for therapies to alleviate acute, chronic, and battlefield pain. Continue to focus efforts on developing solutions to repair, reconstruct or regenerate tissue lost or damaged due to traumatic injury, as well as, optimize restoration and rehabilitation of hearing and balance. ***FY 2022 Plans:*** Clinical and rehabilitative medicine activities for products to transition to technology development in the areas of neuromusculoskeletal injury, pain management, regenerative medicine, and sensory systems. ***FY 2023 Base Plans:*** N/A ***FY 2023 OCO Plans:*** N/A ***FY 2022 to FY 2023 Increase/Decrease Statement:*** Funds moved to Project Code 372B to support Military Operational Medicine musculoskeletal injury prevention & treatment applied research efforts.					
Accomplishments/Planned Programs Subtotals	7.064	7.204	0.000	0.000	0.000

C. Other Program Funding Summary ($ in Millions)

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2023 Defense Health Agency		Date: March 2022
Appropriation/Budget Activity 0130 / 2	**R-1 Program Element (Number/Name)** PE 0602115DHA / *Applied Biomedical Technology*	**Project (Number/Name)** 372D / *GDF - ABT (Clinical and Rehabilitation Medicine)*

C. Other Program Funding Summary ($ in Millions)

Remarks

D. Acquisition Strategy

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2023 Defense Health Agency			Date: March 2022
Appropriation/Budget Activity 0130 / 2	R-1 Program Element (Number/Name) PE 0602115DHA / *Applied Biomedical Tec hnology*	Project (Number/Name) 372E / *GDF - ABT (Military Infectious Disease)*	

COST ($ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
372E: *GDF - ABT (Military Infectious Disease)*	0.000	8.607	8.779	18.995	0.000	18.995	18.396	18.804	19.220	19.644	Continuing	Continuing

A. Mission Description and Budget Item Justification

This project supports applied research toward the goal of preventing and treating infectious disease threats to eliminate their impacts on operational readiness. Applied biomedical research will focus on refining concepts and ideas into potential solutions for military problems and conducting analysis of alternatives to select the best potential solutions for further advanced technology development.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Title: Military Infectious Diseases	8.607	8.779	18.995	0.000	18.995
Description: Multi-year studies in wound infections continue to address the ability to predict infection and better treatment options for infections with multidrug-resistant (MDR) bacterial pathogens. Novel and innovative therapeutics and delivery technologies for combat wounds. ***FY 2022 Plans:*** Identify and optimize lead drug compounds to identify emerging infectious diseases (EID) countermeasure candidates for human studies. Test lead drug candidates for safety and toxicity in animals. Down-select lead candidates as an EID drug for use in humans. Optimize antigens and platforms for use in animal studies. Evaluate new immunoprophylactic candidates for safety, effectiveness, and immunogenicity in animal models to advance to human clinical trials. Optimize and test of antigens and vaccine platforms for Dengue. Demonstrate efficacy and safety of dengue vaccine candidates in animal models. Support wound infections prevention and treatment applied medical research. ***FY 2023 Base Plans:*** Will continue to support wound infections and EID countermeasures development. ***FY 2023 OCO Plans:*** N/A ***FY 2022 to FY 2023 Increase/Decrease Statement:*** Funds moved from Project Code 372C to support wound infections applied research efforts.					
Accomplishments/Planned Programs Subtotals	8.607	8.779	18.995	0.000	18.995

Exhibit R-2A, RDT&E Project Justification: PB 2023 Defense Health Agency		Date: March 2022
Appropriation/Budget Activity 0130 / 2	**R-1 Program Element (Number/Name)** PE 0602115DHA / *Applied Biomedical Technology*	**Project (Number/Name)** 372E / *GDF - ABT (Military Infectious Disease)*

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2023 Defense Health Agency			Date: March 2022
Appropriation/Budget Activity 0130 / 2	R-1 Program Element (Number/Name) PE 0602115DHA / *Applied Biomedical Technology*	Project (Number/Name) 372F / *GDF - ABT (Radiological Health Effects)*	

COST ($ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
372F: *GDF - ABT (Radiological Health Effects)*	0.000	0.966	0.986	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing

A. Mission Description and Budget Item Justification

This project supports applied research with the goal of pursuing the development of Food and Drug Administration (FDA) approved drugs, biologicals, and diagnostics (e.g., biodosimetry) to increase survival and decrease incapacity after acute radiation exposures.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Title: Radiological Health Effects	0.966	0.986	0.000	0.000	0.000
Description: Research will support discovery of one to two Medical Countermeasures (MCMs) candidates to development toward Technology Readiness Leve 6 (TRL-6) in support of transition to the advanced developer. In addition to identifying MCM candidates, this research will provide a fundamental understanding of the effects of radiation exposure. MCM identification will also be supported by the development and characterization on animal models to support FDA compliance, and also the identification and characterization of biomarkers to identify druggable targets and to support characterization of the mechanism of action of candidate MCMs ***FY 2022 Plans:*** Continue research toward the development of prophylactic medical countermeasures against acute radiation exposures and supporting mechanistic science and animal development. ***FY 2023 Base Plans:*** N/A ***FY 2023 OCO Plans:*** N/A ***FY 2022 to FY 2023 Increase/Decrease Statement:*** Radiation Health Effects has been moved under Combat Casualty Care.					
Accomplishments/Planned Programs Subtotals	0.966	0.986	0.000	0.000	0.000

C. Other Program Funding Summary ($ in Millions)

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2023 Defense Health Agency		Date: March 2022
Appropriation/Budget Activity 0130 / 2	**R-1 Program Element (Number/Name)** PE 0602115DHA / *Applied Biomedical Technology*	**Project (Number/Name)** 372F / *GDF - ABT (Radiological Health Effects)*

C. Other Program Funding Summary ($ in Millions)

Remarks

D. Acquisition Strategy

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2023 Defense Health Agency			Date: March 2022
Appropriation/Budget Activity 0130 / 2	R-1 Program Element (Number/Name) PE 0602115DHA / *Applied Biomedical Technology*	Project (Number/Name) 372G / *GDF - ABT (Medical Technology)*	

COST ($ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
372G: *GDF - ABT (Medical Technology)*	0.000	0.000	0.000	83.464	0.000	83.464	84.886	92.783	94.188	94.188	Continuing	Continuing

A. Mission Description and Budget Item Justification

Funding and mission realignment of US Army Medical Research and Development Command transfer to the Defense Health Agency in order to meet Congressional intent as outlined in NDAA 2019 (Section 711) and NDAA 2020 (Section 737) in support of Medical & Biomedical Technology.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Title: GDF - ABT (Biomedical Technology) ***Description:*** Programmatic transfer in accordance with the 711/737 US Army Medical Research and Development Command transfer to Defense Health Agency in support of Medical Technology from Army PEs 0602115A & 0602787A. ***FY 2022 Plans:*** N/A ***FY 2023 Base Plans:*** Efforts will focus on Applied Research in support of Medical Technology. ***FY 2023 OCO Plans:*** N/A ***FY 2022 to FY 2023 Increase/Decrease Statement:*** Funding increase for this Project was due to transfer/realignment from Army.	0.000	0.000	83.464	0.000	83.464
Accomplishments/Planned Programs Subtotals	0.000	0.000	83.464	0.000	83.464

	FY 2021	FY 2022
Congressional Add: Add input ***FY 2021 Accomplishments:*** N/A ***FY 2022 Plans:*** N/A	0.000	0.000
Congressional Adds Subtotals	0.000	0.000

Exhibit R-2A, RDT&E Project Justification: PB 2023 Defense Health Agency		Date: March 2022
Appropriation/Budget Activity 0130 / 2	**R-1 Program Element (Number/Name)** PE 0602115DHA / *Applied Biomedical Technology*	**Project (Number/Name)** 372G / *GDF - ABT (Medical Technology)*

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2023 Defense Health Agency			Date: March 2022
Appropriation/Budget Activity 0130 / 2	R-1 Program Element (Number/Name) PE 0602115DHA / *Applied Biomedical Technology*	Project (Number/Name) 447A / *Military HIV Research Program (Army)*	

COST ($ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
447A: *Military HIV Research Program (Army)*	56.898	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing

A. Mission Description and Budget Item Justification

This project conducts research on the human immunodeficiency virus (HIV), which causes acquired immunodeficiency syndrome (AIDS). This effort supports the Administration's priorities in the area of international scientific partnership in global health engagement. Work in this area includes refining improved identification methods to determine genetic diversity of the virus and evaluating and preparing overseas sites for clinical trials with global vaccine candidates. Additional activities include refining candidate vaccines for preventing HIV and undertaking preclinical studies (studies required before testing in humans) to assess vaccine for potential to protect and/or manage the disease in infected individuals. This project is jointly managed through an Interagency Agreement between U.S. Army Medical Research and Materiel Command (USAMRMC) and the National Institute of Allergy and Infectious Diseases (NIAID) of the National Institutes of Health. This project contains no duplication of effort within the Military Departments or other government organizations. The cited work is also consistent with the Assistant Secretary of Defense, Research and Engineering Science and Technology focus areas, and supports the principal area of Military Relevant Infectious Diseases to include HIV.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Title: Military HIV Research Program ***Description:*** This project conducts research on HIV, which causes AIDS. Work in this area includes refining improved identification methods to determine genetic diversity of the virus and evaluating and preparing overseas sites for future vaccine trials. Additional activities include refining candidate vaccines for preventing HIV and undertaking preclinical studies (studies required before testing in humans) to assess vaccine for potential to protect and/or manage the disease in infected individuals.	0.000	-	-	-	-
Accomplishments/Planned Programs Subtotals	0.000	-	-	-	-

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

The program receives periodic funding from Division of AIDS of NIAID ranging from $10-20 million per year through an Interagency Agreement with USAMRMC.

D. Acquisition Strategy

N/A

Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Defense Health Agency	Date: March 2022
Appropriation/Budget Activity 0130: *Defense Health Program I* BA 2: *RDT&E*	R-1 Program Element (Number/Name) PE 0602787DHA *I Medical Technology (AFRRI)*

COST ($ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
Total Program Element	4.070	1.411	1.439	1.468	0.000	1.468	1.497	1.527	1.557	1.587	Continuing	Continuing
241A: *Biodosimetry (USUHS)*	0.832	0.289	0.295	0.301	0.000	0.301	0.307	0.313	0.319	0.324	Continuing	Continuing
241B: *Internal Contamination (USUHS)*	0.438	0.152	0.155	0.158	0.000	0.158	0.161	0.164	0.167	0.170	Continuing	Continuing
241C: *Radiation Countermeasures (USUHS)*	2.800	0.970	0.989	1.009	0.000	1.009	1.029	1.050	1.071	1.093	Continuing	Continuing

A. Mission Description and Budget Item Justification

For the Uniformed Services University of the Health Sciences/Armed Forces Radiobiology Research Institute (USUHS/AFRRI), is a unique Department of Defense asset, responsible for preserving and protecting the health and performance of U.S. military personnel operating in potential radiologically contaminated multi-domain conventional or hybrid battle spaces and urban environments; through research, education, and operational training that advance understanding of the effects of ionizing radiation in line with the 21st century dynamic threat landscape and national security threats posed by non-state actors, hostile state actors, and near-peer adversaries, as well as providing rapidly deployable radiation medicine expertise in response to a radiological or nuclear event domestically or abroad.

The uniqueness of USUHS/AFRRI comes from operating and maintaining state-of-the-art radiation facilities and dosimetry systems to support military relevant radiobiology research. These facilities enable researchers to conduct a wide range of radiobiology experiments in order to investigate militarily-relevant scenarios, and better understand radiation effects and potential mitigation strategies. A team of scientist, physicists, engineers, operators and technicians use proven and traceable dosimetry systems (e.g., ionization chambers, radiochromic film, thermoluminescent dosimeters) and consensus protocols to characterize radiation fields. Due to these facilities our researchers are able to experiment with photons (?-rays) which are intended to simulate fallout environments and are delivered by two cobalt-60 facilities - the high-level cobalt facility (HLCF), and for lower (chronic) doses and dose rates, the low-level cobalt facility (LLCF). These type of radiation sources are used for acute and chronic studies of materials, biologic specimens, and small and large animals. The LLCF also provides to our scientist low-dose rate gamma rays to simulate chronic exposure to low absorbed doses. Therefore, it also supports research focused on late or delayed radiation effects in biological specimens.

USUHS/AFRRI researchers are also able to use Mixed-radiation fields (photons and neutrons) which are available from USUHS/AFRRI's Training, Research, Isotopes, General Atomics (TRIGA) reactor. The reactor is operated in either steady-state or pulsed mode to simulate a wide range of prompt exposure scenarios on a nuclear battlefield. The USUHS/AFRRI's TRIGA is the only one dedicated to military radiobiology research. The reactor produces a controlled, self-sustaining fission chain reaction in the reactor core which, in addition to the fuel elements and control rods (containing boron carbide), which includes a neutron start-up source (americium/ beryllium). It is suspended under 4.9 m of water within a pool (an effective radiation shield) in a carriage assembly that allows movement of the core between two exposure rooms for experimental work with large-animal or other studies. The advantages of such a movable reactor core are that the quantity and character of the radiation that reaches the exposure facilities can be controlled, and more than one exposure facility can be used during reactor operations.

Our state-of-the-art radiation facilities are also able to provide a wide range of photon and electron irradiations for partial- and whole-body geometries by using a linear accelerator (LINAC) and a small animal radiation research platform (SARRP) providing a range of radiation types, energies, field sizes and dose rates and is extensively

used to support standard cell configurations (i.e., 6-, 24- and 96-well plates), and targeted partial body irradiations of mice, minipigs, and nonhuman-primates (NHP) animal models. AFRRI's LINAC is used to produce, monitor, control and form photon or electron beams to the specified target. Whole-body irradiations are also possible depending on the animal size and desired dose rate. An Xstrahl SARRP facility is capable of operating at 220 kVp and 13 mA yielding a dose rate at the isocenter of approximately 2.6 Gy/min. Onboard portal camera and cone beam CT imaging systems are used to ensure precise dose delivery. Lung- and gut-only irradiation protocols are approved and have been extensively used to support radiation countermeasure development in the mouse model. Other imaging support is provided by a Philips Brilliance computed tomography (CT) big bore scanner. Some features of the scanner include an 85-cm bore size to accommodate larger research subjects, 60-cm true scan field of view and 16-slices per revolution. The above radiation sources and generators are used to support USUHS/AFRRI's current research focus areas which we will address in the following section.

Our scientific research goals includes maintaining a pool of highly qualified radiation biologists, and basic and applied research in identification and early development of measures to prevent, assess, and treat radiation injury. USUHS/AFRRI scientists conduct and publish research critical to the Department of Defense for force heath protection and also contribute to the health and well-being of the population at large. USUHS/AFRRI research thrusts include development of diagnosis of radiation induced injury (biodosimetry), internalized radionuclides (internal contamination) and radiation countermeasures.

Research findings are mainly focused to advance the development and to produce the following: (1) To establish processes to permit rapid assessment of radiation exposed specimens using novel triage protocols; (2) To developed novel technologies to minimized the use of animal models in the study of radiation effects; (3) To investigate the overall radiation effect by internal contamination in the microbiome and anatomical tissue; (4) To find novel biomarkers, late effects and immunosuppression of radiation injury that can quantitate effects on combat performance decrements; (4) To identify novel therapeutic strategies that will support military operations within a nuclear or radiological environment minimizing ground troops short and long term adverse risk.

B. Program Change Summary ($ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Previous President's Budget	1.411	1.439	1.468	0.000	1.468
Current President's Budget	1.411	1.439	1.468	0.000	1.468
Total Adjustments	0.000	0.000	0.000	0.000	0.000
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	0.000	-			

Exhibit R-2A, RDT&E Project Justification: PB 2023 Defense Health Agency			Date: March 2022
Appropriation/Budget Activity 0130 / 2	R-1 Program Element (Number/Name) PE 0602787DHA / *Medical Technology (AFRRI)*	Project (Number/Name) 241A / *Biodosimetry (USUHS)*	

COST ($ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
241A: *Biodosimetry (USUHS)*	0.832	0.289	0.295	0.301	0.000	0.301	0.307	0.313	0.319	0.324	Continuing	Continuing

A. Mission Description and Budget Item Justification

For the Uniformed Services University of the Health Sciences/Armed Forces Radiobiology Research Institute (USUHS/AFRRI), the Biodosimetry program address clinical symptoms of radiation exposure, reach back reference capabilities and is strategically poised to host the DoD's advance Radiationbiology clinical (CLIP) certified laboratory, meeting the objective of Senate Report SR 114-63. The Biodosimetry laboratory also received clinical specimens from the Fukushima radiation accident in 2011, showcasing USUHS/AFRRI's capabilities to support the Department of Defense in case of a radiation incident.

Research findings are focused to advance the development and to produce the following: (1) To establish clinically certified processes to permit rapid assessment of radiation exposed specimens; (2) To access radiation exposure by developing and providing biological and biophysical dosimetry capabilities for acute, protracted, and prior radiation exposure; (3) To develop novel triage protocols for rapid assessment of radiation exposure; (4) To establish equipment triage automation to support the ability to manage mass-casualty radiation incidents around the globe.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Title: Biodosimetry (USUHS)	0.289	0.295	0.301	0.000	0.301
Description: Biodosimetry (USUHS/AFRRI): Research findings are focused to advance the development and to produce the following: (1) To establish clinically certified processes to permit rapid assessment of radiation exposed specimens; (2) To access radiation exposure by developing and providing biological and biophysical dosimetry capabilities for acute, protracted, and prior radiation exposure; (3) To develop novel triage protocols for rapid assessment of radiation exposure; (4) To establish equipment triage automation to support the ability to manage mass-casualty radiation incidents around the globe. In addition to the primary achievement of research objectives, the program educates Federal employees as a benefit to the public they serve through Federal service, through support to civil authorities, and in non-Federal professional and academic collaborations.					
Description: Biodosimetry (USUHS/AFRRI): Research findings are focused to advance the development and to produce the following: (1) To establish clinically certified processes to permit rapid assessment of radiation exposed specimens; (2) To access radiation exposure by developing and providing biological and biophysical dosimetry capabilities for acute, protracted, and prior radiation exposure; (3) To develop novel triage protocols					

Exhibit R-2A, RDT&E Project Justification: PB 2023 Defense Health Agency		Date: March 2022
Appropriation/Budget Activity 0130 / 2	**R-1 Program Element (Number/Name)** PE 0602787DHA / *Medical Technology (AF RRI)*	**Project (Number/Name)** 241A / *Biodosimetry (USUHS)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
for rapid assessment of radiation exposure; (4) To establish equipment triage automation to support the ability to manage mass-casualty radiation incidents around the globe. In addition to the primary achievement of research objectives, the program educates Federal employees as a benefit to the public they serve through Federal service, through support to civil authorities, and in non-Federal professional and academic collaborations. FY21 Accomplishments: (1) Validated the HIRI algorithm concept using animals (i.e., baboons, canine, and mice) dose-response databases for an extended time window up to 10 to 14 days after exposure. (2) Established a RICA algorithm for assessment of H-ARS severity using NHP radiation dose-response model based on CBC cell types biomarkers using the METREPOL system. (3) Developed a quantitative inhibition PCR assay of nuclear and mitochondrial DNA using long- and short amplicon PCR. (4) Evaluated radiation-dose and time-course response following exposure initially to photon irradiation. (5) Compared gamma ray v/s neutron mixed field exposures on the inhibition PCR assay. (6) Characterized the utility of hematology biodosimetry algorithms (i.e., HIRI, RICA) to access radiation injury after radiation exposures. (7) Established a quantitative inhibition PCR of DNA damage using blood lymphocyte models and characterize its utility for assessment of radiation exposure. (8) Performed simulated in vitro partial-body exposure studies and use cytogenetic biomarkers (PCC assay). (9) Evaluated the PCC endpoints (i.e., excess PCC fragments, lengths ratios, rings, and dicentric) for optimum assessment of the fraction of body exposed and dose to the irradiated fraction using in vivo human blood lymphocytes model. (10) Investigated gamma rays v/s mixed field exposures on PCC assay to distinguish whole-body v/s partial body high dose radiation exposures. (11) In 2019/2021, 15 manuscripts were published. ***FY 2022 Plans:*** FY 2022 plans are to continue efforts as outlined in FY 2021 and to perform the following studies: (1) To establish processes to permit processing assessments of radiation exposure from specimens by testing the novel cytokinesis-block micronucleus cytome assay (CBMN). The CBMN is a comprehensive system for					

Exhibit R-2A, RDT&E Project Justification: PB 2023 Defense Health Agency		Date: March 2022
Appropriation/Budget Activity 0130 / 2	**R-1 Program Element (Number/Name)** PE 0602787DHA / *Medical Technology (AFRRI)*	**Project (Number/Name)** 241A / *Biodosimetry (USUHS)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
measuring DNA damage, cytostasis and cytotoxicity. DNA damage events are scored specifically in once-divided binucleated (BN) cells and include (a) micronuclei (MNi), a biomarker of chromosome breakage and/or whole chromosome loss, (b) nucleoplasmic bridges (NPBs), a biomarker of DNA misrepair and/or telomere end-fusions, and (c) nuclear buds (NBUDs), a biomarker of elimination of amplified DNA and/or DNA repair complexes. Cytostatic effects are measured via the proportion of mono-, bi- and multinucleated cells and cytotoxicity via necrotic and/or apoptotic cell ratios. Further information regarding mechanisms leading to MNi, NPBs and NBUDs formation is obtained using centromere and/or telomere probes. The assay have the probability to be applied successfully for biomonitoring of in vivo genotoxic radiation exposure, in vitro radiation genotoxicity testing and in diverse research fields such as nutrigenomics and pharmacogenomics as well as a predictor of normal tissue and tumor radiation sensitivity and cancer risk. (2) To test the CBMN assay for triage automation and multivariable linear regression analysis to compare with already proven and globally accepted assays. (3) To establish a surge request procedure for cytogenetic analysis by developing sex and age-dependent CBMN dose-response calibrations curves and validate specimens cryopreservation protocols for delayed analysis using the metaphase-spread chromosome aberrations (i.e., DCA, PCC) assays. (4) To evaluate blood biomarkers to monitor radiation injury of radiation countermeasures. (5) To established the Department of Defense CLIP/CLIA Clinical Biodosimetry laboratory with automated clinical specimen testing to manage mass-casualty radiation incidents around the globe. (6) To publish manuscripts on research findings.					
FY 2023 Base Plans: (1) To setup sex and age dependent donors in order to establish radiation dose response CBMN assay using optimized processing and staining procedures. (2) To establish dual staining using two different fluoresce probes and to implement those in the automated assay. (3) To produce a suite of protocols for clinical approval and testing validations. (4) To implement quality control and quality assurance processes in order to preserve and ensure specimen testing and integrity. (5) To sustain laboratory clinical accreditation and competency in the cytogenetic biodosimetry service capability. (6) To participate in CBRNE/WMD NATO and military operations exercises. (7) To continue providing Department of Defense radiobiology expert reach back support.					
FY 2023 OCO Plans:					

Exhibit R-2A, RDT&E Project Justification: PB 2023 Defense Health Agency		Date: March 2022
Appropriation/Budget Activity 0130 / 2	**R-1 Program Element (Number/Name)** PE 0602787DHA / *Medical Technology (AFRRI)*	**Project (Number/Name)** 241A / *Biodosimetry (USUHS)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
N/A ***FY 2022 to FY 2023 Increase/Decrease Statement:*** Pricing adjustment for inflation.					
Accomplishments/Planned Programs Subtotals	0.289	0.295	0.301	0.000	0.301

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

The program element 0602787DHA for AFRRI in addition to the three program elements: 0601115HPPE, 0602115HPPE, and 0603115HP are coordinated and integrated into the portfolio management by the Joint Program Committee-7/ Radiation Health Effects Research Program (RHERP).

D. Acquisition Strategy

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2023 Defense Health Agency			Date: March 2022
Appropriation/Budget Activity 0130 / 2	R-1 Program Element (Number/Name) PE 0602787DHA / *Medical Technology (AF RRI)*	Project (Number/Name) 241B / *Internal Contamination (USUHS)*	

COST ($ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
241B: *Internal Contamination (USUHS)*	0.438	0.152	0.155	0.158	0.000	0.158	0.161	0.164	0.167	0.170	Continuing	Continuing

A. Mission Description and Budget Item Justification

Internal Contamination (USUHS): For the Uniformed Services University of the Health Sciences (USUHS), the mission and research objective for Internal Contamination is to determine whether the short-term and long-term radiological and toxicological risks of embedded metals warrant changes in the current combat and post-combat fragment removal policies for military personnel. Additionally, the biological effects of internalization of radioactive elements from Radiological Dispersal Devices (RDDs) and depleted uranium weapons, as well as therapeutic approaches to enhance the elimination of radionuclides from the body are being investigated.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Title: Internal Contamination (USUHS)	0.152	0.155	0.158	0.000	0.158
Description: Internal Contamination (USUHS): Radioactive material can enter the body by a variety of pathways including ingestion, inhalation, and wound contamination. While some internalized isotopes will be naturally eliminated from the body, many others are not. They remain immobile or are transported and deposited to other organs where they continually irradiate the surrounding tissue. This chronic internal radiation exposure can cause unrepairable cellular damage eventually leading to death. This Program uses innovative approaches to address this pressing health concern. FY21 Accomplishments: (1) Determined a chemical synthesis route containing a magnetic core. (2) Tested the ability of non-magnetic dendrimers to bind uranium and cesium. (3) Completed the synthesis of uranium and cesium-templated dendrimers for high-specific metal binding imprinted polymers. (4) Completed the preparation of dendrimers with standard metal chelators attached to their terminal ends. (5) Assessed the ability of dendrimer containing metal chelators using a novel in vitro system. (6) Initiated cytotoxicity assessments of the novel chemically synthesized imprinted polymers. (7) Determined the efficacy of molecular imprinted polymers on reducing the body burden of internalized radionuclides using the novel in vitro system. (8) Received IACUC approval. (9) Animal specimens were submitted for histopathological evaluation and are being evaluated by a board certified pathologist.					

Exhibit R-2A, RDT&E Project Justification: PB 2023 Defense Health Agency		Date: March 2022
Appropriation/Budget Activity 0130 / 2	**R-1 Program Element (Number/Name)** PE 0602787DHA / *Medical Technology (AF RRI)*	**Project (Number/Name)** 241B / *Internal Contamination (USUHS)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
(10) Sternal sections were evaluated for Megakaryocytes, indicative of proliferation. (11) Bone marrow was assayed for colony forming units, indicative of proliferation effects and complete blood cell counts were analyzed. (12) Fecal pellets were collected from male and female C57BL/6 mice one and six month's post-TBI were submitted to WRAIR for 16S microbiome sequencing. (13) Serum samples were collected and submitted to Georgetown University for metabolic and lipidomics analysis. (14) Fabricated of gut organ-on-chip model and quality control evaluation. (15) Identified and evaluated small molecules for gut organ-on-chip model. (16) In 2019/2021, five manuscripts were published. ***FY 2022 Plans:*** (1) FY2022 plans continue efforts as outlined in FY 2021 in addition to the following: The Department of Defense and Department of Veterans Affair recognized the need for a better understanding of the health effects of embedded metal fragments and enhanced health surveillance of personnel suffering from such injuries. In response, the Department of Defense Health Affairs issued a directive instructing surgeons to save any excised fragments for further analysis so that the metals could be identified. In addition, the directive compiled a list of "metals of concern" to enhance patient follow-up with the establishment of the Toxic Embedded Fragment Center at the Baltimore VA Medical Center in order to follow-up with service members. These developments led to further collaborations between USUHS/AFRRI and the Baltimore DVA, University of Maryland School of Medicine, U.S. FDA, and the University of Kentucky resulting in receiving support by a Congressionally Directed Medical Research Program (CDMRP) funded project. (2) To validate signaling pathways by western blot and compare protein expression with age matched control minipigs tissues. (3) Perform ELISA for protein markers for gut leakage/intestinal permeability to support disruption of gut microflora to confirm the data from microbiome analysis. (4) Validation of small molecules for gut organ-on-chip model in murine model. ***FY 2023 Base Plans:*** FY2023 plans continue efforts as outlined in FY 2022. ***FY 2023 OCO Plans:***					

Exhibit R-2A, RDT&E Project Justification: PB 2023 Defense Health Agency		Date: March 2022
Appropriation/Budget Activity 0130 / 2	**R-1 Program Element (Number/Name)** PE 0602787DHA / *Medical Technology (AFRRI)*	**Project (Number/Name)** 241B / *Internal Contamination (USUHS)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
N/A ***FY 2022 to FY 2023 Increase/Decrease Statement:*** Pricing adjustment for inflation.					
Accomplishments/Planned Programs Subtotals	0.152	0.155	0.158	0.000	0.158

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

The program element 0602787DHA for AFRRI in addition to the three program elements: 0601115HPPE, 0602115HPPE, and 0603115HP are coordinated and integrated into the portfolio management by the Joint Program Committee-7/ Radiation Health Effects Research Program (RHERP).

D. Acquisition Strategy

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2023 Defense Health Agency			Date: March 2022
Appropriation/Budget Activity 0130 / 2	R-1 Program Element (Number/Name) PE 0602787DHA / *Medical Technology (AFRRI)*	Project (Number/Name) 241C / *Radiation Countermeasures (USUHS)*	

COST ($ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
241C: *Radiation Countermeasures (USUHS)*	2.800	0.970	0.989	1.009	0.000	1.009	1.029	1.050	1.071	1.093	Continuing	Continuing

A. Mission Description and Budget Item Justification

Radiation Countermeasures (USUHS/AFRRI): For the Uniformed Services University of the Health Sciences/Armed Forces Radiobiology Research Institute (USUHS/AFRRI), this program supports developmental, mission directed research to investigate new concepts and approaches that will lead to advancements in biomedical strategies for preventing and treating the health effects of human exposure to ionizing radiation as well as radiation combined with injuries (burns, wounds, hemorrhage, microbiome, gastrointestinal damage, neurobehavioral deficits, bone marrow damage), termed radiation combined injury (RCI). RCI's were observed at Hiroshima and Nagasaki, Japan, where 60-70% of victims received thermal burns concurrent with radiation injury. At the Chernobyl reactor meltdown, 10% of 237 victims exposed to radiation received thermal burns as well. In animal models of RCI including rat, guinea pig, dog, and swine, burns and wounds usually increase mortality after otherwise non-lethal radiation exposures. Consequences of RCI include acute myelosuppression, immune system inhibition, fluid imbalance, macro/microcirculation failure, massive cellular damage, and disruption of vital organ functions, which can lead to multiple organ dysfunction syndrome. There are different syndromes based on the time of manifestation in relation to radiation exposure; acute, delayed, late, and chronic syndromes. Acute radiation syndrome (ARS) is characterized by the differential response of the important organs to different doses of radiation. The ARS sub-syndromes include three major clinically-relevant pathologies; hematopoietic sub-syndrome (H-ARS), gastrointestinal sub-syndrome (GI-ARS), and neurovascular sub-syndrome (NV-ARS or CNS-ARS). Radiation countermeasures have been categorized as radioprotectors, radiomitigators, and therapeutics, based on the time of administration in relation to radiation exposure. The majority of countermeasures developed are for specific tissue injuries or specific syndromes. ARS is receiving the most attention, though other syndromes also need equal consideration.

Currently, treatments for ARS are limited: only the H-ARS has viable therapeutic options and even those are limited; Neupogen, Neulasta, Leukine, and Nplate. USUHS/AFRRI researchers made significant contributions in the initial development of the first three agents. These H-ARS treatments are genetically engineered recombinant growth factors or cytokines that were developed for other indications and recently repurposed for H-ARS. All U.S. Food and Drug Administration (FDA) -approved agents for H-ARS are radiomitigators. No radioprotector, either for H-ARS or GI-ARS has yet been approved for human use.

Due to the increasing risk of nuclear and radiological terrorist attacks or accidents has renewed interest in developing radiation medical countermeasures. Our Radiation Countermeasures goals ranges from exploration of biological processes likely to form the basis of technological solutions, to initial feasibility studies of promising solutions. Program objectives focus on preventing and mitigating the health consequences from exposures to ionizing radiation, in the context of probable threats to U.S. forces in current tactical, humanitarian and counterterrorism mission environments. New protective, and/or combination of FDA approved treatments and therapeutic strategies will broaden the military commander's options for operating within nuclear or radiological environments by minimizing both short-and long-term risks of adverse health consequences.

Research findings are focused to advance the understanding and to produce the following: (1) To identify new therapeutics candidates that show promising advancement to further development; (2) To developed novel technologies to minimized the use of animal models in the study of radiation countermeasure

Exhibit R-2A, RDT&E Project Justification: PB 2023 Defense Health Agency		Date: March 2022
Appropriation/Budget Activity 0130 / 2	**R-1 Program Element (Number/Name)** PE 0602787DHA / *Medical Technology (AFRRI)*	**Project (Number/Name)** 241C / *Radiation Countermeasures (USUHS)*

effects; (3) To investigate the overall radiation effect by countermeasures in the microbiome and anatomical tissue; (4) To find novel biomarkers, late effects and immunosuppression of radiation injury that can quantitate effects on combat performance decrements; (4) To identify novel therapeutic strategies that will support military operations within a nuclear or radiological environment minimizing ground troops short and long term adverse risk.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Title: Radiation Countermeasures (USUHS)	0.970	0.989	1.009	0.000	1.009
Description: For the Uniformed Services University of the Health Sciences/Armed Forces Radiobiology Research Institute (USUHS/AFRRI), this program supports developmental, mission directed research to investigate new concepts and approaches that will lead to advancements in biomedical strategies for preventing and treating the health effects of human exposure to ionizing radiation as well as radiation combined with injuries (burns, wounds, hemorrhage, microbiome, gastrointestinal damage, neurobehavioral deficits, bone marrow damage), termed radiation combined injury. Research findings are focused to advance the understanding and to produce the following: (1) To identify new therapeutics candidates that show promising advancement to further development; (2) To developed novel technologies to minimized the use of animal models in the study of radiation countermeasure effects; (3) To investigate the overall radiation effect by countermeasures in the microbiome and anatomical tissue; (4) To find novel biomarkers, late effects and immunosuppression of radiation injury that can quantitate effects on combat performance decrements; (4) To identify novel therapeutic strategies that will support military operations within a nuclear or radiological environment minimizing ground troops short and long term adverse risk. In addition to the primary achievement of research objectives, the program educates Federal employees as a benefit to the public they serve through Federal service, through support to civil authorities, and in non-Federal professional and academic collaborations. Description: For the Uniformed Services University of the Health Sciences/Armed Forces Radiobiology Research Institute (USUHS/AFRRI), this program supports developmental, mission directed research to investigate new concepts and approaches that will lead to advancements in biomedical strategies for preventing and treating the health effects of human exposure to ionizing radiation as well as radiation combined with injuries (burns, wounds, hemorrhage, microbiome, gastrointestinal damage, neurobehavioral deficits, bone marrow damage), termed radiation combined injury. Research findings are focused to advance the understanding and to produce the following: (1) To identify new therapeutics candidates that show promising advancement to further development; (2) To developed novel technologies to minimized the use of animal models in the study of radiation countermeasure effects; (3) To investigate the overall radiation effect by countermeasures					

Exhibit R-2A, RDT&E Project Justification: PB 2023 Defense Health Agency		Date: March 2022
Appropriation/Budget Activity 0130 / 2	**R-1 Program Element (Number/Name)** PE 0602787DHA / *Medical Technology (AF RRI)*	**Project (Number/Name)** 241C / *Radiation Countermeasures (USUHS)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
in the microbiome and anatomical tissue; (4) To find novel biomarkers, late effects and immunosuppression of radiation injury that can quantitate effects on combat performance decrements; (4) To identify novel therapeutic strategies that will support military operations within a nuclear or radiological environment minimizing ground troops short and long term adverse risk. In addition to the primary achievement of research objectives, the program educates Federal employees as a benefit to the public they serve through Federal service, through support to civil authorities, and in non-Federal professional and academic collaborations. FY21 Accomplishments: (1) Completed methylome and proteome studies with hematopoietic progenitor cells using murine model. (2) Characterized and correlated the dose and dose rate effect of sub-lethal neutron radiation on genetic and epigenomic perturbations in hematopoietic progenitor cells in male mice. (3) Determined transcriptomic signatures that are correlated with radiation injury, using whole blood transcriptome analysis. (4) Established the gut organ-on-chip model. (5) Identified and tested small molecule countermeasure following Lipinski's rules. (6) Selected countermeasure therapeutic to test using the gut-organ-on-chip model for radioprotective and radiomitigative potential. (7) Tested long term effect in bone morrow irradiated with 2.5% mice. (8) Characterized injury to lungs, heart, and brain by analyzing biomarkers specific to this organs and vascular endothelial tissue at different radiation doses. (9) Monitored up to six months mice exposed to BPI to study delayed effects of radiation exposure. (10) Screened potential prophylactic countermeasures in PBI with 2.5% model. (11) Established growth conditions for BM endothelium and vascular endothelium in 3D cell culture environment. (12) Established optimal conditions for endothelial/immune cell contact and non/contact co-culture in 3D cell culture environment. (13) Performed gamma radiations with single cultures in 3D cell culture system. (14) Conducted cellular experiments (DNA damage, survival, functions) (15) Performed gamma radiations with endothelium/immune cell 3D cultures.					

Exhibit R-2A, RDT&E Project Justification: PB 2023 Defense Health Agency		Date: March 2022
Appropriation/Budget Activity 0130 / 2	**R-1 Program Element (Number/Name)** PE 0602787DHA / *Medical Technology (AFRRI)*	**Project (Number/Name)** 241C / *Radiation Countermeasures (USUHS)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
(16) Tested bone morrow and ileu of male and female mice to access levels of cytokine, AKT, MAPK and caspase-3 for organ injury. (17) Tested tissue lysates of bone marrow, ileum and spleen of male and female mice for cytokine and complement component 3. (18) Completed IL-18 studies indicating that IL-18 binding protein (IL-18BP) can be tested as potential drug target. Mice treatment with IL-18BP indicates inhibition of downstream signaling, protecting the mice tissue from radiation by decreasing apoptosis after total body radiation. (19) In 2019/2021, 44 manuscripts were published. ***FY 2022 Plans:*** FY2022 plans continue efforts as outlined in FY 2021 in addition to the following: (1) To complete methylome and proteome studies and identify early epigenomic steps post-radiation caused by LDR/LDR neutron exposure to murine stem cells populations as potential low dose exposure markers using multiple analytical bioinformatics programs. (2) To down-select potential gut-organ-on-chip small molecule and test for efficacy in murine model. (3) To screen one potential prophylactic countermeasure in the partial body irradiation model with 2.5% sparing of bone marrow. (4) To perform neutron/gamma radiation with single 3D cell culture. (5) To perform neutron/gamma radiations with endothelium/immune cell 3D cultures. (6) To determine DRF for promising candidates. (7) To determine hematological end points to assess recovery from H-ARS. (8) To analyze specimens of the jejunum after lethal irradiation in mice treated with FDA-approved therapeutics. (9) To identify other animal models where various anatomical sites (e.g. intestinal, oral, cutaneous, pulmonary, and urinary, etc) can be interrogated for microbiome alterations. (10) To develop an in vitro Caco2 IL-18 receptor knock out cell line using the CRISPR technology and 3D cell culture to test IL-18BP efficacy prior to animal testing. (11) To optimize the gastro-intestinal organ-on-chip model using intestinal cell lines to mimic the 3D architecture of the intestinal physiology. (12) To define biomarkers of neurobehavioral deficits following low-dose exposure. (13) To identify circulating miRNAs at different time points following low-dose irradiation. (14) To determine the relationship between circulating miRNAs and neurobehavioral deficits. (15) To identify miRNA in exosomes from radiation exposed human primary cell lines that target CXCR4 receptor in recipient cells that facilitate proliferation or neutrophil progenitors using high-throughput methods.					

Exhibit R-2A, RDT&E Project Justification: PB 2023 Defense Health Agency		Date: March 2022
Appropriation/Budget Activity 0130 / 2	**R-1 Program Element (Number/Name)** PE 0602787DHA / *Medical Technology (AFRRI)*	**Project (Number/Name)** 241C / *Radiation Countermeasures (USUHS)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
(16) To determine the effect of exosome-packed selected miRNA on the release of neutrophils from BM cells using in vitro BM model, and their interactions with G-CSF and GM-CSF, with gamma radiation. ***FY 2023 Base Plans:*** FY2023 plans continue efforts as outlined in FY 2022. ***FY 2023 OCO Plans:*** N/A ***FY 2022 to FY 2023 Increase/Decrease Statement:*** Pricing adjustment for inflation.					
Accomplishments/Planned Programs Subtotals	0.970	0.989	1.009	0.000	1.009

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

The program element 0602787DHA for AFRRI in addition to the three program elements: 0601115HPPE, 0602115HPPE, and 0603115HP are coordinated and integrated into the portfolio management by the Joint Program Committee-7/ Radiation Health Effects Research Program (RHERP).

D. Acquisition Strategy

USUHS optimizes these research funds to achieve its research objectives, often in partnership and collaboration with funding received from other DoD and interagency sources through Interagency Agreements and inter-service Support Agreements, which may be executed via Federal assistance agreements or contracts.

Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Defense Health Agency	Date: March 2022
Appropriation/Budget Activity 0130: *Defense Health Program I* BA 2: *RDT&E*	**R-1 Program Element (Number/Name)** PE 0603002DHA *I Medical Advanced Technology (AFRRI)*

COST ($ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
Total Program Element	1.015	0.352	0.359	0.366	0.000	0.366	0.373	0.380	0.388	0.396	Continuing	Continuing
242A: *Biodosimetry (USUHS)*	0.607	0.210	0.214	0.218	0.000	0.218	0.222	0.226	0.231	0.260	Continuing	Continuing
242B: *Radiation Countermeasures (USUHS)*	0.408	0.142	0.145	0.148	0.000	0.148	0.151	0.154	0.157	0.136	Continuing	Continuing

A. Mission Description and Budget Item Justification

For the Uniformed Services University of the Health Sciences/Armed Forces Radiobiology Research Institute (USUHS/AFRRI), is a unique Department of Defense asset, responsible for preserving and protecting the health and performance of U.S. military personnel operating in potential radiologically contaminated multi-domain conventional or hybrid battle spaces and urban environments; through research, education, and operational training that advance understanding of the effects of ionizing radiation in line with the 21st century dynamic threat landscape and national security threats posed by non-state actors, hostile state actors, and near-peer adversaries, as well as providing rapidly deployable radiation medicine expertise in response to a radiological or nuclear event domestically or abroad.

The uniqueness of USUHS/AFRRI comes from operating and maintaining state-of-the-art radiation facilities and dosimetry systems to support military relevant radiobiology research. These facilities enable researchers to conduct a wide range of radiobiology experiments in order to investigate militarily-relevant scenarios, and better understand radiation effects and potential mitigation strategies. A team of scientist, physicists, engineers, operators and technicians use proven and traceable dosimetry systems (e.g., ionization chambers, radiochromic film, thermoluminescent dosimeters) and consensus protocols to characterize radiation fields. Due to these facilities our researchers are able to experiment with photons (?-rays) which are intended to simulate fallout environments and are delivered by two cobalt-60 facilities - the high-level cobalt facility (HLCF), and for lower (chronic) doses and dose rates, the low-level cobalt facility (LLCF). These type of radiation sources are used for acute and chronic studies of materials, biologic specimens, and small and large animals. The LLCF also provides to our scientist low-dose rate gamma rays to simulate chronic exposure to low absorbed doses. Therefore, it also supports research focused on late or delayed radiation effects in biological specimens.

USUHS/AFRRI researchers are also able to use Mixed-radiation fields (photons and neutrons) which are available from USUHS/AFRRI's Training, Research, Isotopes, General Atomics (TRIGA) reactor. The reactor is operated in either steady-state or pulsed mode to simulate a wide range of prompt exposure scenarios on a nuclear battlefield. The USUHS/AFRRI's TRIGA is the only one dedicated to military radiobiology research. The reactor produces a controlled, self-sustaining fission chain reaction in the reactor core which, in addition to the fuel elements and control rods (containing boron carbide), which includes a neutron start-up source (americium/ beryllium). It is suspended under 4.9 m of water within a pool (an effective radiation shield) in a carriage assembly that allows movement of the core between two exposure rooms for experimental work with large-animal or other studies. The advantages of such a movable reactor core are that the quantity and character of the radiation that reaches the exposure facilities can be controlled, and more than one exposure facility can be used during reactor operations.

Our state-of-the-art radiation facilities are also able to provide a wide range of photon and electron irradiations for partial- and whole-body geometries by using a linear accelerator (LINAC) and a small animal radiation research platform (SARRP) providing a range of radiation types, energies, field sizes and dose rates and is extensively used to support standard cell configurations (i.e., 6-, 24- and 96-well plates), and targeted partial body irradiations of mice, minipigs, and nonhuman-primates (NHP) animal models. AFRRI's LINAC is used to produce, monitor, control and form photon or electron beams to the specified target. Whole-body irradiations are also possible

depending on the animal size and desired dose rate. An Xstrahl SARRP facility is capable of operating at 220 kVp and 13 mA yielding a dose rate at the isocenter of approximately 2.6 Gy/min. Onboard portal camera and cone beam CT imaging systems are used to ensure precise dose delivery. Lung- and gut-only irradiation protocols are approved and have been extensively used to support radiation countermeasure development in the mouse model. Other imaging support is provided by a Philips Brilliance computed tomography (CT) big bore scanner. Some features of the scanner include an 85-cm bore size to accommodate larger research subjects, 60-cm true scan field of view and 16-slices per revolution. The above radiation sources and generators are used to support USUHS/AFRRI's current research focus areas which we will address in the following section.

Our scientific research goals includes maintaining a pool of highly qualified radiation biologists, and basic and applied research in identification and early development of measures to prevent, assess, and treat radiation injury. USUHS/AFRRI scientists conduct and publish research critical to the Department of Defense for force heath protection and also contribute to the health and well-being of the population at large. USUHS/AFRRI research thrusts include development of diagnosis of radiation induced injury (biodosimetry), internalized radionuclides (internal contamination) and radiation countermeasures.

The program capitalizes on findings under PE 0602787HP, Medical Technology, and from industry and academia to advance novel medical countermeasures into and through pre-clinical studies toward newly licensed products. Research findings are mainly focused to advance the development and to produce the following: (1) To establish processes to permit rapid assessment of radiation exposed specimens using novel triage protocols; (2) To developed novel technologies using animal models in the study of radiation effects; (3) To investigate the overall radiation effect by internal contamination in the microbiome and anatomical tissue; (4) To find novel biomarkers, late effects and immunosuppression of radiation injury that can quantitate effects on combat performance decrements; (4) To identify novel therapeutic strategies that will support military operations within a nuclear or radiological environment minimizing ground troops short and long term adverse risk.

B. Program Change Summary ($ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Previous President's Budget	0.352	0.359	0.366	0.000	0.366
Current President's Budget	0.352	0.359	0.366	0.000	0.366
Total Adjustments	0.000	0.000	0.000	0.000	0.000
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	0.000	-			

Exhibit R-2A, RDT&E Project Justification: PB 2023 Defense Health Agency			Date: March 2022
Appropriation/Budget Activity 0130 / 2	R-1 Program Element (Number/Name) PE 0603002DHA / *Medical Advanced Technology (AFRRI)*	Project (Number/Name) 242A / *Biodosimetry (USUHS)*	

COST ($ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
242A: *Biodosimetry (USUHS)*	0.607	0.210	0.214	0.218	0.000	0.218	0.222	0.226	0.231	0.260	Continuing	Continuing

A. Mission Description and Budget Item Justification

The Biodosimetry program capitalizes on findings under PE 0602787HP, Medical Technology, and from industry and academia to advance novel medical countermeasures into and through pre-clinical studies toward newly licensed products. Research findings are focused to advance the development and to produce the following: (1) To establish clinically certified processes to permit rapid assessment of radiation exposed specimens; (2) To access radiation exposure by developing and providing biological and biophysical dosimetry capabilities for acute, protracted, and prior radiation exposure; (3) To develop novel triage protocols for rapid assessment of radiation exposure; (4) To establish equipment triage automation to support the ability to manage mass-casualty radiation incidents around the globe.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Title: Biodosimetry (USUHS/AFRRI)	0.210	0.214	0.218	0.000	0.218
Description: The Biodosimetry program capitalizes on findings under PE 0602787HP, Medical Technology, and from industry and academia to advance novel medical countermeasures into and through pre-clinical studies toward newly licensed products. Research findings are focused to advance the development and to produce the following: (1) To establish clinically certified processes to permit rapid assessment of radiation exposed specimens; (2) To access radiation exposure by developing and providing biological and biophysical dosimetry capabilities for acute, protracted, and prior radiation exposure; (3) To develop novel triage protocols for rapid assessment of radiation exposure; (4) To establish equipment triage automation to support the ability to manage mass-casualty radiation incidents around the globe. In addition to the primary achievement of research objectives, the program educates Federal employees as a benefit to the public they serve through Federal service, through support to civil authorities, and in non-Federal professional and academic collaborations. FY21 Accomplishments: (1) Sustain efforts to establish a quality and assurance control plan for measurements of dose by cytogenic chromosome aberration assay. (2) Continued the evaluation and validation of new radiation-responsive biomarkers in NHP and human models for biodosimetric diagnostic applications. (3) Established and extended the use of hematology biodosimetry algorithms for radiation-dose assessment using multiple cell-types biomarkers and animals.					

Exhibit R-2A, RDT&E Project Justification: PB 2023 Defense Health Agency		Date: March 2022
Appropriation/Budget Activity 0130 / 2	**R-1 Program Element (Number/Name)** PE 0603002DHA / *Medical Advanced Technology (AFRRI)*	**Project (Number/Name)** 242A / *Biodosimetry (USUHS)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
(4) Established, optimized and validated radiation-induced DNA damage based on a quantitive long amplicon real-time PCR assay. (5) Developed a quantitative inhibition PCR assay of mitochondrial DNA using long- and short amplicon PCR using human samples. (6) Developed a quantitative inhibition PCR assay of mitochondrial DNA using long- and short amplicon PCR using mouse samples. (7) Extended the utility of the premature chromosome condensation (PCC) assay investigating the effects of PBI v/s TBI exposures to assess the fraction of the body exposed to radiation. (8) Validated the HIRI algorithm concept using animals (i.e., baboons, canine, and mice) dose-response databases for an extended time window up to 10 to 14 days after exposure. (9) Established a RICA algorithm for assessment of H-ARS severity using NHP radiation dose-response model based on CBC cell types biomarkers using the METREPOL system. (10) In 2019/2021, 15 manuscripts were published. ***FY 2022 Plans:*** FY 2022 and FY 2023 Plans: FY 2022 plans are to continue efforts as outlined in FY 2021 and to perform the following studies: (1) To establish processes to permit processing assessments of radiation exposure from specimens by testing the novel cytokinesis-block micronucleus cytome assay (CBMN). The CBMN is a comprehensive system for measuring DNA damage, cytostasis and cytotoxicity. DNA damage events are scored specifically in once-divided binucleated (BN) cells and include (a) micronuclei (MNi), a biomarker of chromosome breakage and/or whole chromosome loss, (b) nucleoplasmic bridges (NPBs), a biomarker of DNA misrepair and/or telomere end-fusions, and (c) nuclear buds (NBUDs), a biomarker of elimination of amplified DNA and/or DNA repair complexes. Cytostatic effects are measured via the proportion of mono-, bi- and multinucleated cells and cytotoxicity via necrotic and/or apoptotic cell ratios. Further information regarding mechanisms leading to MNi, NPBs and NBUDs formation is obtained using centromere and/or telomere probes. The assay have the probability to be applied successfully for biomonitoring of in vivo genotoxic radiation exposure, in vitro radiation genotoxicity testing and in diverse research fields such as nutrigenomics and pharmacogenomics as well as a predictor of normal tissue and tumor radiation sensitivity and cancer risk. (2) To test the CBMN assay for triage automation and multivariable linear regression analysis to compare with already proven and globally accepted assays.					

Exhibit R-2A, RDT&E Project Justification: PB 2023 Defense Health Agency		Date: March 2022
Appropriation/Budget Activity 0130 / 2	**R-1 Program Element (Number/Name)** PE 0603002DHA / *Medical Advanced Technology (AFRRI)*	**Project (Number/Name)** 242A / *Biodosimetry (USUHS)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
(3) To establish a surge request procedure for cytogenetic analysis by developing sex and age-dependent CBMN dose-response calibrations curves and validate specimens cryopreservation protocols for delayed analysis using the metaphase-spread chromosome aberrations (i.e., DCA, PCC) assays. (4) To evaluate blood biomarkers to monitor radiation injury of radiation countermeasures. (5) To established the Department of Defense CLIP/CLIA Clinical Biodosimetry laboratory with automated clinical specimen testing to manage mass-casualty radiation incidents around the globe. ***FY 2023 Base Plans:*** FY 2023 plans are to continue efforts as outlined in FY 2022. ***FY 2023 OCO Plans:*** N/A ***FY 2022 to FY 2023 Increase/Decrease Statement:*** Pricing adjustment for inflation.					
Accomplishments/Planned Programs Subtotals	0.210	0.214	0.218	0.000	0.218

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

The program element 0602787DHA for AFRRI in addition to the three program elements: 0601115HPPE, 0602115HPPE, and 0603115HP are coordinated and integrated into the portfolio management by the Joint Program Committee-7/ Radiation Health Effects Research Program (RHERP).

D. Acquisition Strategy

USUHS optimizes these research funds to achieve its research objectives, often in partnership and collaboration with funding received from other DoD and interagency sources through Interagency Agreements and inter-service Support Agreements, which may be executed via Federal assistance agreements or contracts.

Exhibit R-2A, RDT&E Project Justification: PB 2023 Defense Health Agency			Date: March 2022
Appropriation/Budget Activity 0130 / 2	R-1 Program Element (Number/Name) PE 0603002DHA / *Medical Advanced Technology (AFRRI)*	Project (Number/Name) 242B / *Radiation Countermeasures (USUHS)*	

COST ($ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
242B: *Radiation Countermeasures (USUHS)*	0.408	0.142	0.145	0.148	0.000	0.148	0.151	0.154	0.157	0.136	Continuing	Continuing

A. Mission Description and Budget Item Justification

Radiation Countermeasures (USUHS): For the Uniformed Services University of the Health Sciences (USUHS), this program supports applied research for advanced development of biomedical strategies to prevent and treat health consequences from exposure to ionizing radiation. It capitalizes on findings under PE 0602787HP, Medical Technology, and from industry and academia to advance novel medical countermeasures into and through pre-clinical studies toward newly licensed products. Program objectives focus on preventing or mitigating the health consequences from exposures to ionizing radiation alone or in combination with other injuries, in the context of probable threats to US forces in current tactical, humanitarian and counterterrorism mission environments. Findings from basic and developmental research are integrated into highly focused advanced technology development studies yielding protective and therapeutic strategies.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Title: Radiation Countermeasures (USUHS)	0.142	0.145	0.148	0.000	0.148
Description: Radiation Countermeasures (USUHS): For the Uniformed Services University of the Health Sciences (USUHS), this program supports applied research for advanced development of biomedical strategies to prevent and treat health consequences from exposure to ionizing radiation. It capitalizes on findings under PE 0602787HP, Medical Technology, and from industry and academia to advance novel medical countermeasures into and through pre-clinical studies toward newly licensed products. Program objectives focus on preventing or mitigating the health consequences from exposures to ionizing radiation alone or in combination with other injuries, in the context of probable threats to US forces in current tactical, humanitarian and counterterrorism mission environments. Findings from basic and developmental research are integrated into highly focused advanced technology development studies yielding protective and therapeutic strategies. In addition to the primary achievement of research objectives, the program educates Federal employees as a benefit to the public they serve through Federal service, through support to civil authorities, and in non-Federal professional and academic collaborations. FY21 Accomplishments: (1) There are several radiation countermeasures (BIO 300, TPOm, gamma-tocotrienol, BBT-059, PLX-R18, CDX 301) under advance development and few of them may be FDA approved in near future.					

Exhibit R-2A, RDT&E Project Justification: PB 2023 Defense Health Agency			Date: March 2022
Appropriation/Budget Activity 0130 / 2	**R-1 Program Element (Number/Name)** PE 0603002DHA / *Medical Advanced Technology (AFRRI)*	**Project (Number/Name)** 242B / *Radiation Countermeasures (USUHS)*	

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
(2) Identified and evaluated the transcriptomic profiles of NHP brain compartments to profile the global transcriptomic changes in different brain compartments of NHPs exposed to radiation. (3) Performed the study of two new candidates EC-18 and YK-4-250. (4) Completed EC-18 study. (5) Completed 30 day survival efficacy for Myelo-001 and LA-GM-CFS (6) Performed safety study for YK-4-250 (7) Performed 30 day survival efficacy study of EC-18 and YK-4-250. (8) Tested new candidates for basic toxicity and preliminary survival efficacy at a dose of LD70/30 to LD90/30. (9) In 2019/2021, 44 manuscripts were published. ***FY 2022 Plans:*** FY 2022 plans are to continue efforts as outlined in FY 2021 and to perform the following studies: (1) To continue ongoing studies using the cutaneous radiation injury in minipigs to analyze the skin microbiome before and after creation of clinically-relevant radiation lesions. (2) To develop IL-18BP peptide as a radiation mitigator. (3) To perform transcriptomics studies with blood of NHP exposed to radiation and treated with PEGylated interlukin-11. (4) To perform proteomic and metabolomics studies with serum samples of NHP exposed to radiation and treated with BBT-059. (5) To optimize and validate a proteomic protocol for validation of radiation biomarkers for countermeasure efficacy. (6) To study the dysfunctional signaling pathway resulting from countermeasure testing in NHP models. ***FY 2023 Base Plans:*** FY 2023 plans are to continue efforts as outlined in FY 2022. ***FY 2023 OCO Plans:*** N/A ***FY 2022 to FY 2023 Increase/Decrease Statement:*** Pricing adjustment for inflation.					
Accomplishments/Planned Programs Subtotals	0.142	0.145	0.148	0.000	0.148

Exhibit R-2A, RDT&E Project Justification: PB 2023 Defense Health Agency		Date: March 2022
Appropriation/Budget Activity 0130 / 2	**R-1 Program Element (Number/Name)** PE 0603002DHA / *Medical Advanced Technology (AFRRI)*	**Project (Number/Name)** 242B / *Radiation Countermeasures (USUHS)*

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

The program element 0602787DHA for AFRRI in addition to the three program elements: 0601115HPPE, 0602115HPPE, and 0603115HP are coordinated and integrated into the portfolio management by the Joint Program Committee-7/ Radiation Health Effects Research Program (RHERP).

D. Acquisition Strategy

USUHS optimizes these research funds to achieve its research objectives, often in partnership and collaboration with funding received from other DoD and interagency sources through Interagency Agreements and inter-service Support Agreements, which may be executed via Federal assistance agreements or contracts.

Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Defense Health Agency											Date: March 2022	
Appropriation/Budget Activity 0130: *Defense Health Program I* BA 2: *RDT&E*					R-1 Program Element (Number/Name) PE 0603115DHA *I Medical Technology Development*							
COST ($ in Millions)	**Prior Years**	**FY 2021**	**FY 2022**	**FY 2023 Base**	**FY 2023 OCO**	**FY 2023 Total**	**FY 2024**	**FY 2025**	**FY 2026**	**FY 2027**	**Cost To Complete**	**Total Cost**
Total Program Element	9,798.546	1,994.150	2,008.177	320.496	0.000	320.496	326.420	328.099	332.660	338.070	Continuing	Continuing
300A: *CSI - Congressional Special Interests*	8,849.659	1,763.897	1,772.980	0.000	0.000	0.000	0.000	0.000	0.000	0.000	-	-
238C: *Air & Space Austere Environment Patient Care and Transport (AF)*	14.921	11.250	12.675	12.866	0.000	12.866	13.122	13.386	13.653	13.927	Continuing	Continuing
284B: *Air & Space Physiology, Medicine and Human Performance (AF)*	11.156	10.418	11.122	11.471	0.000	11.471	11.700	11.933	12.172	12.415	Continuing	Continuing
285A: *Operational Medicine Research & Development (Budgeted) (AF)*	17.469	0.232	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
307B: *Air & Space Force Health Protection (AF)*	29.148	10.046	11.463	11.630	0.000	11.630	11.862	12.098	12.340	12.586	Continuing	Continuing
308B: *Expeditionary Medicine Research & Development (Budgeted) (AF)*	21.391	2.623	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
309A: *Regenerative Medicine (USUHS)*	25.909	10.413	10.621	10.833	0.000	10.833	11.051	11.271	11.496	11.724	Continuing	Continuing
373: *GDF - Medical Technology Development*	401.932	5.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
373A: *GDF - MTD (Combat Casualty Care)*	0.000	11.168	15.736	24.519	0.000	24.519	26.943	27.950	28.871	29.810	Continuing	Continuing
373B: *GDF - MTD (Military Operational Medicine)*	0.000	23.255	19.046	34.150	0.000	34.150	32.426	33.152	33.815	34.492	Continuing	Continuing
373C: *GDF - MTD (Medical Simulation & Training/Health Informatics)*	0.000	12.613	13.044	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
373D: *GDF - MTD (Clinical and Rehabilitation Medicine)*	0.000	13.040	14.980	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing

Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Defense Health Agency										Date: March 2022		
Appropriation/Budget Activity 0130: *Defense Health Program I* BA 2: *RDT&E*					R-1 Program Element (Number/Name) PE 0603115DHA *I Medical Technology Development*							
373E: *GDF - MTD (Military Infectious Disease)*	0.000	6.409	6.630	12.886	0.000	12.886	13.817	13.747	13.659	13.570	Continuing	Continuing
373F: *GDF - MTD (Radiological Health Effects)*	0.000	0.501	0.518	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
373G: *GDF - MTD (Military Medical Photonics)*	0.000	10.000	10.200	10.404	0.000	10.404	10.612	10.824	11.040	11.261	Continuing	Continuing
373H: *GDF - MTD (Medical Advanced Technology)*	0.000	0.000	0.000	68.016	0.000	68.016	68.576	64.720	63.969	63.969	Continuing	Continuing
378B: *CoE-Breast Cancer Center of Excellence (USUHS))*	29.843	10.685	10.898	11.116	0.000	11.116	11.339	11.566	11.797	12.033	Continuing	Continuing
379B: *CoE-Gynecological Cancer Center of Excellence (USUHS)*	26.088	9.341	9.528	9.719	0.000	9.719	9.913	10.111	10.313	10.519	Continuing	Continuing
381: *CoE - Integrative Cardiac Health Care (USUHS)*	5.929	1.680	1.744	1.809	0.000	1.809	1.875	1.943	1.982	2.022	Continuing	Continuing
382B: *CoE-Pain Center of Excellence (USUHS)*	9.508	1.945	2.014	2.084	0.000	2.084	2.156	2.230	2.277	2.327	Continuing	Continuing
383A: *CoE-Prostate Cancer Center of Excellence (USUHS)*	23.812	8.526	8.696	8.870	0.000	8.870	9.047	9.228	9.413	9.600	Continuing	Continuing
431A: *Underbody Blast Testing (Army)*	68.611	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	-	-
448A: *Military HIV Research Program (Army)*	46.516	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
478: *Applied Proteogenomics Organizational Learning and Outcomes (APOLLO) Consortium (USUHS)*	48.076	18.640	18.724	19.058	0.000	19.058	19.480	19.870	20.267	20.672	Continuing	Continuing
479: *Framingham Longitudinal Study (USUHS)*	14.760	4.920	4.920	5.018	0.000	5.018	5.118	5.220	5.324	5.430	Continuing	Continuing
499: *MHS Financial System Acquisition (DHA)*	39.958	1.971	6.011	6.051	0.000	6.051	6.092	6.143	6.266	6.388	Continuing	Continuing

Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Defense Health Agency										Date: March 2022		
Appropriation/Budget Activity 0130: *Defense Health Program I* BA 2: *RDT&E*					R-1 Program Element (Number/Name) PE 0603115DHA *I Medical Technology Development*							
504: *WRAIR Vaccine Production Facility Research (Army)*	16.152	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
506: *Health Research for Improved Medical Readiness and Healthcare Delivery (USUHS)*	11.904	11.141	11.385	11.631	0.000	11.631	11.883	12.141	12.384	12.632	Continuing	Continuing
507: *Brain Injury and Disease Prevention, Treatment and Research (USUHS)*	13.317	13.583	13.855	14.132	0.000	14.132	14.415	14.703	14.997	15.297	Continuing	Continuing
508: *Psychological Health and Resilience (USUHS)*	7.000	7.140	7.283	7.428	0.000	7.428	7.577	7.729	7.884	8.042	Continuing	Continuing
509: *Innovative Technologies for Improved Medical Diagnoses, Rehabilitation and Warfighter Readiness (USUHS)*	19.323	13.712	14.104	14.505	0.000	14.505	14.916	15.334	15.641	15.954	Continuing	Continuing
511: *Cancer Moonshot Initiatives*	0.000	0.000	0.000	12.300	0.000	12.300	12.500	12.800	13.100	13.400	Continuing	Continuing
830A: *Deployed Warfighter Protection (Army)*	46.164	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing

A. Mission Description and Budget Item Justification

Guidance for Development of the Force - Medical Technology Development: This program element (PE) provides funding for promising candidate solutions that are selected for initial safety and effectiveness testing in animal studies and/or small scale human clinical trials regulated by the US Food and Drug Administration prior to licensing for human use. Research in this PE is designed to address areas of interest to the Secretary of Defense regarding Wounded Warriors, capabilities identified through the Joint Capabilities Integration and Development System, and sustainment of Department of Defense and multi-agency priority investments in science, technology, research, and development. Medical research, development, test, and evaluation priorities for the Defense Health Program (DHP) are guided by, and will support, the National Defense Strategy, the National Research Action Plan for Improving Access to Mental Health Services for Veterans, Service Members, and Military Families, and the National Biodefense Strategy.

Program development and execution is peer reviewed and coordinated with all of the Military Services, appropriate Defense agencies or activities and other federal agencies, to include the Department of Veterans Affairs and the Department of Health and Human Services. As research efforts mature, the most promising will transition to advanced concept development funding, PE 0604110. For knowledge products, successful findings will transition into clinical practice guidelines.

Three Centers of Excellence (CoEs) receive medical technology development funds. Management of the Breast and Gynecological Cancer CoEs transfer from the Army to the Uniformed Services University beginning in FY 2017. The Cardiac Health CoE provides evidence-based personalized patient engagement approaches for comprehensive cardiac event prevention through education, outcomes research and technology tools, as well as molecular research to detect cardiovascular disease at

an early stage to ultimately discover a signature for cardiovascular health, to find new genes that significantly increase risk for heart attack in Service members and other beneficiaries, and identify molecular markers of obesity and weight loss.

For the Navy Bureau of Medicine and Surgery, this program element includes funds for research management support costs. The Outside Continental US (OCONUS) laboratories conduct focused medical research on vaccine development for Malaria, Diarrhea Diseases, and Dengue Fever. In addition to entomology, HIV studies, surveillance and outbreak response under the Global Emerging Infections Surveillance (GEIS) program and risk assessment studies on a number of other infectious diseases that are present in the geographical regions where the laboratories are located. The CONUS laboratories conduct research on Military Operational Medicine, Combat Casualty Care, Diving and Submarine Medicine, Infectious Diseases, Environmental and Occupational Health, Directed Energy, and Aviation Medicine and Human Performance.

For the Air Force Medical Service (AFMS), medical research and development programs are divided into five primary thrust areas: En-Route care, Expeditionary Medicine, Operational Medicine (in-garrison care), Force Health Protection (FHP) (detect, prevent, threats), and Human Performance. Expeditionary Medicine is focused on care on the battlefield and in field hospitals prior to transporting patients out of theater to CONUS, and studies trauma resuscitation, hemorrhage control, and other life-saving interventions to keep critically wounded patients alive in the golden hour and to the next level of care. The AFMS is the only service transporting patients on long aeromedical evacuation missions. Therefore, the En-Route care thrust area studies include investigation on the impact of transport on patient and providers (including cabin altitude, noise, vibration, and environmental issues affecting physiology on the aircraft), patient safety factors during transport, medical technologies for use during transport, and research to support education and training with simulation for En-Route care providers. The Human Performance thrust area focuses on optimizing airmen physical and psychological performance, assessing the physical and cognitive demands on the operator (pilot/aircrew), facilitating a safe aviation environment through technology and equipment assessment, and improving/ sustaining airmen performance through training. Medical development and biomedical technology investments in FHP seek to deliver an improved FHP capability across the full spectrum of operations with research that prevents injury/ illness through improved identification and control of health risks. Under FHP, sub-project areas include Occupational Hazard Exposure (Includes Flight Hazards and Integrated Risk), Targeted Risk Identification, Mitigation and Treatment (Formerly Pathogen ID and Novel Therapeutics and includes Big Data), FHP Technologies Development and Assessment (Assay and disease detection), and Health Surveillance, Infection, Injury & Immunity. FHP also includes Innovations and Personalized Medicine. Operational medicine is focused on in garrison care – our next most critical issue post OIF/OEF – and how to care for the whole patient and consideration of comorbidities in treatment of wounded warriors and dependents.

For the Uniformed Services University of the Health Sciences (USUHS), medical development programs include the Prostate Cancer Center of Excellence (CoE), the Center for Neuroscience and Regenerative Medicine (CNRM), the Pain CoE, the Breast Cancer CoE, and the Gynecological Cancer CoE. The Prostate CoE, formerly a CSI, was chartered in 1992 to conduct basic, clinical, and translational research programs to combat diseases of the prostate. The Center's mission is fulfilled primarily through its three principal programs -- the Clinical Translational Research Center, the Basic Science Research Program, and the Tri-Service Multicenter Prostate Cancer Database, which encompasses its clinical research work with other participating military medical centers. These affiliated sites contribute data and biospecimens obtained from prostate cancer patients who participate in clinical trials. CNRM brings together the expertise of clinicians and scientists across disciplines to catalyze innovative approaches to TBI research. CNRM research programs emphasize aspects of high relevance to military populations, with a primary focus on patients at the Walter Reed National Military Medical Center. Beginning in FY17, the Breast Cancer CoE funding line and the Gynecological Cancer CoE funding line are transferred from the Army to USUHS.

Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Defense Health Agency	Date: March 2022
Appropriation/Budget Activity 0130: *Defense Health Program I* BA 2: *RDT&E*	**R-1 Program Element (Number/Name)** PE 0603115DHA *I Medical Technology Development*

B. Program Change Summary ($ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Previous President's Budget	1,994.150	235.197	320.496	0.000	320.496
Current President's Budget	1,994.150	2,008.177	320.496	0.000	320.496
Total Adjustments	0.000	1,772.980	0.000	0.000	0.000
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	1,772.980			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			

Congressional Add Details ($ in Millions, and Includes General Reductions)	FY 2021	FY 2022
Project: 300A: *CSI - Congressional Special Interests*		
Congressional Add: *245A - Amyotrophic Lateral Sclerosis (ALS) Research*	40.000	40.000
Congressional Add: *293A - Autism Research*	15.000	15.000
Congressional Add: *296A - Bone Marrow Failure Disease Research*	7.500	7.500
Congressional Add: *310A - Peer-Reviewed Ovarian Cancer Research*	35.000	45.000
Congressional Add: *328A - Peer- Reviewed Multiple Sclerosis Research*	20.000	20.000
Congressional Add: *335A - Peer-Reviewed Cancer Research*	115.000	130.000
Congressional Add: *336A - Peer-Reviewed Lung Cancer Research*	20.000	20.000
Congressional Add: *337A - Peer-Reviewed Orthopaedic Research*	30.000	30.000
Congressional Add: *338A - Peer-Reviewed Spinal Cord Research*	40.000	40.000
Congressional Add: *339A - Peer-Reviewed Vision Research*	20.000	20.000
Congressional Add: *352A - Traumatic Brain Injury/Psychological Health Research*	175.000	175.000
Congressional Add: *380A - Peer-Reviewed Breast Cancer Research*	150.000	150.000
Congressional Add: *390A - Peer-Reviewed Prostate Cancer Research*	110.000	110.000
Congressional Add: *392A - Gulf War Illness Peer-Reviewed Research*	22.000	0.000
Congressional Add: *396A - Research in Alcohol and Substance Use Disorders*	4.000	4.000
Congressional Add: *400A - Peer-Reviewed Medical Research*	370.000	370.000
Congressional Add: *417A - Peer-Reviewed Alzheimer Research*	15.000	15.000

Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Defense Health Agency	Date: March 2022
Appropriation/Budget Activity 0130: *Defense Health Program I* BA 2: *RDT&E*	**R-1 Program Element (Number/Name)** PE 0603115DHA *I Medical Technology Development*

Congressional Add Details ($ in Millions, and Includes General Reductions)	**FY 2021**	**FY 2022**
Congressional Add: *439A - Joint Warfighter Medical Research*	32.000	24.000
Congressional Add: *452A - Peer-Reviewed Reconstructive Transplant Research*	12.000	12.000
Congressional Add: *454A - Orthotics and Prosthetics Outcomes Research*	15.000	20.000
Congressional Add: *456A - HIV/AIDS Program*	16.000	18.000
Congressional Add: *459A - Peer-Reviewed Epilepsy Research*	12.000	12.000
Congressional Add: *463A – Program Increase: Restore Core Research Funding Reduction (GDF)*	221.215	212.980
Congressional Add: *495 - Peer-Reviewed Tick-Borne Disease Research*	7.000	7.000
Congressional Add: *496 -Trauma Clinical Research Program*	10.000	10.000
Congressional Add: *501 - Peer-Reviewed Hearing Restoration Research (Army)*	10.000	10.000
Congressional Add: *502 - CSI - Peer-Reviewed Kidney Cancer Research (Army)*	50.000	50.000
Congressional Add: *503 - CSI - Peer-Reviewed Lupus Research (Army)*	10.000	10.000
Congressional Add: *540A - Global HIV/AIDS Prevention (Navy)*	8.000	10.000
Congressional Add: *660A - Tuberous Sclerosis Complex (TSC)*	8.000	8.000
Congressional Add: *790A - Peer-Reviewed Duchenne Muscular Dystrophy*	10.000	10.000
Congressional Add: *512 - Peer-Reviewed Melanoma Research*	30.000	40.000
Congressional Add: *513 - Chronic Pain Management*	15.000	15.000
Congressional Add: *514 - Combat Readiness Medical Research*	10.000	10.000
Congressional Add: *515 - Peer-Reviewed Pancreatic Cancer Research*	15.000	15.000
Congressional Add: *516 - Peer-Reviewed Rare Cancers Research*	17.500	17.500
Congressional Add: *517 - Peer-Reviewed Scleroderma Research*	5.000	0.000
Congressional Add: *300A - Congressional Add - Brain injury and disease prevention research*	61.682	60.000
Congressional Add: *300A - Congressional Add - Clinical research*	-	10.000
Congressional Add Subtotals for Project: 300A	1,763.897	1,772.980
Project: 373H: *GDF - MTD (Medical Advanced Technology)*		
Congressional Add: *N/A*	0.000	0.000
Congressional Add Subtotals for Project: 373H	0.000	0.000

Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Defense Health Agency	Date: March 2022
Appropriation/Budget Activity 0130: *Defense Health Program I* BA 2: *RDT&E*	**R-1 Program Element (Number/Name)** PE 0603115DHA *I Medical Technology Development*

Congressional Add Details ($ in Millions, and Includes General Reductions)	FY 2021	FY 2022
Project: 511: *Cancer Moonshot Initiatives*		
Congressional Add: *Cancer Moonshot Initiatives (USUHS)*	0.000	0.000
Congressional Add Subtotals for Project: 511	0.000	0.000
Congressional Add Totals for all Projects	1,763.897	1,772.980

Exhibit R-2A, RDT&E Project Justification: PB 2023 Defense Health Agency			Date: March 2022
Appropriation/Budget Activity 0130 / 2	R-1 Program Element (Number/Name) PE 0603115DHA / *Medical Technology Development*	Project (Number/Name) 300A / *CSI - Congressional Special Interests*	

COST ($ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
300A: *CSI - Congressional Special Interests*	8,849.659	1,763.897	1,772.980	0.000	0.000	0.000	0.000	0.000	0.000	0.000	-	-

A. Mission Description and Budget Item Justification

In FY 2022, the Defense Health Program funded Congressional Special Interest (CSI) directed research. The strategy for the FY 2022 Congressionally-directed research program is to stimulate innovative research through a competitive, focused, peer-reviewed medical research at intramural and extramural research sites. Because of the CSI annual structure, out-year funding is not programmed.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022
Congressional Add: 245A - Amyotrophic Lateral Sclerosis (ALS) Research	40.000	40.000
FY 2021 Accomplishments: This Congressional Special Interest initiative provided funds for research in Amyotrophic Lateral Sclerosis (ALS). ALS is a degenerative neurological disorder that causes muscle weakness and atrophy throughout the body. The ALS Research Program is a broadly-competed, peer-reviewed research program with the goal to contribute to a cure for ALS by funding innovative preclinical research to develop new treatments for ALS		
FY 2022 Plans: This Congressional Special Interest initiative provided funds for research in Amyotrophic Lateral Sclerosis (ALS). ALS is a degenerative neurological disorder that causes muscle weakness and atrophy throughout the body. The ALS Research Program is a broadly-competed, peer-reviewed research program with the goal to contribute to a cure for ALS by funding innovative preclinical research to develop new treatments for ALS		
Congressional Add: 293A - Autism Research	15.000	15.000
FY 2021 Accomplishments: This Congressional Special Interest initiative provided funds for Autism research. The Autism Research Program seeks to improve treatment outcomes of Autism Spectrum Disorder (ASD), lead to a better understanding of ASD, and integrate basic science and clinical observations by promoting innovative research.		
FY 2022 Plans: This Congressional Special Interest initiative provided funds for Autism research. The Autism Research Program seeks to improve treatment outcomes of Autism Spectrum Disorder (ASD), lead to a better understanding of ASD, and integrate basic science and clinical observations by promoting innovative research.		
Congressional Add: 296A - Bone Marrow Failure Disease Research	7.500	7.500

Exhibit R-2A, RDT&E Project Justification: PB 2023 Defense Health Agency		Date: March 2022
Appropriation/Budget Activity 0130 / 2	**R-1 Program Element (Number/Name)** PE 0603115DHA / *Medical Technology Development*	**Project (Number/Name)** 300A / *CSI - Congressional Special Interests*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022
FY 2021 Accomplishments: This Congressional Special Interest initiative provided funds for bone marrow failure diseases research. The mission of the Bone Marrow Failure Research Program is to sponsor innovative research that will advance the understanding of inherited and acquired bone marrow failure diseases, and improve the health and life of individuals living with these diseases, with the ultimate goal of prevention and/or cure. This effort has solicited research proposals focused on bone marrow failure syndromes and their long-term effects from the basic science and clinical research sectors. ***FY 2022 Plans:*** This Congressional Special Interest initiative provided funds for bone marrow failure diseases research. The mission of the Bone Marrow Failure Research Program is to sponsor innovative research that will advance the understanding of inherited and acquired bone marrow failure diseases, and improve the health and life of individuals living with these diseases, with the ultimate goal of prevention and/or cure. This effort has solicited research proposals focused on bone marrow failure syndromes and their long-term effects from the basic science and clinical research sectors.		
Congressional Add: 310A - Peer-Reviewed Ovarian Cancer Research ***FY 2021 Accomplishments:*** This Congressional Special Interest initiative provided funds for ovarian cancer research. In striving to achieve the goal of eliminating ovarian cancer, the Ovarian Cancer Research Program (OCRP) challenges the research community to address high impact, innovative research. The FY 2018 OCRP solicited innovative ideas that provide new paradigms, leverage critical resources, facilitate synergistic, multidisciplinary partnerships, and cultivate the next generation of investigators in ovarian cancer. ***FY 2022 Plans:*** This Congressional Special Interest initiative provided funds for ovarian cancer research. In striving to achieve the goal of eliminating ovarian cancer, the Ovarian Cancer Research Program (OCRP) challenges the research community to address high impact, innovative research. The FY 2018 OCRP solicited innovative ideas that provide new paradigms, leverage critical resources, facilitate synergistic, multidisciplinary partnerships, and cultivate the next generation of investigators in ovarian cancer.	35.000	45.000
Congressional Add: 328A - Peer- Reviewed Multiple Sclerosis Research ***FY 2021 Accomplishments:*** This Congressional Special Interest initiative provided funds for Multiple Sclerosis (MS) research. The mission of the Multiple Sclerosis Research Program (MSRP) is to support pioneering	20.000	20.000

Exhibit R-2A, RDT&E Project Justification: PB 2023 Defense Health Agency		Date: March 2022
Appropriation/Budget Activity 0130 / 2	**R-1 Program Element (Number/Name)** PE 0603115DHA / *Medical Technology Development*	**Project (Number/Name)** 300A / *CSI - Congressional Special Interests*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022
concepts and high-impact research relevant to the prevention, etiology, pathogenesis, assessment, and treatment of MS. ***FY 2022 Plans:*** This Congressional Special Interest initiative provided funds for Multiple Sclerosis (MS) research. The mission of the Multiple Sclerosis Research Program (MSRP) is to support pioneering concepts and high-impact research relevant to the prevention, etiology, pathogenesis, assessment, and treatment of MS.		
Congressional Add: 335A - Peer-Reviewed Cancer Research ***FY 2021 Accomplishments:*** This Congressional Special Interest initiative provided funds for the study of cancers designated by Congress: adrenal cancer; bladder cancer; blood cancers; brain cancer; colorectal cancer; immunotherapy; Listeria-based regimens for cancer; liver cancer, lymphoma; melanoma and other skin cancers; mesothelioma; myeloma; neuroblastoma; pancreatic cancer; pediatric brain tumors; cancers in children, adolescences and young adults; and stomach cancer. The goal of the Peer-Reviewed Cancer Research Program is to improve the quality of life by decreasing the impact of cancer on Service members, their families, and the American public. ***FY 2022 Plans:*** This Congressional Special Interest initiative provided funds for the study of cancers designated by Congress: adrenal cancer; bladder cancer; blood cancers; brain cancer; colorectal cancer; immunotherapy; Listeria-based regimens for cancer; liver cancer, lymphoma; melanoma and other skin cancers; mesothelioma; myeloma; neuroblastoma; pancreatic cancer; pediatric brain tumors; cancers in children, adolescences and young adults; and stomach cancer. The goal of the Peer-Reviewed Cancer Research Program is to improve the quality of life by decreasing the impact of cancer on Service members, their families, and the American public.	115.000	130.000
Congressional Add: 336A - Peer-Reviewed Lung Cancer Research ***FY 2021 Accomplishments:*** This Congressional Special Interest initiative provided funds for lung cancer research. The Lung Cancer Research Program is a broadly-competed, peer-reviewed research program with the goal to eradicate deaths from lung cancer to better the health and welfare of military Service members, Veterans, their families, and the American public. ***FY 2022 Plans:*** This Congressional Special Interest initiative provided funds for lung cancer research. The Lung Cancer Research Program is a broadly-competed, peer-reviewed research program with the goal to eradicate deaths from lung cancer to better the health and welfare of military Service members, Veterans, their families, and the American public.	20.000	20.000
Congressional Add: 337A - Peer-Reviewed Orthopaedic Research	30.000	30.000

Exhibit R-2A, RDT&E Project Justification: PB 2023 Defense Health Agency		Date: March 2022
Appropriation/Budget Activity 0130 / 2	**R-1 Program Element (Number/Name)** PE 0603115DHA / *Medical Technology Development*	**Project (Number/Name)** 300A / *CSI - Congressional Special Interests*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022
FY 2021 Accomplishments: This Congressional Special Interest initiative provided funds for orthopedic research to advance optimal treatment and rehabilitation from neuromusculoskeletal (bone, muscle, tendon, ligament, nerve, and cartilage) injuries sustained during combat or combat-related activities. The goal of the FY 2018 Peer-Reviewed Orthopaedic Research Program was to provide all Warriors affected by orthopedic injuries sustained in the defense of our Constitution the opportunity for optimal recovery and restoration of function. ***FY 2022 Plans:*** This Congressional Special Interest initiative provided funds for orthopedic research to advance optimal treatment and rehabilitation from neuromusculoskeletal (bone, muscle, tendon, ligament, nerve, and cartilage) injuries sustained during combat or combat-related activities. The goal of the FY 2018 Peer-Reviewed Orthopaedic Research Program was to provide all Warriors affected by orthopedic injuries sustained in the defense of our Constitution the opportunity for optimal recovery and restoration of function.		
Congressional Add: 338A - Peer-Reviewed Spinal Cord Research ***FY 2021 Accomplishments:*** This Congressional Special Interest initiative provided funds for spinal cord injury (SCI) research. The FY 2018 Spinal Cord Injury Research Program challenged the scientific community to design research that will foster new directions for and address neglected issues in the field of SCI research with particular focus on three areas: (1) pre-hospital, prolonged field care, en route care, and early hospital management of SCI; (2) development, validation, and timing of promising interventions to address consequences of SCI and to improve recovery; and (3) identification and validation of best practices in SCI. ***FY 2022 Plans:*** This Congressional Special Interest initiative provided funds for spinal cord injury (SCI) research. The FY 2018 Spinal Cord Injury Research Program challenged the scientific community to design research that will foster new directions for and address neglected issues in the field of SCI research with particular focus on three areas: (1) pre-hospital, prolonged field care, en route care, and early hospital management of SCI; (2) development, validation, and timing of promising interventions to address consequences of SCI and to improve recovery; and (3) identification and validation of best practices in SCI.	40.000	40.000
Congressional Add: 339A - Peer-Reviewed Vision Research ***FY 2021 Accomplishments:*** This Congressional Special Interest initiative provided funds for vision restoration research. The Peer-Reviewed Vision Research Program supported research targeting the causes, effects and treatments of eye damage, visual deficits due to traumatic brain injury (TBI) and diseases that, despite their different mechanisms of development, all have a common end result -- degeneration of the critical components of the eye and impairment or loss of vision. The results of this research are anticipated to support restoration and	20.000	20.000

Exhibit R-2A, RDT&E Project Justification: PB 2023 Defense Health Agency		Date: March 2022
Appropriation/Budget Activity 0130 / 2	**R-1 Program Element (Number/Name)** PE 0603115DHA / *Medical Technology Development*	**Project (Number/Name)** 300A / *CSI - Congressional Special Interests*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022
maintenance of visual function to ensure and sustain combat readiness and directly benefit the lives of military, Veteran, and civilian populations. ***FY 2022 Plans:*** This Congressional Special Interest initiative provided funds for vision restoration research. The Peer-Reviewed Vision Research Program supported research targeting the causes, effects and treatments of eye damage, visual deficits due to traumatic brain injury (TBI) and diseases that, despite their different mechanisms of development, all have a common end result -- degeneration of the critical components of the eye and impairment or loss of vision. The results of this research are anticipated to support restoration and maintenance of visual function to ensure and sustain combat readiness and directly benefit the lives of military, Veteran, and civilian populations.		
Congressional Add: 352A - Traumatic Brain Injury/Psychological Health Research ***FY 2021 Accomplishments:*** This Congressional Special Interest initiative provided funds for research aimed to prevent, mitigate, and treat the effects of combat-relevant traumatic stress and combat-related traumatic brain injury (TBI) on function, wellness, and overall quality of life, including interventions across the deployment lifecycle for warriors, Veterans, family members, caregivers, and communities. ***FY 2022 Plans:*** This Congressional Special Interest initiative provided funds for research aimed to prevent, mitigate, and treat the effects of combat-relevant traumatic stress and combat-related traumatic brain injury (TBI) on function, wellness, and overall quality of life, including interventions across the deployment lifecycle for warriors, Veterans, family members, caregivers, and communities.	175.000	175.000
Congressional Add: 380A - Peer-Reviewed Breast Cancer Research ***FY 2021 Accomplishments:*** This Congressional Special Interest initiative provided funds for breast cancer research. The Breast Cancer Research Program challenged the scientific community to design research that addresses the urgency of ending breast cancer. Applications were required to address at least one of nine overarching challenges, which were focused on preventing breast cancer, identifying determinants of breast cancer initiation, risk, or susceptibility, distinguishing deadly from non-deadly breast cancers, conquering the problems of over-diagnosis and over-treatment, identifying what drives breast cancer growth and determining how to stop it, identifying why some breast cancers become metastatic, determining how to prevent recurrence, revolutionizing treatment regimens by replacing them with ones that are more effective, less toxic, and impact survival, and eliminating the mortality associated with metastatic breast cancer. ***FY 2022 Plans:*** This Congressional Special Interest initiative provided funds for breast cancer research. The Breast Cancer Research Program challenged the scientific community to design research that addresses the urgency of ending breast cancer. Applications were required to address at least one of nine overarching	150.000	150.000

Exhibit R-2A, RDT&E Project Justification: PB 2023 Defense Health Agency		Date: March 2022
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B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022
challenges, which were focused on preventing breast cancer, identifying determinants of breast cancer initiation, risk, or susceptibility, distinguishing deadly from non-deadly breast cancers, conquering the problems of over-diagnosis and over-treatment, identifying what drives breast cancer growth and determining how to stop it, identifying why some breast cancers become metastatic, determining how to prevent recurrence, revolutionizing treatment regimens by replacing them with ones that are more effective, less toxic, and impact survival, and eliminating the mortality associated with metastatic breast cancer.		
Congressional Add: 390A - Peer-Reviewed Prostate Cancer Research	110.000	110.000
FY 2021 Accomplishments: This Congressional Special Interest initiative provided funds for prostate cancer research. The vision for the Prostate Cancer Research Program (PCRP) was to conquer prostate cancer by funding research to eliminate death from prostate cancer and enhance the well-being of men experiencing the impact of the disease. To address the most critical current needs in prostate cancer research and clinical care, the PCRP solicited research applications addressing four overarching challenges: (1) distinguish aggressive from indolent disease in men newly diagnosed with prostate cancer; (2) develop strategies to prevent progression to lethal prostate cancer; (3) develop effective treatments and address mechanisms of resistance for men with high risk or metastatic prostate cancer; and (4) develop strategies to optimize the physical and mental health of men with prostate cancer. In addition, research projects were solicited in the areas of: data science and analytics; imaging and targeted radionuclide therapy; population science; precision medicine, screening, and surveillance; survivorship, including psychosocial impact on the patient and family; therapy and mechanisms of resistance and response; and tumor and microenvironment biology.		
FY 2022 Plans: This Congressional Special Interest initiative provided funds for prostate cancer research. The vision for the Prostate Cancer Research Program (PCRP) was to conquer prostate cancer by funding research to eliminate death from prostate cancer and enhance the well-being of men experiencing the impact of the disease. To address the most critical current needs in prostate cancer research and clinical care, the PCRP solicited research applications addressing four overarching challenges: (1) distinguish aggressive from indolent disease in men newly diagnosed with prostate cancer; (2) develop strategies to prevent progression to lethal prostate cancer; (3) develop effective treatments and address mechanisms of resistance for men with high risk or metastatic prostate cancer; and (4) develop strategies to optimize the physical and mental health of men with prostate cancer. In addition, research projects were solicited in the areas of: data science and analytics; imaging and targeted radionuclide therapy; population science; precision medicine, screening, and surveillance; survivorship, including psychosocial impact on the patient and family; therapy and mechanisms of resistance and response; and tumor and microenvironment biology.		
Congressional Add: 392A - Gulf War Illness Peer-Reviewed Research	22.000	0.000

Exhibit R-2A, RDT&E Project Justification: PB 2023 Defense Health Agency		Date: March 2022
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B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022
FY 2021 Accomplishments: This Congressional Special Interest initiative provided funds for Gulf War Illness research. The vision for the Gulf War Illness Research Program was improving the health and lives of Veterans who have Gulf War Illness by funding research to identify effective treatments, improve clinical definition and diagnosis, and to better understand the underlying biology and symptoms of Gulf War Illness. ***FY 2022 Plans:*** N/A		
Congressional Add: 396A - Research in Alcohol and Substance Use Disorders ***FY 2021 Accomplishments:*** This Congressional Special Interest initiative provided funds for alcohol and substance use disorders (ASUD) research. The goal of the Alcohol and Substance Abuse Disorders Research Program was to identify and develop new medications to improve treatment outcomes for ASUD, especially related to traumatic brain injury (TBI) and post-traumatic stress disorder (PTSD). ***FY 2022 Plans:*** This Congressional Special Interest initiative provided funds for alcohol and substance use disorders (ASUD) research. The goal of the Alcohol and Substance Abuse Disorders Research Program was to identify and develop new medications to improve treatment outcomes for ASUD, especially related to traumatic brain injury (TBI) and post-traumatic stress disorder (PTSD).	4.000	4.000
Congressional Add: 400A - Peer-Reviewed Medical Research ***FY 2021 Accomplishments:*** This Congressional Special Interest initiative provided funds for military-relevant research in Congressionally directed topic areas toward the goal of improving the health and well-being of all military Service members, Veterans, and beneficiaries. The 52 Congressionally-directed topics for were: Acute Lung Injury, Antimicrobial Resistance, Arthritis, Burn Pit Exposure, Cardiomyopathy, Cerebellar Ataxia, Chronic Migraine and Post-traumatic Headache, Chronic Pain Management, Congenital Heart Disease, Constrictive Bronchiolitis, Diabetes, Dystonia, Eating Disorders, Emerging Infectious Diseases, Endometriosis, Epidermolysis Bullosa, Focal Segmental Glomerulosclerosis, Fragile X, Frontotemporal Degeneration, Guillain-Barre Syndrome, Hepatitis B and C, Hereditary Angioedema, Hydrocephalus, Immunomonitoring of Intestinal Transplants, Inflammatory Bowel Diseases, Interstitial Cystitis, Lung Injury, Malaria, Metals Toxicology, Mitochondrial Disease, Musculoskeletal Disorders, Myotonic Dystrophy, Non-Opioid Pain Management, Nutrition Optimization, Pancreatitis, Pathogen-Inactivated Blood Products, Post-Traumatic Osteoarthritis, Pressure Ulcers, Pulmonary Fibrosis, Respiratory Health, Rett Syndrome, Rheumatoid Arthritis, Scleroderma, Sleep Disorders, Spinal Muscular Atrophy, Sustained-Release Drug Delivery, Tinnitus, Tissue Regeneration,	370.000	370.000

Exhibit R-2A, RDT&E Project Justification: PB 2023 Defense Health Agency		Date: March 2022
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B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022
Tuberculosis, Vaccine Development for Infectious Diseases, Vascular Malformations, and Women's Heart Disease. ***FY 2022 Plans:*** This Congressional Special Interest initiative provided funds for military-relevant research in Congressionally directed topic areas toward the goal of improving the health and well-being of all military Service members, Veterans, and beneficiaries. The 52 Congressionally-directed topics for were: Acute Lung Injury, Antimicrobial Resistance, Arthritis, Burn Pit Exposure, Cardiomyopathy, Cerebellar Ataxia, Chronic Migraine and Post-traumatic Headache, Chronic Pain Management, Congenital Heart Disease, Constrictive Bronchiolitis, Diabetes, Dystonia, Eating Disorders, Emerging Infectious Diseases, Endometriosis, Epidermolysis Bullosa, Focal Segmental Glomerulosclerosis, Fragile X, Frontotemporal Degeneration, Guillain-Barre Syndrome, Hepatitis B and C, Hereditary Angioedema, Hydrocephalus, Immunomonitoring of Intestinal Transplants, Inflammatory Bowel Diseases, Interstitial Cystitis, Lung Injury, Malaria, Metals Toxicology, Mitochondrial Disease, Musculoskeletal Disorders, Myotonic Dystrophy, Non-Opioid Pain Management, Nutrition Optimization, Pancreatitis, Pathogen-Inactivated Blood Products, Post-Traumatic Osteoarthritis, Pressure Ulcers, Pulmonary Fibrosis, Respiratory Health, Rett Syndrome, Rheumatoid Arthritis, Scleroderma, Sleep Disorders, Spinal Muscular Atrophy, Sustained-Release Drug Delivery, Tinnitus, Tissue Regeneration, Tuberculosis, Vaccine Development for Infectious Diseases, Vascular Malformations, and Women's Heart Disease.		
Congressional Add: 417A - Peer-Reviewed Alzheimer Research ***FY 2021 Accomplishments:*** This Congressional Special Interest initiative provided funds for Alzheimer's disease (AD) research. The FY Peer-Reviewed Alzheimer's Research Program (PRARP) sought to: (1) address the long-term consequences of traumatic brain injury (TBI) as they pertain to AD and AD-related dementias (ADRD); and (2) reduce the burden on AD/ADRD-affected individuals and caregivers, especially in the military and Veteran communities. ***FY 2022 Plans:*** This Congressional Special Interest initiative provided funds for Alzheimer's disease (AD) research. The Peer-Reviewed Alzheimer's Research Program (PRARP) sought to: (1) address the long-term consequences of traumatic brain injury (TBI) as they pertain to AD and AD-related dementias (ADRD); and (2) reduce the burden on AD/ADRD-affected individuals and caregivers, especially in the military and Veteran communities.	15.000	15.000
Congressional Add: 439A - Joint Warfighter Medical Research ***FY 2021 Accomplishments:*** The FY 2018 Joint Warfighter Medical Research Program (JWMRP) provides continuing support for promising projects previously funded by Congressional Special Interest initiatives. The	32.000	24.000

Exhibit R-2A, RDT&E Project Justification: PB 2023 Defense Health Agency		Date: March 2022
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B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022
focus is to augment and accelerate high priority DoD and Service medical requirements that are close to achieving their objectives and yield a benefit to military medicine. ***FY 2022 Plans:*** The FY 2018 Joint Warfighter Medical Research Program (JWMRP) provides continuing support for promising projects previously funded by Congressional Special Interest initiatives. The focus is to augment and accelerate high priority DoD and Service medical requirements that are close to achieving their objectives and yield a benefit to military medicine.		
Congressional Add: 452A - Peer-Reviewed Reconstructive Transplant Research ***FY 2021 Accomplishments:*** This Congressional Special Interest initiative provided funds for reconstructive transplantation research. The Reconstructive Transplant Research Program (RTRP) focused on research in reconstructive transplantation for the refinement of approaches for hand, face, and other vascularized composite tissue allografts, which includes multiple body system components such as skin, muscle, tendon, nerves, bone, and blood vessels. In addition, the RTRP focused on research aimed toward improving access to reconstructive transplants, and on immunomodulation strategies that can reduce the need for immunosuppression regimens. ***FY 2022 Plans:*** This Congressional Special Interest initiative provided funds for reconstructive transplantation research. The FY 2018 Reconstructive Transplant Research Program (RTRP) focused on research in reconstructive transplantation for the refinement of approaches for hand, face, and other vascularized composite tissue allografts, which includes multiple body system components such as skin, muscle, tendon, nerves, bone, and blood vessels. In addition, the RTRP focused on research aimed toward improving access to reconstructive transplants, and on immunomodulation strategies that can reduce the need for immunosuppression regimens.	12.000	12.000
Congressional Add: 454A - Orthotics and Prosthetics Outcomes Research ***FY 2021 Accomplishments:*** This Congressional Special Interest initiative provided funds for orthotics and prosthetics outcomes research. The goal of the FY 2018 Orthotics and Prosthetics Outcomes Research Program was to support research that evaluates the comparative effectiveness of orthotic and prosthetic devices using patient-centric outcomes for Service members and Veterans who have undergone limb amputation. The program focused on outcomes-based best practices through analysis of the merits of prosthetic and orthotic devices currently available, and not on the development of new, or the improvement of existing, technology. The program intent was to generate clinically useful evidence to enhance and optimize patient outcomes. ***FY 2022 Plans:*** This Congressional Special Interest initiative provided funds for orthotics and prosthetics outcomes research. The goal of the FY 2018 Orthotics and Prosthetics Outcomes Research Program was to support research that evaluates the comparative effectiveness of orthotic and prosthetic devices using patient-centric outcomes for Service members and Veterans who have undergone limb amputation. The program	15.000	20.000

Exhibit R-2A, RDT&E Project Justification: PB 2023 Defense Health Agency		Date: March 2022
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B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022
focused on outcomes-based best practices through analysis of the merits of prosthetic and orthotic devices currently available, and not on the development of new, or the improvement of existing, technology. The program intent was to generate clinically useful evidence to enhance and optimize patient outcomes.		
Congressional Add: 456A - HIV/AIDS Program ***FY 2021 Accomplishments:*** This Congressional Special Interest initiative provided funds for HIV/AIDS research includes all medical research that attempts to prevent, treat, or cure HIV/AIDS, as well as fundamental research about the nature of HIV as an infectious agent and AIDS as the disease caused by HIV. ***FY 2022 Plans:*** This Congressional Special Interest initiative provided funds for HIV/AIDS research includes all medical research that attempts to prevent, treat, or cure HIV/AIDS, as well as fundamental research about the nature of HIV as an infectious agent and AIDS as the disease caused by HIV.	16.000	18.000
Congressional Add: 459A - Peer-Reviewed Epilepsy Research ***FY 2021 Accomplishments:*** This Congressional Special Interest initiative provided funds for traumatic brain injury (TBI)-related epilepsy research. The Peer Reviewed Epilepsy Research Program supported studies to examine the interconnection between TBI and epilepsy in four scientific focus areas: (1) epidemiology; (2) markers and mechanisms of post traumatic epilepsy; (3) models of post-traumatic epilepsy; and (4) research into psychogenic (non-epileptic) seizures. ***FY 2022 Plans:*** This Congressional Special Interest initiative provided funds for traumatic brain injury (TBI)-related epilepsy research. The Peer Reviewed Epilepsy Research Program supported studies to examine the interconnection between TBI and epilepsy in four scientific focus areas: (1) epidemiology; (2) markers and mechanisms of post traumatic epilepsy; (3) models of post-traumatic epilepsy; and (4) research into psychogenic (non-epileptic) seizures.	12.000	12.000
Congressional Add: 463A – Program Increase: Restore Core Research Funding Reduction (GDF) ***FY 2021 Accomplishments:*** This Congressional Special Interest initiative was directed toward DHP core research initiatives in PE 0603115. Funds supported medical technology development efforts in the areas of military operational medicine, combat casualty care, military infectious diseases, clinical and rehabilitative medicine, medical simulation and information sciences, and radiation health effects. ***FY 2022 Plans:*** This Congressional Special Interest initiative was directed toward DHP core research initiatives in PE 0603115. Funds supported medical technology development efforts in the areas of military operational	221.215	212.980

Exhibit R-2A, RDT&E Project Justification: PB 2023 Defense Health Agency		Date: March 2022
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B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022
medicine, combat casualty care, military infectious diseases, clinical and rehabilitative medicine, medical simulation and information sciences, and radiation health effects.		
Congressional Add: 495 - Peer-Reviewed Tick-Borne Disease Research ***FY 2021 Accomplishments:*** This Congressional Special Interest initiative provided funds for tick-borne diseases research. The Peer Reviewed Tick-Borne Disease Research Program's mission was to support research focused on understanding the pathogenesis of Lyme disease and other tick-borne illnesses and on delivering innovative solutions to prevent and better diagnose and treat their manifestations. ***FY 2022 Plans:*** This Congressional Special Interest initiative provided funds for tick-borne diseases research. The Peer Reviewed Tick-Borne Disease Research Program's mission was to support research focused on understanding the pathogenesis of Lyme disease and other tick-borne illnesses and on delivering innovative solutions to prevent and better diagnose and treat their manifestations.	7.000	7.000
Congressional Add: 496 -Trauma Clinical Research Program ***FY 2021 Accomplishments:*** This Congressional Special Interest initiative provided funds for advancing trauma clinical research. Through a competitive Request for Proposals (RFP) process, the Department of Defense (DoD) has created a coordinated, multi-institutional clinical research network of civilian and military trauma centers to address the military relevant priorities and gaps in trauma care. The Indefinite Deliverable Indefinite Quantity (IDIQ) contract established the Linking Investigations in Trauma and Emergency Services (LITES) trauma research network. The LITES network creates a standing research consortium of US trauma systems and centers with the capability to conduct prospective, multicenter, injury care and outcomes research of relevance to the DoD. The LITES network is led by the University of Pittsburgh and features nine partnering sites, and the network has to ability to expand or contract based on the research performed. ***FY 2022 Plans:*** This Congressional Special Interest initiative provided funds for advancing trauma clinical research. Through a competitive Request for Proposals (RFP) process, the Department of Defense (DoD) has created a coordinated, multi-institutional clinical research network of civilian and military trauma centers to address the military relevant priorities and gaps in trauma care. The Indefinite Deliverable Indefinite Quantity (IDIQ) contract established the Linking Investigations in Trauma and Emergency Services (LITES) trauma research network. The LITES network creates a standing research consortium of US trauma systems and centers with the capability to conduct prospective, multicenter, injury care and outcomes research of relevance to the DoD. The LITES network is led by the University of Pittsburgh and features nine partnering sites, and the network has to ability to expand or contract based on the research performed.	10.000	10.000
Congressional Add: 501 - Peer-Reviewed Hearing Restoration Research (Army)	10.000	10.000

Exhibit R-2A, RDT&E Project Justification: PB 2023 Defense Health Agency		Date: March 2022
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B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022
FY 2021 Accomplishments: This Congressional Special Interest initiative provided funds to pursue promising, necessary research for treatment of burdensome and very prevalent auditory system injury. The vision of the Hearing Restoration Research Program is to improve the operational effectiveness, medial readiness and quality of life of Service members and Veterans with auditory system injuries. The mission of the program is to advance the science of hearing restoration by delivering groundbreaking research and solutions that remove barriers to successful treatment of auditory system injury. ***FY 2022 Plans:*** This Congressional Special Interest initiative provided funds to pursue promising, necessary research for treatment of burdensome and very prevalent auditory system injury. The vision of the Hearing Restoration Research Program is to improve the operational effectiveness, medial readiness and quality of life of Service members and Veterans with auditory system injuries. The mission of the program is to advance the science of hearing restoration by delivering groundbreaking research and solutions that remove barriers to successful treatment of auditory system injury.		
Congressional Add: 502 - CSI - Peer-Reviewed Kidney Cancer Research (Army) ***FY 2021 Accomplishments:*** This Congressional Special Interest initiative provided funds for research into kidney cancer. The vision of the Kidney Cancer Research Program is to eliminate kidney cancer. ***FY 2022 Plans:*** This Congressional Special Interest initiative provided funds for research into kidney cancer. The vision of the Kidney Cancer Research Program is to eliminate kidney cancer.	50.000	50.000
Congressional Add: 503 - CSI - Peer-Reviewed Lupus Research (Army) ***FY 2021 Accomplishments:*** This Congressional Special Interest initiative provided funds for research into lupus. The vision of the Lupus Research Program is to cure lupus through partnership of scientists, clinicians, and consumers. ***FY 2022 Plans:*** This Congressional Special Interest initiative provided funds for research into lupus. The vision of the Lupus Research Program is to cure lupus through partnership of scientists, clinicians, and consumers.	10.000	10.000
Congressional Add: 540A - Global HIV/AIDS Prevention (Navy) ***FY 2021 Accomplishments:*** This Congressional Special Interest initiative provided funds for research for Global HIV/AIDS Prevention. The program is responsible for assisting foreign military partners with the	8.000	10.000

Exhibit R-2A, RDT&E Project Justification: PB 2023 Defense Health Agency		Date: March 2022
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B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022
development and implementation of culturally focused, military-specific HIV/AIDS prevention, care, and treatment programs in more than 55 countries around the globe. ***FY 2022 Plans:*** This Congressional Special Interest initiative provided funds for research for Global HIV/AIDS Prevention. The program is responsible for assisting foreign military partners with the development and implementation of culturally focused, military-specific HIV/AIDS prevention, care, and treatment programs in more than 55 countries around the globe.		
Congressional Add: 660A - Tuberous Sclerosis Complex (TSC) ***FY 2021 Accomplishments:*** This Congressional Special Interest initiative provided funds for Tuberous Sclerosis Complex (TSC) research. The Tuberous Sclerosis Complex Research Program (TSCRP) sought to support innovative research to improve the lives of individuals with TSC through understanding the pathogenesis and manifestations of TSC and developing improved diagnostic and treatment approaches. ***FY 2022 Plans:*** This Congressional Special Interest initiative provided funds for Tuberous Sclerosis Complex (TSC) research. The Tuberous Sclerosis Complex Research Program (TSCRP) sought to support innovative research to improve the lives of individuals with TSC through understanding the pathogenesis and manifestations of TSC and developing improved diagnostic and treatment approaches.	8.000	8.000
Congressional Add: 790A - Peer-Reviewed Duchenne Muscular Dystrophy ***FY 2021 Accomplishments:*** This Congressional Special Interest initiative provided funds for Duchenne Muscular Dystrophy (DMD) research. DMD is caused by gene mutations in skeletal muscle proteins, and affects approximately 1 in 3,600 boys causing muscle degeneration and eventual death. ***FY 2022 Plans:*** This Congressional Special Interest initiative provided funds for Duchenne Muscular Dystrophy (DMD) research. DMD is caused by gene mutations in skeletal muscle proteins, and affects approximately 1 in 3,600 boys causing muscle degeneration and eventual death.	10.000	10.000
Congressional Add: 512 - Peer-Reviewed Melanoma Research	30.000	40.000

Exhibit R-2A, RDT&E Project Justification: PB 2023 Defense Health Agency		Date: March 2022
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B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022
FY 2021 Accomplishments: This Congressional Special Interest initiative provided funds for Peer-Reviewed Melanoma Research. The program is responsible for innovative research that will impact the prevention, diagnosis, staging, and treatment of melanoma in the near and intermediate future. ***FY 2022 Plans:*** This Congressional Special Interest initiative provided funds for Peer-Reviewed Melanoma Research. The program is responsible for innovative research that will impact the prevention, diagnosis, staging, and treatment of melanoma in the near and intermediate future.		
Congressional Add: 513 - Chronic Pain Management ***FY 2021 Accomplishments:*** This Congressional Special Interest initiative provided funds for Chronic Pain Management. The program is responsible to develop new approaches to alleviate Veterans' pain, which may result from spinal cord injury, burns, amputations, traumatic brain injury, cancer, or musculoskeletal conditions. The program explores ways to decrease medical and behavioral harms related to opioid use and misuse, improve access to effective complementary approaches to pain care, and help treatment options to address pain and improve function, among other areas. ***FY 2022 Plans:*** This Congressional Special Interest initiative provided funds for Chronic Pain Management. The program is responsible to develop new approaches to alleviate Veterans' pain, which may result from spinal cord injury, burns, amputations, traumatic brain injury, cancer, or musculoskeletal conditions. The program explores ways to decrease medical and behavioral harms related to opioid use and misuse, improve access to effective complementary approaches to pain care, and help treatment options to address pain and improve function, among other areas.	15.000	15.000
Congressional Add: 514 - Combat Readiness Medical Research ***FY 2021 Accomplishments:*** This Congressional Special Interest initiative provided funds for Combat Readiness Medical Research. This program focuses on research relating to forward-deployable solutions that can promptly address life threatening injuries and medical diagnostics, threats, and treatments, and medical threats and treatments for Service members in battlefield settings. ***FY 2022 Plans:*** This Congressional Special Interest initiative provided funds for Combat Readiness Medical Research. This program focuses on research relating to forward-deployable solutions that can promptly address life threatening injuries and medical diagnostics, threats, and treatments, and medical threats and treatments for Service members in battlefield settings.	10.000	10.000
Congressional Add: 515 - Peer-Reviewed Pancreatic Cancer Research	15.000	15.000

Exhibit R-2A, RDT&E Project Justification: PB 2023 Defense Health Agency		Date: March 2022
Appropriation/Budget Activity 0130 / 2	**R-1 Program Element (Number/Name)** PE 0603115DHA / *Medical Technology Development*	**Project (Number/Name)** 300A / *CSI - Congressional Special Interests*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022
FY 2021 Accomplishments: This Congressional Special Interest initiative provided funds for Peer-Reviewed Pancreatic Cancer Research. The program support research on the prevention, detection, diagnosis, and treatment of pancreatic cancer. ***FY 2022 Plans:*** This Congressional Special Interest initiative provided funds for Peer-Reviewed Pancreatic Cancer Research. The program support research on the prevention, detection, diagnosis, and treatment of pancreatic cancer.		
Congressional Add: 516 - Peer-Reviewed Rare Cancers Research ***FY 2021 Accomplishments:*** This Congressional Special Interest initiative provided funds for Peer-Reviewed Rare Cancers Research. The program support research on the prevention, detection, diagnosis, and treatment of rare cancer. ***FY 2022 Plans:*** This Congressional Special Interest initiative provided funds for Peer-Reviewed Rare Cancers Research. The program support research on the prevention, detection, diagnosis, and treatment of rare cancer.	17.500	17.500
Congressional Add: 517 - Peer-Reviewed Scleroderma Research ***FY 2021 Accomplishments:*** Congressional Add ***FY 2022 Plans:*** N/A	5.000	0.000
Congressional Add: 300A - Congressional Add - Brain injury and disease prevention research ***FY 2021 Accomplishments:*** FY21 Congressional Add ***FY 2022 Plans:*** FY22 Congressional Add	61.682	60.000
Congressional Add: 300A - Congressional Add - Clinical research ***FY 2022 Plans:*** FY22 Congressional Add	-	10.000
Congressional Adds Subtotals	1,763.897	1,772.980

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

Research proposals will be solicited by program announcements resulting in grants, contracts, or other transactions.

Exhibit R-2A, RDT&E Project Justification: PB 2023 Defense Health Agency			Date: March 2022
Appropriation/Budget Activity 0130 / 2	R-1 Program Element (Number/Name) PE 0603115DHA / *Medical Technology Development*	Project (Number/Name) 238C / *Air & Space Austere Environment Patient Care and Transport (AF)*	

COST ($ in Millions)	Prior Years (+)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
238C: *Air & Space Austere Environment Patient Care and Transport (AF)*	14.921	11.250	12.675	12.866	0.000	12.866	13.122	13.386	13.653	13.927	Continuing	Continuing

(+) The sum of all Prior Years is $0.295 million less than the represented total due to several projects ending

A. Mission Description and Budget Item Justification

This project advances combat casualty care in the air through biomedical research into interventional strategies and technologies that mitigate the risks for additional insult due to aeromedical evacuation. It transitions promising Science and Technology (S&T) from PE 0602115DHA's Project Code 306D - Biomedical Impact and Readiness Optimization of Air & Space Operations, and civilian groups into knowledge and materiel products that promote the recovery and return to duty of injured or ill service members, from point of injury back to definitive care.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Title: Air & Space Austere Environment Patient Care and Transport (AF)	11.250	12.675	12.866	0.000	12.866
Description: Advanced research and development to model, improve and optimize enroute care systems in multi-domain operations. Efforts include S&T to provide autonomous patient care, telemedicine and decision-assist algorithms, impact of transport on patient pathophysiology, and optimization of care provider performance and stabilization / resuscitation strategies to improve service member survival and return to duty. ***FY 2022 Plans:*** Continue efforts to develop military-relevant models of injury and clinical progression during enroute care, advancing technologies for autonomous patient care and decision-assist, equipment with reduced size, weight and power or cold-chain management requirements, as well as continue to optimize labor and resource requirements for future medical combat casualty care operations. ***FY 2023 Base Plans:*** Understanding the effects of multiple flights following impact and blast-induced traumatic brain injury on long-term outcomes, automated decision support, telemedicine, telementoring, telemonitoring (TM3) and advancing technologies for autonomous patient care and decision-assist. ***FY 2023 OCO Plans:*** N/A ***FY 2022 to FY 2023 Increase/Decrease Statement:***					

Exhibit R-2A, RDT&E Project Justification: PB 2023 Defense Health Agency		Date: March 2022
Appropriation/Budget Activity 0130 / 2	**R-1 Program Element (Number/Name)** PE 0603115DHA / *Medical Technology Development*	**Project (Number/Name)** 238C / *Air & Space Austere Environment Patient Care and Transport (AF)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Increase is due to inflation.					
Accomplishments/Planned Programs Subtotals	11.250	12.675	12.866	0.000	12.866

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
• BA-1, PE 0807714HP: *Other Consolidated Health Support*	-	-	-	-	-	-	-	-	-		

Remarks

Accomplishments: Transitioned technology to provide closed-looped control of oxygen delivery, investigated multi-channel infusion pump (MCIP), clinical evaluation of En Route Care outcomes, advanced telemedicine, telementoring, and telemonitoring (TM3), investigated En Route Care competencies, effects of multiple flights following impact and blast-induced Traumatic Brain Injury, effects of hypobaria following head trauma combined with hemorrhagic shock, and resuscitation strategies to improve outcomes from trauma and hemorrhagic shock.

D. Acquisition Strategy

Air Force contracting, Interagency Agreements, and Inter-service Support Agreements with the U.S. Army, U.S. Navy and the Department of Homeland Security are used to support ongoing scientific and technical efforts within this program. These agreements are supplemented with Broad Area Announcements (BAA) and Intramural calls for proposals, which are used to award initiatives in this project following determinations of scientific and technical merit, validation of need, prioritization, selection and any necessary legal and / or regulatory approvals (IRB, etc.).

Exhibit R-2A, RDT&E Project Justification: PB 2023 Defense Health Agency			Date: March 2022
Appropriation/Budget Activity 0130 / 2	R-1 Program Element (Number/Name) PE 0603115DHA / *Medical Technology Development*	Project (Number/Name) 284B / *Air & Space Physiology, Medicine and Human Performance (AF)*	

COST ($ in Millions)	Prior Years (+)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
284B: *Air & Space Physiology, Medicine and Human Performance (AF)*	11.156	10.418	11.122	11.471	0.000	11.471	11.700	11.933	12.172	12.415	Continuing	Continuing

(+) The sum of all Prior Years is $0.205 million less than the represented total due to several projects ending

A. Mission Description and Budget Item Justification

This project enables, sustains, and optimizes performance of Airmen through the elevation and alleviation of health effects associated with Air Force (AF) operational missions. This work addresses operational environments such as the mitigation of stress in AF personnel, to include aircrew, care providers, aircraft maintainers, intelligence, surveillance and cyber operators, as well as remote piloted aircraft operators.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Title: Air & Space Physiology, Medicine and Human Performance (AF)	10.418	11.122	11.471	0.000	11.471
Description: Advanced technology development to enable, sustain, and optimize cognitive, behavior and physiologic performance in high-priority career fields for the United States Air Force (USAF) and in multi-domain operations. The sub-project areas include cognitive and physiologic performance under operational and environmental stressors, detection and improvement of physiological performance, and safety via sensors and targeted conditioning, which includes training techniques for optimal performance.					
FY 2022 Plans: FY 2022 plans continue efforts as outlined in FY 2021. Specific focus includes updating air breathing standards for On-Board Oxygen Generating System (OBOGS) Aircraft to reduce UPEs and updating alignment criteria for Distributed Common Ground System (DCGS), Cyber, Surveillance, Intelligence, and Remotely Piloted Aircraft service members.					
FY 2023 Base Plans: To provide evidence-based test battery for physical attributes associated with G-performance, Fighter Aircrew Conditioning Program (FACP) update recommendations, Updated cognitive models associated with performance in DCGS environments, Modernized vision screening methodologies, and characterize the additive effects of the pilot flight ensemble and associated changes in the human response.					
FY 2023 OCO Plans:					

Exhibit R-2A, RDT&E Project Justification: PB 2023 Defense Health Agency		Date: March 2022
Appropriation/Budget Activity 0130 / 2	**R-1 Program Element (Number/Name)** PE 0603115DHA / *Medical Technology Development*	**Project (Number/Name)** 284B / *Air & Space Physiology, Medicine and Human Performance (AF)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
N/A ***FY 2022 to FY 2023 Increase/Decrease Statement:*** Increase is due to inflation					
Accomplishments/Planned Programs Subtotals	10.418	11.122	11.471	0.000	11.471

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

Accomplishments: Automated Vision Tester (AVT) software integrated into automated prototype and advanced .remote vision system medical vision standards, characterized neurocognitive and cardiac effects of sleep deprivation on altitude and G-tolerance, and GLOC detection algorithm development.

D. Acquisition Strategy

Air Force contracting, Interagency Agreements, and Inter-service Support Agreements with the U.S. Army, U.S. Navy and the Department of Homeland Security are used to support ongoing scientific and technical efforts within this program. These agreements are supplemented with Broad Area Announcements (BAA) and Intramural calls for proposals, which are used to award initiatives in this project following determinations of scientific and technical merit, validation of need, prioritization, selection and any necessary legal and / or regulatory approvals (IRB, etc.).

Exhibit R-2A, RDT&E Project Justification: PB 2023 Defense Health Agency			Date: March 2022
Appropriation/Budget Activity 0130 / 2	R-1 Program Element (Number/Name) PE 0603115DHA / *Medical Technology Development*	Project (Number/Name) 285A / *Operational Medicine Research & Development (Budgeted) (AF)*	

COST ($ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
285A: *Operational Medicine Research & Development (Budgeted) (AF)*	17.469	0.232	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing

A. Mission Description and Budget Item Justification

The Operational Medicine project develops validated solutions for the delivery of preventative care, intervention and treatment to Active Duty members and DoD beneficiaries. The primary focus areas include physiological and psychological health. Sub-topics include resilience, personalized medicine, patient safety, and care coordination.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Title: Operational Medicine Research & Development (Budgeted) (AF)	0.232	0.000	0.000	0.000	0.000
Description: Basic research initiatives are developed and translated into practice; advanced technology initiatives are focused on prevention and treatment of chronic disease such as obesity and diabetes. ***FY 2022 Plans:*** N/A ***FY 2023 Base Plans:*** N/A ***FY 2023 OCO Plans:*** N/A ***FY 2022 to FY 2023 Increase/Decrease Statement:*** Reduced funding due to realignment within Defense Health Program, Research, Development, Test and Evaluation (DHP RDT&E), Program Element (PE) 0603115DHA, Project Codes 285A, 308B, 238C, 284B, and 307B to focus on future readiness mission and operational medical capabilities required to support the warfighter.					
Accomplishments/Planned Programs Subtotals	0.232	0.000	0.000	0.000	0.000

C. Other Program Funding Summary ($ in Millions)

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2023 Defense Health Agency		Date: March 2022
Appropriation/Budget Activity 0130 / 2	**R-1 Program Element (Number/Name)** PE 0603115DHA / *Medical Technology Development*	**Project (Number/Name)** 285A / *Operational Medicine Research & Development (Budgeted) (AF)*

C. Other Program Funding Summary ($ in Millions)

Remarks

Accomplishments: Genetic risk factors for pulmonary disorders were investigated, development progressed on a self-repairing dental material, military separation and retirement practices were investigated by health care providers to minimize diabetes risk, and smart hydrogels were evaluated as a method for graft targeted immunotherapy in reconstructive transplantation.

D. Acquisition Strategy

Broad Area Announcements (BAA) and Intramural calls for proposals are used to award initiatives in this project following determinations of scientific and technical merit, validation of need, prioritization, selection and any necessary legal and / or regulatory approvals (IRB, etc.).

Exhibit R-2A, RDT&E Project Justification: PB 2023 Defense Health Agency			Date: March 2022
Appropriation/Budget Activity 0130 / 2	R-1 Program Element (Number/Name) PE 0603115DHA / *Medical Technology Development*	Project (Number/Name) 307B / *Air & Space Force Health Protection (AF)*	

COST ($ in Millions)	Prior Years (+)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
307B: *Air & Space Force Health Protection (AF)*	29.148	10.046	11.463	11.630	0.000	11.630	11.862	12.098	12.340	12.586	Continuing	Continuing

(+) The sum of all Prior Years is $0.362 million less than the represented total due to several projects ending

A. Mission Description and Budget Item Justification

This project delivers improved capabilities across the full spectrum of Air Force (AF) operations in the areas of directed energy and occupational and environmental health. Research involves the assessment and implementation of innovative technologies that enable effective surveillance, detection, identification, and mitigation of hazardous chemical, biological, directed energy, and other radiological and physical hazards that present a health risk to our Airmen and threaten to degrade and disrupt operational readiness. The intent is to warn and protect AF operators, such as our high performance and high-altitude aircrews facing extreme environments.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Title: Air & Space Force Health Protection (AF)	10.046	11.463	11.630	0.000	11.630
Description: Advanced research to develop and model exposures within the realms of Airman occupation, expeditionary medicine, medical countermeasures of directed energy, aircrew health, and CBRNE environments as it relates to health readiness. This project area seeks to deliver improved capabilities across the full spectrum of Air Force operations to enable force health protection.					
FY 2022 Plans: To analyze detected threats and stressors using human model development (an in silico / in vitro tool to understand the impact of environmental and chemical stresses on the human) enroute to utilizing mitigation strategies coordinated with the operational community.					
FY 2023 Base Plans: To field exposure sensor flow process screening through human health machine learning algorithms for: real-time performance predictions, integrate high throughput toxico kinetics framework, understand limits of detection in operational environment.					
FY 2023 OCO Plans: N/A					
FY 2022 to FY 2023 Increase/Decrease Statement:					

Exhibit R-2A, RDT&E Project Justification: PB 2023 Defense Health Agency		Date: March 2022
Appropriation/Budget Activity 0130 / 2	**R-1 Program Element (Number/Name)** PE 0603115DHA / *Medical Technology Development*	**Project (Number/Name)** 307B / *Air & Space Force Health Protection (AF)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Increase due to inflation					
Accomplishments/Planned Programs Subtotals	10.046	11.463	11.630	0.000	11.630

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

Accomplishments: Developed individual exposure health risk profiles associated with chemical and noise exposures, conducted COVID-19 aircraft decontamination efforts to understand aircraft contamination and disinfection optimization, advanced exposure assessment tools for Total Exposure Health, and CBRN health assessment and risk tool (CHART) upgrade.

D. Acquisition Strategy

Air Force contracting, Interagency Agreements, and Inter-service Support Agreements with the U.S. Army, U.S. Navy and the Department of Homeland Security are used to support ongoing scientific and technical efforts within this program. These agreements are supplemented with Broad Area Announcements (BAA) and Intramural calls for proposals, which are used to award initiatives in this project following determinations of scientific and technical merit, validation of need, prioritization, selection and any necessary legal and / or regulatory approvals (IRB, etc.).

Exhibit R-2A, RDT&E Project Justification: PB 2023 Defense Health Agency			Date: March 2022
Appropriation/Budget Activity 0130 / 2	R-1 Program Element (Number/Name) PE 0603115DHA / *Medical Technology Development*	Project (Number/Name) 308B / *Expeditionary Medicine Research & Development (Budgeted) (AF)*	

COST ($ in Millions)	Prior Years (+)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
308B: *Expeditionary Medicine Research & Development (Budgeted) (AF)*	21.391	2.623	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing

(+) The sum of all Prior Years is $0.173 million less than the represented total due to several projects ending

A. Mission Description and Budget Item Justification

This project area identifies innovative techniques and technologies that can be employed by Air Force medics during prolonged field care operations. It includes technology to improve survivability and advance “zero-preventable deaths”. Sub-project areas include the development and validation of novel procedures, materials, techniques, and tools associated with expeditionary operations.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Title: Expeditionary Medicine Research & Development (Budgeted) (AF) ***Description:*** This project provides advanced technology development to improve regenerative medicine and stabilization in prolonged field care operations. Efforts will include enhanced clinical guidelines and concept technology for treatment of non-compressible torso hemorrhage, development and application of portable ventilation monitoring, and development of new life and limb salvage technologies.	2.623	-	-	-	-
Accomplishments/Planned Programs Subtotals	2.623	-	-	-	-

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

Accomplishments: Therapies to restore peripheral nerve regeneration were evaluated, development progressed on a portable ventilation monitoring capability, surgical methods and therapeutics were assessed to assist in prolonged field care / delayed evaluation applications, a teleophthalmology (tele-optometry) protocol was developed for military ophthalmologists, and medicine stability in high humidity and extreme temperatures was evaluated.

D. Acquisition Strategy

Broad Area Announcements (BAA) and Intramural calls for proposals are used to award initiatives in this project following determinations of scientific and technical merit, validation of need, prioritization, selection and any necessary legal and / or regulatory approvals (IRB, etc.).

Exhibit R-2A, RDT&E Project Justification: PB 2023 Defense Health Agency			Date: March 2022
Appropriation/Budget Activity 0130 / 2	R-1 Program Element (Number/Name) PE 0603115DHA / *Medical Technology Development*	Project (Number/Name) 309A / *Regenerative Medicine (USUHS)*	

COST ($ in Millions)	Prior Years (+)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
309A: *Regenerative Medicine (USUHS)*	25.909	10.413	10.621	10.833	0.000	10.833	11.051	11.271	11.496	11.724	Continuing	Continuing

(+) The sum of all Prior Years is $0.342 million less than the represented total due to several projects ending

A. Mission Description and Budget Item Justification

The Center for Neuroscience and Regenerative Medicine (CNRM) brings together the expertise of clinicians and scientists across disciplines to catalyze innovative approaches to traumatic brain injury (TBI) research. CNRM Research Programs emphasize aspects of high relevance to military populations, with a primary focus on patients at the Walter Reed National Military Medical Center.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Title: Center for Neuroscience and Regenerative Medicine (USUHS)	10.413	10.621	10.833	0.000	10.833
Description: The Center for Neuroscience and Regenerative Medicine (CNRM) brings together the expertise of clinicians and scientists across disciplines to catalyze innovative approaches to traumatic brain injury (TBI) research. CNRM Research Programs emphasize aspects of high relevance to military populations, with a primary focus on patients at the Walter Reed National Military Medical Center. The CNRM has established 11 research cores and funded 131 research projects. ***FY 2022 Plans:*** FY 2022 Plans: (1) Design and execute rigorous clinical trials of candidate therapeutics with potential for direct benefit to military service members with TBI. There are 7 randomized controlled trials ongoing or in late-stage development, and several more in the planning stages. All trials involve U.S. military service members with readiness-relevant health concerns related to TBI, such as post-traumatic headaches, sleep disorders, and mood dysregulation. This objective involves building and maintaining a network of site collaborators and staff at multiple military treatment facilities around the U.S. (2) Execute a major observational study on the effects of repeated subconcussive blast exposures sustained during military heavy weapons training. This ongoing study involves objective assessments of Navy SEALs, range safety officers, and unexposed controls at multiple time points to assess baseline, acute, subacute and chronic effects.					

Exhibit R-2A, RDT&E Project Justification: PB 2023 Defense Health Agency		Date: March 2022
Appropriation/Budget Activity 0130 / 2	**R-1 Program Element (Number/Name)** PE 0603115DHA / *Medical Technology Development*	**Project (Number/Name)** 309A / *Regenerative Medicine (USUHS)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
(3) Test 2 novel handheld devices designed for prolonged field care use by military pre-hospital providers. These include a) an ultralight intracranial hemorrhage detector that uses advanced infrared technology to localize life-threatening subdural and epidural hematomas without the need for a Computed tomography (CT) scanner; b) a fully self-contained tight seal burr hold device that will allow emergency treatment of life-threatening subdural and epidural hematomas in an austere environment by prehospital providers. These devices will be tested in a sheep model of subdural hematoma in collaboration with the Walter Reed Army Institute for Research (WRAIR) and the Johns Hopkins Applied Physics Lab. (4) Train future military TBI research leaders through a post-doctoral fellowship program in collaboration with the University of Maryland, direct mentoring of military researchers around the country, a weekly seminar series, and multiple other educational events. (5) Perform discovery research that lays a foundation for future clinical trials, including a) use of a military relevant TBI mouse model involving combined repetitive blasts, plus impact, plus chronic stress to test candidate therapeutics, b) discovery of new magnetic resonance imaging (MRI) methods to detect blast-related brain injury, which at present can only be assessed post-mortem, c) development and validation of blood and sweat-based biomarkers for objective assessment of TBI. (6) Provide efficient, high quality support services for CNRM researchers and collaborators: a) the clinical trials unit, including protocol development, regulatory, and monitoring services; b) informatics, including secure clinical data capture, robust data storage, and rigorous statistical analysis; c) biofluid core, including robust storage, distribution of samples to collaborators, and analyses, including high sensitivity biomarker studies in sweat, saliva and blood; d) program management, including personnel, financial, logistics, safety, and compliance activities. (7) Continuously communicate with stakeholders to refine focus areas, funding priorities, and collaborative opportunities. (8) Focus on improving diversity, equity and inclusion through a series of workshops, readings, and team activities. (9) Disseminate findings of CNRM research to military, medical, scientific, and lay communities via in-person events, social media, electronic communications, and peer reviewed publications.					

Exhibit R-2A, RDT&E Project Justification: PB 2023 Defense Health Agency		Date: March 2022
Appropriation/Budget Activity 0130 / 2	**R-1 Program Element (Number/Name)** PE 0603115DHA / *Medical Technology Development*	**Project (Number/Name)** 309A / *Regenerative Medicine (USUHS)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
(10) Expand CNRM funding via external sources to support additional clinical trials, blast exposure studies, prolonged field care activities, and discovery research with a goal of doubling our current total funding by 2030. ***FY 2023 Base Plans:*** FY 2022 plans continue efforts as outlined in FY 2021. ***FY 2023 OCO Plans:*** N/A ***FY 2022 to FY 2023 Increase/Decrease Statement:*** Price adjustment for inflation.					
Accomplishments/Planned Programs Subtotals	10.413	10.621	10.833	0.000	10.833

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
• BA-1, 0806721HP: *Uniformed Services University of the Health Sciences*	10.036	10.236	-	-	-	-	-	-	-	Continuing	Continuing

Remarks

Provides funding to conduct Natural History study; Infrastructure to support the CNRM program; and salaries of neuroscience faculty and technical and administrative support personnel.

D. Acquisition Strategy

USUHS optimizes these research funds to achieve its research objectives, often in partnership and collaboration with funding received from other DoD and interagency sources through Interagency Agreements and inter-service Support Agreements, which may be executed via Federal assistance agreements or contracts.

Exhibit R-2A, RDT&E Project Justification: PB 2023 Defense Health Agency			Date: March 2022
Appropriation/Budget Activity 0130 / 2	R-1 Program Element (Number/Name) PE 0603115DHA / *Medical Technology Development*	Project (Number/Name) 373 / *GDF - Medical Technology Development*	

COST ($ in Millions)	Prior Years (+)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
373: *GDF - Medical Technology Development*	401.932	5.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing

(+) The sum of all Prior Years is $5.000 million less than the represented total due to several projects ending

A. Mission Description and Budget Item Justification

Guidance for Development of the Force - Medical Technology Development provides funds for development of promising candidate solutions that are selected for initial safety and effectiveness testing in animal studies and/or small-scale human clinical trials regulated by the US Food and Drug Administration prior to licensing for human use. Medical technology development is managed by Joint Program Committees in the following areas: 1- Military Infectious Diseases research is developing protection and treatment capabilities for military relevant emerging infectious diseases and wound infections. 2- Military Operational Medicine research goals are to develop and validate medical countermeasures against operational stressors, prevent physical and psychological injuries during training and operations, and to maximize health, performance and readiness of Service members. 3- Combat Casualty Care research is optimizing survival and recovery in injured Service members across the spectrum of care from point of injury through en route and facilities care.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Title: GDF – Medical Technology Development	5.001	0.000	0.000	0.000	0.000
Description: Funds provide for the development of medical technology candidate solutions and components of early prototype systems for test and evaluation. Promising drug and vaccine candidates, knowledge products, and medical devices and technologies are selected for initial safety and effectiveness testing in small scale human clinical trials. ***FY 2022 Plans:*** N/A $0 ***FY 2023 Base Plans:*** N/A $0 ***FY 2023 OCO Plans:*** N/A $0 ***FY 2022 to FY 2023 Increase/Decrease Statement:*** Congressional Add-Restoral					
Accomplishments/Planned Programs Subtotals	5.001	0.000	0.000	0.000	0.000

Exhibit R-2A, RDT&E Project Justification: PB 2023 Defense Health Agency		Date: March 2022
Appropriation/Budget Activity 0130 / 2	**R-1 Program Element (Number/Name)** PE 0603115DHA / *Medical Technology Development*	**Project (Number/Name)** 373 / *GDF - Medical Technology Development*

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

Mature and demonstrate safety and effectiveness of medical procedures, medical devices, and drug and vaccine candidates intended to prevent or minimize effects from battlefield injuries, diseases, and extreme or hazardous environments. Milestone B packages will be developed to transition products into advanced development.

Exhibit R-2A, RDT&E Project Justification: PB 2023 Defense Health Agency			Date: March 2022
Appropriation/Budget Activity 0130 / 2	R-1 Program Element (Number/Name) PE 0603115DHA / *Medical Technology Development*	Project (Number/Name) 373A / *GDF - MTD (Combat Casualty Care)*	

COST ($ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
373A: *GDF - MTD (Combat Casualty Care)*	0.000	11.168	15.736	24.519	0.000	24.519	26.943	27.950	28.871	29.810	Continuing	Continuing

A. Mission Description and Budget Item Justification

This project supports Medical Technology Development (combat casualty care) efforts with the goal of optimizing Warfighter survival and recovery from combat-related injury in current and future operational scenarios for the acute and early management of combat-related trauma, including point of injury, en route, and facility-based care.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Title: Joint Battlefield Healthcare (Formerly Combat Casualty Care)	11.168	15.736	24.519	0.000	24.519
Description: Joint Battlefield Healthcare (formerly Combat Casualty Care) medical technology development activities seek to drive medical innovation through development of knowledge and materiel solutions for the management of combat-related trauma. ***FY 2022 Plans:*** Joint Battlefield Healthcare (formerly Combat Casualty Care) medical technology development will focus on evaluating diagnostic tools and treatments designed for deployment during multi-domain operations, resource-limited conditions and prolonged care. Test effective critical care processes and technologies for severe casualties injured during large scale combat operations. These technologies include devices to treat tissue damage caused when blood supply returns to tissue after a period of oxygen deprivation, technologies for advanced hemorrhage control, novel blood products, technologies for autonomous vascular access, battlefield burn diagnostics and management, and advanced en route casualty treatment and management. ***FY 2023 Base Plans:*** Joint Battlefield Healthcare (formerly Combat Casualty Care) medical technology development will continue to focus on developing and transitioning emerging technologies to enable care in the areas of prolonged field care, pre-hospital tactical combat casualty care, battlefield traumatic brain injury/neurotrauma, burn injury, and en route care. ***FY 2023 OCO Plans:*** N/A ***FY 2022 to FY 2023 Increase/Decrease Statement:***					

Exhibit R-2A, RDT&E Project Justification: PB 2023 Defense Health Agency		Date: March 2022
Appropriation/Budget Activity 0130 / 2	**R-1 Program Element (Number/Name)** PE 0603115DHA / *Medical Technology Development*	**Project (Number/Name)** 373A / *GDF - MTD (Combat Casualty Care)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Funds moved from Project Code 373C to further support Joint Battlefield Healthcare (formerly Combat Casualty Care) technology development efforts to optimize survival and recovery from combat-related injury in current and future operational scenarios.					
Accomplishments/Planned Programs Subtotals	11.168	15.736	24.519	0.000	24.519

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

N/A

D. Acquisition Strategy

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2023 Defense Health Agency			Date: March 2022
Appropriation/Budget Activity 0130 / 2	R-1 Program Element (Number/Name) PE 0603115DHA / *Medical Technology Development*	Project (Number/Name) 373B / *GDF - MTD (Military Operational Medicine)*	

COST ($ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
373B: *GDF - MTD (Military Operational Medicine)*	0.000	23.255	19.046	34.150	0.000	34.150	32.426	33.152	33.815	34.492	Continuing	Continuing

A. Mission Description and Budget Item Justification

This project supports medical technology development efforts with the goal of maximizing the health, readiness, and performance of Service members and their families by the development of effective biomedical countermeasures against operational stressors, and prevention and treatment of physical and psychological injuries during training and operations.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Title: Military Health and Recovery (Formerly Military Operational Medicine)	23.255	19.046	34.150	0.000	34.150
Description: Military Health and Recovery (Formerly Military Operational Medicine) medical technology and development efforts focus on the following areas: musculoskeletal injury prevention and treatment; blunt, blast, accelerative, and neurosensory injury prevention & readiness; psychological health and resilience; performance in extreme environments; and optimized cognition and fatigue mitigation.					
FY 2022 Plans: Efforts will focus on: injury prevention and recovery related to musculoskeletal injury; fatigue, cognitive health and performance; human operator health and performance in complex systems; operational systems toxicology for environmental health hazards; protection and performance sustainment in extreme environments; optimization of psychological health and resilience; and diagnosis & treatment of mental health disorders.					
FY 2023 Base Plans: Efforts will continue to focus on: injury prevention and recovery related to musculoskeletal injury; fatigue, cognitive health and performance; human operator health and performance in complex systems; operational systems toxicology for environmental health hazards; protection and performance sustainment in extreme environments; optimization of psychological health and resilience; and diagnosis & treatment of mental health disorders.					
FY 2023 OCO Plans: N/A					
FY 2022 to FY 2023 Increase/Decrease Statement:					

Exhibit R-2A, RDT&E Project Justification: PB 2023 Defense Health Agency		Date: March 2022
Appropriation/Budget Activity 0130 / 2	**R-1 Program Element (Number/Name)** PE 0603115DHA / *Medical Technology Development*	**Project (Number/Name)** 373B / *GDF - MTD (Military Operational Medicine)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Funds moved from Project Code 373D to support additional Military Health and Recovery (Formerly Military Operational Medicine) musculoskeletal injury prevention & treatment technology development efforts.					
Accomplishments/Planned Programs Subtotals	23.255	19.046	34.150	0.000	34.150

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2023 Defense Health Agency			Date: March 2022
Appropriation/Budget Activity 0130 / 2	R-1 Program Element (Number/Name) PE 0603115DHA / *Medical Technology Development*	Project (Number/Name) 373C / *GDF - MTD (Medical Simulation & Training/Health Informatics)*	

COST ($ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
373C: *GDF - MTD (Medical Simulation & Training/Health Informatics)*	0.000	12.613	13.044	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing

A. Mission Description and Budget Item Justification

Conduct proof of technological feasibility studies and experiments and/or assessment of operability and producibility to address a military medical need identified through the Joint Capabilities Integration and Development System. Efforts are directed towards prototypes for field experiments and/or tests in a simulated environment, assessment/proof of feasibility or demonstration of utility/cost reduction that support medical simulation to increase military medical personnel's knowledge, skills and abilities to deliver combat casualty care support to manage patient injury and illness and to conduct patient movement from point of injury through role of care four.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Title: Medical Simulation Technologies (Formerly Medical Simulation Technologies & Training/Health Informatics)	12.613	13.044	0.000	0.000	0.000
Description: Studies, investigations, and non-system specific technology effort focus on prototyping tissue models, technologies that simulate medical condition progress over time, technologies that simulate injury, technologies that replicate warfighter bio-physiology, and, technologies that simulate high-fidelity combat casualty care scenarios. Activities will continue to focus on tissue models that accurately simulate the feel, pliability, flexibility, and responsiveness of live tissue; technologies that simulate the degradation or worsening of a medical condition over time, as well as simulate the improvement of a medical condition over time; technologies that simulate injury, especially hemorrhage, fractures, and ocular damage; technologies that accurately reflect warfighter bodily characteristics and are rugged enough to simulate patient care and movement throughout the entire continuum of care; technologies that simulate combat scenarios to provide realistic environments; and, technologies that simulate patient movement through the continuum of care.					
FY 2022 Plans: N/A					
FY 2023 Base Plans: N/A					
FY 2023 OCO Plans:					

Exhibit R-2A, RDT&E Project Justification: PB 2023 Defense Health Agency		Date: March 2022
Appropriation/Budget Activity 0130 / 2	**R-1 Program Element (Number/Name)** PE 0603115DHA / *Medical Technology Development*	**Project (Number/Name)** 373C / *GDF - MTD (Medical Simulation & Training/Health Informatics)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
N/A ***FY 2022 to FY 2023 Increase/Decrease Statement:*** Funds moved to Project Codes 373A and 373E to support Joint Battlefield Healthcare (formerly Combat Casualty Care) and Military Infectious Disease (wound infections) medical technology development efforts.					
Accomplishments/Planned Programs Subtotals	12.613	13.044	0.000	0.000	0.000

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2023 Defense Health Agency			Date: March 2022
Appropriation/Budget Activity 0130 / 2	R-1 Program Element (Number/Name) PE 0603115DHA / *Medical Technology Development*	Project (Number/Name) 373D / *GDF - MTD (Clinical and Rehabilitation Medicine)*	

COST ($ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
373D: *GDF - MTD (Clinical and Rehabilitation Medicine)*	0.000	13.040	14.980	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing

A. Mission Description and Budget Item Justification

Clinical and rehabilitative medicine activities continue to develop knowledge and materiel products to reconstruct, rehabilitate, and provide care for injured Service member is the areas of neuromusculoskeletal injury, pain management, regenerative medicine, and sensory systems.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Title: Clinical and Rehabilitation Medicine	13.040	14.980	0.000	0.000	0.000
Description: Clinical and rehabilitation medicine efforts will continue to support clinical trials in neuromusculoskeletal injuries to provide products and information solutions for diagnosis, treatment, and rehabilitation outcomes for Service-related injuries. Develop solutions (knowledge and materiel) for the diagnosis and alleviation of pain, restoration or regeneration of neuromusculoskeletal tissues, and sensory system (ocular) rehabilitation and treatment. ***FY 2022 Plans:*** N/A ***FY 2023 Base Plans:*** N/A ***FY 2023 OCO Plans:*** N/A ***FY 2022 to FY 2023 Increase/Decrease Statement:*** Funds moved to Project Code 373B (Military Health and Recovery (Formerly Military Operational Medicine).					
Accomplishments/Planned Programs Subtotals	13.040	14.980	0.000	0.000	0.000

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

Exhibit R-2A, RDT&E Project Justification: PB 2023 Defense Health Agency		Date: March 2022
Appropriation/Budget Activity 0130 / 2	**R-1 Program Element (Number/Name)** PE 0603115DHA / *Medical Technology Development*	**Project (Number/Name)** 373D / *GDF - MTD (Clinical and Rehabilitation Medicine)*

D. Acquisition Strategy

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2023 Defense Health Agency			Date: March 2022
Appropriation/Budget Activity 0130 / 2	R-1 Program Element (Number/Name) PE 0603115DHA / *Medical Technology Development*	Project (Number/Name) 373E / *GDF - MTD (Military Infectious Disease)*	

COST ($ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
373E: *GDF - MTD (Military Infectious Disease)*	0.000	6.409	6.630	12.886	0.000	12.886	13.817	13.747	13.659	13.570	Continuing	Continuing

A. Mission Description and Budget Item Justification

This project supports medical technology development efforts toward the goal of preventing and treating infectious disease threats to eliminate their impacts on operational readiness.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Title: Military Infectious Disease	6.409	6.630	12.886	0.000	12.886

Description: Military infectious disease activities to support efforts (including clinical) to develop innovative therapeutics and delivery technologies for combat wound infections. These efforts include accelerating promising prevention and treatment solutions to emerging infectious diseases (e.g., Dengue, chikungunya, Coronaviruses).

FY 2022 Plans:

Test lead drug candidates in healthy volunteers to determine drug pharmacology, safety, and effectiveness against emerging infectious diseases (EID). Transition the lead EID drug with improved safety, effectiveness and less frequent dosing to advanced development. Perform small studies in healthy volunteers to test safety, effectiveness and immunogenicity of immunoprophylactics (to prevent disease by immunity) against EID with down-selection and transition of the immunoprophylactics to advanced development. Manufacture EID vaccine candidate for clinical testing. Perform clinical testing of EID vaccine candidates for safety and efficacy in humans. Manufacture dengue vaccine candidate for clinical testing. Perform clinical testing of dengue vaccine candidates for safety and efficacy in humans. Support wound infections prevention and treatment medical technology and development efforts.

FY 2023 Base Plans:

Will continue to test lead drug candidates in healthy volunteers to determine drug pharmacology, safety, and effectiveness against emerging infectious diseases (EID). Will continue to support wound infections prevention and treatments research.

FY 2023 OCO Plans:

Exhibit R-2A, RDT&E Project Justification: PB 2023 Defense Health Agency		Date: March 2022
Appropriation/Budget Activity 0130 / 2	**R-1 Program Element (Number/Name)** PE 0603115DHA / *Medical Technology Development*	**Project (Number/Name)** 373E / *GDF - MTD (Military Infectious Disease)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
N/A ***FY 2022 to FY 2023 Increase/Decrease Statement:*** Funds moved from 373C to support Military Infectious Diseases wound infections technology development efforts.					
Accomplishments/Planned Programs Subtotals	6.409	6.630	12.886	0.000	12.886

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2023 Defense Health Agency			Date: March 2022
Appropriation/Budget Activity 0130 / 2	R-1 Program Element (Number/Name) PE 0603115DHA / *Medical Technology Development*	Project (Number/Name) 373F / *GDF - MTD (Radiological Health Effects)*	

COST ($ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
373F: *GDF - MTD (Radiological Health Effects)*	0.000	0.501	0.518	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing

A. Mission Description and Budget Item Justification

This project supports medical technology development efforts with the goal of pursuing the development of Food and Drug Administration (FDA) approved drugs, biologicals, and diagnostics (e.g., biodosimetry) to increase survival and decrease incapacity after acute radiation exposures.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Title: Radiological Health Effects	0.501	0.518	0.000	0.000	0.000
Description: Develop in vivo models, assays, and other enabling technologies to support transition of candidate MCM(s) and to reduce risk during advanced development. This efforts will include the identification and characterization of biomarkers to establish novel druggable targets, understanding differences in species sensitivity to radiation, evaluating direct and indirect mechanisms of actions of high and low linear energy transfer (LET) radiation sources (e.g., neutrons, gamma), and, determining radiosensitivity and radioresistance of various systems/organs. ***FY 2022 Plans:*** Support research toward the development of Food and Drug Administration (FDA) approved drugs, biologicals, and diagnostics (e.g., biodosimetry) for acute radiation exposures to increase survival and decrease incapacity. ***FY 2023 Base Plans:*** N/A ***FY 2023 OCO Plans:*** N/A ***FY 2022 to FY 2023 Increase/Decrease Statement:*** Program combined with 373A Joint Battlefield Healthcare (formerly Combat Casualty Care)					
Accomplishments/Planned Programs Subtotals	0.501	0.518	0.000	0.000	0.000

C. Other Program Funding Summary ($ in Millions)

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2023 Defense Health Agency		Date: March 2022
Appropriation/Budget Activity 0130 / 2	**R-1 Program Element (Number/Name)** PE 0603115DHA / *Medical Technology Development*	**Project (Number/Name)** 373F / *GDF - MTD (Radiological Health Effects)*

C. Other Program Funding Summary ($ in Millions)

Remarks

D. Acquisition Strategy

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2023 Defense Health Agency			Date: March 2022
Appropriation/Budget Activity 0130 / 2	R-1 Program Element (Number/Name) PE 0603115DHA / *Medical Technology Development*	Project (Number/Name) 373G / *GDF - MTD (Military Medical Photonics)*	

COST ($ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
373G: *GDF - MTD (Military Medical Photonics)*	0.000	10.000	10.200	10.404	0.000	10.404	10.612	10.824	11.040	11.261	Continuing	Continuing

A. Mission Description and Budget Item Justification

This project supports Military Medical Photonics applied research with the goal of optimizing Warfighter survival and recovery from combat-related injury in current and future operational scenarios by driving medical innovation through development of knowledge and materiel solutions for the acute and early management of combat-related trauma, including point of injury, en route, and facility-based care.

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B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Title: Military Medical Photonics	10.000	10.200	10.404	0.000	10.404
Description: The Military Medical Photonics Program is an interdisciplinary program of physical and biological scientists, engineers, and physicians addressing diagnostic and therapeutic needs to support combat casualty care. Activities will continue to focus on diagnostic, imaging, and therapeutic studies. Specific efforts include: Photochemical tissue bonding for wound repair, passivation, and vein stiffening for abnormal connections between an artery and a vein; Optical applications for treatment and prevention of wound contamination and scarring, and to support wound healing and cartilage regeneration; Photonics-based diagnostics, including early detection of airway inhalation injury and implantable biomarker sensors; Investigations of photonics technologies to support the prolonged shelf life of human platelets; and Photobiomodulation to affect cognitive function.					
FY 2022 Plans: Conduct research toward the development of diagnostic, assessment and therapeutic solutions to optimize medical care of the Warfighter in current and future battlefield. Materiel and knowledge solutions will focus on innovative capabilities for use in the far forward environment that will cognitively and physically off load the medics in Large Scale Combat operations (LSCO). Focus areas will be cutting edge diagnostics that are of low cube and weight and can be used by minimally trained Warfighters at the point of injury, miniature and rugged imaging capabilities, and novel therapeutics for wound repair, vascular rupture diagnosis and repair. Photonics-based diagnostics will be integrated across the continuum of care, including early					

Exhibit R-2A, RDT&E Project Justification: PB 2023 Defense Health Agency		Date: March 2022
Appropriation/Budget Activity 0130 / 2	**R-1 Program Element (Number/Name)** PE 0603115DHA / *Medical Technology Development*	**Project (Number/Name)** 373G / *GDF - MTD (Military Medical Photonics)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
detection of airway inhalation injury and implantable biomarker sensors and Photobiomodulation to affect cognitive function. ***FY 2023 Base Plans:*** Will continue research toward the development of diagnostic, assessment and therapeutic solutions to optimize medical care of the Warfighter in current and future battlefield. Materiel and knowledge solutions will focus on innovative capabilities for use in the far forward environment that will cognitively and physically off load the medics in Large Scale Combat operations (LSCO). Focus areas will be cutting edge diagnostics that are of low cube and weight and can be used by minimally trained Warfighters at the point of injury, miniature and rugged imaging capabilities, and novel therapeutics for wound repair, vascular rupture diagnosis and repair. Photonics-based diagnostics will be integrated across the continuum of care, including early detection of airway inhalation injury and implantable biomarker sensors and Photobiomodulation to affect cognitive function. ***FY 2023 OCO Plans:*** N/A ***FY 2022 to FY 2023 Increase/Decrease Statement:*** Increase due to inflation					
Accomplishments/Planned Programs Subtotals	10.000	10.200	10.404	0.000	10.404

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2023 Defense Health Agency			Date: March 2022
Appropriation/Budget Activity 0130 / 2	R-1 Program Element (Number/Name) PE 0603115DHA / *Medical Technology Development*	Project (Number/Name) 373H / *GDF - MTD (Medical Advanced Technology)*	

COST ($ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
373H: *GDF - MTD (Medical Advanced Technology)*	0.000	0.000	0.000	68.016	0.000	68.016	68.576	64.720	63.969	63.969	Continuing	Continuing

A. Mission Description and Budget Item Justification

Funding and mission realignment of US Army Medical Research and Development Command transfer to the Defense Health Agency in order to meet Congressional intent as outlined in NDAA 2019 (Section 711) and NDAA 2020 (Section 737) in support of Medical Systems, Advanced Technology & Development.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Title: GDF - MTD (Medical Advanced Technology) ***Description:*** Programmatic transfer in accordance with the 711/737 US Army Medical Research and Development Command transfer to Defense Health Agency in support of Medical Systems, Advanced Technology & Development from Army PEs 0603002A & 0603115A. ***FY 2022 Plans:*** N/A ***FY 2023 Base Plans:*** Efforts will focus on Advanced Technology Development of Medical Technology. ***FY 2023 OCO Plans:*** N/A ***FY 2022 to FY 2023 Increase/Decrease Statement:*** Funding increase for this Project was due to transfer/realignment from Army.	0.000	0.000	68.016	0.000	68.016
Accomplishments/Planned Programs Subtotals	0.000	0.000	68.016	0.000	68.016

	FY 2021	FY 2022
Congressional Add: N/A	0.000	0.000
FY 2021 Accomplishments: N/A		
FY 2022 Plans: N/A		
Congressional Adds Subtotals	0.000	0.000

Exhibit R-2A, RDT&E Project Justification: PB 2023 Defense Health Agency		Date: March 2022
Appropriation/Budget Activity 0130 / 2	**R-1 Program Element (Number/Name)** PE 0603115DHA / *Medical Technology Development*	**Project (Number/Name)** 373H / *GDF - MTD (Medical Advanced Technology)*

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2023 Defense Health Agency			Date: March 2022
Appropriation/Budget Activity 0130 / 2	R-1 Program Element (Number/Name) PE 0603115DHA / *Medical Technology Development*	Project (Number/Name) 378B / *CoE-Breast Cancer Center of Excellence (USUHS))*	

COST ($ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
378B: *CoE-Breast Cancer Center of Excellence (USUHS))*	29.843	10.685	10.898	11.116	0.000	11.116	11.339	11.566	11.797	12.033	Continuing	Continuing

A. Mission Description and Budget Item Justification

The Breast Cancer CoE provides a multidisciplinary approach as the standard of care for treating breast diseases and breast cancer. This approach integrates prevention, screening, diagnosis, treatment and continuing care, incorporation of advances in risk reduction, biomedical informatics, tissue banking and translational research. The project is based on a discovery science paradigm, leveraging high-throughput molecular biology technology and our unique clinically well-characterized tissue repository with advances in biomedical informatics leading to hypothesis-generating discoveries that are then tested in hypothesis-driven experiments.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Title: Breast Cancer Center of Excellence	10.685	10.898	11.116	0.000	11.116
Description: The Readiness and Lethality of the Total Force is based in large part on personnel health. Nearly 20% of the active duty force is now female, and breast cancer is the number one cancer in active duty women, far surpassing all other causes of cancer in this population. The Breast Cancer CoE utilizes a multidisciplinary approach for researching breast diseases and breast cancer focused on the military at-risk active duty population in order to enhance Readiness of The Total Force. This multidisciplinary model integrates prevention, screening, early diagnosis, treatment and continuing care, but the project is further unique in the incorporation of advances in risk reduction, biomedical informatics, tissue banking and translational research. The project is based on a Discovery Science paradigm, leveraging high-throughput molecular biology technology and our unique clinically and pathologically well-characterized tissue repository with advances in biomedical informatics leading to hypothesis-generating discoveries that are then tested in hypothesis-driven experiments. In addition to the primary achievement of research objectives, the program educates Federal employees as a benefit to the public they serve through Federal service, through support to civil authorities, and in non-Federal professional and academic collaborations. FY21 Accomplishments: - Accrued 307 breast patients to Breast CoE core protocols - Accrued 128 breast patients to the ORIEN research protocol - Acquired 3,428 new biospecimens at our Breast COE sites to the core tissue protocol - Utilized our biospecimens and data base in support of 28 publications from October 2020 to Present					

Exhibit R-2A, RDT&E Project Justification: PB 2023 Defense Health Agency		Date: March 2022
Appropriation/Budget Activity 0130 / 2	**R-1 Program Element (Number/Name)** PE 0603115DHA / *Medical Technology Development*	**Project (Number/Name)** 378B / *CoE-Breast Cancer Center of Excellence (USUHS))*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
- Performed critical research on young women with breast cancer, and the demographic of African-American women with breast cancer, key cohorts affecting cancer as a readiness issue for the DoD - Developed additional research work with NCI regarding young women with breast cancer in relation to the active duty component PATENT: Recurrence Gene Signature Across Multiple Cancer Types. (International Application #: PCT/US19/49688; entered National Phase on March 3, 2021) Provisional Patent Application “Protein markers for the prognosis of breast cancer progression” Murtha Cancer Center/Research Program Provisional Patent Application “Protein markers for estrogen receptor (ER)-positive-like and estrogen receptor (ER)-negative-like breast cancer” Murtha Cancer Center/Research Program Provisional Patent Application “Protein markers for estrogen receptor (ER)-positive luminal a (LA)-like and luminal b1 (LB1)-like breast cancer” Murtha Cancer Center/Research Program ***FY 2022 Plans:*** FY 2022 plans continue efforts as outlined in FY 2021. The Program will complete the following: Objective 1: Identify and consent a minimum of 150 patients (to include patients at high risk for development of breast cancer) annually to the MCCRP APOLLO germline sequencing research study, with special focus on active duty females as a Force Protection / Readiness sustainment issue to the DoD. Objective 2: Accrue over 500 patients annually to the “core” USUHS MCCRP/BC-COE protocols by consenting patients at the main clinical sites, with the main site being the Murtha Cancer Center’s Breast Center at WRNMMC, the military’s largest and only NAPBC (National Accreditation Program for Breast Centers) approved breast center in the entire DoD MHS. Objective 3: Expand our breast tissue acquisition to include more military veterans, by acquiring tissues and enrolling veterans in our protocols who are receiving care at VA hospitals in Palo Alto (California), Durham					

Exhibit R-2A, RDT&E Project Justification: PB 2023 Defense Health Agency		Date: March 2022
Appropriation/Budget Activity 0130 / 2	**R-1 Program Element (Number/Name)** PE 0603115DHA / *Medical Technology Development*	**Project (Number/Name)** 378B / *CoE-Breast Cancer Center of Excellence (USUHS))*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
(North Carolina), Puget Sound (Washington), and VA Dallas. Acquire through consented protocol acquisitions, over 5,000 specimens annually (neoplastic and non-neoplastic breast tissues and tumors, lymph nodes, metastatic deposits, blood and its components, bone marrow) on patients with all types of breast diseases and cancer with a new focus on veterans and being able to then look at any relationship between deployment history, environmental exposures, and their service record. Objective 4: Bank these biospecimens in the USUHS MCCRP's BC-COE Biorepository as the substrate for all molecular analyses carried out in USUHS MCCRP's BC-COE labs, as outlined in the USUHS MCCRP's BC-COE Core Protocols. Utilize this repository as the basis for intramural and extramural collaborations for secondary usage research. Objective 5: Because of the ongoing expansion into VA sites and as an extension of the continued modernization of our world-class biobank, develop additional new quality assurance programs and standard operating procedures for the Tissue Bank regarding these new elements and sites from the VA and others including conducting biospecimen science research. Objective 6: Conduct integrative profiling research for protein-expression based, clinically relevant breast cancer stratification. Objective 7: Breast cancer studies focused on two special patient groups bearing poor outcomes, who are enriched in the military active-duty military population: young women, and Black women. Objective 8: Focusing on samples from female veterans and female active duty service members with breast cancer, perform new heterogeneity studies, including cellular heterogeneity of tumor development environment and lineage heterogeneity within one physical cancer tumor. Objective 9: Studies on mechanistic understanding of breast cancer development from other perspectives, including genetic dispositions, exposure to environmental risks, access to healthcare, and impact of certain lifestyle factors as well as comorbidities. Objective 10: Breast cancer HER2 Targeted Therapy Optimization Objective 11: With the new addition of VA hospital sites for breast tissue collections and clinical data collation under research protocols, continued development and rollout of an informatics infrastructure system to support these new needs of BC-COE research. Objective 12: Analysis of the publicly available TCGA, CPTAC, and other large scale cancer study datasets. ***FY 2023 Base Plans:*** Continuation of objectives from FY22. ***FY 2023 OOC Plans:***					

Exhibit R-2A, RDT&E Project Justification: PB 2023 Defense Health Agency		Date: March 2022
Appropriation/Budget Activity 0130 / 2	**R-1 Program Element (Number/Name)** PE 0603115DHA / *Medical Technology Development*	**Project (Number/Name)** 378B / *CoE-Breast Cancer Center of Excellence (USUHS))*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
N/A ***FY 2022 to FY 2023 Increase/Decrease Statement:*** Pricing adjustment for inflation.					
Accomplishments/Planned Programs Subtotals	10.685	10.898	11.116	0.000	11.116

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

USUHS optimizes these research funds to achieve its research objectives, often in partnership and collaboration with funding received from other DoD and interagency sources through Interagency Agreements and inter-service Support Agreements, which may be executed via Federal assistance agreements or contracts.

Exhibit R-2A, RDT&E Project Justification: PB 2023 Defense Health Agency			Date: March 2022
Appropriation/Budget Activity 0130 / 2	R-1 Program Element (Number/Name) PE 0603115DHA / *Medical Technology Development*	Project (Number/Name) 379B / *CoE-Gynecological Cancer Center of Excellence (USUHS)*	

COST ($ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
379B: *CoE-Gynecological Cancer Center of Excellence (USUHS)*	26.088	9.341	9.528	9.719	0.000	9.719	9.913	10.111	10.313	10.519	Continuing	Continuing

Note

The Gynecologic Cancer Center of Excellence (GYN-COE) utilizes a program project type of strategy with overarching objectives to advance knowledge, prevention strategies, companion biomarkers and assays, treatments and interventions across the continuum of care in gynecologic oncology. Our twelve program projects run in parallel rather than in sequence with advances implemented over five years rather than 12 months. Some subprojects target discovery investigations and mechanistic studies whereas others focus on clinical evaluations, population studies and further development leading to deployment. The introduction of new subprojects and maturation of other subprojects allows the GYN-COE to continue to emphasize military and clinical relevance, prioritize bench to bedside translation, and infuse in advances in science, medicine and technology to meet our objectives.

A. Mission Description and Budget Item Justification

The Gynecologic Cancer Center of Excellence (GYN-COE) is an integrated translational research program aimed at development of companion biomarkers and assays, clinical decision support tools, risk assessment algorithms, quality improvement initiatives, treatments, and interventions for patients with gynecologic tumors and cancers, among a growing proportion of active duty women in the Armed Services, veteran and retired populations. Molecular profiling of pre-cancerous and malignant lesions has also enabled development of diagnostic and chemo-preventive interventions across the most common pathologic uterine conditions, rare variants, and the aggressive and deadly metastatic and recurrent malignancies that affect women and corresponding readiness. The GYN-COE has been the leading research program in the U.S. to identify clinical features, biologic etiologies, and social determinants underlying racial and ethnic disparities in gynecologic cancers using population based as well as translational research methods. The GYN-COE program features both the largest tissue laser capture microscopy facility as well as the most robust mass spectrometry-based proteomics facility in the DOD, enabling the program to assess the generalized relevance of GYN-COE discoveries in other cancers that impact service members and readiness. The comprehensive research program supports the training of subspecialty gynecologic oncology surgeons, a fellowship program that has trained advanced pelvic surgeons to support wartime efforts for the past 50 years. The program also educates and trains medical students, interns and residents in women's health, telemedicine, wellness, wound-healing, hemorrhage, infections, pain management, resistance, resilience, palliative care and evidence-based medicine. The program has partnered with the National Cancer Institute in its educational and investigative activities over the past 20 years becoming a pillar program for the Murtha Comprehensive Cancer Center and the Uniformed Services University. The GYN-COE has also strengthened cancer capabilities, advanced the federal precision oncology initiatives, contributed to the COVID-response, enabled delivery of equitable care to female service members, veterans and beneficiaries, and ensured readiness of the female fighting force by addressing their gender-specific medical conditions.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Title: Gynecological Cancer Center of Excellence	9.341	9.528	9.719	0.000	9.719

Exhibit R-2A, RDT&E Project Justification: PB 2023 Defense Health Agency		Date: March 2022
Appropriation/Budget Activity 0130 / 2	**R-1 Program Element (Number/Name)** PE 0603115DHA / *Medical Technology Development*	**Project (Number/Name)** 379B / *CoE-Gynecological Cancer Center of Excellence (USUHS)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Description: The Gynecological Cancer Center of Excellence focuses on characterizing the molecular alterations associated with benign and malignant gynecological disease and facilitates the development of novel early detection, prevention and novel biologic therapeutics for the management of gynecological disease. The GYN-COE leverages innovative research to enhance gynecologic cancer care from prevention to survivorship for service members, beneficiaries, and the civilian population. • To use extraordinary analytical capabilities in sample preparations combined with micro-scaled proteogenomic analysis for development of companion diagnostics, theragnostics, prognostics and prediction models for provision of precision medicine to gyn cancer patients as well as agnostically to all patients through pan cancer discovery • The throughput of our analytical facility will open up opportunities to expand our capabilities for proteogenomic tissue profiling of biopsy sized specimens to support ancillary studies of drug response and resistance in clinical trial patients aimed at repurposing of FDA-approved drugs for pan cancer treatment in partnership with public, private, and industry organizations. • Use of our technologies to support proteogenomic characterization of the world's most rare and yet most clinically devastating diseases in partnership with the Joint Pathology Center. • Deployment of our analytical expertise to support research involving COVID related threats, combat related disorders, and behavioral health disorders, such as PTSD and others that are prevalent in retired veterans. • To expand our racial disparities research using the PAIRED consortium to support investigation of any cancer type or other disease for which there are worse outcomes in minority populations. • To provide undergraduate and graduate medical training in advanced pelvic surgery and complex gynecologic conditions within the context of a specialized fellowship in gynecologic oncology that produces physician scientists fluent in the latest advances of precision medicine for gynecologic cancer patients • Continue to serve as the comprehensive cancer center for gynecologic oncology clinical trial patients of the National Institutes of Health and veterans from regional VA facilities • The Clinical Proteomics Platform in the GYN-COE processed and analyzed 2224 unique cancer specimens in 2019 with a variance of less than 10% ***FY 2022 Plans:*** Will continue efforts from FY 2021. In addition, will continue to build on studies examining molecular determinants of recurrent versus non-recurrent disease and how distribution of disease and post-surgical tumor residual influences outcome. Deep proteogenomic analyses will extend current state of the art technologies to reveal clinically actionable data that improves outcomes. Investigations of cancer health disparities and					

Exhibit R-2A, RDT&E Project Justification: PB 2023 Defense Health Agency		Date: March 2022
Appropriation/Budget Activity 0130 / 2	**R-1 Program Element (Number/Name)** PE 0603115DHA / *Medical Technology Development*	**Project (Number/Name)** 379B / *CoE-Gynecological Cancer Center of Excellence (USUHS)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
retrospective clinical and translational research will include collaborative development of companion assays, clinical support tools and predictive analytics for therapeutic efficacy, prognosis, and survivorship care planning. Racial disparities investigations will extend to utilization of resources from TDAN, APOLLO-5/-6/-7, MCCRP and the NCI National Clinical Trials Network. Building collaborations with military health agencies to increase active duty and veteran focused GYN-research. ***FY 2023 Base Plans:*** Will continue efforts from FY 2021 and FY 2022. In addition, we will advance optimization and deployment of companion assays, clinical support tools and predictive analytics to improve racial and cancer health equity, military readiness, capabilities, efficiency, and outcomes. ***FY 2023 OOC Plans:*** N/A ***FY 2022 to FY 2023 Increase/Decrease Statement:*** Pricing Adjustment.					
Accomplishments/Planned Programs Subtotals	9.341	9.528	9.719	0.000	9.719

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

Disseminate medical knowledge products resulting from research and development through articles in peer-reviewed journals, revised clinical practice guidelines, and into training curriculum throughout the Military Health System, and other applicable means.

Exhibit R-2A, RDT&E Project Justification: PB 2023 Defense Health Agency			Date: March 2022
Appropriation/Budget Activity 0130 / 2	R-1 Program Element (Number/Name) PE 0603115DHA / *Medical Technology Development*	Project (Number/Name) 381 / *CoE - Integrative Cardiac Health Care (USUHS)*	

COST ($ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OOC	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
381: *CoE - Integrative Cardiac Health Care (USUHS)*	5.929	1.680	1.744	1.809	0.000	1.809	1.875	1.943	1.982	2.022	Continuing	Continuing

A. Mission Description and Budget Item Justification

The USUHS Integrative Cardiac Health Program is a Center of Excellence whose mission is to:
1. To address the gaps identified in the Cardiovascular Care Initial Capabilities Document (ICD) (CRM-2017.03.23)
2. Enhance the cardiovascular health and well-being of the Warfighter and the DoD community through innovative clinical research using precision techniques.
3. Identify precise strategies for early detection, monitoring and reduction of preclinical/clinical CV and related chronic disease risks for improved clinical outcomes.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Title: Integrative Cardiac Health/Military Cardiovascular Outcomes Research	1.680	1.744	1.809	0.000	1.809
Description: USUHS is a "central focal point for health-related education and training, research and scholarship, and leadership support to operational military units around the world" and is the ideal engine to establish a strategic partnership to address cardiovascular health. FY2021 Accomplishments (Selected): The MiCOR portfolio currently includes 19 total studies with two broad themes: 1. Prevention of cardiac events in ADSM (16 projects) 2. Evaluating cardiac impact of COVID-19 infection/vaccination (3 Projects) Major landmarks: - 5400 USNA midshipmen screened using novel electrocardiographic device in support of BUMED Sudden Cardiac Death Risk Assessment Project Authorization Letter. Serious cardiac abnormalities were identified in 0.46%. Cited in HASC preamble to NDAA for extension to other academies. Briefing Accessions Medical Standards Working Group scheduled for December 2021 to add enhanced cardiac screening to MEPS and DODMERB recruit screening, affecting 150,000 recruits annually. - Long Term Outcomes following Combat Injury- Retrospectively compared CV outcomes in 17,570 warfighters and demonstrated that combat injury is associated with significant increases in cardiac arrhythmias, hypertension, diabetes mellitus, and coronary artery disease. Additional grant funding from CDMRP for a prospective study sought; decision anticipated January 2022. -Peer-reviewed Papers Published: 56					

Exhibit R-2A, RDT&E Project Justification: PB 2023 Defense Health Agency		Date: March 2022
Appropriation/Budget Activity 0130 / 2	**R-1 Program Element (Number/Name)** PE 0603115DHA / *Medical Technology Development*	**Project (Number/Name)** 381 / *CoE - Integrative Cardiac Health Care (USUHS)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
-Books: 1 -Book Chapters: 7 -Invited Presentations: 5 -Scientific Conference Workshops/Panels: 4 -Scientific Conference Paper/Poster Presentations: 20 -Four studies completed enrolment in FY21 and are in final analysis. - Six studies in active enrollment. -Long Haul COVID randomized clinical trial of ivabradine in institutional review. -1,000,000 USAF EKGs transferred to DHA and currently under analysis for machine learning. -Sleep Disordered Breathing- Analysis of opioids and their impact on sleep disordered breathing has been completed and published. Analysis of the QT interval variability as the mortality predictor is 50% completed since January 2021. Expected completion Q4 FY2022. ***FY 2022 Plans:*** Continue enrollment and conduct of study schedules for the six studies in the active phase. -Finalize analysis on the four studies in the post completion stage. Disseminate results accordingly to high impact journals. -Complete regulatory tasks (IRB, agreements, protocol development, etc.) for remaining studies in order for those studies to enter the active research phase. - Convene national committee of experts to formulate “Guidelines for the Cardiovascular Care of the Tactical Athlete” in collaboration with DHA, American Heart Association, and the American College of Cardiology. Tactical athletes include active duty military, astronauts, police officers, and firefighters. -Perform machine learning on 1,000,000 legacy electrocardiograms linked with MDR to identify novel biomarkers of cardiac risk. -Complete analysis of 5000 sleep polysomnograms for evaluation of electrocardiographic biomarker as predictor of death. - Post Covid vaccine myocarditis registry in IRB review. - 1,000,000 USAF EKGs transferred to DHA and currently under analysis for machine learning - Registry of cardiovascular electrophysiology procedures - Peer-reviewed Papers Published: 56 - Books: 1					

Exhibit R-2A, RDT&E Project Justification: PB 2023 Defense Health Agency		Date: March 2022
Appropriation/Budget Activity 0130 / 2	**R-1 Program Element (Number/Name)** PE 0603115DHA / *Medical Technology Development*	**Project (Number/Name)** 381 / *CoE - Integrative Cardiac Health Care (USUHS)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
- Book Chapters: 7 - Invited Presentations: 5 - Scientific Conference Workshops/Panels: 4 - Scientific Conference Paper/Poster Presentations: 20 ***FY 2023 Base Plans:*** FY23 plans continue efforts outlined in FY21 and FY22. ***FY 2023 OOC Plans:*** N/A ***FY 2022 to FY 2023 Increase/Decrease Statement:*** Pricing adjustment for inflation.					
Accomplishments/Planned Programs Subtotals	1.680	1.744	1.809	0.000	1.809

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

USUHS optimizes these research funds to achieve its research objectives, often in partnership and collaboration with funding received from other DoD and interagency sources through Interagency Agreements and inter-service Support Agreements, which may be executed via Federal assistance agreements or contracts.

Exhibit R-2A, RDT&E Project Justification: PB 2023 Defense Health Agency			Date: March 2022
Appropriation/Budget Activity 0130 / 2	R-1 Program Element (Number/Name) PE 0603115DHA / *Medical Technology Development*	Project (Number/Name) 382B / *CoE-Pain Center of Excellence (USUHS)*	

COST ($ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
382B: *CoE-Pain Center of Excellence (USUHS)*	9.508	1.945	2.014	2.084	0.000	2.084	2.156	2.230	2.277	2.327	Continuing	Continuing

A. Mission Description and Budget Item Justification

The Pain Center of Excellence examines the relationship between acute and chronic pain and focuses on finding, implementing, and evaluating the most effective methods of relieving the acute pain caused by combat trauma and the effect pain has throughout the continuum of care to rehabilitation and reintegration. The Pain Center of Excellence is an integral part of the Defense and Veterans Center for Integrative Pain Management (DVCIPM) whose mission is to become a referral center that supports world-class clinical pain services, provides education on all aspects of pain management, coordinates and conducts Institutional Review Board-approved clinical research and Institutional Animal Care and Use Committee-approved basic laboratory and translational pain research, and serves as the advisory organization for developing enterprise-wide pain policy for the Military Health System. In FY 2015, management of the Pain CoE was transferred from Army to USUHS.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Title: Pain Center of Excellence (USUHS)	1.945	2.014	2.084	0.000	2.084
Description: The Pain Center of Excellence examines the relationship between acute and chronic pain and focuses on finding, implementing, and evaluating the most effective methods of relieving the acute pain caused by combat trauma and its impact on rehabilitation and recovery. The center also supports knowledge translation activities that are aimed at integrating research findings into military medicine clinical practice and policy. In addition to the primary achievement of research objectives, the program educates Federal employees as a benefit to the public they serve through Federal service, through support to civil authorities, and in non-Federal professional and academic collaborations.					
Description: The Pain Center of Excellence examines the relationship between acute and chronic pain and focuses on finding, implementing, and evaluating the most effective methods of relieving the acute pain caused by combat trauma and its impact on rehabilitation and recovery. The center also supports knowledge translation activities that are aimed at integrating research findings into military medicine clinical practice and policy. In addition to the primary achievement of research objectives, the program educates Federal employees as a benefit to the public they serve through Federal service, through support to civil authorities, and in non-Federal professional and academic collaborations.					

Exhibit R-2A, RDT&E Project Justification: PB 2023 Defense Health Agency		Date: March 2022
Appropriation/Budget Activity 0130 / 2	**R-1 Program Element (Number/Name)** PE 0603115DHA / *Medical Technology Development*	**Project (Number/Name)** 382B / *CoE-Pain Center of Excellence (USUHS)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
FY21 Accomplishments 1. Provided pain management advisory support to Congressionally Directed Medical Research Programs (CDPRP) and Clinical & Rehabilitative Medicine (CRMRP). In accordance with the Memorandum of Agreement with Defense Health Agency, provided advisory to support to DHA Deputy Assistant Director Medical Affairs and DHA Pain Management Clinical Support Service. 2. Collaborated with DHA stakeholders and Military Health System providers to implement key metrics of pain management and their associated clinical decision support tools (e.g., Opioid Prescriber Monthly Trend Report, Look Up Tool, Look Up Tool Dashboard, Opioid Registry) to support enterprise-wide process improvement. 3. Successfully implemented the Established and integrated Opioid Education and Naloxone Dispensing (OEND) program in DHA as part of the Quadruple Aim Performance Process (QPP) Plan. This activity included implementation of the Train-the-Trainer program across several Markets and Military Treatment Facilities. As such, naloxone prescribing rates have significantly increased across the DoD. 4. Led revisions and updates to the DoD Opioid Prescriber Safety Training (OPST) mandated by the 2015 Presidential Memorandum; Addressing Prescription Drug Abuse and Heroin Use and required for all DoD opioid prescribers. DVCIPM was the primary content developer for the initial FY 2017 OPST and was subsequently tasked with leading the content updates and revisions for 2021. As of June 2021, over 48,000 DoD prescribers have completed this training; over 5000 prescribers to date in 2021 alone. 5. As the designated CoE for DoD pain management, served as lead for revisions to DHA-Procedural Instruction 6025.04 Pain Management and Opioid Safety, translating emerging medical evidence and standards of practice into DoD pain management and opioid safety policy. 6. Engaged in many service activities to support research training and development for USUHS medical students, DoD residents, and DHA providers. These activities included mentoring several USUHS Capstone students, resulting in many posters and publications; implementing a residency research program at Walter Reed National Military Medical Center (WRNMMC); advising many WRNMMC Anesthesiology residents on their research projects; and providing support for research development for several military anesthesiologists.					

Exhibit R-2A, RDT&E Project Justification: PB 2023 Defense Health Agency		Date: March 2022
Appropriation/Budget Activity 0130 / 2	**R-1 Program Element (Number/Name)** PE 0603115DHA / *Medical Technology Development*	**Project (Number/Name)** 382B / *CoE-Pain Center of Excellence (USUHS)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
7. Obtained another large CDMRP grant with co-investigators from Johns Hopkins Applied Physics Laboratory and School of Nursing, Georgetown University, and multiple Military Treatment Facilities. The objective of the study is to examine disparities across the Military Health System in pain management, using an Intersectionalist Framework and Health Equity Measurement Framework. 8. Obtained a grant subaward as Co-Investigator, with Cognitive Medical Systems as the prime, from USAMRDC to develop standards aligned remote control for commercially available ventilator and IV pump across the NETCCN architecture, and to inform future work regarding regulatory and/or safety requirements 9. The Pain Registry Biobank, approved in FY 19, is a clinical data registry and tissue biobank for the advancement of pain-related research. This Biobank contains PASTOR survey data, the Defense and Veterans Pain Rating Scale (DVPRS), electronic health record data, and biospecimens, (blood and saliva) on targeted individuals eligible for care within the Military Health System. Biobank Sites at Walter Reed National Military Medical Center and Naval Medical Center San Diego are enrolling. Currently, there are 200 participants, and approx. 4000 frozen samples. Permission was recently obtained to collect consents virtually, and a process to document and verify COVID-19 exposure is being explored. Applications for use of the PR Biobank data and samples are being accepted, and will be reviewed by the PR Biobank Oversight Committee. Face to face enrollment was placed on hold in March 2020, but was resumed in early 2021. 10. Published 20 articles across a range of high-impact journals related to rehabilitation, pain medicine, anesthesiology, and health services research. 11. DVCIPM Director serving as the DoD representative to the National Institute of Health's (NIH) Interagency Pain Research Coordinating Committee (IPRCC) and the DoD Co-Chair for the HEC Pain Management Work Group. 12. Improve transitions of care from DoD to VA for Service members with complex pain conditions by continuing to integrate common or complementary DoD/VA standards for pain-related data collection and reporting, opioid safety initiatives and practices, patient and provider education; leading DoD execution of DoD/VA Joint Executive Committee (JEC) action plans for opioid safety.					

Exhibit R-2A, RDT&E Project Justification: PB 2023 Defense Health Agency		Date: March 2022
Appropriation/Budget Activity 0130 / 2	**R-1 Program Element (Number/Name)** PE 0603115DHA / *Medical Technology Development*	**Project (Number/Name)** 382B / *CoE-Pain Center of Excellence (USUHS)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
13. Provided pain management functional support to DHA for the transition of the Pain Assessment Screening Tool and Outcomes Report (PASTOR) to the DHA Survey Portal. PASTOR is currently in use by over 240 DoD providers at 20 MTF pain management specialty clinics (as of 1Aug21). 14. Completed the Joint Pain Education Program study funded by DHA. ***FY 2022 Plans:*** FY 2022 plans continue efforts as outlined in FY 2021. FY 2022 plans continue efforts as outlined in FY 2021. And include the following activities: 1. Conduct implementation science research, provide subject matter expert support for a diverse portfolio of DoD/DHA pain management/opioid safety activities and initiatives, and facilitate the development of evidence-based policies. DVCIPM will establish an evidence-based, synthesized evaluation framework for patient/public health materials - the Health Information to Action Pathway (HITAP) Framework, (2) examine the patient-centeredness of patient/public health materials targeting pain management and opioid safety, and (3) provide suggestions for improvements. 2. Support innovative research by continuing recruitment into the robust Pain Registry Biobank at both of its sites and conducting research that leverages PASTOR/PROMIS outcomes. 3. To conduct rigorous research that supports healthcare optimization in pain management and analgesia. This includes collaborative studies with the Johns Hopkins Applied Physics Laboratory (APL) to conduct a pilot study and the Defense Health Management System (DHMS) on multiple studies. There are a range of different big-data studies that DVCIPM is currently engaged in including: examination of analgesia pathways across many different surgical procedures; evaluation of healthcare variability in naloxone, opioid, and non-opioid pain medication prescribing; identification of factors associated with dispense and effects of tramadol versus opioids; and other health services research. 4. Conduct several studies aimed at evaluating anesthesiology and pain management training, workforce readiness, and career sustainment within medical school, residency, and practice settings 5. Provide functional support to integrate PASTOR at all remaining MTF pain management specialty clinics. 6. To conduct a study examining whether early treatment with NMDA-antagonist ketamine will decrease the likelihood of the development of chronic pain and PTSD using a mouse model. ***FY 2023 Base Plans:***					

Exhibit R-2A, RDT&E Project Justification: PB 2023 Defense Health Agency		Date: March 2022
Appropriation/Budget Activity 0130 / 2	**R-1 Program Element (Number/Name)** PE 0603115DHA / *Medical Technology Development*	**Project (Number/Name)** 382B / *CoE-Pain Center of Excellence (USUHS)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
FY 2023 plans continue efforts as outlined in FY 2022 ***FY 2023 OOC Plans:*** N/A ***FY 2022 to FY 2023 Increase/Decrease Statement:*** Pricing adjustment for inflation.					
Accomplishments/Planned Programs Subtotals	1.945	2.014	2.084	0.000	2.084

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

USUHS optimizes these research funds to achieve its research objectives, often in partnership and collaboration with funding received from other DoD and interagency sources through Interagency Agreements and inter-service Support Agreements, which may be executed via Federal assistance agreements or contracts.

Exhibit R-2A, RDT&E Project Justification: PB 2023 Defense Health Agency			Date: March 2022
Appropriation/Budget Activity 0130 / 2	R-1 Program Element (Number/Name) PE 0603115DHA / *Medical Technology Development*	Project (Number/Name) 383A / *CoE-Prostate Cancer Center of Excellence (USUHS)*	

COST ($ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
383A: *CoE-Prostate Cancer Center of Excellence (USUHS)*	23.812	8.526	8.696	8.870	0.000	8.870	9.047	9.228	9.413	9.600	Continuing	Continuing

A. Mission Description and Budget Item Justification

The Center for Prostate Disease Research (CPDR) is an interdisciplinary translational cancer research program of the Department of Surgery, Uniformed Services University of the Health Sciences (USUHS), the Walter Reed National Military Medical Center (WRNMMC), the Murtha Cancer Center, and the Urology Service at WRNMMC. The CPDR conducts state-of-the-art clinical and translational research with emphasis on precision medicine to enhance the readiness of active duty personnel juxtaposed with the continuum of medical care for military retirees and beneficiaries. The CPDR enriches the training of the next generation of physicians/ scientists who directly benefit the quality, outcomes, and stability of the military health care delivery system. Ground-breaking discoveries through strong academic and clinical research; e.g., over 24 yrs. and 450 publications) have led to major advances in translational prostate cancer research and treatment. The CPDR integrates expertise of urologic and medical oncologists, cancer biologists, genitourinary pathologists, epidemiologists, bio-statisticians, medical technologists, research nurses, patient educators, bioinformaticians, and program management specialists. All these areas of expertise provide state-of-the-art resources for in-house and collaborative research in prostate cancer. The program is also committed to translational research training for future generations of physicians and scientists at leading DoD medical institutions (USUHS, WRNMMC, JPC, NMCSD, MAMC, SAMMC, and TAMC).

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Title: CoE-Prostate Cancer Center of Excellence (USUHS)	8.526	8.696	8.870	0.000	8.870
Description: The CPDR is at the forefront of "cutting-edge" clinical, basic science and epidemiologic research. The emphasis is on improving diagnosis, prognosis and treatment of prostate cancer involving new modalities such as MRI guided biopsy, gene-based biomarkers, and precision medicine strategies targeting causal gene alterations in prostate cancer. The CPDR multi-center database is a unique programmatic resource, enrolling over 28,500 DoD health care beneficiaries under suspicion for prostate cancer, with longitudinal follow up to 24 years. This database continues to highlight emerging issues in prostate cancer management such e.g., treatment outcomes, racial/ethnic differences, quality of life and discovery of novel molecular prognostic markers. In light of current issues related to overtreatment of early detected prostate cancers and poorly understood biology of prostate cancer, CPDR's long-term biospecimen banks, high-impact discoveries and collaborations are leading towards better diagnostic and prognostic molecular markers and therapeutic targets with promise in improving the management of the disease. The CPDR's health disparity research focus has uniquely benefited from studying a prostate cancer patient cohort, with a high representation of African American men, in an equal-access military health care system. Ground-breaking studies of the most validated prostate cancer gene, ERG, in over 1,500+ patients provide the first definitive information on prostate cancer biology underscoring racial/ethnic differences with potential to enhance personalized medicine. The CPDR's state-of-					

Exhibit R-2A, RDT&E Project Justification: PB 2023 Defense Health Agency		Date: March 2022
Appropriation/Budget Activity 0130 / 2	**R-1 Program Element (Number/Name)** PE 0603115DHA / *Medical Technology Development*	**Project (Number/Name)** 383A / *CoE-Prostate Cancer Center of Excellence (USUHS)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
the-art research infrastructure and framework is providing education and training for over 100 next generation physicians, scientists, medical and graduate students within DoD medical institutions. ***FY 2022 Plans:*** FY 2022 plans continue efforts as outlined in FY 2021. Accomplishments (FY21): • The CPDR-Clinical Research Program now at WRNMMC, combines a multidisciplinary approach of prostate cancer screening, data collection, clinical diagnosis, and treatment, education and counseling, and prostate disease clinical trial research in an efficient, personal and patient-oriented manner. • The program continues to advance collaborations with NCI-Medical Oncologist to enhance treatment of advanced prostate cancer patients at WRNMMC. • The CPDR has enrolled patients in clinical trials for more than two decades. Currently, there are 8 ongoing clinical trials ranging from disease prevention to quality-of-life. • The CPDR provides for patient serum, urine, tissue bank and patient data registry by establishing and accelerating patient enrollment in the multicenter national database and biospecimen banking protocols. • The CPDR bio-specimens banks currently house more than 240,000 units of various types of specimens which are driving engines for ground breaking research focusing on new diagnostic and prognostic bio-markers and therapeutic targets through in-house and collaborative efforts. • The urine exosome prostate screening assay that earlier licensed the CPDR prostate cancer biomarkers is now reimbursed by Medicare, covered by CareFirst, BlueCross and BlueShield has reached FDA fast track (material product) • The CPDR validated Genomic Health Inc., biopsy tissue prognostic assay was incorporated into the NCCN recommendations (material product) • US Patent Applications filed on CPDR discoveries of prostate cancer genomic alterations of African American men (knowledge product) • New serum-based biomarker panels were developed using proteome, lipidome and metabolome analytes by using artificial intelligence in collaboration with BERG Health and US Patent Applications were filed (knowledge product) • New and more effective therapeutic derivatives of the compound ERGi-USUHS has been developed, a US Patent has been issued (material product)					

Exhibit R-2A, RDT&E Project Justification: PB 2023 Defense Health Agency		Date: March 2022
Appropriation/Budget Activity 0130 / 2	**R-1 Program Element (Number/Name)** PE 0603115DHA / *Medical Technology Development*	**Project (Number/Name)** 383A / *CoE-Prostate Cancer Center of Excellence (USUHS)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
• CPDR had major contribution for the development of a new genetic risk prediction score and to the recommendations for new genetic testing panels, published in high impact journals including, Nature Genetics vol. 53:65-75, 2021 and J Clin Oncol vol. 38:2798-2811, 2020 (knowledge products) Knowledge Products (FY21 - 12 Publications); Podium Presentations (FY21 - 3 Presentations); Poster Presentations (FY21 – 13 Presentations) Training (FY21 – 9 Students, USUHS SOM, WRNMMC Urology resident, US Naval Academy) Materiel Products (FY21) Issued Patents and Patent Application (7) Issued U.S. Patent Genomic Rearrangements Associated with Prostate Cancer and Methods of Using the Same PCT/US2020/10,711,311B2, Issued: July 14, 2020 Issued Foreign Patent Prostate Cancer-Specific Alterations in ERG8 Gene Expression and Detection and Treatment Methods Based on Those Alterations: Canadian Patent 2,719,172, August 25, 2020 U.S. PCT (Non-Provisional) Patent Applications Markers for the Diagnosis of Prostate Cancer: USPA 16/91,775 June 26, 2020 Revised USUHS Form 3210 – March 2015 Page 4 of 11 Protein Panels for the Early Diagnosis/Prognosis and Treatment of Aggressive Prostate Cancer: USPA: 62/888,890 August 19, 2020 DNA Damage Repair Genes in Prostate Cancer, International PCT Application PCT/US21/21136 filed on March 5, 2021 (claiming priority to US Provisional 62/985,996 filed on March 6, 2020) ***FY 2023 Base Plans:*** Plans continue efforts as outlined in FY21 and FY22. ***FY 2023 OOC Plans:*** N/A ***FY 2022 to FY 2023 Increase/Decrease Statement:*** Pricing adjustment for inflation.					
Accomplishments/Planned Programs Subtotals	8.526	8.696	8.870	0.000	8.870

Exhibit R-2A, RDT&E Project Justification: PB 2023 Defense Health Agency		Date: March 2022
Appropriation/Budget Activity 0130 / 2	**R-1 Program Element (Number/Name)** PE 0603115DHA / *Medical Technology Development*	**Project (Number/Name)** 383A / *CoE-Prostate Cancer Center of Excellence (USUHS)*

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

USUHS optimizes these research funds to achieve its research objectives, often in partnership and collaboration with funding received from other DoD and interagency sources through Interagency Agreements and inter-service Support Agreements, which may be executed via Federal assistance agreements or contracts.

Exhibit R-2A, RDT&E Project Justification: PB 2023 Defense Health Agency			Date: March 2022
Appropriation/Budget Activity 0130 / 2	R-1 Program Element (Number/Name) PE 0603115DHA / *Medical Technology Development*	Project (Number/Name) 431A / *Underbody Blast Testing (Army)*	

COST ($ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
431A: *Underbody Blast Testing (Army)*	68.611	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	-	-

A. Mission Description and Budget Item Justification

To better protect mounted warriors from the effects of underbody blast (UBB) caused by landmines or Improvised Explosive Devices (IEDs), UBB Testing medical research project will provide new data on the biomechanics of human skeletal response that occurs in an attack on a ground combat vehicle. The data will provide a biomedical basis for the development of a Warrior-representative blast test manikin (the Warrior Injury Assessment Manikin or WIAMan project) and the required biomedically-valid injury criteria that can be used in Title 10 Live Fire Test and Evaluation (LFT&E) to characterize dynamic events, the risk of injury to mounted warriors, and to support acquisition decisions. This new data will also benefit the overall DoD effort in vehicle and protection technology for the UBB threat. This work is needed to overcome the limitations of the current test manikin and injury criteria which were designed for the civilian automotive industry for frontal crash testing and as such are not adequate in the combat environment. The current manikins do not represent the modern Warrior and were not designed for the vertical acceleration environment associated with UBB events. Consequently, current LFT&E crew survivability assessment methodologies are limited in their ability to predict the types and severity of injuries seen in these events. Due to this technology gap, military ground vehicles are being fielded without fully defined levels of injury risk and crew survivability for UBB events. The data produced by this project will be used to satisfy a critical need for a scientifically valid capability for analyzing the risk of injury caused by UBB.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Title: Underbody Blast Testing ***Description:*** Testing will provide an understanding of the biomechanics of skeletal injuries that occur in a combat vehicle UBB event involving a landmine or IED, and the biomedical basis for the development of a Warrior-representative blast test manikin and associated biomedically-validated injury criteria that can be used to characterize dynamic events and injury risks for LFT&E crew survivability assessments and vehicle development efforts to better protect Warriors from UBB threats.	0.000	-	-	-	-
Accomplishments/Planned Programs Subtotals	0.000	-	-	-	-

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

Produce BRC and human injury probability curves for human skeletal response and tolerance in the military UBB environment and transition them to the Program Execution Office for Simulation, Training and Instrumentation for use in the development of the WIAMan UBB test manikin and for general use in the research,

Exhibit R-2A, RDT&E Project Justification: PB 2023 Defense Health Agency		Date: March 2022
Appropriation/Budget Activity 0130 / 2	**R-1 Program Element (Number/Name)** PE 0603115DHA / *Medical Technology Development*	**Project (Number/Name)** 431A / *Underbody Blast Testing (Army)*

development, test and evaluation community. Develop injury assessment reference curves for use with WIAMan manikin to support vehicle and protection technology acquisition decisions.

Exhibit R-2A, RDT&E Project Justification: PB 2023 Defense Health Agency			Date: March 2022
Appropriation/Budget Activity 0130 / 2	R-1 Program Element (Number/Name) PE 0603115DHA / *Medical Technology Development*	Project (Number/Name) 448A / *Military HIV Research Program (Army)*	

COST ($ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
448A: *Military HIV Research Program (Army)*	46.516	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing

A. Mission Description and Budget Item Justification

This project funds research to develop candidate Human Immunodeficiency Virus (HIV) vaccines, to assess their safety and effectiveness in human subjects, and to protect the military personnel from risks associated with HIV infection. All HIV technology development is conducted in compliance with U.S. Food and Drug Administration (FDA) regulations. Evaluations in human subjects are conducted to demonstrate safety and effectiveness of candidate vaccines, as required by FDA regulation. Studies are conducted stepwise: first, to prove safety; second, to demonstrate the desired effectiveness of the vaccine in a small study (to demonstrate early proof-of-concept); and third, to demonstrate effectiveness in large, diverse human population clinical trials. All results are submitted to the FDA for evaluation to ultimately obtain approval (licensure) for medical use. This project supports studies for effectiveness testing on small study groups after which they transition to advanced developers for completion of effectiveness testing in larger populations. This program is jointly managed through an Interagency Agreement between the U.S. Army Medical Research and Materiel Command and the National Institute of Allergy and Infectious Diseases. This project contains no duplication with any effort within the Military Departments or other government organizations. The cited work is also consistent with the Assistant Secretary of Defense, Research and Engineering Science and Technology focus areas.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Title: Military HIV Research Program ***Description:*** The Military HIV Research Program aims to develop candidate HIV vaccines, to assess their safety and effectiveness in human subjects, and to protect the military personnel from risks associated with HIV infection. In addition, program also aims to develop other prevention and treatment strategies to mitigate the HIV epidemic globally. This project down-selects one or more vaccine candidates that are optimized through pre-clinical studies in non-human primates and conducts human clinical trials in Africa, Asia and the U.S. to test for safety and immunogenicity (ability to invoke an immune response), and early proof of concept efficacy testing.	0.000	-	-	-	-
Accomplishments/Planned Programs Subtotals	0.000	-	-	-	-

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

Exhibit R-2A, RDT&E Project Justification: PB 2023 Defense Health Agency		Date: March 2022
Appropriation/Budget Activity 0130 / 2	**R-1 Program Element (Number/Name)** PE 0603115DHA / *Medical Technology Development*	**Project (Number/Name)** 448A / *Military HIV Research Program (Army)*

D. Acquisition Strategy

Mature and demonstrate candidate HIV vaccines, prepare and conduct human clinical studies to assess safety and effectiveness of candidate HIV vaccines. All HIV technology development activities will be conducted in compliance with FDA regulations. Best selected candidates will be transitioned to advanced development through Milestone B.

Exhibit R-2A, RDT&E Project Justification: PB 2023 Defense Health Agency			Date: March 2022
Appropriation/Budget Activity 0130 / 2	R-1 Program Element (Number/Name) PE 0603115DHA / *Medical Technology Development*	Project (Number/Name) 478 / *Applied Proteogenomics Organizational Learning and Outcomes (APOLLO) Consortium (USUHS)*	

COST ($ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
478: *Applied Proteogenomics Organizational Learning and Outcomes (APOLLO) Consortium (USUHS)*	48.076	18.640	18.724	19.058	0.000	19.058	19.480	19.870	20.267	20.672	Continuing	Continuing

A. Mission Description and Budget Item Justification

DoD Cancer Moonshot - Applied Proteogenomics Organizational Learning and Outcomes (APOLLO) Consortium (USUHS)

DoD's Cancer Moonshot requirement is a mission of the Murtha Cancer Center (MCC) at USUHS under the authority of a tri-federal Memorandum of Agreement signed July 2016 by the Acting Assistant Secretary of Defense for Health Affairs (DoD), the Under Secretary of Health, Department of Veterans Affairs(VHA), and the Acting Director of the National Cancer Institute (NIH), for a tri-federal program of Clinical Proteogenomics Cancer Research. DoD's Cancer Moonshot promotes readiness and mission accomplishment of the active duty service member (ADSM) force, as well as military beneficiaries, retirees, and veterans. There are about 1,000 ADSMs who are stricken with a new cancer diagnosis annually, and MCC serves as the DoD's Health Affairs-approved Center of Excellence for cancer care and research for these ADSMs. MCCRP's mission is to bring translational cancer research to all patients in order to improve their health and mission performance, and to help prevent, screen, detect, and treat cancer; minimize side effects of cancer treatments;, and return to duty ADSMs stricken with cancer, as well all other DoD beneficiaries. DoD's Cancer Moonshot initiative allows for the provision of state-of-the-art molecular analysis of tumors and blood of cancer patients which will result in increased force readiness through more targeted treatment of cancers with fewer side effects, as well as better screening for cancer risk and development.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Title: DoD Cancer Moonshot - Applied Proteogenomics Organizational Learning and Outcomes (APOLLO) Consortium (USUHS)	18.640	18.724	19.058	0.000	19.058
Description: DoD's Cancer Moonshot at USU's MCCRP is a research program consisting of two overall projects, the first known as APOLLO (Applied Organizational Learning and Outcomes), and the second as DoD Framingham. APOLLO is a novel high-throughput molecular analysis of every DNA (gene), RNA, and protein expression molecule in cancer patient tumors. Such analysis has never been done on a large scale across multiple cancer types, and small pilot studies demonstrate that the APOLLO project will result in unprecedented findings across all types of cancer (with specific focus on cancers of the greatest threat to ASDMs). These new findings will be identified by using state-of-the-art tissue collection procedures in the operating rooms of all patients undergoing cancer surgery at MCCRP collection protocol sites (e.g. Walter Reed, NMMC; NMC Portsmouth; NMC San					

Exhibit R-2A, RDT&E Project Justification: PB 2023 Defense Health Agency		Date: March 2022
Appropriation/Budget Activity 0130 / 2	**R-1 Program Element (Number/Name)** PE 0603115DHA / *Medical Technology Development*	**Project (Number/Name)** 478 / *Applied Proteogenomics Organizational Learning and Outcomes (APOLLO) Consortium (USUHS)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Diego; Womack AMC; Keesler AFB) and, then, sequencing the entire DNA genome and RNA sequence at USUHS, while analyzing the entire protein expression profile of these same cancers in MCCRP's Proteomics Laboratory, as well as other affiliated protein laboratories. The vast molecular data that will be derived from these analyses (in the terabyte and petabyte range and beyond) will be linked to clinical patient data as well as treatment outcomes data. These combined data sets will be housed in National Cancer Institute (NCI) secure cloud-based servers with restricted access for analytics by teams of bioinformatics experts (i.e., from government, university, and corporate entities) across the United States working on this endeavor. This complete bio molecular (global) expression profiling of thousands of cancers of all types seen in military treatment and other facilities will predictably result in a myriad of new discoveries regarding the way cancers develop, progress, respond to treatment, evade treatment, and spread. It also will result in new ways to combat cancers and minimize side effects of cancer treatment, as well as identify novel cancer screening and prevention opportunities, while focusing on militarily-relevant cancers and ADSMs with cancer, distinguishing it from any effort that might develop in the future in a civilian organization, as none of this scale exists today. There are now 7 specific APOLLO sub-projects, which are classified based on the organ type of cancer under study: APOLLO 1 = Lung cancer; APOLLO 2 = Gynecological cancer; APOLLO 3 = Prostate cancer; APOLLO 4 = Breast cancer; and APOLLO 5 = prospectively-collected VA, DoD, and NCI specimens and data for all organ sites, APOLLO 6: Pancreatic Cancer and APOLLO 7 (currently being developed): Testicular Germ Cell Tumors. Both of these projects in the DoD Cancer Moonshot program were specifically developed to focus on ADSM with cancer (readiness), utilize molecular laboratories that are American owned and operated (U.S. DoD and DOE), keep all sensitive deidentified clinical and molecular data on U.S. government computers and servers for maximum data security and analysis (through the NCI), and benefit the nation through any and all discoveries that are made. ***FY 2022 Plans:*** FY 2022 Plans continue efforts as outlined in FY 2021. Specifically, the APOLLO project will collect, process, and analyze cancer specimens from patients who have been diagnosed with cancer or at risk for cancer and who are eligible for and have consented to the protocols. All MCCRP tissue source sites will be utilized which include 8 MTFs and MEDCENS in the MHS, as well as 3 VA sites and one civilian site. Active duty service members diagnosed with cancer at these MHS locations will be preferentially prioritized for offers of enrollment in APOLLO in order to make sure the DoD is providing state-of-					

Exhibit R-2A, RDT&E Project Justification: PB 2023 Defense Health Agency		Date: March 2022
Appropriation/Budget Activity 0130 / 2	**R-1 Program Element (Number/Name)** PE 0603115DHA / *Medical Technology Development*	**Project (Number/Name)** 478 / *Applied Proteogenomics Organizational Learning and Outcomes (APOLLO) Consortium (USUHS)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
the-art research and clinical translational care opportunities to our active duty force to maintain and sustain the highest level of Readiness. The program will complete the following tasks: Task 1: Patients will be recruited and consented for this APOLLO protocol after being successfully recruited into and following the established procedures for the protocols: Establishment of a Tissue Repository for the Murtha Cancer Center Biobank (MCCB), Tissue and Blood Library Establishment for Molecular, Biochemical, and Histologic Study of Breast Disease, and Creation of a Blood Library for the Analysis of Blood for Molecular Changes Associated with Breast Disease and Breast Cancer Development. Task 2: Clinical data collection and quality assurance will follow the established procedures for the sample and data collection protocols. In addition, data may be obtained for the APOLLO study from the DoD Central Tumor Registry (OncoLog) or from the electronic medical records of APOLLO study participants. Task 3: Clinical pathologic slide imaging data will be collected for APOLLO study participants. Clinical pathologic slide imaging data will undergo quality assurance and de-identification procedures at WRNMMC and all other enrolling MTFs and MEDCENs. Task 4: Quality assurance and annotation of samples: The Joint Pathology Center (JPC) will continue to serve as the research pathology annotation center for the APOLLO project for the purpose of annotating pathological diagnoses, expanding pathologic characteristics of samples, and reviewing pathology data variables as defined in this protocol. Task 5: Genomic and proteomic profiling of samples will continue to be conducted by The American Genome Center (TAGC) at the USUHS in Bethesda, MD and the Murtha Cancer Center Research Program's Clinical Proteomics Platform (CPP) Consortium associated with the Gynecologic Cancer Center of Excellence (GYN-COE) at Inova Health System in Fairfax, VA and its associated laboratories at Northwestern University in Evanston, IL and Vanderbilt University in Nashville, TN. Task 6: Coded proteogenomic profiling (molecular) and sample sequencing data along with associated coded clinical data will continue to be transferred to an intermediate NCI protected server ("Jamboree site") and/or an NCI-approved government "Wiki" site at the NCI, and ultimately to the Genomic Data Commons (GDC) and Proteomic Data Commons (PDC). This same data will be securely transferred to certain partners who are assisting in performing integrative analyses of complex DNA, RNA, protein, and clinical data sets and/or in developing bioinformatics tools to do the same.					

Exhibit R-2A, RDT&E Project Justification: PB 2023 Defense Health Agency		Date: March 2022
Appropriation/Budget Activity 0130 / 2	**R-1 Program Element (Number/Name)** PE 0603115DHA / *Medical Technology Development*	**Project (Number/Name)** 478 / *Applied Proteogenomics Organizational Learning and Outcomes (APOLLO) Consortium (USUHS)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Task 7: APOLLO 8 (7th Highest Cause of Cancer in Active Duty): Research on Malignant Brain Tumors (REMBRANT) Perform comprehensive neuropathologic examination of the available military glioblastoma (GBM) cases, and any available ante-mortem neurosurgical material for each decedent in the study. Perform genetic and proteomic characterization of the available military GBM cases to investigate potential associations with clinical outcomes. ***FY 2023 Base Plans:*** Continuation of above efforts from FY22. ***FY 2023 OOC Plans:*** N/A ***FY 2022 to FY 2023 Increase/Decrease Statement:*** Pricing adjustment for inflation.					
Accomplishments/Planned Programs Subtotals	18.640	18.724	19.058	0.000	19.058

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

USUHS optimizes these research funds to achieve its research objectives, often in partnership and collaboration with funding received from other DoD and interagency sources through Interagency Agreements and inter-service Support Agreements, which may be executed via Federal assistance agreements or contracts.

Exhibit R-2A, RDT&E Project Justification: PB 2023 Defense Health Agency			Date: March 2022
Appropriation/Budget Activity 0130 / 2	R-1 Program Element (Number/Name) PE 0603115DHA / *Medical Technology Development*	Project (Number/Name) 479 / *Framingham Longitudinal Study (USUHS)*	

COST ($ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
479: *Framingham Longitudinal Study (USUHS)*	14.760	4.920	4.920	5.018	0.000	5.018	5.118	5.220	5.324	5.430	Continuing	Continuing

A. Mission Description and Budget Item Justification

DoD Cancer Moonshot Program - DoD Framingham

DoD's Cancer Moonshot requirement is a mission of the Murtha Cancer Center (MCC) at USUHS under the authority of a tri-federal Memorandum of Agreement signed July 2016 by the Acting Assistant Secretary of Defense for Health Affairs (DoD), the Under Secretary of Health, Department of Veterans Affairs(VHA), and the Acting Director of the National Cancer Institute (NIH), for a tri-federal program of Clinical Proteogenomics Cancer Research. DoD's Cancer Moonshot promotes readiness and mission accomplishment of the active duty service member (ADSM) force, as well as military beneficiaries, retirees, and veterans. There are about 1,000 ADSMs who are stricken with a new cancer diagnosis annually, and MCC serves as the DoD's Health Affairs-approved Center of Excellence for cancer care and research for these ADSMs. MCC's mission is to bring translational cancer research to all patients in order to improve their health and mission performance, and to help prevent, screen, detect, and treat cancer; minimize side effects of cancer treatments;, and return to duty ADSMs stricken with cancer, as well all other DoD beneficiaries. DoD's Cancer Moonshot initiative allows for the provision of state-of-the-art molecular analysis of tumors and blood of cancer patients which will result in increased force readiness through more targeted treatment of cancers with fewer side effects, as well as better screening for cancer risk and development.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Title: DoD Cancer Moonshot Program - DoD Framingham Longitudinal Study	4.920	4.920	5.018	0.000	5.018
Description: DoD Framingham is a novel project that is enabled by the blood serum specimens stored at the DoD Serum Repository at the Armed Forces Health Surveillance Branch (AFHSB) in Silver Spring, Maryland. This facility stores blood serum drawn from over 10 million ADSMs who were required to undergo mandatory semiannual blood testing for the last 25 years, resulting in this repository with over 65 million blood serum specimens. MCC tumor registry data, which includes every ADSM who developed cancer while on active duty, is matched to data in the Serum Repository. This allows MCC to identify the blood serum of ADSMs who ultimately develop cancer at key times, i.e., before they had cancer, during their cancer treatment, and after their successful cancer treatment. Four different serum specimens (two before, one during, and one after cancer diagnosis and treatment) from every ADSM who developed certain types of cancer over a ten-year period of time are then sent to the Nation's foremost protein identification (mass spectroscopy) center, i.e., the Pacific Northwest National Laboratory (PNNL) run by the Department of Energy (DOE). This enables identification of the entire proteome circulating in the blood serum of these cancer patients before, during, and after cancer diagnosis. Comparing the proteomes will allow for identification of new protein biomarkers and indicators of treatment response and failure both of individual patients and across all patients with a specific type of cancer.					

Exhibit R-2A, RDT&E Project Justification: PB 2023 Defense Health Agency		Date: March 2022
Appropriation/Budget Activity 0130 / 2	**R-1 Program Element (Number/Name)** PE 0603115DHA / *Medical Technology Development*	**Project (Number/Name)** 479 / *Framingham Longitudinal Study (USUHS)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Smaller studies of this nature done by MCC researchers have proven that this is an effective strategy to identify novel diagnostic and treatment protein expression biomarkers that can be assayed in new blood tests for cancer. This project will do it “at scale”, i.e. in large numbers of active duty cancer patients (who are otherwise healthy and therefore do not have the “confounding” protein markers of old age, diabetes, and other medical issues). By using serums that go back many years before the ADSM was diagnosed with cancer, the earliest markers of cancer that will be identified, and assays will be performed by another U.S. governmental agency with the best protein detection and analysis tools in the world. Eight specific DoD Framingham sub-projects, classified based on the organ type of cancer, will be conducted: Framingham 1 = Oropharyngeal cancer; Framingham 2 = Lymphoma; Framingham 3 = Bladder cancer; Framingham 4 = Kidney cancer; and Framinghams 5 through 8 subtypes will be determined by MCC and NCI experts in the coming months. Significant FY21 Accomplishments: • A 13-protein classifier for early detection of Oropharyngeal Squamous Cell Carcinoma (Framingham 1) has been discovered through the collaboration with PNNL. This discovery indicates that the use of longitudinal samples in the other Framingham studies has significant potential to identify biomarkers for cancer detection and risk stratification. • MCCRP revised Framingham 3 to Melanoma to research the 2nd Highest Cause of Cancer in Active Duty personnel. • Added Framingham 5 = Metastatic bone cancer. • Added Framingham 6 = Pancreatic cancer. • Sent over 1,800 serum samples from the DoDSR to PNNL for discovery-level mass spectrometry analysis and data interpretation Both the APOLLO and Framingham projects in the DoD Cancer Moonshot program were specifically developed to focus on ADSM with cancer (readiness), utilize molecular laboratories that are American owned and operated (U.S. DoD and DOE), keep all sensitive de-identified clinical and molecular data on U.S. government computers and servers for maximum data security and analysis (through the NCI), and benefit the nation through any and all discoveries that are made. ***FY 2022 Plans:*** FY 2022 plans continue efforts as outlined in FY 2021.					

Exhibit R-2A, RDT&E Project Justification: PB 2023 Defense Health Agency		Date: March 2022
Appropriation/Budget Activity 0130 / 2	**R-1 Program Element (Number/Name)** PE 0603115DHA / *Medical Technology Development*	**Project (Number/Name)** 479 / *Framingham Longitudinal Study (USUHS)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
The program will perform the following tasks. Task 1: The Department of Defense (DoD) Joint Pathology Center's (JPC) Automated Central Tumor Registry (ACTUR) and OncoLog systems will be queried for patients with identified cancer subject. Task 2: JPC will send the list of approximately 150 identified cancer patients to the AFHSD in order to requisition their sera. Sera from the year of diagnosis, two years pre-diagnosis, four years pre- diagnosis, and two years post-diagnosis will be requisitioned. Each of the 150 patients with identified cancer will be matched by age and sex to 150 controls who were cancer-free for the duration of their active component service, as well as free of autoimmunity, transplant, or immune suppression. Four longitudinal sera samples from each control will be requisitioned to correspond to the time points of the case sera. Task 3: The approximately 150 identified cancer subjects and 150 matched controls, each with up to four longitudinal serum samples for each Framingham project (for a total of about 1,200 serum samples for each Framingham project), will be sent to Pacific Northwest National Laboratory (PNNL) for comprehensive discovery-based quantitative proteomics measurements using the advanced LC-MS/MS platforms established at PNNL. Task 4: Dissemination of data to analysts at the PNNL and in conjunction with Murtha Cancer Center Research Program (MCCRP) at USUHS, who will perform at PNNL statistical analysis by the PNNL Bioinformatics team to examine whether any of the target peptides or group of peptides can be distinguished between the patients and their matched controls for each specific aim of this study. ***FY 2023 Base Plans:*** Continuation of FY22 plans. ***FY 2023 OOC Plans:*** N/A ***FY 2022 to FY 2023 Increase/Decrease Statement:*** Funding remains the same.					
Accomplishments/Planned Programs Subtotals	4.920	4.920	5.018	0.000	5.018

Exhibit R-2A, RDT&E Project Justification: PB 2023 Defense Health Agency		Date: March 2022
Appropriation/Budget Activity 0130 / 2	**R-1 Program Element (Number/Name)** PE 0603115DHA / *Medical Technology Development*	**Project (Number/Name)** 479 / *Framingham Longitudinal Study (USUHS)*

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

USUHS optimizes these research funds to achieve its research objectives, often in partnership and collaboration with funding received from other DoD and interagency sources through Interagency Agreements and inter-service Support Agreements, which may be executed via Federal assistance agreements or contracts.

Exhibit R-2A, RDT&E Project Justification: PB 2023 Defense Health Agency			Date: March 2022
Appropriation/Budget Activity 0130 / 2	R-1 Program Element (Number/Name) PE 0603115DHA / *Medical Technology Development*	Project (Number/Name) 499 / *MHS Financial System Acquisition (DHA)*	

COST ($ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
499: *MHS Financial System Acquisition (DHA)*	39.958	1.971	6.011	6.051	0.000	6.051	6.092	6.143	6.266	6.388	Continuing	Continuing

A. Mission Description and Budget Item Justification

The Defense Health Program (DHP) appropriations' distribution and execution of funding is currently dispersed amongst multiple, disparate accounting systems, which is in direct conflict with Financial Improvement Audit Readiness (FIAR) guidance prioritizing the standardization of financial management systems and business processes. Currently DHP funding is distributed and executed across three disparate systems.

The current Defense Health Agency (DHA) structure hinders the overarching goal for audit ready initiatives and agency standard financial business processes. The identified solution for DHA to meet these challenges is to deploy a single operational financial management system (FMS) with minimal mission and business impact. DHA is researching a system that will accommodate standard and medically-required business processes. The goal is to transition financial operations to a platform that allows for consistency across the DHA, enabling standardized processes, data collection, and reporting.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Title: MHS Financial System Acquisition	1.971	6.011	6.051	0.000	6.051
Description: The goal is to transition financial operations to a platform that allows for consistency across the Defense Health Agency, enabling standardized processes, data collection, and reporting. ***FY 2022 Plans:*** Begin GFEB deployment to the Air Force. ***FY 2023 Base Plans:*** Begin GFEB deployment to the Air Force. ***FY 2023 OOC Plans:*** N/A ***FY 2022 to FY 2023 Increase/Decrease Statement:*** Deployment requirements for the Navy go down and shift towards the operation and maintenance. This program may increase in later years pending potential GFEBS deployment to AF and acceleration in existing acquisitions.					
Accomplishments/Planned Programs Subtotals	1.971	6.011	6.051	0.000	6.051

Exhibit R-2A, RDT&E Project Justification: PB 2023 Defense Health Agency		Date: March 2022
Appropriation/Budget Activity 0130 / 2	**R-1 Program Element (Number/Name)** PE 0603115DHA / *Medical Technology Development*	**Project (Number/Name)** 499 / *MHS Financial System Acquisition (DHA)*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
• BA 3: *PE 0807721 Replacement & Modernization*	0.000	0.000	0.000	-	0.000	-	-	-	-	Continuing	Continuing

Remarks

D. Acquisition Strategy

Acquisition Strategy is to be determined.

Exhibit R-2A, RDT&E Project Justification: PB 2023 Defense Health Agency			Date: March 2022
Appropriation/Budget Activity 0130 / 2	R-1 Program Element (Number/Name) PE 0603115DHA / *Medical Technology Development*	Project (Number/Name) 504 / *WRAIR Vaccine Production Facility Research (Army)*	

COST ($ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
504: *WRAIR Vaccine Production Facility Research (Army)*	16.152	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing

A. Mission Description and Budget Item Justification

The WRAIR Vaccine Pilot Bioproduction Facility (PBF) is the Department of Defense's only facility capable of producing good manufacturing practices (GMP) quality biologic products for use in early phase clinical trials. The mission of the WRAIR PBF is to support the development and licensure of vaccines and relevant biologics critical to the global health of our Warfighters serving domestically or abroad in compliance with US Food and Drug Administration (FDA) regulations. Funding supports a baseline level of preparedness for vaccine production and improved response-time in the setting of known and emerging infectious disease threats needing a preventive countermeasure while working with a collaborative network of partners. This project supports vaccine development efforts of strategic importance to the DoD, including Service medical research and development programs, those of other DoD organization such as the Defense Threat Reduction Agency and the Defense Advanced Research Projects Agency, and pandemic biopreparedness for emerging infectious disease threats in the Global Health Security Agenda.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Title: WRAIR Vaccine Production Facility ***Description:*** The WRAIR Vaccine Pilot Bioproduction Facility (PBF) will focus on the manufacture of early phase clinical materials for vaccine production from varied platforms, such as live virus, conjugates, recombinant proteins, DNA, and monoclonal antibody approaches that: (a) expand collaborative partnerships for product development that meet DoD requirements; (b) open active intramural-based discovery efforts of new products for development; and (c) initiate and extend strategic partnerships with external collaborators (Government and industry) to develop/co-develop potential new biologic approaches to pandemic disease preparedness.	0.000	-	-	-	-
Accomplishments/Planned Programs Subtotals	0.000	-	-	-	-

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2023 Defense Health Agency			Date: March 2022
Appropriation/Budget Activity 0130 / 2	**R-1 Program Element (Number/Name)** PE 0603115DHA / *Medical Technology Development*	**Project (Number/Name)** 506 / *Health Research for Improved Medical Readiness and Healthcare Delivery (USUHS)*	

COST ($ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
506: *Health Research for Improved Medical Readiness and Healthcare Delivery (USUHS)*	11.904	11.141	11.385	11.631	0.000	11.631	11.883	12.141	12.384	12.632	Continuing	Continuing

A. Mission Description and Budget Item Justification

The “Health Research for Improved Medical Readiness and Healthcare Delivery” program at USUHS is to answer fundamental questions of importance to the military mission of the Department of Defense in five (5) distinct portfolio areas: health services research, global health engagement, precision medicine, women’s health, and infectious disease clinical research.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Title: Health Research for Improved Medical Readiness and Healthcare Delivery	11.141	11.385	11.631	0.000	11.631
Description: The objective of Health Services Research is to build capacity to conduct health services research (HSR) within the MHS. The program will address the lack of system-wide health care evidence to support policy and decision making and insufficient health services research capability to analyze MHS data for improving medical readiness and efficient, effective, quality and safe healthcare. CHSR FY2021 accomplishments (selected): • COVID-19 Analytics: provided enabling expertise of public health, health systems, disparities, and data analytics to the development of a national tool for tracking hotspots with the White House Office of S&T Policy; synthesized available US self-reported symptom trackers for the DHA; predictive modeling support with the Joint Staff and ARNORTH; and examination of the interplay between the military and civilian health systems in responding to COVID-19. • Other direct support: Government Accountability Office (consultation in study design, methodology, and data access/use for NDAA 2021), OSD-CAPE (examination of surge capacity in civilian healthcare system), OSD(HA) (Application of Kotter’s 8 Principles of Change Management to transform the MHS), Fisher House Foundation (Future Development of Intrepid Spirit Centers by Guard and Reserves), DHA High Reliability Network (push-pull knowledge translation platform), National Intrepid Center of Excellence and OSD(HA) (Development of an integrated practice unit tool for NICoE and the MHS). • Knowledge translation: High profile work on US child health affecting military readiness (doi: 10.1377/hlthaff.2020.00712) was a driving force behind the Congressional Research Service Report “Obesity in the					

Exhibit R-2A, RDT&E Project Justification: PB 2023 Defense Health Agency		Date: March 2022
Appropriation/Budget Activity 0130 / 2	**R-1 Program Element (Number/Name)** PE 0603115DHA / *Medical Technology Development*	**Project (Number/Name)** 506 / *Health Research for Improved Medical Readiness and Healthcare Delivery (USUHS)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
United States and Effects on Military Recruiting' (2020). Body of work on low-value healthcare services in the MHS informed goals of the 2022 National Defense Authorization Act (NDAA), charging • the DHA with eliminating low value procedures from the MHS as well directly impacting change in T5 and in the current TRICARE consideration for reimbursement for Low Back Pain and Vitamin D screening. • Data workshops: Built capacity in the MHS and partner organizes by offering multiple training workshops including: Person-Data Environment (PDE, October 2020), DaVINCI DoD-VA joint clinical intelligence system (January 2021), What's New in the MHS Data Repository (MDR, August 2021), for over 100 nationwide, military and civilian registrants in each virtual workshop. ***FY 2022 Plans:*** FY 2022 Plans: The CGHE Research Division has augmented and refined its GHERI grant distribution process to a point of readiness for ostensible upcoming funding cycles. CGHE plans to maintain such readiness to rapidly deploy CCMD GHE research priorities, scientific and programmatic review processes, and funding distribution mechanisms when authorized. Further, the CGHE Research Division plans to hold and facilitate a GHE research presentation and poster session at the upcoming 2022 MHSRS conference in Kissimmee, FL. Findings, recommendations, and process improvements resulting from the FRD and USAFRICOM studies will be generated and submitted during FY22. The Center for Military Precision Health (CMPH, formerly known as PRIMER) mission is to conduct innovative research applying genomic science, discoveries, and precision techniques to enhance the health, readiness and well-being of the Warfighter and DoD beneficiaries. CMPH provides standardized state of the art genome and molecular profiling services, genomic data analysis, and genomic data storage under DoD security and privacy compliance policies, addressing 8 separate DoD requirements across the MHS while also providing education in genomic information and performing clinical implementation research in the field of genomic medicine to inform policy and clinical practice guidelines for use of genomics in the MHS. CPMH enables HHS- and DOD-study subjects to participate in translational genomic research studies for human disease and conditions of posttraumatic stress disorder (PTSD), major depressive disorder, suicide-associated behaviors, cardiovascular disease, lung, prostate, breast and gynecological cancer and other human cancers, traumatic brain injury and dementia and other complex human diseases. To date The American Genome Center at CMPH has completed genomic and transcriptomic profiling on over 115,000 human samples. CMPH also supports the					

Exhibit R-2A, RDT&E Project Justification: PB 2023 Defense Health Agency		Date: March 2022
Appropriation/Budget Activity 0130 / 2	**R-1 Program Element (Number/Name)** PE 0603115DHA / *Medical Technology Development*	**Project (Number/Name)** 506 / *Health Research for Improved Medical Readiness and Healthcare Delivery (USUHS)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Military Cardiovascular Outcomes Research (MiCOR) program to addresses gap areas identified in the Initial Capabilities Document for Cardiovascular Care with the first prospective genomic evaluation of cardiac arrest in the military (GEMINI study). Current collaborations with MICOR in focus areas of sudden death examinations and pharmacogenomics are also active to address preventative measures for solider readiness and health. In response to the COVID-19 pandemic CMPH scientists are collaborating with The National Institute of Allergy and Infectious Diseases (NIAID)and the DOD study EPICC via IDCRP, to provide state of the art molecular profiling and analysis of individuals with COVID related illness. These program projects directly address risk factors and biomarkers for chronic and severe COVID-related health conditions after viral infection in young service members for readiness measures. The Military Women's Health research program The Military Women's Health Research Program (MWHRP) mission is to develop and guide best practices for the clinical care of women in the military system, through medical research. This research program will identify priorities that utilize novel and well-defined methods in the areas of personalized medicine and population science and focus on basic, clinical and translational research. The MWHRP research initiatives cover a broad spectrum of methods, including basic, translational, clinical, and/or population science that focus on diseases and disorders of particular relevance to the U.S. military health system and address key interests for the health of women. The MWHRP is a cooperative agreement under the direction of the PIs, Col Candy Wilson and Dr. Joan Wasserman. During this funding period, the MWHRC funded research on developing a comprehensive understanding of the female urinary diversion device (FUDD) available to military women when challenged with varying water and sanitation resources and, on urogenital health. Further, this project will test the utility of three, point-of-care devices packaged in an innovative trial product that contains a urogenital self-test as well as a treatment deployment kit that can be combined with a FUDD to increase prevention through early intervention and treatment of hygiene-related urogenital infections (bacterial vaginosis, vulvovaginal candidiasis, and urinary tract infections). This project is directed by Dr. Elizabeth Kostas-Polston, PI. Additionally, the MWHRP hosted a Women in Combat (WIC) summit that updated the previous USUHS CHAMP supported WIC in 2014 and Military Women's Health Research Conference in 2016. This summit is under the direction of the PI, Col Candy Wilson. The WIC will inform strategic medical research priorities to support military women through the integration of multiple sources of expert opinions and research findings.					

Exhibit R-2A, RDT&E Project Justification: PB 2023 Defense Health Agency		Date: March 2022
Appropriation/Budget Activity 0130 / 2	**R-1 Program Element (Number/Name)** PE 0603115DHA / *Medical Technology Development*	**Project (Number/Name)** 506 / *Health Research for Improved Medical Readiness and Healthcare Delivery (USUHS)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Infectious Disease Clinical Research Program designs and executes multicenter infectious diseases clinical research focusing on high-impact cohorts and interventional trials, to inform and improve care of the Warfighter. The focus is on emerging infections, antimicrobial resistance, and other high priority infections impacting military readiness in US and abroad. IDCRP will generate research evidence to inform warfighter care, develop DoD clinical practice guidance, assess cost effectiveness of interventions, and assist force health protection policy development. IDCRP FY21 Accomplishments: With the global COVID-19 pandemic starting in late Dec 2019, the Infectious Disease Clinical Research Program (IDCRP) has focused its efforts on therapeutic and prophylactics aimed at COVID-19. Two large scale, multi-site clinical studies were initiated with the COVID-19 focus – Epidemiology, Immunology and Clinical Characteristics of Emerging Infectious Diseases with Pandemic Potential (EPICC-EID) and Adaptive Clinical Trial Execution (ACTT). - The Adaptive COVID-19 Treatment Trial (ACTT) is an adaptive platform trial and MHS-based network capability that evaluated the clinical efficacy of different investigational therapeutics for COVID-19. NIAID/DMID-led effort. 67 US and international sites. DoD sites: USUHS/IDCRP; MAMC; WRNMMC; NMCSD; BAMC; NMCP; WAMC/Ft. Bragg; TAMC. - ACTT1: concept to publication < 3 months; foundational data supporting EUA (NEJM). ACTT2: completed enrollment 53 days, evidence of clinical benefit of baricitinib (NEJM). ACTT3: completed enrollment 98 days, IFN +RDV vs RDV. ACTT4: completed enrollment – RDV + steroids vs RDV + baricitinib, interim analysis; ACTT4 is the final of the ACTT trials (study close out). IDCRP is evaluating future SARS-CoV-2 therapeutic trial opportunities on a case-by-case basis. Lessons learned included: value of modeling projections to guide enrollment expectations, trial network efficiency (enrollment-to-site ratio). - The Epidemiology, Immunology and Clinical Characteristics of Emerging Infectious Diseases with Pandemic Potential (EPICC-EID) study is an ongoing prospective, longitudinal observational study of MHS beneficiaries involving systematic collection and analysis of clinical, demographic, lab data and clinical specimens. Selected recent progress and findings (7 manuscripts in print or under review, multiple presentations at national meetings; periodic newsletter report to senior leaders): - Assessment of variants of concern (VOC) in the MHS: Delta variants associated with higher viral load, noted to infect pediatric ages. Gamma variants found in vaccine breakthrough cases - Characterization of vaccine breakthrough infections, VOC and non-VOC; live viral shedding noted, hospitalization is rare but symptoms can be significant.					

Exhibit R-2A, RDT&E Project Justification: PB 2023 Defense Health Agency		Date: March 2022
Appropriation/Budget Activity 0130 / 2	**R-1 Program Element (Number/Name)** PE 0603115DHA / *Medical Technology Development*	**Project (Number/Name)** 506 / *Health Research for Improved Medical Readiness and Healthcare Delivery (USUHS)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
- Long-term natural immunity: 12-month antibody and T-cell responses are robust; long term antibody response and CD4+ response, but not cytotoxic T cell immunity, correlated with initial illness severity - Vaccine induced immunity: Vaccination after natural infection provides a larger magnitude of IgG response than vaccination or natural infection alone - Thrombotic complications of SARS-CoV-2 in the MHS: Viral load does not predict venous thrombo-embolism (VTE) in COVID-19 cases, whereas classic VTE risk factors do. - Assessment of the frequency and impact of “long COVID” among MHS beneficiaries; symptom persistence to 6 months in a subset of prospectively followed study participants. - - In addition to the COVID focus, several other protocols are underway or in late-stage development to address mitigation strategies for military relevant infectious disease threats: - IDCRP-120 PAIVED, “Pragmatic Assessment of Influenza Vaccine Effectiveness in the DoD”. In this multi-year, open-label, randomized clinical trial, adult DoD beneficiaries are randomized to receive one of the three licensed vaccines and are followed over the season for development of incident, laboratory-confirmed influenza infections. Findings from this study will be used to assist with the selection of the optimal vaccine for the DoD. The trial also includes an immunogenicity substudy developed to compare humoral and cellular responses across vaccine products; year 4 enrollment set to begin. - - IDCRP-123 P4 - The P4 clinical trial will evaluate the efficacy of a prebiotic (Bimuno®), probiotic (Florastor®) and passive immunoprophylaxis (Travelan®) compared to placebo, for maintenance of gut health during short-term deployment and travel. The P4 study will evaluate the efficacy of nutraceuticals in maintaining gut health. The protocol has received external Scientific Review and IRB approval in the US as well as ethical approval in the UK, for this international trial. - - IDCRP-115 Treat TD 2.0 builds on the results of the original TrEAT TD study which compared single high-dose rifaximin (1650 mg) with loperamide to single-dose azithromycin or levofloxacin for treatment of acute watery diarrhea. Although high dose rifaximin was effective, a lower dose of the antibiotic would be optimal due to concerns about cost, potential side-effects, and antibiotic resistance. Therefore, TrEAT TD 2.0 evaluates the efficacy of single-dose rifaximin (550 mg) for treatment of acute watery diarrhea among military personnel deployed overseas compared to single-dose azithromycin (500 mg). This effort will benefit from partnerships					

Exhibit R-2A, RDT&E Project Justification: PB 2023 Defense Health Agency		Date: March 2022
Appropriation/Budget Activity 0130 / 2	**R-1 Program Element (Number/Name)** PE 0603115DHA / *Medical Technology Development*	**Project (Number/Name)** 506 / *Health Research for Improved Medical Readiness and Healthcare Delivery (USUHS)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
with DoD research labs both within and outside CONUS (e.g., NMRC, USUHS, WRAIR, AFRIMS, USAMRU-K, and NAMRU6) and the UK military for execution of the clinical trial and subsequent translational research efforts. - - IDCRP-127 MAGI, clinical trial supported by NIAID DMID to assess whether the licensed meningococcal vaccine Bexsero can protect against infection with N. gonorrhea (gonorrhea, caused by a bacterium related to N meningitidis, the target of the vaccine). This multicenter, international clinical trial, collaboration between USUHS/IDCRP and US academic and international partner sites is open and enrolling subjects. CHSR FY 2022 Goals • Global Burden of Disease in the MHS: use claims data from the MHS Data Repository (MDR) in an epidemiological methods framework to examine the total burden of disease, measured in disability-adjusted life years (DALYs), across civilian and military MHS beneficiaries. The two study aims are: 1) measure and describe the diseases and injuries related to the loss of health in the MHS population; and 2) investigate changes in population-level health status over time. This includes engagement with USUHS-PRIMER, USUHS-MICOR and the NIH-National Heart, Lung, and Blood Institute (NIH) to determine the burden of heart disease and heart failure in the MHS, and with the NIH-National Center for Deafness and Communication Disorders to determine the burden of hearing loss and vestibular disorders in the MHS. • Long Term Impacts of Military Health System Response to COVID-19: A Health Services Research Approach to Sustainable Process Improvements					

Exhibit R-2A, RDT&E Project Justification: PB 2023 Defense Health Agency		Date: March 2022
Appropriation/Budget Activity 0130 / 2	**R-1 Program Element (Number/Name)** PE 0603115DHA / *Medical Technology Development*	**Project (Number/Name)** 506 / *Health Research for Improved Medical Readiness and Healthcare Delivery (USUHS)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
• Integrated Practice Unit (IPU) assessment with NICoE: use the NICoE model of co-located, integrated care to develop an IPU tool; determine the model's effectiveness in treating traumatic brain injury (TBI) and its long-term effects; and determine the best care pathways for treating differing clusters of TBI symptoms. • Morale, Manpower, and Medicine with University of Minnesota: assess the relationship between military medicine and military effectiveness, both in morale and as a soft power vs. peer and near-peer competitors. • Continued development of knowledge translation platform to provide push-pull capability for MHS leaders, clinical communities, and others. • Community building through the more than 130 member strong Health Services Research Interest Group and Value Based Care Journal Club, which is formed by intersectional MHS leaders and national public health leaders. • Develop and sustain Data Coordination Center for USUHS and other researchers needing to work with MHS data sets. • Emerging Priorities as will be determined by NDAA 2022, DHA, OSD(HA), and other Federal agencies • Global Burden of Disease Study • Long Term Impacts of Military Health System Response to COVID-19: A Health Services Research Approach to Sustainable Process Improvements • Capacity building through training and workshops • Community building through the Health Services Research Interest Group and Value Based Care Journal Club • Develop and sustain Data Coordination Center for USUHS and other researchers needing to work with MHS data sets. Global Health Engagement (GHE) research is related to operational efforts and advanced technology development efforts that will meet the needs of the Joint Force in either improving the understanding and/or execution of DoD GHE, or utilizing DoD health research activities to engage a partner nation/partner nations in support of Combatant Command Campaign Plan objectives to further research. The GHE research needs of the warfighter are expressed by the regular demand signal of the Joint Force through the Joint Staff Surgeon's Office and the Combatant Commands Surgeons' Offices. CGHE continues to serve in a research monitoring role with ongoing FY16, FY18, and FY19 research programs under the Global Health Engagement Research Initiative (GHERI). ***FY 2023 Base Plans:*** CHSR FY 2023 Goals Continue Efforts as outlined in 2022, including:					

Exhibit R-2A, RDT&E Project Justification: PB 2023 Defense Health Agency		Date: March 2022
Appropriation/Budget Activity 0130 / 2	**R-1 Program Element (Number/Name)** PE 0603115DHA / *Medical Technology Development*	**Project (Number/Name)** 506 / *Health Research for Improved Medical Readiness and Healthcare Delivery (USUHS)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
• Global Burden of Disease Study • Long Term Impacts of Military Health System Response to COVID-19: A Health Services Research Approach to Sustainable Process Improvements • Capacity building through training and workshops • Community building through the Health Services Research Interest Group and Value Based Care Journal Club • Develop and sustain Data Coordination Center for USUHS and other researchers needing to work with MHS data sets. ***FY 2023 OOC Plans:*** N/A ***FY 2022 to FY 2023 Increase/Decrease Statement:*** Price adjusted for inflation.					
Accomplishments/Planned Programs Subtotals	11.141	11.385	11.631	0.000	11.631

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

USUHS optimizes these research funds to achieve its research objectives, often in partnership and collaboration with funding received from other DoD and interagency sources through Interagency Agreements and inter-service Support Agreements, which may be executed via Federal assistance agreements or contracts.

Exhibit R-2A, RDT&E Project Justification: PB 2023 Defense Health Agency			Date: March 2022
Appropriation/Budget Activity 0130 / 2	R-1 Program Element (Number/Name) PE 0603115DHA / *Medical Technology Development*	Project (Number/Name) 507 / *Brain Injury and Disease Prevention, Treatment and Research (USUHS)*	

COST ($ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
507: *Brain Injury and Disease Prevention, Treatment and Research (USUHS)*	13.317	13.583	13.855	14.132	0.000	14.132	14.415	14.703	14.997	15.297	Continuing	Continuing

A. Mission Description and Budget Item Justification

This program supports drug discovery for chronic traumatic and encephalopathy/neurodegenerative disease.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Title: Brain Injury and Disease Prevention, Treatment and Research	13.583	13.855	14.132	0.000	14.132

Description: Brain Injury and Disease Prevention, Treatment and Research is focused upon identifying drugs that will interfere with pathological tau prion formation in the brains of service members who are at risk for developing CTE and other prion-related neurodegenerative diseases. Service members who have served in combat and have received repeated impact and/or blast TBIs are at risk for developing chronic traumatic encephalopathy (CTE) and other neurodegenerative diseases which are associated with significant persistent behavioral/neurologic manifestations. Currently, there are no validated means for diagnosing these problems in living patients or drugs to effectively treat them. The overall mission of this program is to develop drug candidates that will effectively block the
formation of brain tau prions that can be entered into clinical trials for the prevention and/or treatment of CTE and other neurodegenerative disorders in at-risk active duty and retired service members. Using human brain specimens, CTE has been now shown to qualify as a transmissible tau prion disorder. To date, over 320,000 novel chemical compounds have been tested for their ability to interfere with in vitro tau prion formation. Several active compounds have been identified and using medicinal chemistry, we have attempted to improve their bioavailability and lower toxicity profiles. Such candidate drugs are now being tested for efficacy in animal models of tau prion disorders. Newly developed techniques to identify the presence of tau prions in brain samples have been developed and have now been shown to be efficient and highly sensitive.

In addition to the primary achievement of research objectives, the program educates Federal employees as a benefit to the public they serve through Federal service, through support to civil authorities, and in non-Federal professional and academic collaborations.

FY 2022 Plans:

FY 2022 plans continue efforts as outlined in FY 2021.

Exhibit R-2A, RDT&E Project Justification: PB 2023 Defense Health Agency		Date: March 2022
Appropriation/Budget Activity 0130 / 2	**R-1 Program Element (Number/Name)** PE 0603115DHA / *Medical Technology Development*	**Project (Number/Name)** 507 / *Brain Injury and Disease Prevention, Treatment and Research (USUHS)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
While the COVID-19 pandemic continues to constrain our pace of research, we plan to screen an additional 500,000 chemical compounds for potential effects of tau prion formation. Compounds identified with such properties will undergo medicinal chemistry manipulation to enhance biologic efficacy. The newly developed, highly sensitive tau prion assay techniques will be used on currently available and newly obtained human brain specimens and animal models to identify the presence, distribution and time-course of tau prion involvement of the brain. We will continue to further develop animal models which overexpress human tau and employ these for pathogenesis, infectivity and drug efficacy studies. Animal models to be actively investigated include Tg12099(+/-) rats, hMAPT-KI mice, and ferrets. Recognizing the realities of working in the COVID era, activities towards obtaining fresh frozen brain specimens from deceased Service Members who developed CTE will be cautiously expanded in order to provide additional isolates in order to better characterize the nature of tau prions associated with this condition. ***FY 2023 Base Plans:*** Continue plans as outlined in FY 2022 ***FY 2023 OOC Plans:*** N/A ***FY 2022 to FY 2023 Increase/Decrease Statement:*** Price adjustment for inflation.					
Accomplishments/Planned Programs Subtotals	13.583	13.855	14.132	0.000	14.132

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

USUHS optimizes these research funds to achieve its research objectives, often in partnership and collaboration with funding received from other DoD and interagency sources through Interagency Agreements and inter-service Support Agreements, which may be executed via Federal assistance agreements or contracts.

Exhibit R-2A, RDT&E Project Justification: PB 2023 Defense Health Agency			Date: March 2022
Appropriation/Budget Activity 0130 / 2	R-1 Program Element (Number/Name) PE 0603115DHA / *Medical Technology Development*	Project (Number/Name) 508 / *Psychological Health and Resilience (USUHS)*	

COST ($ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
508: *Psychological Health and Resilience (USUHS)*	7.000	7.140	7.283	7.428	0.000	7.428	7.577	7.729	7.884	8.042	Continuing	Continuing

A. Mission Description and Budget Item Justification

The "Psychological Health and Resilience" program at USUHS is designed to answer fundamental questions of importance to the military medical mission of the Department of Defense in the areas of prevention, treatment and recovery of warfighters and families in behavioral and mental health, which are critical to force health and readiness. Research is necessary to guide policy and ensure optimal delivery of behavioral health training and services across the continuum of care and deployment cycle. Threats addressed by this research component include post-traumatic stress disorder (PTSD), suicide, family separation, and family violence.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Title: Psychological Health and Resilience	7.140	7.283	7.428	0.000	7.428
Description: STARRS-LS, the longitudinal successor to the groundbreaking Army STARRS research conducted from 2009 to 2015, is the largest study of military suicide ever undertaken, and in addition has yielded a wealth of information about a variety of other health issues relevant to the military. STARRS-LS seeks to extend the original effort by continuing to follow the original participants, expanding the Historical Administrative Data Study and using Big Data techniques to develop knowledge from it, and by combining survey and health outcome data with genetic analyses from samples provided by research participants. FY21 Accomplishments: 1. Started data collection of next wave (wave 3) of follow-up data from the STARRS-LS cohort of more than 14,500 Soldiers, including those who have left the Army and transitioned to civilian life. 2. Published six articles in peer-reviewed scientific journals 3. Conducted state-of-the art analyses, including machine-learning predictive models for several outcomes including suicidal behavior of the Army STARRS and STARRS-LS data and produced actionable findings for the Army and DoD ***FY 2022 Plans:*** FY 2022 plans continue efforts as outlined in FY 2021.					

Exhibit R-2A, RDT&E Project Justification: PB 2023 Defense Health Agency		Date: March 2022
Appropriation/Budget Activity 0130 / 2	**R-1 Program Element (Number/Name)** PE 0603115DHA / *Medical Technology Development*	**Project (Number/Name)** 508 / *Psychological Health and Resilience (USUHS)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
In addition to the primary achievement of research objectives, the program educates Federal employees as a benefit to the public they serve through Federal service, through support to civil authorities, and in non-Federal professional and academic collaborations. ***FY 2023 Base Plans:*** Continue efforts as outlined in FY 2021 and FY 2022. ***FY 2023 OOC Plans:*** N/A ***FY 2022 to FY 2023 Increase/Decrease Statement:*** Price adjustment for inflation.					
Accomplishments/Planned Programs Subtotals	7.140	7.283	7.428	0.000	7.428

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2023 Defense Health Agency			Date: March 2022
Appropriation/Budget Activity 0130 / 2	**R-1 Program Element (Number/Name)** PE 0603115DHA / *Medical Technology Development*	**Project (Number/Name)** 509 / *Innovative Technologies for Improved Medical Diagnoses, Rehabilitation and Warfighter Readiness (USUHS)*	

COST ($ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
509: *Innovative Technologies for Improved Medical Diagnoses, Rehabilitation and Warfighter Readiness (USUHS)*	19.323	13.712	14.104	14.505	0.000	14.505	14.916	15.334	15.641	15.954	Continuing	Continuing

A. Mission Description and Budget Item Justification

The “Innovative Technologies for Improved Medical Diagnoses, Rehabilitation and Warfighter Readiness” program at USUHS is designed to answer fundamental questions of importance to the military medical mission of the Department of Defense in the three portfolio areas: Transforming Technology for the Warfighter (TTW), Surgical Critical Care, and the Rehabilitation Sciences Research.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Title: Innovative Technologies for Improved Medical Diagnoses, Rehabilitation and Warfighter Readiness	13.712	14.104	14.505	0.000	14.505
Description: The TTW program aims to support highly collaborative advanced technology projects by bringing together industry, academia and civilian medical centers including minority serving institutions with experience in solving defense and civilian health problems. Supported projects will focus on the 3 principal medical areas for defense health (Combat Casualty Care, Military Operational Medicine, and Clinical and Rehabilitative Medicine) with an emphasis on direct relevance to identified military needs, translational potential and clear strategy for product commercialization with a low to medium risk – high reward payoff. Additionally, for USUHS, the TTW program will cultivate, establish and leverage partnerships between USUHS faculty/investigators and industry, academia and civilian medical centers including minority serving institutions. Results from the TTW program will increase DoD’s workforce capability, DoD’s access to leading edge technologies and leverage industry knowledge and funded research data for warfighter medical needs. Surgical Critical Care (SC2i) will enroll critically ill patients, leveraging deep medical and –omics data to develop Clinical Decision Support Tools (CDSTs) that will improve clinical outcomes and lower resource utilization across military and civilian healthcare systems. The CDSTs will further assist readiness by either accelerating return to duty (abridged length-of-stay across the ICU, general ward, and rehabilitation continuum of care) and curbing medical resource burdens. Rehabilitation Sciences Research supports clinical and translational research efforts dedicated to enhancing the rehabilitative care of the wounded warrior, particularly those with orthopeadic trauma, amputation and					

Exhibit R-2A, RDT&E Project Justification: PB 2023 Defense Health Agency		Date: March 2022
Appropriation/Budget Activity 0130 / 2	**R-1 Program Element (Number/Name)** PE 0603115DHA / *Medical Technology Development*	**Project (Number/Name)** 509 / *Innovative Technologies for Improved Medical Diagnoses, Rehabilitation and Warfighter Readiness (USUHS)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
neurological injury. Research focus areas include: 1)Identifying and mitigating barriers to successful rehabilitation, return to duty and community reintegration; 2) Improved pain management to support active participation in rehabilitation; 3) Applying Advanced Technologies to augment rehabilitation methods and outcomes assessments; 4) Developing and testing advanced technologies to restore individual functional independence; 5) Regenerative Rehabilitation translational products for war-related trauma. Musculoskeletal injuries (MSI) are the largest source of disability in the military and affect 800,000 Service Members annually, accounting for 25 million days of limited duty. Most concerning, the disability discharge rate for MSI has increased 13x between 1981 and 2005 (70 vs. 950 per 100,000 persons), and these trends have continued to increase in the Department of Defense (DoD) and Veterans Affairs Administration in the most recent decade. The Defense Health Agency recognized this unmet clinical/operational gap and funded the formation of the Musculoskeletal Injury Rehabilitation Research for Operational Readiness (MIRROR) organization in 2019. In the past two years since our inception, MIRROR has established a world-class infrastructure (data, regulatory, governance) that is compliant with the DoD for conducting research, expanded the number of studies from 14 to 37, formed partnerships with 24 military and academic centers, received $55 million in grant funding (with 10 applications pending for approximately $5 million), hosted 5 educational symposiums, generated 18 Post-Operative Rehabilitation Protocols to standardized care across the Tri-Service, and published 26 abstracts and 17 peer-reviewed publications. Furthermore, in order to ensure the safety/ health of our Service Members and research subjects, we donated COVID-19 antibody kits which allowed us to achieve enrollment over 2100 subjects. Moving forward, we plan to executed on our current projects and continue to provide value through: (1) new research and operational support to new military treatment facilities, (2) close critical care injury/pain gaps (e.g., spine, knee, ankle, shoulder), evaluate novel imaging modalities (e.g., elastography), performing sub analyses to understand gender disparities, predisposition to injury, response to treatments, etc. MIRROR was also selected to host a 3-hour session at MHSRS since we received 5% of the abstracts, but this event was unfortunately canceled. The Photomedicine to Enhance Military Readiness program is a four-year, $22 million initiative with the Wellman Institute, DJO, Geneva Foundation, HJF, and Spaulding Rehabilitation. These teams are executing 9 clinical and translational research projects to deliver optimal dosimetry of photobiological therapy to enhance performance, reduce the potential for musculoskeletal injury, assist with nerve graft healing, enhance audiology function, etc. Projects are progressing and in various stages of device development, benchtop research, and regulatory review (Institutional Review Board (IRB) approval for clinical trials and Institutional Care and Use Committee					

Exhibit R-2A, RDT&E Project Justification: PB 2023 Defense Health Agency		Date: March 2022
Appropriation/Budget Activity 0130 / 2	**R-1 Program Element (Number/Name)** PE 0603115DHA / *Medical Technology Development*	**Project (Number/Name)** 509 / *Innovative Technologies for Improved Medical Diagnoses, Rehabilitation and Warfighter Readiness (USUHS)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
(IACUC) approval for animal research). The team had 3 abstracts accepted to MHSRS and we continue to work on peripheral nerve repair and 3D collagen printing as a natural biomaterial. In addition these clinical and translational research projects, CRSR continues to provide leadership and coordination of the Military Treatment Facility Engagement Committee (MTFEC) within the Pain Management Collaboratory (PMC) Coordinating Center (PMC3), which is an $81 million inter-agency initiative to support a multi-component research effort focused on non-pharmacological approaches for pain management. Four ongoing pragmatic trials studying non-pharmacological approaches to pain for military service members and veterans have accomplished their stated milestones and in the process have provided feedback to DHA on improved policies and procedures to enhance clinical research execution within the DoD. CRSR has been a leader in the 30 institution NCAA-DoD Concussion Assessment, Research and Education (CARE) Consortium, which includes the Service Academy Longitudinal Outcomes Study (SALTOS). To date recruitment totals over 52,000 participants, including more than 22,000 Service Academy cadets and midshipmen, with just under 9,000 recorded concussions making this the largest study of its kind on the natural history and neurobiology of concussion. In FY21, the CARE Consortium has published 18 peer-reviewed manuscripts, with 17 additional manuscripts currently in review, and completed 12 virtual presentations to disseminate important findings from this cohort. Additional funding has been secured totaling $42.65 million for the longitudinal continuation study, CARE-SALTOS Integrated, which will follow cadets, midshipmen, and NCAA athletes post-graduation to determine intermediate and long-term impacts of concussion on health and military service. CRSR continued to maintain its efforts throughout the COVID-19 pandemic while keeping its subjects and research staff safe. Significant accomplishments during this time are (1) development of a mitigation return to research checklist. This check list, shared locally and nationally, is also followed at all U.S. Service Academies and WRNMMC. (2) Published the “COVID-19 Patient and Caregiver Rehabilitation Recovery Guide”, and distributed to not only families and military units downrange in English and Spanish but internationally to share with their family and friends suffering from the pandemic to allow them to stay mission focused; (3) developed the WRNMMC post-discharge COVID-19 patient registry, telehealth, multidisciplinary holistic intervention; (4) created the COVID-19 survivor peer support group. Notable other accomplishments include: (1) continuation of work through Joint Incentive Funding ($5.4M) between the DoD (USUHS) and VA (Miami) to miniaturize, optimize and clinically disseminate a wearable sensor augmented tele-rehabilitation tool for service members and veterans with lower limb amputation; (2) a successful large animal model for heterotopic ossification research;(3) Shailly Jariwala, Ph.D. was recognized as one of the internationally selected “Rising Stars of Regenerative Rehabilitation”; (4) two blue light emitting prototypes were developed to be used for mitigating infection after					

Exhibit R-2A, RDT&E Project Justification: PB 2023 Defense Health Agency		Date: March 2022
Appropriation/Budget Activity 0130 / 2	**R-1 Program Element (Number/Name)** PE 0603115DHA / *Medical Technology Development*	**Project (Number/Name)** 509 / *Innovative Technologies for Improved Medical Diagnoses, Rehabilitation and Warfighter Readiness (USUHS)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
osseointegration of prosthetic limbs; (5) preliminary data suggests that Service Dog Training to augment the rehabilitation of individuals with physical and behavioral health injuries is associated with reduced suicide; (6) MIRROR published new clinical practice guidelines for the DoD, with triservice concurrence to standardize and optimize post-operative rehabilitation interventions following the top 11 orthopaedic musculoskeletal surgeries performed in the DHA. (7) Dr. Paul Pasquina, CRSR Director, was announced as the 2020 recipient of the AMSUS Lifetime Achievement Award. ***FY 2022 Plans:*** FY 2022 plans continue efforts as outlined in FY 2021. ***FY 2023 Base Plans:*** Continue efforts as outlined in FY 2021 ***FY 2023 OOC Plans:*** N/A ***FY 2022 to FY 2023 Increase/Decrease Statement:*** Price adjustments for inflation.					
Accomplishments/Planned Programs Subtotals	13.712	14.104	14.505	0.000	14.505

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

USUHS optimizes these research funds to achieve its research objectives, often in partnership and collaboration with funding received from other DoD and interagency sources through Interagency Agreements and inter-service Support Agreements, which may be executed via Federal assistance agreements or contracts.

Exhibit R-2A, RDT&E Project Justification: PB 2023 Defense Health Agency			Date: March 2022
Appropriation/Budget Activity 0130 / 2	R-1 Program Element (Number/Name) PE 0603115DHA / *Medical Technology Development*	Project (Number/Name) 511 / *Cancer Moonshot Initiatives*	

COST ($ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
511: *Cancer Moonshot Initiatives*	0.000	0.000	0.000	12.300	0.000	12.300	12.500	12.800	13.100	13.400	Continuing	Continuing

A. Mission Description and Budget Item Justification

DoD Cancer Moonshot 2 (CM2) is a mission assigned by the DoD to USU's Murtha Cancer Center Research Program (MCCRP) as a mandate from the White House's federal cancer moonshot part 2 that was initiated in 2022. CM2 is the next generation of the original federal cancer moonshot program initiated in 2016, for which the MCCRP is actively engaged in ongoing cancer studies. The DoD CM2 program will build on DoD's original Moonshot areas of study by enhancing the MCCRP's current initiatives and further utilizing and leveraging DoD's unique and additional capabilities to contribute to advancement of the cancer prevention, diagnosis and treatment goals of CM2. The MCCRP's three new initiatives under the CM2 for DoD include: 1) Cancer Research and Clinical Trial Network; 2) Epidemiology; and 3) DoD Serum Repository Projects.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Title: Cancer Moonshot Initiatives	0.000	0.000	12.300	0.000	12.300
Description: There are three new research areas developed for this new Project under the Cancer Moonshot 2 (CM2) for DoD through USU's MCCRP: 1) Cancer Research and Clinical Trial Network; 2) Epidemiology; and 3) DoD Serum Repository Projects. These three new initiatives will address the federal government / White House's seven stated goals for Cancer Moonshot 2 which are: to diagnose cancer sooner; to prevent cancer; to address inequities; to target the right treatments to the right patients; to speed progress against the most deadly and rare cancers including childhood cancers; to support patients caregivers and survivors; and to learn from all patients. Under these seven new pillars for CM2, the two overall goals per the White House for Cancer Moonshot 2 is to decrease the cancer death rate from cancer by 50% over the next 25 years, and to improve the experience of people and their families living with and surviving cancer. Our DoD Cancer Moonshot 2 initiatives are specifically developed and precisely aligned to address the overall CM2 seven pillars and two goals within the DoD health care system along with our federal partners. MCCRP focus of these projects is for active duty, veterans, and beneficiaries at risk for or with cancer. However, the initiatives and findings will have impact for the nation as a whole as a part of the larger national Cancer Moonshot 2.					
FY 2022 Plans: No funding for FY22 so N/A					
FY 2023 Base Plans:					

Exhibit R-2A, RDT&E Project Justification: PB 2023 Defense Health Agency		Date: March 2022
Appropriation/Budget Activity 0130 / 2	**R-1 Program Element (Number/Name)** PE 0603115DHA / *Medical Technology Development*	**Project (Number/Name)** 511 / *Cancer Moonshot Initiatives*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
There are three new projects under the Cancer Moonshot 2 (CM2) for DoD through USU's MCCRP: 1) Cancer Research and Clinical Trial Network; 2) Epidemiology; and 3) DoD Serum Repository Projects. The base plans for each of the three are as follows: 1) Cancer Research and Clinical Trial Network: Herein referred to as "the network", this is the foundational element of CM2 as it provides the link between the research protocols, studies, and clinical trials, and the patients who need equitable access to them. It is axiomatic that the best treatment for cancer patients is a clinical trial. Despite knowing that, less than 10% of all cancer patients are enrolled in a clinical trial and there are known inequities with regards to lack of diversity in clinical trial enrollment. While MCCRP has done some limited engagement in this area across the DoD and other federal hospitals for our active duty, veterans, and beneficiaries with cancer, this Task #1 will enable the full build-out, development, and to actualize the vast potential of the DoD health care system and its hospitals as well as partner federal facilities. MCCRP will fully enable, staff, and support the network at our hospitals with appropriate needed resources of all types (e.g., personnel; materiel; protocols including regulatory support; data and sample acquisition and management; analytic functions of all acquired data to create new knowledge and material products to include DoD clinical practice guideline development, recommendations to the DHA Oncology Clinical Community to change evidence-based cancer practices across the network, etc. Funding will be also used to support new and varied research studies and clinical trials well beyond those presently underway. These new network clinical trials will include but not be limited to NCI (National Cancer Institute) trials both intramural (NCI investigator specific trials that hitherto are only available at the Bethesda location but under this initiative we would provide equitable access by DoD cancer patients to these unique and new studies), and extramural (e.g., through the trials of cooperative groups known as Alliance, SWOG, COG (Children's Oncology Group), GOG (GYN Oncology Group, etc). Additionally, MCCRP-specific and developed clinical trials and research studies that are unique to our DoD would be newly developed and/or newly expanded and fully implemented through this new network initiative. 2) Epidemiology: Herein referred to as MCCRP "Epi", this area will develop new and expanded aspects and components of the cancer epidemiology research paradigm of MCCRP. Development of a full, robust, and multi-dimensional cancer epidemiology program for CM2 will result in fullest alignment with the goals and intent of the seven pillars of CM2 and the overall goals of decreasing cancer deaths within the DoD and our patients including active duty (Readiness preservation), veterans, and beneficiaries. To accomplish all of this, MCCRP Epi will have new and expanded missions, capabilities, personnel, database access and computing (data science) capabilities including but not limited to cloud computing support for storage and analytics, for any and all MCCRP CM2 projects as well as intramural cancer research projects. New Epi research will be designed, implemented, and conducted that has DoD-wide implications for improving patient care and outcomes (cancer survival) including but not limited to a RWE (Real World Evidence) data analysis program; a CPG (Clinical					

Exhibit R-2A, RDT&E Project Justification: PB 2023 Defense Health Agency		Date: March 2022
Appropriation/Budget Activity 0130 / 2	**R-1 Program Element (Number/Name)** PE 0603115DHA / *Medical Technology Development*	**Project (Number/Name)** 511 / *Cancer Moonshot Initiatives*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Practice Guideline) development program that is focused on the presently untapped use of the vast DoD and TRICARE databases of all types in order to develop new, DoD-specific and DoD-focused cancer practice guidelines that will then be promulgated through the DoD/DHA Oncology Clinical Community (OCC) and across our Network that will have direct and ongoing positive impacts on cancer patients as well as ensuring equity of care experience and outcomes for all DoD patients. All new Epi related research, programs, capabilities and associated needed support will be part of this part of CM2. 3) DoD Serum Repository Projects: Herein referred to the “DoDSR”, this new task will be focused on and responsible for the new, compelling interest in using the world-class DoDSR which contains over 62 million blood serum specimens drawn longitudinally on all active duty service members since the late 1980’s to specifically study and address the questions surrounding the role of various DoD-specific environmental exposures and militarily-relevant cancer and other health risks based on the servicemembers’ MOS (Military Occupational Specialty), deployment history, exposure to unknown and/or uncharacterized risks (e.g., Burn pits; high frequency electromagnetic radiation; environmental and/or workplace toxins to include but not limited to high hydrocarbon fuels, soil toxins; others. New research studies and novel methods will be developed, devised, and used to study thousands of DoDSR specimens from active duty servicemembers with a variety of cancer and health risk factors, and to study the ability of new laboratory technologies and capabilities (e.g., microRNA, DNA methylation, single cell analysis, others, multiple protein and/or amino acid panel analytics, others) to identify new tests for the identification and amelioration of risks to service members and veterans from said exposures. Additionally, this task will fund the development of new research protocols, molecular technologies, and data analytic processes and platforms within the focused area of maximizing the promise of the DoDSR to answer critical research questions surrounding these DoD-specific problems affecting the readiness of the force through their impact on service members. ***FY 2023 OOC Plans:*** No funding for this column so N/A ***FY 2022 to FY 2023 Increase/Decrease Statement:*** This Project overall is a new start in FY 2023 and all elements of this new Project are new and novel in support of the DoD aspect of the federal Cancer Moonshot 2 initiative mandated by the White House in February 2022.					
Accomplishments/Planned Programs Subtotals	0.000	0.000	12.300	0.000	12.300

	FY 2021	FY 2022
Congressional Add: Cancer Moonshot Initiatives (USUHS)	0.000	0.000

Exhibit R-2A, RDT&E Project Justification: PB 2023 Defense Health Agency		Date: March 2022
Appropriation/Budget Activity 0130 / 2	**R-1 Program Element (Number/Name)** PE 0603115DHA / *Medical Technology Development*	**Project (Number/Name)** 511 / *Cancer Moonshot Initiatives*

	FY 2021	FY 2022
FY 2021 Accomplishments: N/A ***FY 2022 Plans:*** N/A		
Congressional Adds Subtotals	0.000	0.000

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

USUHS optimizes these research funds to achieve its research objectives, often in partnership and collaboration with funding received from other DoD and interagency sources through Interagency Agreements and inter-service Support Agreements, which may be executed via Federal assistance agreements or contracts.

Exhibit R-2A, RDT&E Project Justification: PB 2023 Defense Health Agency			Date: March 2022
Appropriation/Budget Activity 0130 / 2	R-1 Program Element (Number/Name) PE 0603115DHA / *Medical Technology Development*	Project (Number/Name) 830A / *Deployed Warfighter Protection (Army)*	

COST ($ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
830A: *Deployed Warfighter Protection (Army)*	46.164	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing

A. Mission Description and Budget Item Justification

For the Armed Forces Pest Management Board (AFPMB), the Deployed Warfighter Protection project plans to develop new or improved protection for ground forces from disease-carrying insects. The focus of this program is to develop new or improved systems for controlling insects that transmit malaria, dengue, chikungunya and other emerging infectious diseases under austere, remote, and combat conditions; understand the physiology of insecticidal activity to develop new compounds with greater specific activity and/or higher user acceptability; examine existing area repellents for efficacy and develop new spatially effective repellent systems useful in military situations; develop new methods or formulations for treating cloth to prevent vector biting; and expand the number of active ingredients and formulations of public health pest pesticides, products and application technologies available for safe, and effective applications. The AFPMB partners with the President's Malaria Initiative and the World Health Organization Global Malaria Program to lead development of new tools for insect-borne disease prevention.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Title: Deployed Warfighter Protection ***Description:*** The Deployed Warfighter Protection project will develop new or improved protection for ground forces from disease-carrying insects.	0.000	-	-	-	-
Accomplishments/Planned Programs Subtotals	0.000	-	-	-	-

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

Develop, mature and field new or improved products and strategies that protect U.S. forces from disease-carrying insects. Identify acquisition-based research and development requirements in a Capability Needs Assessment. Refine target product profiles and performance criteria. Secure registered trademarks, patents, commercial partners, and/or EPA registration of new or improved insecticides, application technologies and repellent systems. Continue to partner with industry to field products and coordinate with the Services, AFPMB, USAMMDA, DLA and relevant Program Executive Offices to transition efforts.

Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Defense Health Agency											Date: March 2022	
Appropriation/Budget Activity 0130: *Defense Health Program I* BA 2: *RDT&E*					R-1 Program Element (Number/Name) PE 0604110DHA *I Medical Products Support and Advanced Concept Development*							
COST ($ in Millions)	**Prior Years**	**FY 2021**	**FY 2022**	**FY 2023 Base**	**FY 2023 OCO**	**FY 2023 Total**	**FY 2024**	**FY 2025**	**FY 2026**	**FY 2027**	**Cost To Complete**	**Total Cost**
Total Program Element	745.966	149.831	197.360	166.960	0.000	166.960	172.289	175.432	179.073	182.384	Continuing	Continuing
400Z: *CSI - Congressional Special Interests*	401.343	5.000	49.500	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
374: *GDF - Medical Products Support and Advanced Concept Development*	332.623	131.517	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
374A: *GDF - Medical Simulation and Training*	0.000	0.000	18.490	18.440	0.000	18.440	17.470	16.460	17.020	17.360	Continuing	Continuing
374B: *GDF - Medical Readiness*	0.000	0.000	48.816	69.157	0.000	69.157	83.101	74.568	77.893	79.452	Continuing	Continuing
374C: *GDF - Medical Combat Support*	0.000	0.000	49.661	27.177	0.000	27.177	18.372	22.919	18.078	18.418	Continuing	Continuing
374D: *GDF - Restoration & Healthcare Systems*	0.000	0.000	26.731	26.078	0.000	26.078	24.726	32.595	36.502	37.232	Continuing	Continuing
374E: *GDF - Medical Materiel/ Medical Biological Defense Equipment Development*	0.000	0.000	0.000	21.863	0.000	21.863	24.289	24.473	25.075	25.327	Continuing	Continuing
434A: *Air & Space Medical Readiness Advanced Concept Development (AF)*	12.000	4.080	4.162	4.245	0.000	4.245	4.331	4.417	4.505	4.595	Continuing	Continuing
441: *CSI- Joint Warfighter Medical Research*	0.000	9.234	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing

A. Mission Description and Budget Item Justification

Guidance for Development of the Force - Medical Products Support and Advanced Concept Development: This program element (PE) provides funding to support: advanced concept development of medical products that are regulated by the US Food and Drug Administration (FDA); clinical and field validation studies supporting the transition of FDA-licensed and unregulated products and medical practice guidelines to the military operational user; prototyping; risk reduction and product transition efforts for medical information technology applications such as coordination with the Program Execution Offices for integration of medical aspects into other acquisition Programs of Record; and medical simulation and training system technologies.

Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Defense Health Agency	Date: March 2022
Appropriation/Budget Activity 0130: *Defense Health Program I* BA 2: *RDT&E*	**R-1 Program Element (Number/Name)** PE 0604110DHA *I Medical Products Support and Advanced Concept Development*

Development, test, and evaluation in this PE is designed to address requirements identified through the Joint Capabilities Integration and Development System and other Department of Defense operational needs. Medical development, test, and evaluation priorities for the Defense Health Program (DHP) are guided by, and will support, the National Defense Strategy, the Joint Staff Surgeon's Joint Concept for Health Services, and other overarching DoD strategic framework documents.

Program development and execution is coordinated with all of the Military Services and Special Operations Command, appropriate Defense agencies or activities and other federal agencies, to include the Department of Veterans Affairs, the Department of Health and Human Services, and the Department of Homeland Security. Coordination occurs through the planning and execution activities of the Defense Health Agency Component Acquisition Executive (DHA CAE) as the Milestone Decision Authority for medical materiel development efforts. As technologies mature, the most promising efforts will transition to medical products and support systems development funding, PE 0605145.

B. Program Change Summary ($ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Previous President's Budget	149.831	142.252	166.960	0.000	166.960
Current President's Budget	149.831	197.360	166.960	0.000	166.960
Total Adjustments	0.000	55.108	0.000	0.000	0.000
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	55.108			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			

Congressional Add Details ($ in Millions, and Includes General Reductions)	FY 2021	FY 2022
Project: 400Z: *CSI - Congressional Special Interests*		
Congressional Add: *441A - Joint Warfighter Medical Research Program*	5.000	16.000
Congressional Add: *464 - GDF - Restore Core Research Funding Reduction*	-	4.500
Congressional Add: *464 - USUHS - Restore Core Research Funding Reduction for National Disaster Medical System Pilot Study*	-	15.000
Congressional Add: *400Z - Congressional Add - Joint civilian-medical surge facility*	-	14.000
Congressional Add Subtotals for Project: 400Z	5.000	49.500
Project: 374E: *GDF - Medical Materiel/Medical Biological Defense Equipment Development*		
Congressional Add: *GDF MPSACD Medical Materiel/Medical Biological Defense Equipment Development*	0.000	0.000
Congressional Add Subtotals for Project: 374E	0.000	0.000

Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Defense Health Agency	Date: March 2022
Appropriation/Budget Activity 0130: *Defense Health Program I* BA 2: *RDT&E*	**R-1 Program Element (Number/Name)** PE 0604110DHA *I Medical Products Support and Advanced Concept Development*

Congressional Add Details ($ in Millions, and Includes General Reductions)	FY 2021	FY 2022
Congressional Add Totals for all Projects	5.000	49.500

Exhibit R-2A, RDT&E Project Justification: PB 2023 Defense Health Agency			Date: March 2022
Appropriation/Budget Activity 0130 / 2	R-1 Program Element (Number/Name) PE 0604110DHA / *Medical Products Support and Advanced Concept Development*	Project (Number/Name) 400Z / *CSI - Congressional Special Interests*	

COST ($ in Millions)	Prior Years (+)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
400Z: *CSI - Congressional Special Interests*	401.343	5.000	49.500	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing

(+) The sum of all Prior Years is $634.657 million less than the represented total due to several projects ending

A. Mission Description and Budget Item Justification

Defense Health Program funded Congressional Special Interest (CSI) directed research. The strategy for the FY 2022 Congressionally-directed research program is to stimulate innovative research through a competitive, focused, peer-reviewed medical research at intramural and extramural research sites. Because of the CSI annual structure, out-year funding is not programmed.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022
Congressional Add: 441A - Joint Warfighter Medical Research Program ***FY 2021 Accomplishments:*** CSI Add ***FY 2022 Plans:*** CSI Add	5.000	16.000
Congressional Add: 464 - GDF - Restore Core Research Funding Reduction ***FY 2022 Plans:*** This is a program increase due to GDF restoral in the FY22 enacted budget.	-	4.500
Congressional Add: 464 - USUHS - Restore Core Research Funding Reduction for National Disaster Medical System Pilot Study ***FY 2022 Plans:*** This is a program increase due to restoral in the FY22 enacted budget.	-	15.000
Congressional Add: 400Z - Congressional Add - Joint civilian-medical surge facility ***FY 2022 Plans:*** FY22 Congressional Add	-	14.000
Congressional Adds Subtotals	5.000	49.500

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

Exhibit R-2A, RDT&E Project Justification: PB 2023 Defense Health Agency		Date: March 2022
Appropriation/Budget Activity 0130 / 2	**R-1 Program Element (Number/Name)** PE 0604110DHA / *Medical Products Support and Advanced Concept Development*	**Project (Number/Name)** 400Z / *CSI - Congressional Special Interests*

D. Acquisition Strategy

Prior year CSI funded research will be assessed for developmental maturity and qualification for initial or continued advanced development funding. If advanced development criteria are met, follow-on development will be solicited through a peer-reviewed process.

Exhibit R-2A, RDT&E Project Justification: PB 2023 Defense Health Agency			Date: March 2022
Appropriation/Budget Activity 0130 / 2	R-1 Program Element (Number/Name) PE 0604110DHA / *Medical Products Support and Advanced Concept Development*	Project (Number/Name) 374 / *GDF - Medical Products Support and Advanced Concept Development*	

COST ($ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
374: *GDF - Medical Products Support and Advanced Concept Development*	332.623	131.517	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing

Note

Starting in FY 2022, funding from Project 374 was realigned to Projects 374A, 374B, 374C, and 374D.

A. Mission Description and Budget Item Justification

Guidance for Development of the Force-Medical Products Support and Advanced Concept Development: This funding supports materiel development of products that provide solutions for the most pressing medical needs of the Warfighter through advanced concept development of medical products that are regulated by the US Food and Drug Administration (FDA); clinical and field validation studies supporting the transition of FDA-licensed and unregulated products and medical practice guidelines to the military operational user; prototyping; risk reduction and product transition efforts for medical information technology applications such as coordination with the Program Execution Offices for integration of medical aspects into other acquisition Programs of Record; and medical simulation and training system technologies.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Title: GDF – Medical Product Support and Advanced Concept Development	131.517	0.000	0.000	0.000	0.000
Description: This funding provides product support and advanced concept development of materiel products that meet the medical needs of the warfighter. Materiel development may include accelerated transition of US Food and Drug Administration (FDA)-licensed and unregulated products and medical practice guidelines to the military operational user through clinical and field validation studies, prototyping, risk reduction, and product transition efforts for medical information technology applications and medical training systems technologies.					
FY 2022 Plans: Starting in FY 2022, funding from Project 374 was realigned to Projects 374A, 374B, 374C, and 374D.					
FY 2023 Base Plans: Starting in FY 2022, funding from Project 374 was realigned to Projects 374A, 374B, 374C, and 374D.					
FY 2023 OOC Plans: N/A					
FY 2022 to FY 2023 Increase/Decrease Statement:					

Exhibit R-2A, RDT&E Project Justification: PB 2023 Defense Health Agency		Date: March 2022
Appropriation/Budget Activity 0130 / 2	**R-1 Program Element (Number/Name)** PE 0604110DHA / *Medical Products Support and Advanced Concept Development*	**Project (Number/Name)** 374 / *GDF - Medical Products Support and Advanced Concept Development*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Starting in FY 2022, funding from Project 374 was realigned to Projects 374A, 374B, 374C, and 374D.					
Accomplishments/Planned Programs Subtotals	131.517	0.000	0.000	0.000	0.000

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

This program will test and evaluate pharmaceuticals, devices, medical support systems, and medical information technologies in government-managed clinical trials and user assessments to gather data required for military and regulatory requirements prior to production and fielding, to include FDA approval, Environmental Protection Agency registration, and safe-to-fly evaluation.

Exhibit R-2A, RDT&E Project Justification: PB 2023 Defense Health Agency			Date: March 2022
Appropriation/Budget Activity 0130 / 2	R-1 Program Element (Number/Name) PE 0604110DHA / *Medical Products Support and Advanced Concept Development*	Project (Number/Name) 374A / *GDF - Medical Simulation and Training*	

COST ($ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
374A: *GDF - Medical Simulation and Training*	0.000	0.000	18.490	18.440	0.000	18.440	17.470	16.460	17.020	17.360	Continuing	Continuing

Note

Starting in FY 2022, funding for Project 374A was realigned from Projects 374. This Project is not a new start.

A. Mission Description and Budget Item Justification

Guidance for Development of the Force - Medical Simulation and Training: This funding supports materiel development of products that provide solutions for the most pressing simulation and training needs of the Warfighter through advanced concept development and prototyping of medical products and medical information technology applications in direct support of MHS Beneficiaries.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Title: GDF - Medical Simulation and Training	0.000	18.490	18.440	0.000	18.440
Description: This funding provides product support and advanced concept development of materiel products that meet the medical simulation and training needs of the warfighter. Materiel development may include accelerated transition of simulation and training capabilities along with medical practice guidelines to the military operational user through clinical and field validation studies, prototyping, risk reduction, and product transition efforts for medical information technology applications and medical training systems technologies.					
FY 2022 Plans: Programs will focus on development and application of medical simulation and training capabilities for hospital care and operations. The Point-of-Injury and Trauma Simulation program will continue capability development tying together individual, collective, service and Joint training to Warfighters and Medical Professionals across the Department of Defense. The Virtual Education Center advances and addresses patient education shortfalls to increase patient experiences and knowledge. The Hospital Training Simulation Systems and Evacuation and Transportation Simulation Systems programs will continue to develop, standardize and baseline the Medical Treatment Facility, Theater Hospital training (care and procedures), and en-route patient care training for interoperability. The Learning, Tactics and Technology Systems program will continue to develop the training courses, hands-on training, and exercises to develop and maintain military medical skills that enhance and					

Exhibit R-2A, RDT&E Project Justification: PB 2023 Defense Health Agency		Date: March 2022
Appropriation/Budget Activity 0130 / 2	**R-1 Program Element (Number/Name)** PE 0604110DHA / *Medical Products Support and Advanced Concept Development*	**Project (Number/Name)** 374A / *GDF - Medical Simulation and Training*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
maximize the training simulations, manikins, and will unify patient and clinical education across the MHS and improving healthcare across the Department of Defense. ***FY 2023 Base Plans:*** FY 2023 plans continue efforts as outlined in FY 2022 and support advanced development, prototypes and evaluation of medical simulation and training. ***FY 2023 OOC Plans:*** N/A ***FY 2022 to FY 2023 Increase/Decrease Statement:*** Funding increase due to inflation.					
Accomplishments/Planned Programs Subtotals	0.000	18.490	18.440	0.000	18.440

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

This program will test and evaluate medical support systems, medical information technologies, and simulation and training capabilities in operational and clinical user assessments to gather data required for military and regulatory requirements prior to production and fielding.

Exhibit R-2A, RDT&E Project Justification: PB 2023 Defense Health Agency			Date: March 2022
Appropriation/Budget Activity 0130 / 2	R-1 Program Element (Number/Name) PE 0604110DHA / *Medical Products Support and Advanced Concept Development*	Project (Number/Name) 374B / *GDF - Medical Readiness*	

COST ($ in Millions)	Prior Years (+)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
374B: *GDF - Medical Readiness*	0.000	0.000	48.816	69.157	0.000	69.157	83.101	74.568	77.893	79.452	Continuing	Continuing

(+) The sum of all Prior Years is $0.000 million less than the represented total due to several projects ending

Note

Starting in FY 2022, funding for Project 374B was realigned from Projects 374. This Project is not a new start.

A. Mission Description and Budget Item Justification

Guidance for Development of the Force-Medical Products Support and Advanced Concept Development: This funding supports materiel development of products that provide solutions for the most pressing medical needs of the Warfighter through advanced concept development of medical products that are regulated by the US Food and Drug Administration (FDA); clinical and field validation studies supporting the transition of FDA-licensed and unregulated products and medical practice guidelines to the military operational user; prototyping; risk reduction and product transition efforts for medical information technology applications such as coordination with the Program Execution Offices for integration of medical aspects into other acquisition Programs of Record.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Title: GDF - Medical Readiness	0.000	48.816	69.157	0.000	69.157
Description: This funding provides product support and advanced concept development of materiel products that meet the medical needs of the warfighter. Materiel development may include accelerated transition of US Food and Drug Administration (FDA)-licensed and unregulated products and medical practice guidelines to the military operational user through clinical and field validation studies, prototyping, risk reduction, and product transition efforts for medical information technology applications.					
FY 2022 Plans: Programs will focus on prevention of illness and injury along with optimization of human performance. Significant FY22 Programs: the interoperable Medical Automated Systems (iMAS) program plans to develop a Proof of Concept demonstration; the Broad Spectrum Snake Bite Antidote (BSSA) program plans to initiate the Phase 2 clinical trials; the Enterotoxigenic E. coli Vaccine program will initiate Phase 3 clinical trials; the Pharmaceutical Intervention for Noise-Induced Hearing Loss-Acute Exposure Treatment (PINIHL-AET) program plans to work towards Institutional Review Board (IRB) and Human Research Protection Official (HRPO) approvals; and the Health Readiness and Performance System (HRAPS) program plans to begin User Testing and Operational Assessment of its platform. Also, efforts will continue for the following programs: Concussion Dosimetry; Hyperbaric Neurocognitive Assessment System (HNAS); Breath Test for Pulmonary Oxygen Toxicity; Additive					

Exhibit R-2A, RDT&E Project Justification: PB 2023 Defense Health Agency		Date: March 2022
Appropriation/Budget Activity 0130 / 2	**R-1 Program Element (Number/Name)** PE 0604110DHA / *Medical Products Support and Advanced Concept Development*	**Project (Number/Name)** 374B / *GDF - Medical Readiness*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Manufacturing Working Group; and Next Generation Environmental Health Risk Management Capabilities program ***FY 2023 Base Plans:*** FY 2023 plans continue efforts as outlined in FY 2022 and support advanced development, prototypes and evaluation of medical readiness capabilities. ***FY 2023 OOC Plans:*** N/A ***FY 2022 to FY 2023 Increase/Decrease Statement:*** Increase due to strategic realignments within PE from Medical Combat Support.					
Accomplishments/Planned Programs Subtotals	0.000	48.816	69.157	0.000	69.157

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

This program will test and evaluate pharmaceuticals, devices, medical support systems, and medical information technologies in government-managed clinical trials and user assessments to gather data required for military and regulatory requirements prior to production and fielding, to include FDA approval, Environmental Protection Agency registration, and safe-to-fly evaluation.

Exhibit R-2A, RDT&E Project Justification: PB 2023 Defense Health Agency			Date: March 2022
Appropriation/Budget Activity 0130 / 2	R-1 Program Element (Number/Name) PE 0604110DHA / *Medical Products Support and Advanced Concept Development*	Project (Number/Name) 374C / *GDF - Medical Combat Support*	

COST ($ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
374C: *GDF - Medical Combat Support*	0.000	0.000	49.661	27.177	0.000	27.177	18.372	22.919	18.078	18.418	Continuing	Continuing

Note

Starting in FY 2022, funding for Project 374C was realigned from Projects 374. This Project is not a new start.

A. Mission Description and Budget Item Justification

Guidance for Development of the Force-Medical Products Support and Advanced Concept Development: This funding supports materiel development of products that provide solutions for the most pressing medical needs of the Warfighter through advanced concept development of medical products that are regulated by the US Food and Drug Administration (FDA); clinical and field validation studies supporting the transition of FDA-licensed and unregulated products and medical practice guidelines to the military operational user; prototyping; risk reduction and product transition efforts for medical information technology applications such as coordination with the Program Execution Offices for integration of medical aspects into other acquisition Programs of Record.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Title: GDF - Medical Combat Support	0.000	49.661	27.177	0.000	27.177
Description: This funding provides product support and advanced concept development of materiel products that meet the medical needs of the warfighter. Materiel development may include accelerated transition of US Food and Drug Administration (FDA)-licensed and unregulated products and medical practice guidelines to the military operational user through clinical and field validation studies, prototyping, risk reduction, and product transition efforts for medical information technology applications.					
FY 2022 Plans: Programs will focus on operational support. Significant FY22 Programs: Battlefield Pain Management – Ketamine plans to conduct clinical trials; Non-Compressible Hemorrhage Control (NHC) plans for a Milestone B decision for its polymeric foam product; Cold Stored Platelets (CSP) plans for a Milestone B decision and the initiation of a characterization study for In vitro CSP; Canine Blood Products program plans to complete a clinical trauma study; and the Joint Multi-Channel Infusion Pump program plans to achieve compliance with all Milestone B requirements. Also, efforts will continue for the following programs: Hemorrhage Detection (HD) (AMM Monitoring); Traumatic Brain Injury (TBI) Assessment & Diagnosis – Mobile Applications; Rapid Donor Screening; Combat Wound Treatment and Management; Digital Radiography; and Wound Healing Gauze.					
FY 2023 Base Plans:					

Exhibit R-2A, RDT&E Project Justification: PB 2023 Defense Health Agency		Date: March 2022
Appropriation/Budget Activity 0130 / 2	**R-1 Program Element (Number/Name)** PE 0604110DHA / *Medical Products Support and Advanced Concept Development*	**Project (Number/Name)** 374C / *GDF - Medical Combat Support*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
FY 2023 plans continue efforts as outlined in FY 2022 and support advanced development, prototypes and evaluation of medical combat support capabilities ***FY 2023 OOC Plans:*** N/A ***FY 2022 to FY 2023 Increase/Decrease Statement:*** Decrease due to strategic realignments within PE to Medical Readiness.					
Accomplishments/Planned Programs Subtotals	0.000	49.661	27.177	0.000	27.177

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

This program will test and evaluate pharmaceuticals, devices, medical support systems, and medical information technologies in government-managed clinical trials and user assessments to gather data required for military and regulatory requirements prior to production and fielding, to include FDA approval, Environmental Protection Agency registration, and safe-to-fly evaluation.

Exhibit R-2A, RDT&E Project Justification: PB 2023 Defense Health Agency			Date: March 2022
Appropriation/Budget Activity 0130 / 2	R-1 Program Element (Number/Name) PE 0604110DHA / *Medical Products Support and Advanced Concept Development*	Project (Number/Name) 374D / *GDF - Restoration & Healthcare Systems*	

COST ($ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
374D: *GDF - Restoration & Healthcare Systems*	0.000	0.000	26.731	26.078	0.000	26.078	24.726	32.595	36.502	37.232	Continuing	Continuing

Note

Starting in FY 2022, funding for Project 374D was realigned from Projects 374. This Project is not a new start.

A. Mission Description and Budget Item Justification

Guidance for Development of the Force-Medical Products Support and Advanced Concept Development: This funding supports materiel development of products that provide solutions for the most pressing medical needs of the Warfighter through advanced concept development of medical products that are regulated by the US Food and Drug Administration (FDA); clinical and field validation studies supporting the transition of FDA-licensed and unregulated products and medical practice guidelines to the military operational user; prototyping; risk reduction and product transition efforts for medical information technology applications such as coordination with the Program Execution Offices for integration of medical aspects into other acquisition Programs of Record.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Title: GDF - Restoration & Healthcare Systems	0.000	26.731	26.078	0.000	26.078
Description: This funding provides product support and advanced concept development of materiel products that meet the medical needs of the warfighter. Materiel development may include accelerated transition of US Food and Drug Administration (FDA)-licensed and unregulated products and medical practice guidelines to the military operational user through clinical and field validation studies, prototyping, risk reduction, and product transition efforts for medical information technology applications.					
FY 2022 Plans: Programs will focus on treatments to be used to restore form and function to warfighters as well as improve healthcare. Significant FY22 Programs: The Traumatic Brain Injury (TBI) - Drug Treatment program will begin moderate TBI Phase 2 adaptive trial enrollment testing for 3 generic drugs (FDA approved for other diseases) as candidates for TBI treatment; The Post Traumatic Stress Disorder (PTSD) - Drug Treatment program will continue the Adaptive Platform Trial (APT) and study to de-risk endpoint selection; and the Bacteriophage for Treatment of Bacterial Infections (BTBI) program plans to complete Phase 1b/2a clinical trials for precision phage mixture. Also, efforts continue for the Post Traumatic Stress Disorder (PTSD) Screening Tool program.					
FY 2023 Base Plans:					

Exhibit R-2A, RDT&E Project Justification: PB 2023 Defense Health Agency		Date: March 2022
Appropriation/Budget Activity 0130 / 2	**R-1 Program Element (Number/Name)** PE 0604110DHA / *Medical Products Support and Advanced Concept Development*	**Project (Number/Name)** 374D / *GDF - Restoration & Healthcare Systems*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
FY 2023 plans continue efforts as outlined in FY 2022 and support advanced development, prototypes and evaluation of medical restoration and healthcare system capabilities. ***FY 2023 OOC Plans:*** N/A ***FY 2022 to FY 2023 Increase/Decrease Statement:*** Increase due to inflation program growth.					
Accomplishments/Planned Programs Subtotals	0.000	26.731	26.078	0.000	26.078

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

This program will test and evaluate pharmaceuticals, devices, medical support systems, and medical information technologies in government-managed clinical trials and user assessments to gather data required for military and regulatory requirements prior to production and fielding, to include FDA approval, Environmental Protection Agency registration, and safe-to-fly evaluation.

Exhibit R-2A, RDT&E Project Justification: PB 2023 Defense Health Agency			Date: March 2022
Appropriation/Budget Activity 0130 / 2	R-1 Program Element (Number/Name) PE 0604110DHA / *Medical Products Support and Advanced Concept Development*	Project (Number/Name) 374E / *GDF - Medical Materiel/Medical Biological Defense Equipment Development*	

COST ($ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
374E: *GDF - Medical Materiel/ Medical Biological Defense Equipment Development*	0.000	0.000	0.000	21.863	0.000	21.863	24.289	24.473	25.075	25.327	Continuing	Continuing

A. Mission Description and Budget Item Justification

Funding and mission realignment of US Army Medical Research and Development Command transfer to the Defense Health Agency in order to meet Congressional intent as outlined in NDAA 2019 (Section 711) and NDAA 2020 (Section 737) in support of Medical Materiel/Medical Biological Defense Equipment Development.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Title: GDF MPSACD Medical Materiel/Medical Biological Defense Equipment Development	0.000	0.000	21.863	0.000	21.863
Description: Programmatic transfer in accordance with the 711/737 US Army Medical Research and Development Command transfer to Defense Health Agency in support of Medical Materiel/Medical Biological Defense Equipment Development from Army PE 0603807A. ***FY 2022 Plans:*** N/A ***FY 2023 Base Plans:*** Programs will focus on advanced component development, test and evaluation in support of Medical Materiel/ Medical Biological Defense Equipment Development. ***FY 2023 OOC Plans:*** N/A ***FY 2022 to FY 2023 Increase/Decrease Statement:*** Funding increase for this Project was due to transfer/realignment from Army.					
Accomplishments/Planned Programs Subtotals	0.000	0.000	21.863	0.000	21.863

	FY 2021	FY 2022
Congressional Add: GDF MPSACD Medical Materiel/Medical Biological Defense Equipment Development	0.000	0.000

Exhibit R-2A, RDT&E Project Justification: PB 2023 Defense Health Agency		Date: March 2022
Appropriation/Budget Activity 0130 / 2	**R-1 Program Element (Number/Name)** PE 0604110DHA / *Medical Products Support and Advanced Concept Development*	**Project (Number/Name)** 374E / *GDF - Medical Materiel/Medical Biological Defense Equipment Development*

	FY 2021	FY 2022
FY 2021 Accomplishments: N/A ***FY 2022 Plans:*** N/A		
Congressional Adds Subtotals	0.000	0.000

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2023 Defense Health Agency			Date: March 2022
Appropriation/Budget Activity 0130 / 2	R-1 Program Element (Number/Name) PE 0604110DHA / *Medical Products Support and Advanced Concept Development*	Project (Number/Name) 434A / *Air & Space Medical Readiness Advanced Concept Development (AF)*	

COST ($ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
434A: *Air & Space Medical Readiness Advanced Concept Development (AF)*	12.000	4.080	4.162	4.245	0.000	4.245	4.331	4.417	4.505	4.595	Continuing	Continuing

A. Mission Description and Budget Item Justification

This project focuses on coordinating the activities to rapidly field advanced medical capabilities to meet the needs of warfighters while bridging the gap between science and technology (S&T) and development, fielding, and sustainment. This project enables the fielding of advanced medical capabilities (Technology Readiness Level-TRL 5-7) to address the vital medical readiness needs of our Airmen. Development, modification, and modernization projects emphasize technologies supporting the Air Force (AF) Surgeon General's aerospace & operational medicine and medical readiness priorities. This project ensures viability of S&T and translational research efforts with materiel components by providing programmed funding for logical progression and transition of those activities into the product development lifecycle and into the hands of AF end-users.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Title: Air & Space Medical Readiness Advanced Concept Development (AF)	4.080	4.162	4.245	0.000	4.245
Description: This project ensures balance, rigor, and timely fielding of medical capabilities in the AF Advanced Development portfolio. This project focuses on the advancement of Engineering and Manufacturing Development (EMD) for prototypes and production representative units that address AF capability gaps in aerospace and operational medicine and medical readiness.					
FY 2022 Plans: Continue materiel developments of the: a) Trauma-Specific Vascular Shunt device for restoring blood flow to extremities post trauma during en route care; b) Biomeme Pathogen Surveillance System, a far-forward hand-held diagnostics and detection capability for AF relevant pathogens; c) Spinal Injury Transport – Device (SIT-D), a man-portable immobilization device for use in the en route care system; and d) the Automated Vision Tester (AVT), a state-of-the art vision tester for measurable and meaningful specs for Airman vision standards. Begin assessment and development of medical materiel efforts including, but not limited to, autonomous closed-loop control of oxygen and ventilation intervention during en route patient care and on-demand sterile water for injection and Intravenous (IV) solutions in deployed Expeditionary Medical Support System (EMEDS). Transition to the AF Warfighter the following capabilities: Flashing Indicators of Swimmer's Health (FISH) and the Patient Loading System (PLS).					
FY 2023 Base Plans:					

Exhibit R-2A, RDT&E Project Justification: PB 2023 Defense Health Agency		Date: March 2022
Appropriation/Budget Activity 0130 / 2	**R-1 Program Element (Number/Name)** PE 0604110DHA / *Medical Products Support and Advanced Concept Development*	**Project (Number/Name)** 434A / *Air & Space Medical Readiness Advanced Concept Development (AF)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
FY22 plans continue efforts as outlined in FY 2021. ***FY 2023 OOC Plans:*** N/A ***FY 2022 to FY 2023 Increase/Decrease Statement:*** Funding increase due to inflation.					
Accomplishments/Planned Programs Subtotals	4.080	4.162	4.245	0.000	4.245

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

Accomplishments: Made significant advancements towards the materiel development of the Patient Loading System (PLS) which has now transitioned to production. The PLS is an en route care ramp system for on- / off- boarding with high deck aircraft. Additionally, the Field Intravenous Expeditionary System yielded two prototypes that went early operational assessments prior to Phase III and is being postured for joint acquisition consideration. The Spinal Immobilization Transport Device; Phase III SBIR Mod for final development of four First Article production representative units to be delivered no later than December 2021 followed by Safe-to-Fly and Final Operational Test and Evaluation slated to begin January 2022. The final technical report is slated to be delivered NLT 30 Mar 2022 with a production contract award expected NLT June 2022.

D. Acquisition Strategy

Partnerships with Defense Health Agency/Component Acquisition Executive (DHA/CAE), the U.S. Army Medical Research & Development Command (USAMRMC), U.S. Army Medical Research Acquisition Activity (USAMRAA), Navy Medical Research Center (NMRC), Air Force Research Laboratory (AFRL), Air Force Life Cycle Management Center (AFLCMC), Department of the Interior (interagency cooperative agreements and use award of delivery orders and task assignments) and medical technology consortiums to perform engineering, manufacturing, and prototype development Indefinite Delivery, Indefinite Quality (IDIQ) vehicles to include those awarded under Small Business Innovation Research (SBIR) phase III provisions. Utilization of SBIR program direct awards for Phase III transition efforts and a Cooperative Agreement structure through foundations supporting military medical research and development programs. Will utilize industry-standard project management processes and DoD Acquisition process managed by the AFLCMC, Wright-Patterson AFB.

Exhibit R-2A, RDT&E Project Justification: PB 2023 Defense Health Agency			Date: March 2022
Appropriation/Budget Activity 0130 / 2	R-1 Program Element (Number/Name) PE 0604110DHA / *Medical Products Support and Advanced Concept Development*	Project (Number/Name) 441 / *CSI- Joint Warfighter Medical Research*	

COST ($ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
441: *CSI- Joint Warfighter Medical Research*	0.000	9.234	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing

A. Mission Description and Budget Item Justification

Congressional Add In

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Title: CSI- Joint Warfighter Medical Research	9.234	0.000	0.000	0.000	0.000
Description: Congressional Add In ***FY 2022 Plans:*** Congressional Add In ***FY 2023 Base Plans:*** Congressional Add In ***FY 2023 OOC Plans:*** N/A ***FY 2022 to FY 2023 Increase/Decrease Statement:*** Congressional Add In					
Accomplishments/Planned Programs Subtotals	9.234	0.000	0.000	0.000	0.000

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Defense Health Agency											Date: March 2022	
Appropriation/Budget Activity 0130: *Defense Health Program I* BA 2: *RDT&E*					R-1 Program Element (Number/Name) PE 0605013DHA *I Information Technology Development*							
COST ($ in Millions)	**Prior Years**	**FY 2021**	**FY 2022**	**FY 2023 Base**	**FY 2023 OCO**	**FY 2023 Total**	**FY 2024**	**FY 2025**	**FY 2026**	**FY 2027**	**Cost To Complete**	**Total Cost**
Total Program Element	76.253	16.344	10.866	9.834	0.000	9.834	10.033	10.234	10.259	10.463	Continuing	Continuing
239H: *IM/IT Test Bed (Air Force) at DHA*	2.222	2.796	0.723	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
283C: *Medical Operational Data System (MODS) (Army)*	16.390	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
283L: *Pharmacovigilance Defense Application System*	2.048	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
283P: *Mobile HealthCare Environment (MHCE)*	1.856	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
423C: *Defense Center of Excellence (T2T/PBH TERM) (DHA)*	4.267	0.465	0.483	0.411	0.000	0.411	0.411	0.411	0.000	0.000	Continuing	Continuing
480D: *Defense Occupational and Environmental Health Readiness System - Industrial Hygiene (DOEHRS-IH) (Tri-Service)*	18.000	8.714	8.701	8.309	0.000	8.309	8.484	8.662	9.074	9.255	Continuing	Continuing
482A: *E-Commerce (DHA)*	18.156	4.369	0.959	1.114	0.000	1.114	1.138	1.161	1.185	1.208	Continuing	Continuing
485: *Legacy Data Repository (DHA-C)*	11.387	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
505: *Military Health System Virtual Health Program (MHS VHP)*	1.927	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing

A. Mission Description and Budget Item Justification

The Army Medical Command received PE 0605013 funding to identify, explore, and demonstrate key technologies to overcome medical and military unique technology barriers. Programs include Army service level support for the Medical Operational Data System (MODS); Army Medicine CIO Management Operations; Psychological and Behavioral Health – Tools for Evaluation, Risk, and Management (PBH-TERM); Pharmacovigilance Defense Application System (PVDAS); Mobile HealthCare Environment (MHCE); and the Defense Center of Excellence (DCoE).

Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Defense Health Agency	Date: March 2022
Appropriation/Budget Activity 0130: *Defense Health Program I* BA 2: *RDT&E*	**R-1 Program Element (Number/Name)** PE 0605013DHA *I Information Technology Development*

For the Air Force, the funding in this program element provides for sustainment of the IM/IT Test Bed (IMIT-TB) capability, which is a dedicated OT location and staff encompassing the entire spectrum of healthcare services and products available in MTFs, to provide risk controlled testing of designated core and interim medical applications in a live environment.

Defense Health Agency (DHA) Health Information Technology (HIT) [previously known as Tri-Service IM/IT] - DHA HIT RDT&E activities includes funding for development/integration, modernization, test and evaluation for the Defense Health Agency initiatives, and any special interest that are shared within all centralized components of the Defense Health Program (DHP). HIT initiatives currently using RDT&E funding include: Defense Occupational and Environmental Health Readiness System – Industrial Hygiene (DOEHRS-IH) and Defense Center of Excellence (Telehealth and Technology Toolkit (T2T)).

The DHP RDT&E appropriation includes the following DHA initiatives: Electronic Commerce System (E-Commerce). E-Commerce was developed for centralized collection, integration, and reporting of accurate purchased care contracting and financial data. It provides an integrated set of data reports from multiple data sources to management, as well as tools to control the end-to-end program change management process. E-Commerce is composed of several major applications including: Contract Management (CM), utilizing Prism software to support contract action development and documentation; Resource Management (RM), employing Oracle Federal Financials and TED interface software to support the budgeting, accounting, case recoupment, and disbursement processes; Document Management, utilizing Document software to provide electronic storage, management, and retrieval of contract files; Management Tracking and Reporting, utilizing custom software to provide reports to assist in the management and tracking of changes to the managed care contracts as well as current and out year liabilities; the Purchased Care and Contractor's Resource Center web sites that provide up-to-date financial information for both TMA and the Services concerning the military treatment facilities (MTFs), and expenditures for MTF enrollee purchased care and supplemental care. E-Commerce includes an infrastructure of over 60 servers supporting development, test, and production. E-Commerce is employed by several hundred users in more than 7 different organizations. Project oversight and coordination must be provided to ensure that the needs of the disparate organizations are met without influencing system performance or support to any individual user. Server configurations must remain current with respect to security policies, user authorizations, and interactions with other systems and functions. All of these activities must be managed and coordinated on a daily basis.

B. Program Change Summary ($ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Previous President's Budget	16.344	10.866	9.834	0.000	9.834
Current President's Budget	16.344	10.866	9.834	0.000	9.834
Total Adjustments	0.000	0.000	0.000	0.000	0.000
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			

Exhibit R-2A, RDT&E Project Justification: PB 2023 Defense Health Agency			Date: March 2022
Appropriation/Budget Activity 0130 / 2	R-1 Program Element (Number/Name) PE 0605013DHA / *Information Technology Development*	Project (Number/Name) 239H / *IM/IT Test Bed (Air Force) at DHA*	

COST ($ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
239H: *IM/IT Test Bed (Air Force) at DHA*	2.222	2.796	0.723	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing

A. Mission Description and Budget Item Justification

Continue to provide realistic, risk controlled testing of designated core and interim medical applications in an operationally realistic environment. Critical component of ongoing capability development & fielding efforts, ensuring that each is supported by an independent, unbiased assessment of effectiveness, suitability, security, and survivability in a realistic operational environment as required by the FAR 46.103, DoD 5000, and AFI 99-103. The AFMISTB is a complementary service to existing MHS developmental, integration, interoperability, and security testing facilities, forming a logical test process continuum leading to effective deployment decisions. Outcomes include decreasing life-cycle costs of IM/IT products by catching errors early in the acquisition process where they are less costly to fix, and increasing patient safety by fielding operationally tested medical information systems.

Previously reported under initiative IM/IT Test Bed (Air Force) Project Code 239F.
Operational control of funding was transferred from Air Force Medical Information Technology (IT) to Defense Health Agency Health Information Technology (DHA HIT) with the stand up of Defense Health Agency beginning in FY16. However, functionality for operational testing will remain with Air Force Medical IT.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Title: Operational Testing Service	2.796	0.723	0.000	0.000	0.000
Description: A dedicated operational testing service, Test Bed conduct tests on various Air Force Medical Systems (AFMS). It provides risk controlled testing for designated core & interim medical applications in an operationally realistic environment.					
FY 2022 Plans: Will continue capability development & fielding efforts for half a dozen other ACAT III programs, initiate the Risk Management Framework reaccreditation for AF SG5T VPN for virtualization of IT Test Bed, and participate in at least half a dozen AF SG HPTs and requirement reviews					
FY 2023 Base Plans: Realignment of funding from RDT&E to O&M based on transitioning requirements					
FY 2023 OOC Plans: N/A					
FY 2022 to FY 2023 Increase/Decrease Statement:					

Exhibit R-2A, RDT&E Project Justification: PB 2023 Defense Health Agency		Date: March 2022
Appropriation/Budget Activity 0130 / 2	**R-1 Program Element (Number/Name)** PE 0605013DHA / *Information Technology Development*	**Project (Number/Name)** 239H / *IM/IT Test Bed (Air Force) at DHA*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Decrease due to realignment of funding from RDT&E to O&M based on transitioning requirements					
Accomplishments/Planned Programs Subtotals	2.796	0.723	0.000	0.000	0.000

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

Operational control of funding was transferred from Air Force Medical Information Technology (IT) to Defense Health Agency Health Information Technology (DHA HIT) with the stand up of Defense Health Agency beginning in FY16. However, functionality for operational testing will remain with Air Force Medical IT.

Exhibit R-2A, RDT&E Project Justification: PB 2023 Defense Health Agency			Date: March 2022
Appropriation/Budget Activity 0130 / 2	R-1 Program Element (Number/Name) PE 0605013DHA / *Information Technology Development*	Project (Number/Name) 283C / *Medical Operational Data System (MODS) (Army)*	

COST ($ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
283C: *Medical Operational Data System (MODS) (Army)*	16.390	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing

A. Mission Description and Budget Item Justification

The Army Medical Command received PE 0605013 funding for the Medical Operational Data System (MODS) to deploy modernized data visualization capabilities to enhance Army Unit and Individual Medical Readiness Reporting. MODS provides Army leadership with a responsive and reliable human resource and readiness information management data system for all categories of military and civilian medical and support personnel. MODS provide Tri-Service support through applications such as Electronic Profile, Behavioral Health, and Medical Education.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Title: Medical Operational Data System (MODS) ***Description:*** Information management system to provide responsive and reliable human resource and medical readiness data for all categories of military and civilian medical and support personnel.	0.000	-	-	-	-
Accomplishments/Planned Programs Subtotals	0.000	-	-	-	-

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
• BA-1, 0807781HP: *Non-Central Information Management/ Information Technology*	0.000	0.000	0.000	-	0.000	-	-	-	-	Continuing	Continuing
• BA-3, 0807721HP: *Replacement/Modernization*	0.000	0.000	0.000	-	0.000	-	-	-	-	Continuing	Continuing

Remarks

D. Acquisition Strategy

Select the business, technical, and contract actions that will minimize cost, reduce program risk, and remain within schedule while meeting program objectives.

Exhibit R-2A, RDT&E Project Justification: PB 2023 Defense Health Agency			Date: March 2022
Appropriation/Budget Activity 0130 / 2	R-1 Program Element (Number/Name) PE 0605013DHA / *Information Technology Development*	Project (Number/Name) 283L / *Pharmacovigilance Defense Application System*	

COST ($ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
283L: *Pharmacovigilance Defense Application System*	2.048	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing

A. Mission Description and Budget Item Justification

The Army Medical Command received PE 0605013 funding to identify, explore, and demonstrate key information technologies to overcome medical and military unique technology barriers. The Pharmacovigilance Defense Application System (PVDAS) provides military providers Defense Patient Safety reports from the Food and Drug Administration (FDA) after a drugÂ´s release to market.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Title: Pharmacovigilance Defense Application System (PVDAS) ***Description:*** The Pharmacovigilance Defense Application System (PVDAS) provides military providers Defense Patient Safety reports from the Food and Drug Administration (FDA) after a drug´s release to market.	0.000	-	-	-	-
Accomplishments/Planned Programs Subtotals	0.000	-	-	-	-

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
• BA-1, 0807781HP: *Non-Central Information Management/ Information Technology*	0.000	0.000	0.000	-	0.000	-	-	-	-	Continuing	Continuing
• BA-1, 0807714HP: *Other Health Activities*	0.000	0.000	0.000	-	0.000	-	-	-	-	Continuing	Continuing
• BA-1, 0807798HP: *Management Headquarters*	0.000	0.000	0.000	-	0.000	-	-	-	-	Continuing	Continuing

Remarks

D. Acquisition Strategy

Evaluate and use the most appropriate business, technical, contract and support strategies and acquisition approach to minimize costs, reduce program risks, and remain within schedule while meeting program objectives. Strategy is revised as required as a result of periodic program reviews or major decisions.

Exhibit R-2A, RDT&E Project Justification: PB 2023 Defense Health Agency			Date: March 2022
Appropriation/Budget Activity 0130 / 2	R-1 Program Element (Number/Name) PE 0605013DHA / *Information Technology Development*	Project (Number/Name) 283P / *Mobile HealthCare Environment (MHCE)*	

COST ($ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
283P: *Mobile HealthCare Environment (MHCE)*	1.856	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing

A. Mission Description and Budget Item Justification

The Army Medical Command received PE 0605013 funding to identify, explore, and demonstrate key information technologies to overcome medical and military unique technology barriers. The Mobile HealthCare Environment (MHCE) is the capability of secure, bidirectional messaging and data exchange between patients, providers and clinics using any electronic device.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Title: Mobile HealthCare Environment (MHCE) ***Description:*** The Mobile HealthCare Environment (MHCE) is the capability of secure, bidirectional messaging and data exchange between patients, providers and clinics using any electronic device.	0.000	-	-	-	-
Accomplishments/Planned Programs Subtotals	0.000	-	-	-	-

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
• BA-1, 0807781HP: *Non-Central Information Management/ Information Technology*	0.000	0.000	0.000	-	0.000	-	-	-	-	Continuing	Continuing

Remarks

D. Acquisition Strategy

Evaluate and use the most appropriate business, technical, contract and support strategies and acquisition approach to minimize costs, reduce program risks, and remain within schedule while meeting program objectives. Strategy is revised as required as a result of periodic program reviews or major decisions.

Exhibit R-2A, RDT&E Project Justification: PB 2023 Defense Health Agency			Date: March 2022
Appropriation/Budget Activity 0130 / 2	R-1 Program Element (Number/Name) PE 0605013DHA / *Information Technology Development*	Project (Number/Name) 423C / *Defense Center of Excellence (T2T/ PBH TERM) (DHA)*	

COST ($ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
423C: *Defense Center of Excellence (T2T/PBH TERM) (DHA)*	4.267	0.465	0.483	0.411	0.000	0.411	0.411	0.411	0.000	0.000	Continuing	Continuing

A. Mission Description and Budget Item Justification

The Defense Centers of Excellence for Psychological Health and Traumatic Brain Injury (DCoE) provides the Military Health System with current and emerging psychological health and traumatic brain injury clinical and educational information. DCOE identifies gaps and prioritize needs in psychological health and TBI research, and then translate that research into clinical practice to improve patient outcomes.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Title: Defense Center of Excellence (DHA) T2T and PBH TERM	0.465	0.483	0.411	0.000	0.411
Description: DCoE programs and products are developed and implemented to drive innovation across the continuum of care by identifying treatment options and other clinical and research methods that deliver superior healthcare outcomes. Products range from tools customized for healthcare providers to electronic resources such as online games and mobile apps for Service Members and their Families. Telehealth and Technology Toolkit (T2T):This project will organize a toolkit of components in the areas of PH and telehealth that can be used both within and outside DoD. The focus of the toolkit is NOT to develop duplicative components, but allow room for collaboration and remote access to tools. The T2 Toolkit consists of mobile applications, 3-Dimensional applications (apps) , and supporting websites. These applications will combine to create a system that covers many areas of Psychological Health (PH) for the Department of Defense, family members. Psychological and Behavioral Health – Tools for Evaluation, Risk and Management (PBH-TERM) is a web-based psychological and behavioral health (BH) information technology application which supports evidence-based, standardized and integrated BH initiatives and program evaluation. ***FY 2022 Plans:*** Will continue support for web services development software. ***FY 2023 Base Plans:*** Will continue support for web services development software. ***FY 2023 OOC Plans:***					

Exhibit R-2A, RDT&E Project Justification: PB 2023 Defense Health Agency		Date: March 2022
Appropriation/Budget Activity 0130 / 2	**R-1 Program Element (Number/Name)** PE 0605013DHA / *Information Technology Development*	**Project (Number/Name)** 423C / *Defense Center of Excellence (T2T/ PBH TERM) (DHA)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
N/A ***FY 2022 to FY 2023 Increase/Decrease Statement:*** Increase due to planned requirements for web services development software in FY23.					
Accomplishments/Planned Programs Subtotals	0.465	0.483	0.411	0.000	0.411

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

Evaluate and use the most appropriate business, technical, contract and support strategies and acquisition approach to minimize costs, reduce program risks, and remain within schedule while meeting program objectives. Strategy is revised as required as a result of periodic program reviews or major decisions.

Exhibit R-2A, RDT&E Project Justification: PB 2023 Defense Health Agency			Date: March 2022
Appropriation/Budget Activity 0130 / 2	R-1 Program Element (Number/Name) PE 0605013DHA / *Information Technology Development*	Project (Number/Name) 480D / *Defense Occupational and Environmental Health Readiness System - Industrial Hygiene (DOEHRS-IH) (Tri-Service)*	

COST ($ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
480D: *Defense Occupational and Environmental Health Readiness System - Industrial Hygiene (DOEHRS-IH) (Tri-Service)*	18.000	8.714	8.701	8.309	0.000	8.309	8.484	8.662	9.074	9.255	Continuing	Continuing

A. Mission Description and Budget Item Justification

Defense Occupational and Environmental Health Readiness System - Industrial Hygiene (DOEHRS-IH) is a comprehensive, automated information system that provides a single point for assembling, comparing, using, evaluating, and storing occupational personnel exposure information, workplace environmental monitoring data, personnel protective equipment usage data, observation of work practices data, and employee health hazard educational data. DOEHRS-IH will provide for the definition, collection and analysis platform to generate and maintain a Service Member Longitudinal Exposure Record. DOEHRS-IH will describe the exposure assessment, identify similar exposure groups, establish a longitudinal exposure record baseline to facilitate post-deployment follow-up, and provide information to enable exposure-based medical surveillance and risk reduction.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Title: Defense Occupational and Environmental Health Readiness System - Industrial Hygiene (DOEHRS-IH) (Tri-Service)	8.714	8.701	8.309	0.000	8.309
Description: Configure, enhance, and interface DOEHRS-IH modules.					
FY 2022 Plans: Will continue software development and significant enhancements to existing software to include implementation of a DOEHRS-IH HAZMAT/SDS capability, DOEHRS-IH to DOEHRS-HC Interface, DOEHRS-IH Interface Design/Development to the Defense Medical Logistics – Enterprise Solution (DML-ES), Thermal Stress Design/Development, Confined Spaces Design/Development and Critical User Enhancements.					
FY 2023 Base Plans: Will continue software development and significant enhancements to existing software to include implementation of a DOEHRS-IH HAZMAT/SDS capability, DOEHRS-IH to DOEHRS-HC Interface, DOEHRS-IH Interface					

Exhibit R-2A, RDT&E Project Justification: PB 2023 Defense Health Agency		Date: March 2022
Appropriation/Budget Activity 0130 / 2	**R-1 Program Element (Number/Name)** PE 0605013DHA / *Information Technology Development*	**Project (Number/Name)** 480D / *Defense Occupational and Environmental Health Readiness System - Industrial Hygiene (DOEHRS-IH) (Tri-Service)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Design/Development to the Defense Medical Logistics – Enterprise Solution (DML-ES), Thermal Stress Design/ Development, Confined Spaces Design/Development and Critical User Enhancements. ***FY 2023 OOC Plans:*** N/A ***FY 2022 to FY 2023 Increase/Decrease Statement:*** Funding decreased based on requirements for FY 2023.					
Accomplishments/Planned Programs Subtotals	8.714	8.701	8.309	0.000	8.309

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

Evaluate and use the most appropriate business, technical, contract and support strategies and acquisition approach to minimize costs, reduce program risks, and remain within schedule while meeting program objectives. Strategy is revised as required as a result of periodic program reviews or major decisions.

Exhibit R-2A, RDT&E Project Justification: PB 2023 Defense Health Agency			Date: March 2022
Appropriation/Budget Activity 0130 / 2	R-1 Program Element (Number/Name) PE 0605013DHA / *Information Technology Development*	Project (Number/Name) 482A / *E-Commerce (DHA)*	

COST ($ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
482A: *E-Commerce (DHA)*	18.156	4.369	0.959	1.114	0.000	1.114	1.138	1.161	1.185	1.208	Continuing	Continuing

A. Mission Description and Budget Item Justification

The DHP, RDT&E appropriation includes the following TMA initiatives: Electronic Commerce System(E-Commerce): This system was developed for centralized collection, integration, and reporting of accurate purchased care contracting and financial data. It provides an integrated set of data reports from multiple data sources to management, as well as tools to control the end-to-end program change management process. E-Commerce replaces multiple legacy systems. E-Commerce consists of several major subsystems including: CM subsystem utilizing Prism software to support contract action development and documentation; the RM subsystem utilizing Oracle Federal Financials and TED interface software to support the budgeting, accounting, case recoupment, and disbursement processes; the document management subsystem utilizing Documentum software to provide electronic storage, management, and retrieval of contract files; Management Tracking and Reporting subsystem utilizing custom software to provide reports to assist in the management and tracking of changes to the managed care contracts as well as current and out year liabilities; the Purchased Care Web site that provides up-to-date financial information for both TMA and the Services concerning the military treatment facilities' (MTFs') expenditures for MTF enrollee purchased care and supplemental care. E-Commerce includes 5 major subsystems and over 60 servers supporting development, test, and production. The system will be utilized by several hundred users in more than 7 different organizations. Project oversight and coordination must be provided to ensure that the needs of the disparate organizations are met without impacting the system performance or support to any individual user. Server configurations must be kept current in terms of security policies, user authorizations, and interactions with other systems and functions. All of these activities must be managed and coordinated on a daily basis.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Title: E-Commerce (DHA)	4.369	0.959	1.114	0.000	1.114
Description: The DHP, RDT&E appropriation includes the following TMA initiatives: Electronic Commerce System(E-Commerce): This system was developed for centralized collection, integration, and reporting of accurate purchased care contracting and financial data. It provides an integrated set of data reports from multiple data sources to management, as well as tools to control the end-to-end program change management process. E-Commerce replaces multiple legacy systems. E-Commerce consists of several major subsystems including: CM subsystem utilizing Prism software to support contract action development and documentation; the RM subsystem utilizing Oracle Federal Financials and TED interface software to support the budgeting, accounting, case recoupment, and disbursement processes; the document management subsystem utilizing Documentum software to provide electronic storage, management, and retrieval of contract files; Management Tracking and Reporting subsystem utilizing custom software to provide reports to assist in the management and tracking of changes to the managed care contracts as well as current and out year liabilities; the Purchased Care Web site that provides up-to-date financial information for both TMA and the Services concerning the military treatment facilities' (MTFs') expenditures for MTF enrollee purchased care and supplemental care. E-					

Exhibit R-2A, RDT&E Project Justification: PB 2023 Defense Health Agency		Date: March 2022
Appropriation/Budget Activity 0130 / 2	**R-1 Program Element (Number/Name)** PE 0605013DHA / *Information Technology Development*	**Project (Number/Name)** 482A / *E-Commerce (DHA)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Commerce includes 5 major subsystems and over 60 servers supporting development, test, and production. The system will be utilized by several hundred users in more than 7 different organizations. Project oversight and coordination must be provided to ensure that the needs of the disparate organizations are met without impacting the system performance or support to any individual user. Server configurations must be kept current in terms of security policies, user authorizations, and interactions with other systems and functions. All of these activities must be managed and coordinated on a daily basis. ***FY 2022 Plans:*** Will continue to modernize the Electronic Commerce System for contracts, and reporting as well as adapting to health care policy and guidance. ***FY 2023 Base Plans:*** Will continue to modernize the Electronic Commerce System for contracts, and reporting as well as adapting to health care policy and guidance. ***FY 2023 OOC Plans:*** N/A ***FY 2022 to FY 2023 Increase/Decrease Statement:*** Realigned funding to DHP O&M as parts of the system transition to sustainment					
Accomplishments/Planned Programs Subtotals	4.369	0.959	1.114	0.000	1.114

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
• BA-1, 0807752HP: *Miscellaneous Support Activities*	0.132	0.135	0.138	-	0.138	-	-	-	-	Continuing	Continuing
• BA-3, 0807721HP: *Replacement/Modernization*	0.571	0.583	0.595	-	0.595	-	-	-	-	Continuing	Continuing

Remarks

D. Acquisition Strategy

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2023 Defense Health Agency			Date: March 2022
Appropriation/Budget Activity 0130 / 2	R-1 Program Element (Number/Name) PE 0605013DHA / *Information Technology Development*	Project (Number/Name) 485 / *Legacy Data Repository (DHA-C)*	

COST ($ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
485: *Legacy Data Repository (DHA-C)*	11.387	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing

A. Mission Description and Budget Item Justification

The Legacy Data Repository (LDR) will provide the strategy, analysis, and solution to assume data management and governance for legacy Clinical and Business data for Defense Health Agency's Solutions Delivery Division systems that will be decommissioned as the Military Health System (MHS) Genesis electronic health record is deployed.

As MHS Genesis deploys to each site, legacy systems cannot decommission without a legacy data repository to safely and securely migrate data – absence a LDR solution negates and ignores the underlying requirement. Clinicians without access to legacy patient history can create a direct patient safety issue. The legacy component of a patient's Legal Medical Record will no longer be accessible once MHS Genesis rolls out.

LDR will identify, capture, organize, disseminate, and synthesize required legacy data needed to support medical information requirements for Business Intelligence (BI), Continuity of Care, and Archival in support of Defense Health Modernization Systems (DHMS) deployment plans, legacy system decommissioning plans, and operations and sustainment activities within their areas of responsibility.

This initial investment would allow the MHS to realize cost savings by decommissioning systems with overlapping capabilities to MHS Genesis, and reduce the legacy system footprint across the enterprise. Further, LDR would make legacy data available for clinicians through a clinical viewer to compliment the longitudinal record of MHS Genesis. This project will enable clinicians to holistically view a service member's medical record through both MHS Genesis and a legacy viewer. Downstream system dependent on legacy data would also be benefited through a persistence of this information.

As the LDR takes responsibility for legacy data, it must be retained within a flexible, scalable, and cost effective platform, but must also maintain the discipline of existing MHS data governance and management standards. While meeting these data governance and management standards, legacy data will be maintained in a variety of formats and degrees of normalization and structuring (i.e. discrete data, document, object, and file level).

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Title: Legacy Data Repository	0.000	-	-	-	-
Description: LDR will identify, capture, organize, disseminate, and synthesize required legacy data needed to support medical information requirements for Business Intelligence (BI), Continuity of Care, and Archival in support of Defense Health Modernization Systems (DHMS) deployment plans, legacy system decommissioning plans, and operations and sustainment activities within their areas of responsibility.					

Exhibit R-2A, RDT&E Project Justification: PB 2023 Defense Health Agency		Date: March 2022
Appropriation/Budget Activity 0130 / 2	**R-1 Program Element (Number/Name)** PE 0605013DHA / *Information Technology Development*	**Project (Number/Name)** 485 / *Legacy Data Repository (DHA-C)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Accomplishments/Planned Programs Subtotals	0.000	-	-	-	-

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

Evaluate and use the most appropriate business, technical, contract and support strategies and acquisition approach to minimize costs, reduce program risks, and remain within schedule while meeting program objectives. Strategy is revised as required as a result of periodic program reviews or major decisions.

Exhibit R-2A, RDT&E Project Justification: PB 2023 Defense Health Agency			Date: March 2022
Appropriation/Budget Activity 0130 / 2	R-1 Program Element (Number/Name) PE 0605013DHA / *Information Technology Development*	Project (Number/Name) 505 / *Military Health System Virtual Health Program (MHS VHP)*	

COST ($ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
505: *Military Health System Virtual Health Program (MHS VHP)*	1.927	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing

A. Mission Description and Budget Item Justification

Purpose: Establish a unified MHS program to augment military medicine with robust 'anywhere' virtual health capabilities.
The program will include three distinct capabilities in order to meet its initial expected business outcome. The first capability will incorporate secure clinical VTC (synchronous visits) to enable a provider in one location to offer diagnosis and treatment to a patient in another location. Synchronous visits can take place between a provider and patient at different MTFs, or at the patient's location (e.g. their home or other location deemed appropriate by the provider). Synchronous visits at the patient's location can be conducted for primary or specialty care. Primary and Specialty Care appointments via synchronous visits will enable health care anytime, anywhere. The second capability incorporates an Asynchronous secure portal or teleconsultation portal, to enable a pool of specialty care providers globally to deliver timely clinical advice, primarily in operational settings where expertise is scarce, but also in garrison when needed. The portal facilitates 'store and forward' transmission of electronic medical information and associated digital images between health care providers. Specialty clinicians provide expert advice and guidance to the patient's attending physicians, assisting them in the disposition or local treatment options. The third capability is remote health monitoring, to collect, track, and transmit biometric data from the patient via a secure portal to an MTF. The data is accessed by a care coordinator or health care provider at the MTF to provide real-time medical interventions that can improve a patient's health and quality of life.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Title: Military Health System Virtual Health Program (MHS VHP)	0.000	-	-	-	-
Description: GOAL: The MHS VHP will connect our beneficiaries to health care globally to increase readiness, access, quality, and patient safety. BENEFIT: Using VH, the best of MHS Medicine across the world can be brought to the patient wherever they are – deployed or in garrison. As a modality without geographic limits, VH extends access to quality primary care, behavioral health, and medical specialty care to remote locations where beneficiaries may be geographically separated from comprehensive Military Treatment Facility (MTF) based care, and where such care is not readily available in the surrounding community. Additionally, VH can help the MHS use its clinical capacity more effectively; cross-leveraging clinical expertise when and where it is needed.					
Accomplishments/Planned Programs Subtotals	0.000	-	-	-	-

Exhibit R-2A, RDT&E Project Justification: PB 2023 Defense Health Agency		Date: March 2022
Appropriation/Budget Activity 0130 / 2	**R-1 Program Element (Number/Name)** PE 0605013DHA / *Information Technology Development*	**Project (Number/Name)** 505 / *Military Health System Virtual Health Program (MHS VHP)*

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

To be determined as program matures.

Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Defense Health Agency											Date: March 2022	
Appropriation/Budget Activity 0130: *Defense Health Program I* BA 2: *RDT&E*					R-1 Program Element (Number/Name) PE 0605026DHA *I Information Technology Development - DoD Healthcare Management System Modernization (DHMSM)*							
COST ($ in Millions)	**Prior Years**	**FY 2021**	**FY 2022**	**FY 2023 Base**	**FY 2023 OCO**	**FY 2023 Total**	**FY 2024**	**FY 2025**	**FY 2026**	**FY 2027**	**Cost To Complete**	**Total Cost**
Total Program Element	62.946	18.336	15.751	12.024	0.000	12.024	12.264	6.144	6.038	5.141	Continuing	Continuing
483A: *Information Technology Development - DoD Healthcare Management System Modernization (DHMSM) at DHA*	62.946	18.336	15.751	12.024	0.000	12.024	12.264	6.144	6.038	5.141	Continuing	Continuing
Program MDAP/MAIS Code: **Project MDAP/MAIS Code(s):** 496												

Note

n/a

A. Mission Description and Budget Item Justification

DHMSM will replace the DoD legacy healthcare management systems with a commercial off-the-shelf capability that is open, modular, and standards-based with non-proprietary interfaces. DHMSM will support the Department's goals of net- centricity by providing a framework for full human and technical connectivity and interoperability that allows DoD users and mission partners to share the information they need, when they need it, in a form they can understand and act on with confidence, and protects information from those who should not have it. Once fielded, the Electronic Health Record (EHR) will support the following healthcare activities for DoD's practitioners and beneficiaries:

- Clinical workflow and provider clinical decision support;
- Capture, maintain, use, protect, preserve and share health data and information;
- Retrieval and presentation of health data and information that is meaningful for EHR users regardless of where the patient's records are physically maintained; and
- Analysis and management of health information from multiple perspectives to include population health, military medical readiness, clinical quality, disease management, and medical research.

Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Defense Health Agency	Date: March 2022
Appropriation/Budget Activity 0130: *Defense Health Program I* BA 2: *RDT&E*	**R-1 Program Element (Number/Name)** PE 0605026DHA *I Information Technology Development - DoD Healthcare Management System Modernization (DHMSM)*

B. Program Change Summary ($ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Previous President's Budget	18.336	15.751	12.024	0.000	12.024
Current President's Budget	18.336	15.751	12.024	0.000	12.024
Total Adjustments	0.000	0.000	0.000	0.000	0.000
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			

Exhibit R-2A, RDT&E Project Justification: PB 2023 Defense Health Agency			Date: March 2022
Appropriation/Budget Activity 0130 / 2	R-1 Program Element (Number/Name) PE 0605026DHA / *Information Technology Development - DoD Healthcare Management System Modernization (DHMSM)*	Project (Number/Name) 483A / *Information Technology Development - DoD Healthcare Management System Modernization (DHMSM) at DHA*	

COST ($ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
483A: *Information Technology Development - DoD Healthcare Management System Modernization (DHMSM) at DHA*	62.946	18.336	15.751	12.024	0.000	12.024	12.264	6.144	6.038	5.141	Continuing	Continuing

Project MDAP/MAIS Code: 496

A. Mission Description and Budget Item Justification

The DHMSM program acquired an integrated inpatient/outpatient Best of Suite (BoS) electronic health record (EHR) solution, augmented by the Best of Breed (BoB) product(s). The overarching goal of the program is to enable healthcare teams to deliver high-quality, safe care and preventive services to patients through the use of easily accessible standards-based computerized patient records. The anticipated benefits include: improved accuracy of diagnoses and medication; improved impact on health outcomes; increased patient participation in the healthcare process; improved patient-centered care coordination; and increased practice efficiencies in all settings, including all DoD operational environments.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Title: DoD Healthcare Management System Modernization (DHMSM) Program	18.336	15.751	12.024	0.000	12.024
Description: DHMSM will replace the DoD legacy healthcare management systems with a commercial off-the-shelf capability that is open, modular, and standards-based. DHMSM will support the Department's goals of net-centricity by providing a framework for full human and technical connectivity and interoperability that allows DoD users and mission partners to share the information they need, when they need it, in a form they can understand and act on with confidence, and protects information from those who should not have it. Once fielded, the EHR will support the following healthcare activities for DoD's practitioners and beneficiaries: • Clinical workflow and provider clinical decision support; • Capture, maintain, use, protect, preserve and share health data and information; • Retrieval and presentation of health data and information that is meaningful for EHR users regardless of where the patient's records are physically maintained; and • Analysis and management of health information from multiple perspectives to include population health, military medical readiness, clinical quality, disease management, and medical research.					
FY 2022 Plans: FY 2022 Plans:					

Exhibit R-2A, RDT&E Project Justification: PB 2023 Defense Health Agency		Date: March 2022
Appropriation/Budget Activity 0130 / 2	**R-1 Program Element (Number/Name)** PE 0605026DHA / *Information Technology Development - DoD Healthcare Management System Modernization (DHMSM)*	**Project (Number/Name)** 483A / *Information Technology Development - DoD Healthcare Management System Modernization (DHMSM) at DHA*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
FY22 RDT&E: • Conduct Test Planning of new interfaces, patches, and of semi-annual releases. • Support configuration efforts for approved enhancements. FY22 Procurement: • Purchase required commercial software licenses and perform multiple deployments of the modernized DHMSM EHR to MTFs. • Support Deployment activities to include site visits, localized configuration, deployment activities and on-site deployment support for multiple Wave Deployments (each containing multiple MTFs and Clinics). FY22 O&M: • Operate and maintain DHMSM system, including recurring configuration, integration, and test activities, software license maintenance, hardware refresh, system hosting, and recurring change management and training as applicable. • Continue business management operations and contract management oversight.					
FY 2023 Base Plans: FY23 RDT&E: • Conduct Test Planning of new interfaces, patches, and of semi-annual releases. • Support configuration efforts for approved enhancements. • Conduct Test Planning of new interfaces, patches, and of semi-annual releases. • Support configuration efforts for approved enhancements. FY23 Procurement: • Purchase required commercial software licenses and perform multiple deployments of the modernized DHMSM EHR to MTFs. • Support Deployment activities to include site visits, localized configuration, deployment activities and on-site deployment support for multiple Wave Deployments (each containing multiple MTFs and Clinics). FY23 O&M: • Operate and maintain DHMSM system, including recurring configuration, integration, and test activities, software license maintenance, hardware refresh, system hosting, and recurring change management and training as applicable. • Continue business management operations and contract management oversight.					
FY 2023 OOC Plans:					

Exhibit R-2A, RDT&E Project Justification: PB 2023 Defense Health Agency		Date: March 2022
Appropriation/Budget Activity 0130 / 2	**R-1 Program Element (Number/Name)** PE 0605026DHA / *Information Technology Development - DoD Healthcare Management System Modernization (DHMSM)*	**Project (Number/Name)** 483A / *Information Technology Development - DoD Healthcare Management System Modernization (DHMSM) at DHA*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
N/A ***FY 2022 to FY 2023 Increase/Decrease Statement:*** FY 2022 RDT&E funds decrease in accordance with acquisition schedule.					
Accomplishments/Planned Programs Subtotals	18.336	15.751	12.024	0.000	12.024

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

Evaluate and use the most appropriate business, technical, contract and support strategies and acquisition approach to minimize costs, reduce program risks, and remain within schedule while meeting program objectives. Strategy is revised as required as a result of periodic program reviews or major decisions.

Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Defense Health Agency	Date: March 2022
Appropriation/Budget Activity 0130: *Defense Health Program I* BA 2: *RDT&E*	**R-1 Program Element (Number/Name)** PE 0605045DHA *I Joint Operational Medicine Information System (JOMIS)*

COST ($ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
Total Program Element	133.201	46.214	52.948	18.082	0.000	18.082	18.731	21.984	23.014	24.273	Continuing	Continuing
447A: *Joint Operational Medicine Information System (JOMIS)*	133.201	46.214	52.948	18.082	0.000	18.082	18.731	21.984	23.014	24.273	Continuing	Continuing

Program MDAP/MAIS Code: 521

A. Mission Description and Budget Item Justification

The Joint Operational Medicine Information Systems (JOMIS) Portfolio Program will acquire solutions to modernize, deploy, and sustain the Department of Defense's (DoD) operational medicine (OpMed) information systems (IS) capabilities. OpMed systems provide commanders and medical professionals with integrated, timely, and accurate information to make critical command and control and medical decisions. These operational systems will function in constrained, intermittent, and non-existent communications environments while providing access to authoritative sources of clinical data. The JOMIS Program is a declared Joint Interest for capability requirements executed under the Adaptive Acquisition Framework.

JOMIS will pursue efforts that allow it to sunset costly and difficult to maintain legacy systems in conjunction with functional Subject Matter Experts (SME), Service representatives, Combatant Commanders (CCMD), and the Defense Health Agency's (DHA) Joint Chiefs of Staff (J6) Solutions Delivery Division and Cyber Divisions. The Theater Medical Information Requirement Information Systems Capabilities Development Document (TMIR IS CDD) and the Joint Requirements Oversight Council Memorandum (JROCM)signed February 28, 2017 document the knowledge management capabilities required to enable the following health care functions: Health Care Delivery (HCD), Medical Logistics (MedLOG), Medical Command and Control (MedC2), Medical Situational Awareness (MedSA) and Patient Movement.

B. Program Change Summary ($ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Previous President's Budget	46.214	52.948	18.082	0.000	18.082
Current President's Budget	46.214	52.948	18.082	0.000	18.082
Total Adjustments	0.000	0.000	0.000	0.000	0.000
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			

Exhibit R-2A, RDT&E Project Justification: PB 2023 Defense Health Agency			Date: March 2022
Appropriation/Budget Activity 0130 / 2	R-1 Program Element (Number/Name) PE 0605045DHA / *Joint Operational Medicine Information System (JOMIS)*	Project (Number/Name) 447A / *Joint Operational Medicine Information System (JOMIS)*	

COST ($ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
447A: *Joint Operational Medicine Information System (JOMIS)*	133.201	46.214	52.948	18.082	0.000	18.082	18.731	21.984	23.014	24.273	Continuing	Continuing

A. Mission Description and Budget Item Justification

The purpose of JOMIS is to modernize, deploy, and sustain the DoD's OpMed IS capabilities that enable comprehensive health services to meet Warfighter requirements for military medical operations. JOMIS is intended to function in constrained, intermittent, and non-existent communications environments while providing access to authoritative sources of clinical data.

There are technological and business challenges to the OpMed mission including aged technology, inefficient design standards, overreliance on obsolete code, lack of automation, different deployment methods by Services that impacts standard user adoption, inefficient and overly-bureaucratic acquisition methods, and the lack of unified functional user input. To mitigate these challenges, JOMIS has planned the following actions:
Translate the TMIR IS CDD into a modern Portfolio Capability Roadmap that can be abstracted down to needs statements, personas, and user stories that can inform leading-edge design practices
• Construct program governance that can be achieved through external consultancy and resource investment into an Operational Medicine Functional Champion (OMFC) to create a high achieving team that envisions the future of OpMed capabilities as they are integrated with DoD and Federal medical data landscapes
• Leverage experiential learning on current innovative projects that provide ample opportunities to explore modern software delivery methods that can create and endure software delivery environments that evolve with the OpMed mission
• Take advantage of industry and DoD best practices to evolve and perfect development methods (e.g., Agile and Development Security Operations) which will facilitate the ability to "continuously integrate" and "continuously deliver" capability throughout the software development life cycle

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Title: Joint Operational Medicine Information System (JOMIS)	46.214	52.948	18.082	0.000	18.082
Description: Description: Specific contribution to mission delivery: The JOMIS Portfolio Program will acquire solutions to modernize, deploy, and sustain the DoD's OpMed IS capabilities. OpMed systems provide commanders and medical professionals with integrated, timely, and accurate information to make critical command and control and medical decisions. These operational systems will function in constrained, intermittent, and non-existent communications environments while providing access to authoritative sources of clinical data.					
FY 2022 Plans: • Execute OpMed Capability Roadmap					

Exhibit R-2A, RDT&E Project Justification: PB 2023 Defense Health Agency		Date: March 2022
Appropriation/Budget Activity 0130 / 2	**R-1 Program Element (Number/Name)** PE 0605045DHA / *Joint Operational Medicine Information System (JOMIS)*	**Project (Number/Name)** 447A / *Joint Operational Medicine Information System (JOMIS)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
• Acquire Continuous Integration/Continuous Delivery platform to ensure stable, cyber-secure infrastructure for development, testing, training, and production • Initiate development of Operational Medicine Data Service (OMDS) • Acquire software and application development services through Multi-award Contract • Execute Healthcare Delivery development plan including development of MHS GENESIS-Theater, Role 1 and 2, and Theater Blood Management system ***FY 2023 Base Plans:*** • Continue to execute OpMed Capability Roadmap • Continue development of Operational Medicine Data Service (OMDS) • Continue new Healthcare Delivery (HCD) capability development, system integration and testing activities including development of MHS GENESIS-Theater and Theater Blood Management system. • Conduct Test Planning of new interfaces, patches, and Minimum Viable Capability releases (MVCR). ***FY 2023 OOC Plans:*** N/A ***FY 2022 to FY 2023 Increase/Decrease Statement:*** Reflects the program's updated strategy and timeline.					
Accomplishments/Planned Programs Subtotals	46.214	52.948	18.082	0.000	18.082

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

n/a

D. Acquisition Strategy

In FY21 JOMIS received approval of a new Acquisition Strategy from its Milestone Decision Authority (MDA). The FY21 Overarching Portfolio Acquisition Strategy allows JOMIS to acquire solutions across all five Healthcare functions as described in the TMIR IS CDD. Further, the Portfolio Acquisition Strategy allows JOMIS to utilize the Adaptive Acquisition Framework and the Software Pathway of Acquisition to continuously enhance existing capabilities and deliver new capabilities prioritized by the OpMed Functional Community. The Portfolio Acquisition Strategy ensures that the JOMIS Program will evaluate and use the most appropriate business, technical, contract and support strategies, and acquisition approaches to minimize costs, reduce program risks, and remain within the schedule while meeting program objectives.

Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Defense Health Agency											Date: March 2022	
Appropriation/Budget Activity 0130: *Defense Health Program I* BA 2: *RDT&E*					R-1 Program Element (Number/Name) PE 0605145DHA *I Medical Products and Support Systems Development*							
COST ($ in Millions)	**Prior Years**	**FY 2021**	**FY 2022**	**FY 2023 Base**	**FY 2023 OCO**	**FY 2023 Total**	**FY 2024**	**FY 2025**	**FY 2026**	**FY 2027**	**Cost To Complete**	**Total Cost**
Total Program Element	72.921	21.068	21.489	64.030	0.000	64.030	58.562	57.895	62.193	63.048	Continuing	Continuing
500A: *CSI - Congressional Special Interests*	18.382	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
375: *GDF - Medical Products and Support System Development*	54.539	21.068	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
375A: *GDF - Medical Simulation and Training*	0.000	0.000	2.000	2.000	0.000	2.000	2.000	2.000	2.000	2.040	Continuing	Continuing
375B: *GDF - Medical Readiness*	0.000	0.000	8.536	5.725	0.000	5.725	5.674	5.967	7.490	7.641	Continuing	Continuing
375C: *GDF - Medical Combat Support*	0.000	0.000	10.953	14.194	0.000	14.194	14.683	14.838	13.770	14.045	Continuing	Continuing
375D: *GDF - Medical Products and Support System Development*	0.000	0.000	0.000	42.111	0.000	42.111	36.205	35.090	38.933	39.322	Continuing	Continuing

A. Mission Description and Budget Item Justification

Guidance for Development of the Force – Medical Products and Support Systems Development: This program element (PE) provides funding for system development and demonstration of medical commodities delivered from the various medical advanced development and prototyping Department of Defense (DoD) Components that are directed at meeting validated requirements prior to full-rate initial production and fielding, including initial operational test and evaluation and clinical trials for products that require US Food and Drug Administration approval.

Development, test, and evaluation in this PE is designed to address requirements identified through the Joint Capabilities Integration and Development System and other Department of Defense operational needs. Medical development, test, and evaluation priorities for the Defense Health Program (DHP) are guided by, and will support, the National Defense Strategy, the Joint Staff Surgeon's Joint Concept for Health Services, and other overarching DoD strategic framework documents.

Coordination occurs through the planning and execution activities of the Defense Health Agency Component Acquisition Executive (DHA CAE) as the Milestone Decision Authority for medical materiel development efforts. As technologies mature, the most promising efforts will transition to production and deployment.

Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Defense Health Agency	Date: March 2022
Appropriation/Budget Activity 0130: *Defense Health Program I* BA 2: *RDT&E*	**R-1 Program Element (Number/Name)** PE 0605145DHA *I Medical Products and Support Systems Development*

B. Program Change Summary ($ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Previous President's Budget	21.068	21.489	64.030	0.000	64.030
Current President's Budget	21.068	21.489	64.030	0.000	64.030
Total Adjustments	0.000	0.000	0.000	0.000	0.000
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			

Congressional Add Details ($ in Millions, and Includes General Reductions)	FY 2021	FY 2022
Project: 500A: *CSI - Congressional Special Interests*		
Congressional Add: *CSI - Congressional Speical Interest*	0.000	-
Congressional Add Subtotals for Project: 500A	0.000	-
Project: 375D: *GDF - Medical Products and Support System Development*		
Congressional Add: *GDF MPSACD Medical Products and Support System Development*	0.000	0.000
Congressional Add Subtotals for Project: 375D	0.000	0.000
Congressional Add Totals for all Projects	0.000	0.000

Exhibit R-2A, RDT&E Project Justification: PB 2023 Defense Health Agency			Date: March 2022
Appropriation/Budget Activity 0130 / 2	R-1 Program Element (Number/Name) PE 0605145DHA / *Medical Products and S upport Systems Development*	Project (Number/Name) 500A / *CSI - Congressional Special Interests*	

COST ($ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
500A: *CSI - Congressional Special Interests*	18.382	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing

A. Mission Description and Budget Item Justification

In FY 2019, the Defense Health Program funded Congressional Special Interest (CSI) directed research. The strategy for the FY 2018 Congressionally-directed research program is to stimulate innovative research through a competitive, focused, peer-reviewed medical research at intramural and extramural research sites. Because of the CSI annual structure, out-year funding is not programmed.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022
Congressional Add: CSI - Congressional Speical Interest	0.000	-
FY 2021 Accomplishments: No CSI		
Congressional Adds Subtotals	0.000	-

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2023 Defense Health Agency			Date: March 2022
Appropriation/Budget Activity 0130 / 2	R-1 Program Element (Number/Name) PE 0605145DHA / *Medical Products and Support Systems Development*	Project (Number/Name) 375 / *GDF - Medical Products and Support System Development*	

COST ($ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
375: *GDF - Medical Products and Support System Development*	54.539	21.068	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing

Note

Starting in FY2022 Project 375 is being realigned into Projects 375A, 375B, and 375C.

A. Mission Description and Budget Item Justification

Guidance for Development of the Force-Medical Products and Support Systems Development: This funding supports materiel development activities that further system development and demonstration prior to initial full rate production and fielding of commodities.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Title: GDF - Medical Products and Support Systems Development (GDF-MPSSD) ***Description:*** GDF-Medical Products and Support Systems Development: This funding supports activities to support system development and demonstration prior to initial full rate production and fielding of medical commodities delivered from 0604110HP (Medical Products Support and Advanced Concept Development). Materiel development may include accelerated transition of US Food and Drug Administration (FDA)-licensed and unregulated products through clinical and field validation studies, advanced prototyping, risk reduction, operational test and evaluation, manufacturing, and product transition efforts for medical information technology applications and medical training systems technologies.	21.068	-	-	-	-
Accomplishments/Planned Programs Subtotals	21.068	-	-	-	-

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2023 Defense Health Agency			Date: March 2022
Appropriation/Budget Activity 0130 / 2	R-1 Program Element (Number/Name) PE 0605145DHA / *Medical Products and S upport Systems Development*	Project (Number/Name) 375A / *GDF - Medical Simulation and Training*	

COST ($ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
375A: *GDF - Medical Simulation and Training*	0.000	0.000	2.000	2.000	0.000	2.000	2.000	2.000	2.000	2.040	Continuing	Continuing

Note

Starting in FY 2022, Project 375A was realigned from Project 375. This Project is not a new start.

A. Mission Description and Budget Item Justification

Guidance for Development of the Force-Medical Simulation and Training: This funding supports material development activities that enhance system development and demonstration prior to initial full rate production and fielding of capabilities.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Title: GDF - Medical Simulation and Training	0.000	2.000	2.000	0.000	2.000
Description: GDF-Medical Products and Support Systems Development: This funding enhances activities to support system development and demonstration prior to initial full rate production and fielding of medical simulation delivered from 0604110HP (Medical Simulation and Training, Advanced Concept Development). Materiel development may include accelerated transition of Medical Simulation products through clinical and field validation studies, advanced prototyping, risk reduction, operational test and evaluation, manufacturing, and product transition efforts for medical information technology applications and medical training systems technologies.					
FY 2022 Plans: Programs will focus on development and application of medical simulation and training capabilities for hospital care and operations. Medical Simulation Training Systems will begin to develop standardized training capabilities for point of injury, trauma simulation, hospital training, along with a common platform architecture that improves medical care across the DoD.					
FY 2023 Base Plans: FY2023 plans continue efforts as outlined in FY 2022 and support the development and demonstration of medical simulation capabilities.					
FY 2023 OOC Plans: N/A					
FY 2022 to FY 2023 Increase/Decrease Statement:					

Exhibit R-2A, RDT&E Project Justification: PB 2023 Defense Health Agency		Date: March 2022
Appropriation/Budget Activity 0130 / 2	**R-1 Program Element (Number/Name)** PE 0605145DHA / *Medical Products and Support Systems Development*	**Project (Number/Name)** 375A / *GDF - Medical Simulation and Training*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
None					
Accomplishments/Planned Programs Subtotals	0.000	2.000	2.000	0.000	2.000

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

This program will test and evaluate medical simulation products and platforms developed in order to review data for operational and clinical use prior to production and fielding.

Exhibit R-2A, RDT&E Project Justification: PB 2023 Defense Health Agency			Date: March 2022
Appropriation/Budget Activity 0130 / 2	R-1 Program Element (Number/Name) PE 0605145DHA / *Medical Products and S upport Systems Development*	Project (Number/Name) 375B / *GDF - Medical Readiness*	

COST ($ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
375B: *GDF - Medical Readiness*	0.000	0.000	8.536	5.725	0.000	5.725	5.674	5.967	7.490	7.641	Continuing	Continuing

Note

Starting in FY 2022, Project 375B was realigned from Project 375. This Project is not a new start.

A. Mission Description and Budget Item Justification

Guidance for Development of the Force-Medical Readiness: This funding supports material development activities that enhance system development and demonstration prior to initial full rate production and fielding of capabilities.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Title: GDF - Medical Readiness	0.000	8.536	5.725	0.000	5.725
Description: GDF-Medical Readiness: This funding enhances activities to support system development and demonstration prior to initial full rate production and fielding of medical readiness capability delivered from 0604110HP (Medical Readiness, Advanced Concept Development). Materiel development may include accelerated transition of Medical Readiness products through clinical and field validation studies, advanced prototyping, risk reduction, operational test and evaluation, manufacturing, and product transition efforts for medical information technology applications and medical readiness systems technologies.					
FY 2022 Plans: Programs will focus on prevention of illness and injury along with optimization of human performance. Significant FY22 Programs: the Health Readiness and Performance System (HRAPS) plans to begin User Testing and Operational Assessment of its platform. Also, efforts will continue for Heat Optimization Decision Aids (HODA) program and Healthy Eating, Activity, & Lifestyle Training Headquarters (HEALTH) Decision Aid program.					
FY 2023 Base Plans: FY2023 plans continue efforts as outlined in FY 2022 and support the development and demonstration of medical readiness capabilities.					
FY 2023 OOC Plans: N/A					
FY 2022 to FY 2023 Increase/Decrease Statement:					

Exhibit R-2A, RDT&E Project Justification: PB 2023 Defense Health Agency		Date: March 2022
Appropriation/Budget Activity 0130 / 2	**R-1 Program Element (Number/Name)** PE 0605145DHA / *Medical Products and Support Systems Development*	**Project (Number/Name)** 375B / *GDF - Medical Readiness*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Increase due to inflation program growth.					
Accomplishments/Planned Programs Subtotals	0.000	8.536	5.725	0.000	5.725

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

This program will test and evaluate medical products in government-managed clinical trials in order to gather data to meet military and regulatory (e.g., FDA, Environmental Protection Agency) requirements for production and fielding.

Exhibit R-2A, RDT&E Project Justification: PB 2023 Defense Health Agency			Date: March 2022
Appropriation/Budget Activity 0130 / 2	R-1 Program Element (Number/Name) PE 0605145DHA / *Medical Products and S upport Systems Development*	Project (Number/Name) 375C / *GDF - Medical Combat Support*	

COST ($ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
375C: *GDF - Medical Combat Support*	0.000	0.000	10.953	14.194	0.000	14.194	14.683	14.838	13.770	14.045	Continuing	Continuing

Note

Starting in FY 2022, Project 375C was realigned from Project 375. This Project is not a new start.

A. Mission Description and Budget Item Justification

Guidance for Development of the Force-Medical Combat Support: This funding supports material development activities that enhance system development and demonstration prior to initial full rate production and fielding of capabilities.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Title: GDF - Medical Combat Support	0.000	10.953	14.194	0.000	14.194
Description: GDF-Medical Combat Support: This funding enhances activities to support system development and demonstration prior to initial full rate production and fielding of medical readiness capability delivered from 0604110HP (Medical Combat Support, Advanced Concept Development). Materiel development may include accelerated transition of Medical Combat Support products through clinical and field validation studies, advanced prototyping, risk reduction, operational test and evaluation, manufacturing, and product transition efforts for medical information technology applications and medical combat support systems technologies.					
FY 2022 Plans: Programs will focus on the continued operational support of Expeditionary Medical Refrigeration Unit (EMRU) program plans to achieve IOC and begin the process for fielding. Also, efforts will continue for Battlefield Pain Management – Ketamine and Joint Medical Exchange & Documentation of Information for Combat Casualty Care (J-MEDIC3).					
FY 2023 Base Plans: FY2023 plans continue efforts as outlined in FY 2022 and support the development and demonstration of medical combat support capabilities.					
FY 2023 OOC Plans: N/A					
FY 2022 to FY 2023 Increase/Decrease Statement:					

Exhibit R-2A, RDT&E Project Justification: PB 2023 Defense Health Agency		Date: March 2022
Appropriation/Budget Activity 0130 / 2	**R-1 Program Element (Number/Name)** PE 0605145DHA / *Medical Products and Support Systems Development*	**Project (Number/Name)** 375C / *GDF - Medical Combat Support*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Increase due to inflation program growth.					
Accomplishments/Planned Programs Subtotals	0.000	10.953	14.194	0.000	14.194

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

This program will test and evaluate medical products in government-managed clinical trials in order to gather data to meet military and regulatory (e.g., FDA, Environmental Protection Agency) requirements for production and fielding.

Exhibit R-2A, RDT&E Project Justification: PB 2023 Defense Health Agency			Date: March 2022
Appropriation/Budget Activity 0130 / 2	R-1 Program Element (Number/Name) PE 0605145DHA / *Medical Products and Support Systems Development*	Project (Number/Name) 375D / *GDF - Medical Products and Support System Development*	

COST ($ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
375D: *GDF - Medical Products and Support System Development*	0.000	0.000	0.000	42.111	0.000	42.111	36.205	35.090	38.933	39.322	Continuing	Continuing

A. Mission Description and Budget Item Justification

Funding and mission realignment of US Army Medical Research and Development Command transfer to the Defense Health Agency in order to meet Congressional intent as outlined in NDAA 2019 (Section 711) and NDAA 2020 (Section 737) in support of Medical Products and Support System Development.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Title: GDF MPSACD Medical Products and Support System Development	0.000	0.000	42.111	0.000	42.111
Description: Programmatic transfer in accordance with the 711/737 US Army Medical Research and Development Command transfer to Defense Health Agency in support of Medical Products and Support System Development from Army PEs 0604807A. ***FY 2022 Plans:*** N/A ***FY 2023 Base Plans:*** Programs will focus on System Development and Demonstration in support of Medical Products and Support Systems. ***FY 2023 OOC Plans:*** N/A ***FY 2022 to FY 2023 Increase/Decrease Statement:*** Funding increase for this Project was due to transfer/realignment from Army.					
Accomplishments/Planned Programs Subtotals	0.000	0.000	42.111	0.000	42.111

	FY 2021	FY 2022
Congressional Add: GDF MPSACD Medical Products and Support System Development	0.000	0.000

Exhibit R-2A, RDT&E Project Justification: PB 2023 Defense Health Agency		Date: March 2022
Appropriation/Budget Activity 0130 / 2	**R-1 Program Element (Number/Name)** PE 0605145DHA / *Medical Products and Support Systems Development*	**Project (Number/Name)** 375D / *GDF - Medical Products and Support System Development*

	FY 2021	FY 2022
FY 2021 Accomplishments: N/A ***FY 2022 Plans:*** N/A		
Congressional Adds Subtotals	0.000	0.000

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Defense Health Agency	Date: March 2022
Appropriation/Budget Activity 0130: *Defense Health Program I* BA 2: *RDT&E*	**R-1 Program Element (Number/Name)** PE 0605039DHA *I Information Technology Development – Defense Medical Information E xchange (DMIX*

COST ($ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
Total Program Element	10.157	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
458A: *Defense Medical Information Exchange (DMIX)*	10.157	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing

A. Mission Description and Budget Item Justification

Comprised of the infrastructure and services needed to provide seamless integrated sharing of electronic health data between the Department of Defense (DoD), Department of Veteran Affairs (VA), other Federal agencies, and private sector partners that is viewable to DoD and VA providers through a joint viewer.

DMIX program will acquire the capabilities necessary to securely and reliably exchange standardized, normalized, and correlated health data with all partners through standard data/information exchange mechanisms. This allows users in different places and different organizations to access, use, and supplement health data (technical interoperability) that has a shared meaning so users (assisted by computers) are able to make care decisions (Semantic Interoperability - Level 4). DMIX manages the data exchange capability from legacy data stores in order to prepare for the transition to the modernized Electronic Health Record platform being acquired by DoD Healthcare Management System Modernization (DHMSM). DMIX consists of a family of capability initiatives supporting the seamless exchange of standardized health data among DoD, VA, other Federal agencies, and private providers as well as benefits administrators. The DMIX program provides the capability for health care providers to access and view complete and accurate patient health records from a variety of data sources thereby allowing healthcare providers to make faster and higher quality care decisions. DMIX was established in accordance with the joint memo from Under Secretary of Defense (Comptroller) (USD(C)) and Under Secretary of Defense for Acquisition, Technology and Logistics (USD (AT&L)) titled "Joint Memorandum on Major Defense Acquisition Program and Major Automated Information System Program Resource Transparency in Department of Defense Budget Systems" dated June 27, 2013.

In addition, Joint Electronic Health Record Interoperability (JEHRI) and Virtual Lifetime Electronic Record (VLER) Health (to include Exchange) are part of the DMIX program as a direct result of the Acquisition Decision Memorandum (ADM) signed January 2, 2014 by the USD (AT&L). Use of the health data may be done via legacy systems, clinical mobile applications and system agnostic viewers such as the Joint Legacy Viewer (JLV). Customers include the Military Health System (MHS), VA, other federal agencies and over 200,000 medical care practitioners.

RTD&E will be used to manage the development of new projects and new capabilities. Examples include Pain Management Improvement, Direct Access Reporting Tool (DART), and Defense Adaptive System of Care (DASoC). We considered RDT&E funds to be more appropriate and sustainable to cover some of the projects that were previously funded via JIF or external organizations.

Program transferred to program element 0308608DHA DoD Medical Information Exchange and Interoperability (DMIX) / Enterprise Intelligence and Data Solutions (EIDS) in budget activity 08.

Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Defense Health Agency	Date: March 2022
Appropriation/Budget Activity 0130: *Defense Health Program I* BA 2: *RDT&E*	**R-1 Program Element (Number/Name)** PE 0605039DHA *I Information Technology Development – Defense Medical Information E xchange (DMIX*

B. Program Change Summary ($ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Previous President's Budget	0.000	0.000	0.000	0.000	0.000
Current President's Budget	0.000	0.000	0.000	0.000	0.000
Total Adjustments	0.000	0.000	0.000	0.000	0.000
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			

Change Summary Explanation

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2023 Defense Health Agency			Date: March 2022
Appropriation/Budget Activity 0130 / 2	R-1 Program Element (Number/Name) PE 0605039DHA / *Information Technology Development – Defense Medical Information Exchange (DMIX*	Project (Number/Name) 458A / *Defense Medical Information Exchange (DMIX)*	

COST ($ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
458A: *Defense Medical Information Exchange (DMIX)*	10.157	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing

A. Mission Description and Budget Item Justification

DMIX program will acquire the capabilities necessary to securely and reliably exchange standardized, normalized, and correlated health data with all partners through standard data/information exchange mechanisms. This allows users in different places and different organizations to access, use, and supplement health data (technical interoperability) that has a shared meaning so users (assisted by computers) are able to make care decisions (Semantic Interoperability – Level 4). DMIX manages the data exchange capability from legacy data stores in order to prepare for the transition to the modernized Electronic Health Record platform being acquired by DoD Healthcare Management System Modernization (DHMSM). DMIX consists of a family of capability initiatives supporting the seamless exchange of standardized health data among DoD, VA, other Federal agencies, and private providers as well as benefits administrators. The DMIX program provides the capability for health care providers to access and view complete and accurate patient health records from a variety of data sources thereby allowing healthcare providers to make faster and higher quality care decisions. DMIX was established in accordance with the joint memo from USD(C) and USD(AT&L) titled "Joint Memorandum on Major Defense Acquisition Program and Major Automated Information System Program Resource Transparency in Department of Defense Budget Systems" dated June 27, 2013.

In addition, Joint Electronic Health Record Interoperability (JEHRI) and Virtual Lifetime Electronic Record (VLER) Health (to include Exchange) are part of the DMIX program as a direct result of the Acquisition Decision Memorandum (ADM) signed January 2, 2014 by the Under Secretary of Defense for Acquisition, Technology and Logistic (USD AT&L). Use of the health data may be done via legacy systems, clinical mobile applications and system agnostic viewers such as the Joint Legacy Viewer (JLV). Customers include the MHS, VA, other federal agencies and over 200,000 medical care practitioners.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Title: Defense Medical Information Exchange (DMIX) Program	0.000	0.000	0.000	0.000	0.000
Description: Comprised of the infrastructure and services needed to provide seamless integrated sharing of electronic health data between the DoD, VA, other Federal agencies, and private sector partners that is viewable to DoD and VA providers through a joint viewer.					
FY 2022 Plans: N/A					
FY 2023 Base Plans:					

Exhibit R-2A, RDT&E Project Justification: PB 2023 Defense Health Agency		Date: March 2022
Appropriation/Budget Activity 0130 / 2	**R-1 Program Element (Number/Name)** PE 0605039DHA / *Information Technology Development – Defense Medical Information Exchange (DMIX*	**Project (Number/Name)** 458A / *Defense Medical Information Exchange (DMIX)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Manage the development of new projects and new capabilities. Examples include Pain Management Improvement, DART, and DASoC. We considered RDT&E funds to be more appropriate and sustainable to cover some of the projects that were previously funded via JIF or external organizations. ***FY 2023 OOC Plans:*** N/A ***FY 2022 to FY 2023 Increase/Decrease Statement:*** Due to realignment's and adjustment's in POM23.					
Accomplishments/Planned Programs Subtotals	0.000	0.000	0.000	0.000	0.000

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

Evaluate and use the most appropriate business, technical, contract and support strategies and acquisition approach to minimize costs, reduce program risks, and remain within schedule while meeting program objectives. Strategy is revised as required as a result of periodic program reviews or major decisions.

DMIX is a collaborative effort between the DoD and VA to share Health Care Resources to improve access to, and quality and cost effectiveness of, health care as mandated by law. This investment is deeply embedded in the MHS Enterprise Roadmap as both Departments have need for modernization/ replacement of existing legacy systems. This investment will use a combination of an open architecture approach, and the purchase (in some instances) of GOTS and COTS products.

Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Defense Health Agency											Date: March 2022	
Appropriation/Budget Activity 0130: *Defense Health Program I* BA 2: *RDT&E*					R-1 Program Element (Number/Name) PE 0606105DHA *I Medical Program-Wide Activities*							
COST ($ in Millions)	**Prior Years**	**FY 2021**	**FY 2022**	**FY 2023 Base**	**FY 2023 OCO**	**FY 2023 Total**	**FY 2024**	**FY 2025**	**FY 2026**	**FY 2027**	**Cost To Complete**	**Total Cost**
Total Program Element	266.308	48.672	67.264	85.186	0.000	85.186	86.870	88.109	88.908	90.334	Continuing	Continuing
376B: *Medical Program-Wide Activity*	0.000	0.000	17.619	34.548	0.000	34.548	35.219	35.413	35.162	35.513	Continuing	Continuing
401A: *CONUS Laboratory Support Clinical Infrastructure (Army)*	44.304	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
432A: *OCONUS Laboratory Infrastructure Support (Army)*	90.547	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
433A: *NMRC Biological Defense Research Directorate (BDRD) (Navy)*	11.240	3.267	3.371	3.479	0.000	3.479	3.589	3.798	3.872	3.949	Continuing	Continuing
494A: *Medical Development (Lab Support) (Navy)*	120.217	45.405	46.274	47.159	0.000	47.159	48.062	48.898	49.874	50.872	Continuing	Continuing

A. Mission Description and Budget Item Justification

The Army Medical Command receives funding for research infrastructure management support at select continental United States and outside the continental US laboratories and clinical trial sites; work is done in collaboration with DoD Military Treatment Facilities. This program element does not fund research. It funds the infrastructure support staff enabling research scientists to conduct bio-surveillance and early-to-late-stage clinical investigations into biologics, drugs, protectants, device technologies, and knowledge products. The funding provides for the sustainment of technical subject matter expertise, independent of the number of assigned projects, and the costs related to the initial outfitting and transition (IO&T) of research, development, test, and evaluation medical laboratories funded under multi-year military construction (MILCON) projects. These IO&T funds are designated as appropriations other than MILCON.

The Office of the Assistant Secretary of Defense for Health Affairs (Force Health Protection & Readiness) receives funds to provide management support for research projects at Pacific Joint Information Technology Center (P-JITC).

For the Navy Bureau of Medicine and Surgery, this program element includes facility operational funding for the Medical Biological Defense research sub-function of the Naval Medical Research Center (NMRC) Biological Defense Research Directorate (BDRD). The program mission is mandated by the Joint Requirements Office for Chemical, Biological, Radiological, and Nuclear Defense (JRO-CBRND) baseline capabilities assessment of chemical and biological passive defense. The primary function is research on countermeasures to biological threat agents, development of assays to detect biological threat agents, and bioforensic analysis of biological threat agents.

Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Defense Health Agency	Date: March 2022
Appropriation/Budget Activity 0130: *Defense Health Program I* BA 2: *RDT&E*	**R-1 Program Element (Number/Name)** PE 0606105DHA *I Medical Program-Wide Activities*

B. Program Change Summary ($ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Previous President's Budget	48.672	67.264	85.186	-	85.186
Current President's Budget	48.672	67.264	85.186	-	85.186
Total Adjustments	0.000	0.000	0.000	-	0.000
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			

Congressional Add Details ($ in Millions, and Includes General Reductions)	FY 2021	FY 2022
Project: 376B: *Medical Program-Wide Activity*		
Congressional Add: *GDF Medical Program-Wide Activity*	0.000	0.000
Congressional Add Subtotals for Project: 376B	0.000	0.000
Congressional Add Totals for all Projects	0.000	0.000

Exhibit R-2A, RDT&E Project Justification: PB 2023 Defense Health Agency			Date: March 2022
Appropriation/Budget Activity 0130 / 2	R-1 Program Element (Number/Name) PE 0606105DHA / *Medical Program-Wide Activities*	Project (Number/Name) 376B / *Medical Program-Wide Activity*	

COST ($ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
376B: *Medical Program-Wide Activity*	0.000	0.000	17.619	34.548	0.000	34.548	35.219	35.413	35.162	35.513	Continuing	Continuing

A. Mission Description and Budget Item Justification

Funding and mission realignment of US Army Medical Research and Development Command transfer to the Defense Health Agency in order to meet Congressional intent as outlined in NDAA 2019 (Section 711) and NDAA 2020 (Section 737) in support of Medical Care Activities.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Title: GDF Medical Program-Wide Activity	0.000	17.619	34.548	0.000	34.548
Description: Programmatic transfer in accordance with the 711/737 US Army Medical Research and Development Command transfer to Defense Health Agency in support of Medical Care Activities from Army PEs 0603115A, 0605145A, 0605801A, 0606105A. ***FY 2022 Plans:*** N/A ***FY 2023 Base Plans:*** Efforts will focus on Management and Support of Medical Care. ***FY 2023 OOC Plans:*** N/A ***FY 2022 to FY 2023 Increase/Decrease Statement:*** Funding increase for this Project was due to transfer/realignment from Army.					
Accomplishments/Planned Programs Subtotals	0.000	17.619	34.548	0.000	34.548

	FY 2021	FY 2022
Congressional Add: GDF Medical Program-Wide Activity	0.000	0.000
FY 2021 Accomplishments: N/A		
FY 2022 Plans: N/A		
Congressional Adds Subtotals	0.000	0.000

Exhibit R-2A, RDT&E Project Justification: PB 2023 Defense Health Agency		Date: March 2022
Appropriation/Budget Activity 0130 / 2	**R-1 Program Element (Number/Name)** PE 0606105DHA / *Medical Program-Wide Activities*	**Project (Number/Name)** 376B / *Medical Program-Wide Activity*

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2023 Defense Health Agency			Date: March 2022
Appropriation/Budget Activity 0130 / 2	R-1 Program Element (Number/Name) PE 0606105DHA / *Medical Program-Wide Activities*	Project (Number/Name) 401A / *CONUS Laboratory Support Clinical Infrastructure (Army)*	

COST ($ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
401A: *CONUS Laboratory Support Clinical Infrastructure (Army)*	44.304	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing

A. Mission Description and Budget Item Justification

Continental United States Laboratory Infrastructure Support funding provides infrastructure and management support for selected laboratories and research sites, enabling basic to late stage clinical investigations on medical products through collaborative efforts with the Military Health System's (MHS) Military Treatment Facilities (MTFs). MTFs provide access to the patient populations who will benefit the most from the medical products and capabilities being developed. The funds support the retention of technical subject matter expertise, independent of the number of assigned projects. The infrastructure funds also support Institutional Review Board functions, research technical support, statistical support, grant writing assistance, and other essential functions for maintaining research in MTFs. The funds do not support research, but provide the infrastructure support enabling MTF investigators to compete for research, development, test, and evaluation (RDT&E) research funds.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Title: CONUS Laboratory Support Clinical Infrastructure (Army) ***Description:*** Management support for research infrastructure at select laboratories and research sites that conduct basic to late-stage clinical research and evaluation of investigational products, such as biologics, drugs, and devices to treat/prevent polytrauma (multiple traumatic injuries), through collaborative efforts with the MHS MTFs.	0.000	-	-	-	-
Accomplishments/Planned Programs Subtotals	0.000	-	-	-	-

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2023 Defense Health Agency			Date: March 2022
Appropriation/Budget Activity 0130 / 2	R-1 Program Element (Number/Name) PE 0606105DHA / *Medical Program-Wide Activities*	Project (Number/Name) 432A / *OCONUS Laboratory Infrastructure Support (Army)*	

COST ($ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
432A: *OCONUS Laboratory Infrastructure Support (Army)*	90.547	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing

A. Mission Description and Budget Item Justification

The Outside of the Continental United States (OCONUS) Laboratory Infrastructure Support provides management support for research infrastructure at selected overseas laboratories and research sites that conduct biosurveillance and basic to late-stage clinical research and evaluation of investigational products, such as biologics, drugs, protectants, technologies, and knowledge products to treat/prevent infectious diseases for the purpose of protecting the Warfighter; this is accomplished through collaborative efforts with the respective host nation governments. These sites are the US Army Medical Research Directorate-Kenya (USAMRD-K) in Nairobi, Kenya, the US Army Medical Research Directorate-Georgia (USAMRD-G) in Tbilisi, Georgia, and the US Army Medical Directorate-Armed Forces Research Institute of Medical Sciences (USAMD-AFRIMS) in Bangkok, Thailand. USAMRD-G is the newest laboratory, and provides support in the Caucasus region, similar to that provided by the laboratories in Kenya and Thailand to East Africa and Southeast Asia regions.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Title: OCONUS Laboratory Infrastructure Support (Army) ***Description:*** Management support for research infrastructure at selected overseas laboratories and research sites is integral to support the development and testing of improved means of predicting, detecting, preventing, and treating infectious disease threats to the US military, as well as support for surveillance, training, research, and response activities for emerging infectious disease threats that could affect Service members in those regions. Supported OCONUS laboratories are the US Army Medical Directorate-Armed Forces Research Institute of Medical Sciences (AFRIMS) in Bangkok, Thailand; the US Army Research Directorate-Kenya (USAMRD-K) in Nairobi, Kenya; and the US Army Medical Research Directorate-Georgia (USAMRD-G) in Tbilisi, Georgia.	0.000	-	-	-	-
Accomplishments/Planned Programs Subtotals	0.000	-	-	-	-

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2023 Defense Health Agency			Date: March 2022
Appropriation/Budget Activity 0130 / 2	R-1 Program Element (Number/Name) PE 0606105DHA / *Medical Program-Wide Activities*	Project (Number/Name) 433A / *NMRC Biological Defense Research Directorate (BDRD) (Navy)*	

COST ($ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
433A: *NMRC Biological Defense Research Directorate (BDRD) (Navy)*	11.240	3.267	3.371	3.479	0.000	3.479	3.589	3.798	3.872	3.949	Continuing	Continuing

A. Mission Description and Budget Item Justification

For the Navy Bureau of Medicine and Surgery, this program element (PE) includes funds for the Medical Biological Defense research sub-function of the Naval Medical Research Center (NMRC) Biological Defense Research Directorate (BDRD) at Fort Detrick, Maryland. Operational costs are significant by virtue of being at Fort Detrick, a highly secure National Interagency Biodefense Campus (NIBC). Uninterrupted utilities to all buildings on NIBC are provided by a Central Utility Plant (CUP) whose capacity all partners on the NIBC are required to buy into. The annual projected costs are distributed amongst the partners based on square feet and number of occupants of the building. Further, the NIBC campus is a fenced physical location with Entry Control Points (ECP). The partners on the campus, therefore, are required to pay for the guard force manning their ECP.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Title: NMRC Biological Defense Research Directorate (BDRD) (Navy)	3.267	3.371	3.479	-	3.479
Description: Funding for this project provides core funding for facility and security requirements in support of Biological Defense Research. The remainder of the program is sustained by the competitive acquisition of research funding. ***FY 2022 Plans:*** Support of the Biological Defense Research continues for Central Utility Plant, Entry Control Security Points Security Force and Operational costs necessary to achieve the mission critical functions of Biological Warfare (BW) agent detection, analysis, and deployable BW diagnostic lab service. Increase reflects pricing adjustments. ***FY 2023 Base Plans:*** Continued support of the Biological Defense Research for Central Utility Plant, Entry Control Security Points Security Force and Operational costs necessary to achieve the mission critical functions of Biological Warfare (BW) agent detection, analysis, and deployable BW diagnostic lab service. ***FY 2022 to FY 2023 Increase/Decrease Statement:*** Increase is due to inflation.					
Accomplishments/Planned Programs Subtotals	3.267	3.371	3.479	-	3.479

Exhibit R-2A, RDT&E Project Justification: PB 2023 Defense Health Agency		Date: March 2022
Appropriation/Budget Activity 0130 / 2	**R-1 Program Element (Number/Name)** PE 0606105DHA / *Medical Program-Wide Activities*	**Project (Number/Name)** 433A / *NMRC Biological Defense Research Directorate (BDRD) (Navy)*

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2023 Defense Health Agency			Date: March 2022
Appropriation/Budget Activity 0130 / 2	R-1 Program Element (Number/Name) PE 0606105DHA / *Medical Program-Wide Activities*	Project (Number/Name) 494A / *Medical Development (Lab Support) (Navy)*	

COST ($ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
494A: *Medical Development (Lab Support) (Navy)*	120.217	45.405	46.274	47.159	0.000	47.159	48.062	48.898	49.874	50.872	Continuing	Continuing

A. Mission Description and Budget Item Justification

For the Navy Bureau of Medicine and Surgery, this program element (PE) includes costs related to laboratory management and support salaries of government employees that are not paid from science/research competitively awarded funding. The Outside Continental United States (OCONUS) laboratories conduct focused medical research on vaccine development for Malaria, Diarrhea Diseases, and Dengue Fever. In addition to entomology, the labs focus on Human Immunodeficiency Syndrome (HIV) studies, surveillance and outbreak response under the Global Emerging Infections Surveillance (GEIS) program, and risk assessment studies on a number of other infectious diseases that are present in the geographical regions where the laboratories are located. The Continental United States (CONUS) laboratories conduct research on Military Operational Medicine, Combat Casualty Care, Diving and Submarine Medicine, Infectious Diseases, Environmental and Occupational Health, Directed Energy, and Aviation Medicine and Human Performance.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Title: Medical Development (Lab Support) (Navy)	45.405	46.274	47.159	-	47.159
Description: Funding in this project covers operating and miscellaneous support costs at RDT&E laboratories, including facility, equipment and civilian personnel costs that are not directly chargeable to RDT&E projects. Excluded costs include military manpower and related costs, non-RDT&E base operating costs, and military construction costs, which are included in other appropriate programs. ***FY 2022 Plans:*** Will support 8 medical RDT&E labs by covering operating and miscellaneous support costs at RDT&E laboratories, including facility, equipment and civilian personnel costs that are not directly chargeable to RDT&E projects. ***FY 2023 Base Plans:*** Continuing support of 8 medical RDT&E labs by covering operating and miscellaneous support costs including facility, equipment and civilian personnel costs that are not directly chargeable to RDT&E projects. ***FY 2022 to FY 2023 Increase/Decrease Statement:*** Increase is due to inflation.					
Accomplishments/Planned Programs Subtotals	45.405	46.274	47.159	-	47.159

Exhibit R-2A, RDT&E Project Justification: PB 2023 Defense Health Agency		Date: March 2022
Appropriation/Budget Activity 0130 / 2	**R-1 Program Element (Number/Name)** PE 0606105DHA / *Medical Program-Wide Activities*	**Project (Number/Name)** 494A / *Medical Development (Lab Support) (Navy)*

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Defense Health Agency	Date: March 2022
Appropriation/Budget Activity 0130: *Defense Health Program I* BA 2: *RDT&E*	**R-1 Program Element (Number/Name)** PE 0607100DHA *I Medical Products and Capabilities Enhancement Activities*

COST ($ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
Total Program Element	45.971	17.215	17.619	17.971	0.000	17.971	18.330	18.697	19.071	19.452	Continuing	Continuing
377A: *GDF-Medical Products and Capabilities Enhancement Activities*	45.971	17.215	17.619	17.971	0.000	17.971	18.330	18.697	19.071	19.452	Continuing	Continuing

Note

N/A

A. Mission Description and Budget Item Justification

Guidance for Development of the Force-Medical Products and Capabilities Enhancement Activities: Funds will support developmental upgrades to medical systems, training systems, and products that have been fielded, are routinely used in a fixed facility, or that have been approved for full-rate production and for which procurement funding is anticipated in the current fiscal year or subsequent fiscal years. These funds will support testing and evaluation for the enhancement of fielded or procured medical systems/products and medically-related information technology systems, assessment of fielded medical products or medical practices in order to identify the need/opportunity for changes, and analyses of clinical intervention outcomes to enhance and improve indications for pharmaceutical products. Efforts address the Military Health System Concept of Operations documents and follow-on Capabilities Based Assessments/Joint Capability Documents, appropriate Component requirements, legislative and Executive directives, and others as appropriate. Coordination occurs through the planning and execution activities of the Defense Health Agency Component Acquisition Executive (DHA CAE).

B. Program Change Summary ($ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Previous President's Budget	17.215	17.619	17.971	-	17.971
Current President's Budget	17.215	17.619	17.971	-	17.971
Total Adjustments	0.000	0.000	0.000	-	0.000
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	0.000			

Change Summary Explanation

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2023 Defense Health Agency			Date: March 2022
Appropriation/Budget Activity 0130 / 2	R-1 Program Element (Number/Name) PE 0607100DHA / *Medical Products and Capabilities Enhancement Activities*	Project (Number/Name) 377A / *GDF-Medical Products and Capabilities Enhancement Activities*	

COST ($ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
377A: *GDF-Medical Products and Capabilities Enhancement Activities*	45.971	17.215	17.619	17.971	0.000	17.971	18.330	18.697	19.071	19.452	Continuing	Continuing

A. Mission Description and Budget Item Justification

Guidance for Medical Products and Capabilities Enhancement Activity: This funding supports enhancement of existing medical products and medically related information technology systems to further fielding of joint medical materiel capabilities to meet Warfighter needs through support testing and evaluation for the enhancement of fielded or procured medical systems/products and medically-related information technology systems, assessment of fielded medical products or medical practices in order to identify the need/opportunity for changes, and analyses of clinical intervention outcomes to enhance and improve indications for pharmaceutical products.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Title: 377A: GDF – Medical Products and Capabilities Enhancement Activities	17.215	17.619	17.971	0.000	17.971
Description: This funding provides support for developmental efforts to upgrade medical products and capabilities that have been fielded or have received approval for full rate production and anticipate production funding in the current or subsequent fiscal year. These funds will support testing and evaluation for the enhancement of fielded or procured medical systems/products and medically-related information technology systems, assessment of fielded medical products or medical practices in order to identify the need/opportunity for changes, and analyses of clinical intervention outcomes to enhance and improve indications for pharmaceutical products.					
FY 2022 Plans: Funding will be used to modernize and upgrade products through joint testing and evaluation to improve fielding of medical materiel products. Significant FY22 Programs: Continuing efforts for Medical Device Modernization & Obsolescence Management across three tiers; Adenovirus Vaccine – Modernized Production intends to award a follow-on contract to optimize vaccine manufacturing. Other efforts for enhancement include: Austere Resuscitative Care Capability; Noncompressible Hemorrhage Control (NHC); Bubble Enhanced Focused Assessment with Sonography in Trauma (BE-FAST) Project; Detecting Asynchrony and Risk of Aspiration (DARS); T&E of Submarine Rescue Systems Decompression Plan; Soldier Optimization Decision Aids (SODA) Upgrades ; Heat Optimization Decision Aids (HODA) Upgrades; Canine Thermal Monitor (CTM); Integration of					

Exhibit R-2A, RDT&E Project Justification: PB 2023 Defense Health Agency		Date: March 2022
Appropriation/Budget Activity 0130 / 2	**R-1 Program Element (Number/Name)** PE 0607100DHA / *Medical Products and Capabilities Enhancement Activities*	**Project (Number/Name)** 377A / *GDF-Medical Products and Capabilities Enhancement Activities*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Sensor Technology into Class I Socket in Support of Advanced Prosthetics & Amputee User Interface; and Brain Hemorrhage Detector Modernization. ***FY 2023 Base Plans:*** FY 2023 plans continue efforts outlined in FY2022 and support upgrades necessary to modernize Adenovirus manufacturing obsolescence of fielded medical equipment and devices. ***FY 2023 OOC Plans:*** N/A ***FY 2022 to FY 2023 Increase/Decrease Statement:*** Pricing adjustment for inflation.					
Accomplishments/Planned Programs Subtotals	17.215	17.619	17.971	0.000	17.971

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

This program will integrate product improvements and enhancements resulting from post marketing studies and surveillance in existing medical products and medically related information technology systems to better meet Warfighter needs.

Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Defense Health Agency	Date: March 2022
Appropriation/Budget Activity 0130: *Defense Health Program* / BA 2: *RDT&E*	**R-1 Program Element (Number/Name)** PE 0605502DHA / *Small Business Innovative Research*

COST ($ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
Total Program Element	63.015	71.952	96.122	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
470: *Small Business Innovative Research*	55.248	63.080	84.272	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
471: *Small Business Technology Transfer*	7.767	8.872	11.850	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing

A. Mission Description and Budget Item Justification

The Small Business Innovation Research (SBIR) program was established in the Defense Health Program (DHP), Research, Development, Test and Evaluation (RDT&E) appropriation during FY 2001, and is funded in the year of execution. The objective of the DHA SBIR Program includes stimulating technological innovation, strengthening the role of small business in meeting DoD research and development needs, fostering and encouraging participation by minority and disadvantaged persons in technological innovation, and increasing the commercial application of DoD-supported research and development results. The program funds small business proposals chosen to enhance military medical research and information technology research.

The Small Business Technology Transfer (STTR) program was established in the Defense Health Program (DHP), Research, Development, Test and Evaluation (RDT&E) appropriation during FY 2015, and is funded in the year of execution. The STTR Program, although modeled substantially on the SBIR Program, is a separate program and is separately financed. Central to the program is expansion of the public/private sector partnership to include the joint venture opportunities for small businesses and nonprofit research institutions. The unique feature of the STTR program is the requirement for the small business to formally collaborate with a research institution in Phase I and Phase II. STTR's most important role is to bridge the gap between performance of basic science and commercialization of resulting innovations. The mission of the STTR program is to support scientific excellence and technological innovation through the investment of Federal research funds in critical American priorities to build a strong national economy. The program's goals are to stimulate technological innovation, foster technology transfer through cooperative research and development between small businesses and research institutions, and increase private sector commercialization of innovations derived from federal research and development.

B. Program Change Summary ($ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Previous President's Budget	71.952	96.122	0.000	0.000	0.000
Current President's Budget	71.952	96.122	0.000	0.000	0.000
Total Adjustments	0.000	0.000	0.000	0.000	0.000
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			

Exhibit R-2A, RDT&E Project Justification: PB 2023 Defense Health Agency			Date: March 2022
Appropriation/Budget Activity 0130 / 2	R-1 Program Element (Number/Name) PE 0605502DHA / *Small Business Innovative Research*	Project (Number/Name) 470 / *Small Business Innovative Research*	

COST ($ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
470: *Small Business Innovative Research*	55.248	63.080	84.272	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing

A. Mission Description and Budget Item Justification

The Defense Health Agency (DHA) Small Business Innovation Research (SBIR) Program can participate in any of the three (FY.1, FY.2, and FY.3) Department of Defense (DoD) SBIR Broad Agency Announcements (BAA). The process begins with a call for topics to the Joint Program Committees (JPCs), multi-Service committees established to manage research, development, test and evaluation for DHA sponsored research. DHA SBIR topics are submitted directly to the US Army Medical Research and Development Command (USAMRDC) and then forwarded to the JPCs for review and internal ranking. Topic Authors brief their topics at a Topic Review Meeting attended by DHA Research & Development Directorate (J9) SBIR Program Director (PD) and personnel from the supporting USAMRDC offices. Approved DHA SBIR topics are published in DoD SBIR BAAs. Small businesses submit proposals against topics which are then evaluated by a Technical Evaluation Team (TET) made up of a Team Chief and Technical Evaluators. TETs recommend proposals for selection. All recommended proposals are reviewed by the JPCs and the DHA SBIR PD. Phase I proposal selections are announced and contract negotiations begin. Phase I contracts are awarded up to $250K for 6 months. Follow-on Phase II projects can be awarded up to $1.1M for 24 months. This process ensures the SBIR program addresses the multi-agency science and technology priorities.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Title: Small Business Innovation Research (SBIR) Program	63.080	84.272	0.000	0.000	0.000
Description: The program funds small business proposals chosen to enhance military medical research and information technology research. The following reflects the FY 2021 research area topics sought for proposals. FY 2021 Accomplishments: For FY 2021, twenty-one DHA SBIR topics were developed for the 2021.1 and 2021.3 DoD SBIR Broad Agency Announcement (BAA). Funding for each topic is based on the technical merits of the proposals submitted. Topics included: 2021.1 DHA SBIR Topic DHA211-001 - Efficient Measurement of Intermediate-Level Impulse Noise and Sub-concussive Blast Exposure on Service Members in Operational Military Environments. This DHA SBIR initiative funded research to develop a personal sampling device that allows novice users to accurately measure and document intermediate-level impulse noise and sub-concussive blast exposures experienced by Service Members in realistic operational environments. This effort solicited a total of thirty seven SBIR Phase I proposals. Proposals were accepted through the 2021.1 DoD SBIR BAA pre-released in December 2020. Proposals were received in March 2021 followed by Technical Evaluation Team evaluations in April 2021. Phase I proposal selections were announced in May 2021. A total of two Phase I proposals were selected under this topic. Awards were made in July 2021.					

Exhibit R-2A, RDT&E Project Justification: PB 2023 Defense Health Agency		Date: March 2022
Appropriation/Budget Activity 0130 / 2	**R-1 Program Element (Number/Name)** PE 0605502DHA / *Small Business Innovative Research*	**Project (Number/Name)** 470 / *Small Business Innovative Research*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
2021.1 DHA SBIR Topic DHA211-002 - Prevention Device Suitable for Exposure to Blast or Concussive Forces. This DHA SBIR initiative funded research to develop a preventive technology to reduce the risk of brain injury from blast that is relevant to operational and/or training settings. This effort solicited a total of twenty one SBIR Phase I proposals. Proposals were accepted through the 2021.1 DoD SBIR BAA pre-released in December 2020. Proposals were received in March 2021 followed by Technical Evaluation Team evaluations in April 2021. Phase I proposal selections were announced in May 2021. A total of four Phase I proposals were selected under this topic. Awards were made by August 2021.					
2021.1 DHA SBIR Topic DHA211-003 - Underwater Blast Lung Computational Model. This DHA SBIR initiative funded research to develop a computational model of the human lung as it responds to underwater blast insult in order to predict injury in explosive ordnance disposal (EOD) personnel exposed to underwater explosion (UNDEX). This effort solicited a total of twenty three SBIR Phase I proposals. Proposals were accepted through the 2021.1 DoD SBIR BAA pre-released in December 2020. Proposals were received in March 2021 followed by Technical Evaluation Team evaluations in April 2021. Phase I proposal selections were announced in May 2021. A total of four Phase I proposals were selected under this topic. Awards were made by August 2021.					
2021.1 DHA SBIR Topic DHA211-004 - Algorithm and Associated Integration Hardware for Capturing Context-sensitive Metadata for Health Risk Assessments. This DHA SBIR initiative funded research to develop a technology for automatic association of environmental conditions and activities with chemical and physical exposures based on feedback from body worn and area monitors to augment health risk assessments. This effort solicited a total of nineteen SBIR Phase I proposals. Proposals were accepted through the 2021.1 DoD SBIR BAA pre-released in December 2020. Proposals were received in March 2021 followed by Technical Evaluation Team evaluations in April 2021. Phase I proposal selections were announced in May 2021. A total of four Phase I proposals were selected under this topic. Awards were made by August 2021.					
2021.1 DHA SBIR Topic DHA211-005 - Wearable Radio Frequency Weapon Exposure Detector. This DHA SBIR initiative funded research to develop a low cost, low weight, small size wearable radio frequency (RF) weapon exposure detector. This effort solicited a total of forty nine SBIR Phase I proposals. Proposals were accepted through the 2021.1 DoD SBIR BAA pre-released in December 2020. Proposals were received in March 2021 followed by Technical Evaluation Team evaluations in April 2021. Phase I proposal selections were					

Exhibit R-2A, RDT&E Project Justification: PB 2023 Defense Health Agency		Date: March 2022
Appropriation/Budget Activity 0130 / 2	**R-1 Program Element (Number/Name)** PE 0605502DHA / *Small Business Innovative Research*	**Project (Number/Name)** 470 / *Small Business Innovative Research*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
announced in May 2021. A total of seven Phase I proposals were selected under this topic. Awards were made in July and September 2021. 2021.1 DHA SBIR Topic DHA211-006 - Portable Computerized Dynamic Posturography and Balance Training System to Deliver Sensory Organization Tests in Clinic and Field Environments. This DHA SBIR initiative funded research to develop a portable, customizable, computerized dynamic balance and measurement system that allows programmable levels of instability to deliver accurate Sensory Organization Tests in clinic, home, or field environments. This effort solicited a total of twenty seven SBIR Phase I proposals. Proposals were accepted through the 2021.1 DoD SBIR BAA pre-released in December 2020. Proposals were received in March 2021 followed by Technical Evaluation Team evaluations in April 2021. Phase I proposal selections were announced in May 2021. A total of four Phase I proposals were selected under this topic. Awards were made in July 2021. 2021.1 DHA SBIR Topic DHA211-007 - Radioprotector Medical Countermeasure to Prevent the Effects of Acute Radiation Syndrome. This DHA SBIR initiative funded research to develop a radioprotector medical countermeasure (MCM) to the Joint Force with effective prophylactics to recover from and survive Acute Radiation Syndrome (ARS) resulting from ionizing radiation exposure. This effort solicited a total of nine SBIR Phase I proposals. Proposals were accepted through the 2021.1 DoD SBIR BAA pre-released in December 2020. Proposals were received in March 2021 followed by Technical Evaluation Team evaluations in April 2021. Phase I proposal selections were announced in May 2021. A total of three Phase I proposals were selected under this topic. Awards were made by August 2021. 2021.1 DHA SBIR Topic DHA211-008 - Novel Antibiotic for the Treatment of Multidrug-Resistant Pseudomonas Aeruginosa Infections. This DHA SBIR initiative funded research to develop a small molecule, antibacterial drug candidate for the treatment of service members in the Military Health System infected by multidrug-resistant (MDR) Pseudomonas aeruginosa to include in vitro and in vivo efficacy in models of wounds, burns, sepsis and/or ventilator-associated pneumonia (VAP). This effort solicited a total of twenty SBIR Phase I proposals. Proposals were accepted through the 2021.1 DoD SBIR BAA pre-released in December 2020. Proposals were received in March 2021 followed by Technical Evaluation Team evaluations in April 2021. Phase I proposal selections were announced in May 2021. A total of two Phase I proposals were selected under this topic. Awards were made in June 2021. 2021.1 DHA SBIR Topic DHA211-009 - Oxygen Generation for Deployed Army Casualty Care. This DHA SBIR initiative funded research to develop a lightweight device that generates medical grade oxygen for deployed medical facilities and personnel. This effort solicited a total of eighteen SBIR Phase I proposals. Proposals were accepted through the 2021.1 DoD SBIR BAA pre-released in December 2020. Proposals were received in					

Exhibit R-2A, RDT&E Project Justification: PB 2023 Defense Health Agency		Date: March 2022
Appropriation/Budget Activity 0130 / 2	**R-1 Program Element (Number/Name)** PE 0605502DHA / *Small Business Innovative Research*	**Project (Number/Name)** 470 / *Small Business Innovative Research*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
March 2021 followed by Technical Evaluation Team evaluations in April 2021. Phase I proposal selections were announced in May 2021. A total of four Phase I proposals were selected under this topic. Awards were made in August 2021. 2021.1 DHA SBIR Topic DHA211-010 - DNA-encoded Antibody Gene Transfer for HIV Immunoprophylaxis or Maintenance Therapy. This DHA SBIR initiative funded research to develop a platform for DNA-encoded monoclonal antibody delivery in large animal models of HIV infection and a prototype delivery device for use in humans. This effort solicited a total of two SBIR Phase I proposals. Proposals were accepted through the 2021.1 DoD SBIR BAA pre-released in December 2020. Proposals were received in March 2021 followed by Technical Evaluation Team evaluations in April 2021. Phase I proposal selections were announced in May 2021. A total of one Phase I proposal was selected under this topic. Award was made in July 2021. 2021.1 DHA SBIR Topic DHA211-011 - Advanced Blood Transportation Container. This DHA SBIR initiative funded research to develop a container or container system for transporting blood to and throughout the battlefield. This effort solicited a total of twenty eight SBIR Phase I proposals. Proposals were accepted through the 2021.1 DoD SBIR BAA pre-released in December 2020. Proposals were received in March 2021 followed by Technical Evaluation Team evaluations in April 2021. Phase I proposal selections were announced in May 2021. A total of three Phase I proposals were selected under this topic. Awards were made in July 2021. 2021.1 DHA SBIR Topic DHA211-012 - Handheld Non-Contact Laser Ultrasound Medical Scanner. This DHA SBIR initiative funded research to develop a non-contact Laser Ultrasound (ncLUS) imaging scanner in the form of a stand-alone lightweight handheld device. The acquired images are to be displayed in real- time using a handheld screen, archived and accessible for reviewing on demand in retrospective analyses. This effort solicited a total of twelve SBIR Phase I proposals. Proposals were accepted through the 2021.1 DoD SBIR BAA pre-released in December 2020. Proposals were received in March 2021 followed by Technical Evaluation Team evaluations in April 2021. Phase I proposal selections were announced in May 2021. A total of four Phase I proposals were selected under this topic. Awards were made by September 2021. 2021.1 DHA SBIR Topic DHA211-013 - Body-Conformal Terahertz Medical Imager. This DHA SBIR initiative funded research to develop a Terahertz (THz) medical imager in the form of a small, flexible, layered rectangular blanket, with internal functional components, that can be wrapped around the torso of a wounded patient and					

Exhibit R-2A, RDT&E Project Justification: PB 2023 Defense Health Agency		Date: March 2022
Appropriation/Budget Activity 0130 / 2	**R-1 Program Element (Number/Name)** PE 0605502DHA / *Small Business Innovative Research*	**Project (Number/Name)** 470 / *Small Business Innovative Research*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
provide images of internal anatomy. This effort solicited a total of four SBIR Phase I proposals. Proposals were accepted through the 2021.1 DoD SBIR BAA pre-released in December 2020. Proposals were received in March 2021 followed by Technical Evaluation Team evaluations in April 2021. There were no Phase I proposals selected under this topic. 2021.3 DHA SBIR Topic DHA213-001 - Head and Neck Protection System for Acute and Chronic Injury Mitigation. This DHA SBIR initiative will be to develop prototype systems to mitigate acute head and neck injuries due to high G loading in the ejection environment and mitigate chronic neck fatigue and pain associated with prolonged low G use of Helmet Mounted Display Systems. This effort solicited a total of twenty eight SBIR Phase I proposals. Proposals were accepted through the 2021.3 DoD SBIR BAA pre-released in August 2021. Proposals were received in October 2021 followed by Technical Evaluation Team evaluations in November 2021. Phase I proposal selections were announced in December 2021. A total of three Phase I proposals were selected under this topic. Awards will be made in March 2022. 2021.3 DHA SBIR Topic DHA213-003 - Advanced Nasopharyngeal Airway. This DHA SBIR initiative will be to design and produce an advanced nasopharyngeal airway (NPA) that provides more effective and reliable upper airway patency in unconscious patients than existing NPAs, which can be easily inserted and removed by medics/first responders such as combat life savers with varying skill levels. This effort solicited a total of sixteen SBIR Phase I proposals. Proposals were accepted through the 2021.3 DoD SBIR BAA pre-released in August 2021. Proposals were received in October 2021 followed by Technical Evaluation Team evaluations in November 2021. Phase I proposal selections were announced in December 2021. A total of three Phase I proposals were selected under this topic. Awards will be made in March 2022. 2021.3 DHA SBIR Topic DHA213-004 - Bougie-Integrated Endotracheal Intubation Stylet. This DHA SBIR initiative will be to design and build a bougie-integrated endotracheal intubation (ETI) stylet that improves operator first pass success rates by resolving anatomic challenges associated with indirect and direct laryngoscopy. The technology should provide enhanced ETI performance and autonomy for providers of varying skill levels operating in austere and remote environments. This effort solicited a total of nine SBIR Phase I proposals. Proposals were accepted through the 2021.3 DoD SBIR BAA pre-released in August 2021. Proposals were received in October 2021 followed by Technical Evaluation Team evaluations in November 2021. Phase I proposal selections were announced in December 2021. A total of two Phase I proposals were selected under this topic. Awards will be made in March 2022.					

Exhibit R-2A, RDT&E Project Justification: PB 2023 Defense Health Agency		Date: March 2022
Appropriation/Budget Activity 0130 / 2	**R-1 Program Element (Number/Name)** PE 0605502DHA / *Small Business Innovative Research*	**Project (Number/Name)** 470 / *Small Business Innovative Research*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
2021.3 DHA SBIR Topic DHA213-005 - Chemical Sterilant for Far Forward, Austere Environments. This DHA SBIR initiative will be to develop and validate a chemical sterilant solution that can sterilize surgical instruments and other materiel through immersion. Product could be a powder or concentrated liquid that when mixed with potable water, creates the requisite solution capable of the desired sterilization. This effort solicited a total of eleven SBIR Phase I proposals. Proposals were accepted through the 2021.3 DoD SBIR BAA pre-released in August 2021. Proposals were received in October 2021 followed by Technical Evaluation Team evaluations in November 2021. Phase I proposal selections were announced in December 2021. A total of one Phase I proposal was selected under this topic. Awards will be made in March 2022. 2021.3 DHA SBIR Topic DHA213-006 - Sterilizer, Field, Special Materiel for Far Forward, Austere Environments. This DHA SBIR initiative will be to develop and validate a sterilization cabinet that can sterilize heat-sensitive surgical instruments and other materiel. This effort solicited a total of twenty eight SBIR Phase I proposals. Proposals were accepted through the 2021.3 DoD SBIR BAA pre-released in August 2021. Proposals were received in October 2021 followed by Technical Evaluation Team evaluations in November 2021. Phase I proposal selections were announced in December 2021. A total of three Phase I proposals were selected under this topic. Awards will be made in March 2022. 2021.3 DHA SBIR Topic DHA213-007 - Anionic Nanoparticle Carriers for Neuron-targeting of Synthetic and Protein Drugs. This DHA SBIR initiative will be to construct a population of uniformly sized anionic nanoparticles (NPs) with consistent size, composition, and charge that can be loaded with traditional water-soluble synthetic drugs and, alternatively, protein therapeutics in the lumen and on the surface of the vesicles. This effort solicited a total of seventeen SBIR Phase I proposals. Proposals were accepted through the 2021.3 DoD SBIR BAA pre-released in August 2021. Proposals were received in October 2021 followed by Technical Evaluation Team evaluations in November 2021. Phase I proposal selections were announced in December 2021. A total of two Phase I proposals were selected under this topic. Awards were made in March 2022. 2021.3 DHA SBIR Topic DHA213-008 - Digital Human Model for use in Simulation Environments for Tactile Human/Robot Interaction. This DHA SBIR initiative is to develop a biomechanically correct human parametric model to be used in digital simulation environments, capable of interacting with robotic manipulators in computer simulation and express stress metrics in the form of contact forces on the body and force-torques at the body joints. This effort solicited a total of nine SBIR Phase I proposals. Proposals were accepted through the 2021.3					

Exhibit R-2A, RDT&E Project Justification: PB 2023 Defense Health Agency		Date: March 2022
Appropriation/Budget Activity 0130 / 2	**R-1 Program Element (Number/Name)** PE 0605502DHA / *Small Business Innovative Research*	**Project (Number/Name)** 470 / *Small Business Innovative Research*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
DoD SBIR BAA pre-released in August 2021. Proposals were received in October 2021 followed by Technical Evaluation Team evaluations in November 2021. Phase I proposal selections were announced in December 2021. A total of three Phase I proposals were selected under this topic. Awards will be made in March 2022. 2021.3 DHA SBIR Topic DHA213-009 - Prolonged Care: To Demonstrate a Wearable Wound Infection Treatment Delivery Device. This DHA SBIR initiative is to reimagine the combat wound medication packet (CWMP) in a wearable format capable of delivering treatment for the prevention of infection in a prolonged care (PC) setting. The technology shall be in an easy-to-use format, durable instrumentation, lightweight, and compatible with PC. The approach should enable treatment administration for 72 hours near the wound bed. The end goal for this effort is to assemble a system of systems to prevent the development of infection in an austere environment when the provision of surgical intervention is delayed. This effort solicited a total of fifteen SBIR Phase I proposals. Proposals were accepted through the 2021.3 DoD SBIR BAA pre-released in August 2021. Proposals were received in October 2021 followed by Technical Evaluation Team evaluations in November 2021. Phase I proposal selections were announced in December 2021. A total of three Phase I proposals were selected under this topic. Awards will be made in March 2022. ***FY 2022 Plans:*** FY 2022 Plans: The program funds small business proposals chosen to enhance military medical research and information technology research. The following reflects the FY 2022 research area topics sought for proposals. FY 2022 Accomplishments/Plans: For FY 2022, nine DHA SBIR topics were developed for the 2022.1, 2022.2, and 2022.4 DoD SBIR Broad Agency Announcement (BAA). Funding for each topic is based on the technical merits of the proposals submitted. Topics included: 2022.1 DHA SBIR Topic DHA221-001 - Prolonged Care: To Demonstrate a Medicated Combat Tourniquet Capable of Wound Infection Treatment Delivery. This DHA SBIR initiative is to reimagine the current fielded tourniquet beyond prevention of exsanguination and demonstrate next generation designs capable of delivering treatment for the prevention of infection in a prolonged care setting. The technology must retain or improve upon the original functionality and shall be in an easy-to-use format, require minimal instrumentation, lightweight, and compatible with prolonged care. The treatment delivery approach should enable deep tissue penetration of, but not limited to, antimicrobial agents post-compression towards the wound bed. The end goal for this effort is					

Exhibit R-2A, RDT&E Project Justification: PB 2023 Defense Health Agency		Date: March 2022
Appropriation/Budget Activity 0130 / 2	**R-1 Program Element (Number/Name)** PE 0605502DHA / *Small Business Innovative Research*	**Project (Number/Name)** 470 / *Small Business Innovative Research*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
to assemble a system of systems to prevent the development of infection in an austere environment when the provision of surgical intervention is delayed over 72 hours (hrs). This effort solicited a total of fifteen SBIR Phase I proposals. Proposals were accepted through the 2022.1 DoD SBIR BAA pre-released in December 2021. Proposals were received in February 2022 followed by Technical Evaluation Team evaluations in March 2022. Phase I proposal selections will be announced in March 2022. A total of two Phase I proposals are anticipated to be selected under this topic. Awards will be made in June 2022. 2022.1 DHA SBIR Topic DHA221-002 - Scalable Multi-person Hearing Protection Device Fit-testing System. This DHA SBIR initiative is to develop a system that can simultaneously fit-test multiple people with hearing protection devices (HPDs). The system should be usable in clinical and non-clinical settings to quickly test the fit of HPDs from various manufacturers. This effort solicited a total of nine SBIR Phase I proposals. Proposals were accepted through the 2022.1 DoD SBIR BAA pre-released in December 2021. Proposals were received in February 2022 followed by Technical Evaluation Team evaluations in March 2022. Phase I proposal selections will be announced in March 2022. A total of two Phase I proposals are anticipated to be selected under this topic. Awards will be made in June 2022. 2022.1 DHA SBIR Topic DHA221-003 - Olfactory Neuroepithelium Functional Diagnostic Tool. This DHA SBIR initiative is to develop a device to determine thickness of mucus on top of the mucosa and then be able characterize important properties of the cellular layers of the olfactory cleft mucosa as has been demonstrated with optical coherence tomography (OCT) and confocal laser endomicroscopy (CLE) in the pulmonary tract1. This would include proportion of supporting cells, fibrosis, and neuronal composition. The ability to assess olfactory neuroepithelium cellular structure enables assessment of the degree of insult from injury, leading to better treatment and improved patient outcomes. The resulting diagnostic device (medical product) will be employed at level III or IV care for diagnostic assessments after injury. This effort solicited a total of four SBIR Phase I proposals. Proposals were accepted through the 2022.1 DoD SBIR BAA pre-released in December 2021. Proposals were received in February 2022 followed by Technical Evaluation Team evaluations in March 2022. Phase I proposal selections will be announced in March 2022. A total of two Phase I proposals are anticipated to be selected under this topic. Awards will be made in June 2022. 2022.1 DHA SBIR Topic DHA221-004 - Blind 3D Kinematic Measurement of High-Rate Complex Surface Deformation. This DHA SBIR initiative is to develop and demonstrate technologies capable of measuring complex surface response kinematics at the interface between the torso and body armor system. This effort solicited a total of eight SBIR Phase I proposals. Proposals were accepted through the 2022.1 DoD SBIR BAA					

Exhibit R-2A, RDT&E Project Justification: PB 2023 Defense Health Agency		Date: March 2022
Appropriation/Budget Activity 0130 / 2	**R-1 Program Element (Number/Name)** PE 0605502DHA / *Small Business Innovative Research*	**Project (Number/Name)** 470 / *Small Business Innovative Research*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
pre-released in December 2021. Proposals were received in February 2022 followed by Technical Evaluation Team evaluations in March 2022. Phase I proposal selections will be announced in March 2022. A total of two Phase I proposals are anticipated to be selected under this topic. Awards will be made in June 2022. 2022.2 DHA SBIR Topic DHA222-001 - Developing a Hardened Portable EEG System for Aircrew Physiological Monitoring in Flight. This DHA SBIR initiative is to design, build, and demonstrate a portable, dry EEG system that is integrated into the HGU-68/P flight helmet and capable of producing reliable and interpretable data in the flight environment which presents considerable sources of noise such as electronic noise, vibration from mechanical components, acceleration forces, changes in temperature and pressure, and non- neurological signals (e.g., muscle activity). This effort will be included in the 2022.2 BAA, to be pre-released 19 April 2022. Proposals will be received in May/June 2022 followed by Technical Evaluation Team evaluations in June 2022. Phase I proposal selections will be announced in July 2022. A total of two Phase I proposals are anticipated to be selected under this topic. Awards will be made by 30 September 2022. 2022.2 DHA SBIR Topic DHA222-002 - To Demonstrate a Technology for Early Detection and Monitoring of Wound Infections. This DHA SBIR initiative is to develop and validate a technology solution for the early detection and monitoring of wound infections in a prolonged care setting. The technology must improve upon the current ability to identify a wound infection. The end goal is to detect infections early and inform wound infection treatment as early as possible in order to ensure the most positive patient outcome. This effort will be included in the 2022.2 BAA, to be pre-released 19 April 2022. Proposals will be received in May/June 2022 followed by Technical Evaluation Team evaluations in June 2022. Phase I proposal selections will be announced in July 2022. A total of two Phase I proposals are anticipated to be selected under this topic. Awards will be made by 30 September 2022. 2022.4 DHA SBIR Topic DHA224-D001 - Remote Frostbite Prevention System. This DHA SBIR initiative is to develop a wireless, readily-scalable, real-time skin temperature sensing system that end-users can use to identify cold stressed workers with hands, feet, and other extremities that are at risk of freezing cold injury. This effort will be included in the 2022.4 BAA, to be pre-released 10 March 2022. Proposals will be received in April 2022 followed by Technical Evaluation Team evaluations in May 2022. Phase II proposal selections will be announced in May 2022. A total of two Direct to Phase II proposals are anticipated to be selected under this topic. Awards will be made by 31 August 2022.					

Exhibit R-2A, RDT&E Project Justification: PB 2023 Defense Health Agency		Date: March 2022
Appropriation/Budget Activity 0130 / 2	**R-1 Program Element (Number/Name)** PE 0605502DHA / *Small Business Innovative Research*	**Project (Number/Name)** 470 / *Small Business Innovative Research*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
2022.4 DHA SBIR Topic DHA224-D002 - Therapeutic Modalities for the Mitigation of Neck/Back Pain during Flight Operations. This DHA SBIR initiative is to design, build, and demonstrate a portable, ergonomically appropriate, and powered device for the relief of neck/back pain during long-haul flight operations. The proposed device shall: 1) not employ lithium-ion batteries in conjunction with the enriched oxygen environment of the aircraft cockpit/cabin; 2) provide relief on-demand as needed via on/off switch; 3) require no manipulation on the part of the aircrew outside turning on or off; 4) be compatible for use across all current-generation flight seats independent of platform type (fixed-wing ejection seat (FWES), fixed-wing non-ejection seat (FWNES), or rotary-wing/tilt rotor (RW/TR) and aircrew position (cockpit vs cabin); and finally, 5) not interfere with the operation of flight, safety, and life-support gear. Additionally, the proposed device may: 1) provide heat at targeted areas; 2) be obtainable without a prescription. This effort will be included in the 2022.4 BAA, to be pre-released 10 March 2022. Proposals will be received in April 2022 followed by Technical Evaluation Team evaluations in May 2022. Phase II proposal selections will be announced in May 2022. A total of two Direct to Phase II proposals are anticipated to be selected under this topic. Awards will be made by 31 August 2022. 2022.4 DHA SBIR Topic DHA224-D003 - Adaptive Technology to Optimize Rehabilitation of Lower Extremity Musculoskeletal Injuries throughout Recovery. This DHA SBIR initiative is to develop a technology (e.g. brace, exoskeleton) that adapts to facilitate recovery throughout rehabilitation of service members with lower extremity musculoskeletal injury to enable return to duty throughout rehabilitation of service members with lower extremity musculoskeletal injury to enable return to duty. This effort will be included in the 2022.4 BAA, to be pre-released 10 March 2022. Proposals will be received in April 2022 followed by Technical Evaluation Team evaluations in May 2022. Phase II proposal selections will be announced in May 2022. A total of two Direct to Phase II proposals are anticipated to be selected under this topic. Awards will be made by 31 August 2022. ***FY 2023 Base Plans:*** FY 2023 Plans: No funding programmed. The DHA SBIR program is funded in the year of execution. ***FY 2023 OCO Plans:*** FY 2023 Plans: No funding programmed. The DHA SBIR program is funded in the year of execution. ***FY 2022 to FY 2023 Increase/Decrease Statement:*** No funding programmed. The DHA SBIR program is funded in the year of execution.					
Accomplishments/Planned Programs Subtotals	63.080	84.272	0.000	0.000	0.000

Exhibit R-2A, RDT&E Project Justification: PB 2023 Defense Health Agency		Date: March 2022
Appropriation/Budget Activity 0130 / 2	**R-1 Program Element (Number/Name)** PE 0605502DHA / *Small Business Innovative Research*	**Project (Number/Name)** 470 / *Small Business Innovative Research*

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

Test and evaluate commercially developed prototypes funded by the SBIR program to ensure military and regulatory requirements are met prior to production and fielding, to include FDA licensure and Environmental Protection Agency registration.

Exhibit R-2A, RDT&E Project Justification: PB 2023 Defense Health Agency			Date: March 2022
Appropriation/Budget Activity 0130 / 2	R-1 Program Element (Number/Name) PE 0605502DHA / *Small Business Innovative Research*	Project (Number/Name) 471 / *Small Business Technology Transfer*	

COST ($ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
471: *Small Business Technology Transfer*	7.767	8.872	11.850	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing

A. Mission Description and Budget Item Justification

Small Business Technology Transfer (STTR) is a program that expands funding opportunities in the federal innovation research and development arena. Central to the program is expansion of the public/private sector partnership to include the joint venture opportunities for small businesses and nonprofit research institutions. The unique feature of the STTR program is the requirement for the small business to formally collaborate with a research institution in Phase I and Phase II. STTR's most important role is to bridge the gap between performance of basic science and commercialization of resulting innovations. The program funds small business proposals that partner with a research institution, are technically meritorious, and enhance Joint Program Committee (JPC) research and development efforts. The DHA STTR Program can participate in any of the three (FY.A, FY.B, and FY.C) Department of Defense (DoD) STTR BAAs. The process begins with a call for topics to the JPCs. DHA STTR topics are submitted directly to US Army Medical Research and Development Command (USAMRDC) and then forwarded to the JPCs for review and internal ranking. Topic Authors brief their topics at a Topic Review Meeting attended by the DHA Research& Development Directorate (J9) STTR Program Director (PD) and personnel from the supporting USAMRDC offices. Approved DHA STTR topics are published in the DoD STTR BAA. Small businesses submit proposals against topics which are then evaluated by a Technical Evaluation Team (TET) made up of a Team Chief and Technical Evaluators. TETs recommend proposals for selection. All recommended proposals are reviewed by the JPCs and the DHA STTR PD. Phase I proposal selections are announced and contract negotiations begin. Phase I contracts are awarded up to $250K for 6 months. Follow-on Phase II projects can be awarded up to $1.1M for 24 months. This process ensures the STTR program addresses the multi-agency science and technology priorities.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Title: Small Business Technology Transfer (STTR) Program	8.872	11.850	0.000	0.000	0.000
Description: STTR Program offers funding opportunities in federal research and development to small businesses. The program aims to stimulate technological innovation in DoD research and development, strengthen the role of small business in meeting DoD research and development needs, foster and encourage participation by minority and disadvantaged persons in technological innovation, and increase the commercial application of DoD-supported research or research and development results. The following reflects the FY 2021 research area topics sought for proposals. FY 2021 Accomplishments: For FY 2021, three DHA STTR topics were developed for the 2021.C DoD STTR Broad Agency Announcement (BAA). Funding for each topic is based on the technical merits of the proposals submitted. Topics included:					

Exhibit R-2A, RDT&E Project Justification: PB 2023 Defense Health Agency		Date: March 2022
Appropriation/Budget Activity 0130 / 2	**R-1 Program Element (Number/Name)** PE 0605502DHA / *Small Business Innovative Research*	**Project (Number/Name)** 471 / *Small Business Technology Transfer*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
2021.C DHA STTR Topic DHA21C-001 - Dissolvable Materials for Photochemical Tissue Bonding. This DHA STTR initiative funded research to develop material compositions which dissolve in blood in times from ten minutes to one hour, which are compatible for use in the body, which can be shaped as needed, and which can be produced in commercial quantities at reasonable cost. This effort solicited a total of nine STTR Phase I proposals. Proposals were accepted through the 2021.C DoD STTR BAA pre-released in August 2021. Proposals were received in October 2021 followed by Technical Evaluation Team evaluations in November 2021. Phase I proposal selections were announced in December 2021. A total of two Phase I proposals were selected under this topic. Awards will be made in March 2022. 2021.C DHA STTR Topic DHA21C-002 - Rapid Purification for Therapeutic Use of Bacteriophages That Target Gram-Negative Bacterial Species. This DHA STTR initiative funded research to develop and demonstrate a technology to rapidly purify bacteriophages (phages) of Gram-negative bacteria to a level suitable for human therapeutic use, free of endotoxin and of other bacterial remnants including other pyrogens and pathogen-associated molecular patterns (PAMPS), for application in treating recalcitrant multidrug resistant infections of the Warfighter. This effort solicited a total of two STTR Phase I proposals. Proposals were accepted through the 2021.C DoD STTR BAA pre-released in August 2021. Proposals were received in October 2021 followed by Technical Evaluation Team evaluations in November 2021. Phase I proposal selections were announced in December 2021. A total of one Phase I proposal was selected under this topic. Award was made in March 2022. 2021.C DHA SBIR Topic DHA21C-003 - Material Solutions to Bacteriophage Stabilization and Application in Austere Environments. This DHA STTR initiative funded research to develop technology that stabilize bacteriophage (phage) cocktails for long-term storage and use in austere environments. The proposed material solution would aid in improving effectiveness of phage therapy, and ease of use by ensuring long-term stability of phage at a range of temperatures (-20 to 45oC). Phage spray drying, packaging in nanoparticle, hydrogel polymer matrix, or a combination thereof, or other relevant technologies will be considered. This effort solicited a total of three STTR Phase I proposals. Proposals were accepted through the 2021.C DoD STTR BAA pre-released in August 2021. Proposals were received in October 2021 followed by Technical Evaluation Team evaluations in November 2021. Phase I proposal selections were announced in December 2021. A total of two Phase I proposals were selected under this topic. Awards will be made in March 2022. ***FY 2022 Plans:*** The following reflects the FY 2022 research area topics sought for proposals.					

Exhibit R-2A, RDT&E Project Justification: PB 2023 Defense Health Agency		Date: March 2022
Appropriation/Budget Activity 0130 / 2	**R-1 Program Element (Number/Name)** PE 0605502DHA / *Small Business Innovative Research*	**Project (Number/Name)** 471 / *Small Business Technology Transfer*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
FY 2022 Accomplishments/Plans: For FY 2022, one DHA STTR topic was developed for the 2022.B DoD STTR Broad Agency Announcement (BAA). Funding for each topic is based on the technical merits of the proposals submitted. Topics included: 2022.B DHA SBIR Topic DHA22B-001 - Integrated Blast Acquisition Test Surrogate. This DHA STTR initiative is to develop an anatomically accurate low cost blast surrogate to test and evaluate current and next-generation personal protective equipment (PPE). This effort will be included in the 2022.B BAA, to be pre-released 19 April 2022. Proposals will be received in May/June 2022 followed by Technical Evaluation Team evaluations in June 2022. Phase I proposal selections will be announced in July 2022. A total of two Phase I proposals are anticipated to be selected under this topic. Awards will be made by 30 September 2022. ***FY 2023 Base Plans:*** No funding programmed. The DHA STTR program is funded in the year of execution. ***FY 2023 OOC Plans:*** No funding programmed. The DHA STTR program is funded in the year of execution. ***FY 2022 to FY 2023 Increase/Decrease Statement:*** No funding programmed. The DHA STTR program is funded in the year of execution.					
Accomplishments/Planned Programs Subtotals	8.872	11.850	0.000	0.000	0.000

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

N/A

D. Acquisition Strategy

Test and evaluate commercially developed prototypes funded by the STTR program to ensure military and regulatory requirements are met prior to production and fielding, to include FDA licensure and Environmental Protection Agency registration.

Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Defense Health Agency	Date: March 2022
Appropriation/Budget Activity 0130: *Defense Health Program I* BA 8: *Software and Digital Technology Pilot Programs*	**R-1 Program Element (Number/Name)** PE 0308604DHA *I DoD Medical Information Exchange and Interoperability (DMIX) / Enterprise Intelligence and Data Solutions (EIDS)*

COST ($ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
Total Program Element	0.000	0.000	0.000	137.356	0.000	137.356	136.357	144.545	111.305	124.018	Continuing	Continuing
864: *DoD Medical Information Exchange and Interoperability (DMIX) / Enterprise Intelligence and Data Solutions (EIDS)*	-	0.000	0.000	137.356	-	137.356	136.357	144.545	111.305	124.018	Continuing	Continuing

A. Mission Description and Budget Item Justification

The Defense Health Agency requires a fully rationalized, affordable, and modernized Military Health System Information Platform (MIP) program under the directorate and ownership of Enterprise Intelligence and Data Solutions Program Management Office (EIDS).
EIDS mission is to provide a comprehensive solution capable of supporting the evolving clinical and business data needs within DHA, spanning across DHHQ, clinical markets, Military Treatment Facilities, research communities, managed support contractors, combatant commands, and Health Information Exchange partners including Veterans Affairs (VA) and other Federal entities. To achieve better clinical outcomes, EIDS must
transform into a Highly Reliable Organization (HRO). To serve as an effective HRO, EIDS must be a learning organization by using analytics and metrics to define and grow from lessons learned. Effective data analytics require data maturity goals and unwavering stakeholder support of the way forward.

DMIX Purpose: Comprised of infrastructure and services needed to provide seamless integrated sharing of electronic health data between the Department of Defense (DoD), Veteran's Affairs (VA), other Federal agencies, and private sector partners viewable to DoD and VA providers.

DMIX/EIDS FY 2023 BA08: Continue sustainment and maintenance of EIDS including program management, configuration management, technical refresh, commercial software licenses, data maintenance, ad hoc report maintenance, product/help desk support, cybersecurity compliance, software maintenance, test and evaluation activities, and cost of operating site personnel.

Increase activities consistent with best practices for Data Management and Data Architecture in order to reduce costs and enhance productivity. Establish innovative center of excellence for configuration management, requirements management, and version control of data, source code, and procedural instructions. Adhere to a path to Software Engineering Institute (SEI) Capability Maturity Model (CMM) level 4 or 5 compliance, again with the focus on reducing cost and increasing productivity.

Funding will be used for continued development and sustainment activities for seamless integrated sharing of electronic health data between the Department of Defense (DoD), the Department of Veterans Affairs (VA), other Federal agencies, and private sector partners viewable to DoD and VA providers.

Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Defense Health Agency	Date: March 2022
Appropriation/Budget Activity 0130: *Defense Health Program I* BA 8: *Software and Digital Technology Pilot Programs*	**R-1 Program Element (Number/Name)** PE 0308604DHA *I DoD Medical Information Exchange and Interoperability (DMIX) / Enterprise Intelligence and Data Solutions (EIDS)*

B. Program Change Summary ($ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Previous President's Budget	0.000	0.000	137.356	-	137.356
Current President's Budget	0.000	0.000	137.356	-	137.356
Total Adjustments	0.000	0.000	0.000	-	0.000
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			

Congressional Add Details ($ in Millions, and Includes General Reductions)	FY 2021	FY 2022
Project: 864: *DoD Medical Information Exchange and Interoperability (DMIX) / Enterprise Intelligence and Data Solutions (EIDS)*		
Congressional Add: *Defense Medical Information Exchange and Interoperability (DMIX) / Enterprise Intelligence and Data Solutions (EIDS)*	0.000	0.000
Congressional Add Subtotals for Project: 864	0.000	0.000
Congressional Add Totals for all Projects	0.000	0.000

Change Summary Explanation

Invited to participate in Test Pilot Program that subsequently changed FYD23 through the next 5 years (FY23-FY27)

Exhibit R-2A, RDT&E Project Justification: PB 2023 Defense Health Agency			Date: March 2022
Appropriation/Budget Activity 0130 / 8	R-1 Program Element (Number/Name) PE 0308604DHA / *DoD Medical Information Exchange and Interoperability (DMIX) / Enterprise Intelligence and Data Solutions (EIDS)*	Project (Number/Name) 864 / *DoD Medical Information Exchange and Interoperability (DMIX) / Enterprise Intelligence and Data Solutions (EIDS)*	

COST ($ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
864: *DoD Medical Information Exchange and Interoperability (DMIX) / Enterprise Intelligence and Data Solutions (EIDS)*	-	0.000	0.000	137.356	-	137.356	136.357	144.545	111.305	124.018	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

• EIDS will be spending FY23 allocations on development and sustainment of data sources for the Defense Health Agency. Enterprise Intelligence & Data Solutions Program Management Office supports MHS strategic goals and facilitate informed decision-making through the delivery of robust information services and data in a timely, relevant, and actionable manner. The EIDS PMO strives to execute the DHA Data Vision of providing seamless data services and decision support for clinicians, patients, beneficiaries, analysts, researchers, and DoD leadership to improve patient care.
• The PMO manages a vast array of data-related assets, including data warehouses, data virtualization tools, visualization solutions (e.g. CarePoint) and data exchange solutions that in combination makes up a system of systems - Military Health System Information Platform (MIP).
• Delivering, connecting, and curating data to facilitate informed decision-making across a diverse data ecosystem in support of Military Health, Readiness, Federal Health Data Integration and Innovation.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Title: Defense Medical Information Exchange and Interoperability (DMIX) / Enterprise Intelligence and Data Solutions (EIDS)	0.000	0.000	137.356	0.000	137.356
Description: • EIDS will be spending FY23 allocations on development and sustainment of data sources for the Defense Health Agency. Enterprise Intelligence & Data Solutions Program Management Office supports MHS strategic goals and facilitate informed decision-making through the delivery of robust information services and data in a timely, relevant, and actionable manner. The EIDS PMO strives to execute the DHA Data Vision of providing seamless data services and decision support for clinicians, patients, beneficiaries, analysts, researchers, and DoD leadership to improve patient care. • The PMO manages a vast array of data-related assets, including data warehouses, data virtualization tools, visualization solutions (e.g. CarePoint) and data exchange solutions that in combination makes up a system of systems - Military Health System Information Platform (MIP).					

Exhibit R-2A, RDT&E Project Justification: PB 2023 Defense Health Agency		Date: March 2022
Appropriation/Budget Activity 0130 / 8	**R-1 Program Element (Number/Name)** PE 0308604DHA / *DoD Medical Information Exchange and Interoperability (DMIX) / Enterprise Intelligence and Data Solutions (EIDS)*	**Project (Number/Name)** 864 / *DoD Medical Information Exchange and Interoperability (DMIX) / Enterprise Intelligence and Data Solutions (EIDS)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
• Delivering, connecting, and curating data to facilitate informed decision-making across a diverse data ecosystem in support of Military Health, Readiness, Federal Health Data Integration and Innovation. ***FY 2022 Plans:*** N/A ***FY 2023 Base Plans:*** FY 2023 Plans: • Realign to support Product and Portfolio management structure to accomplish EIDS mission, implement new DevSecOps approach with project management trainings and supporting documentation • Work in tandem with EIDS PM to define DHA Data Strategy for primary and secondary systems as well as both clinical and non-clinical systems Develop product roadmap with Health Informatics, LPDH, HealtheIntent/Registries/Care, JOMIS and DHMSM • Collaboration with DHMSM, HI, JOMIS, and DMIX components to develop integrated view of the key milestones • Coordinate and align with JOMIS on secondary data stores and analytics to ensure duplication of effort does not occur • Determine EIDS products to assign Data Solution Owners with CHIO • Release and integrate Digital Service Catalog on CarePoint for all users • Formalize and standardize requirements process including Service Now (GSC) and MHS Requirements Submission Portal (MHSRSP) and ensure end-user communication and coordination • MIP-Immunization Tracking and Reporting project completion and DEERSi rationalization • LDCS continues to rationalize and decommission legacy systems, adding CDR to scope • Operation Helios - Execute M2/MDR rationalization, migration and modernization into the MIP • DMSS rationalization / biosurveillance platform integration • Develop MIP Minute Awareness Campaign • Receive way forward from HI on that requirements for what data needs to go into the longitudinal record from legacy data • Identification of bidirectional feeds between MHS GENESIS and MIP (exploring BDE 3.0 and HIDUU) • Data Mapping Project and MIP/HealtheIntent data standardization					

Exhibit R-2A, RDT&E Project Justification: PB 2023 Defense Health Agency		Date: March 2022
Appropriation/Budget Activity 0130 / 8	**R-1 Program Element (Number/Name)** PE 0308604DHA / *DoD Medical Information Exchange and Interoperability (DMIX) / Enterprise Intelligence and Data Solutions (EIDS)*	**Project (Number/Name)** 864 / *DoD Medical Information Exchange and Interoperability (DMIX) / Enterprise Intelligence and Data Solutions (EIDS)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
• Complete RDT&E Operation Fast Forward projects (SDK, Data Quality/BDE 3.0, MLaaS, MD Clone, De-identified and Synthetic data, VDE, CICD) Continue to foster growth and inclusion in our organization to empower our people • DES integration and collaboration with ACS-DAL technical team for analysis in developing a future state and associated COA • Enabled Joint Health Information Exchange Simplified XML within DES • LDCS / DES FHIR interface • DMIX Release 10, Patch 1 (DES to query MHS GENESIS FHIR API service to retrieve Allergy, Procedures, Problem List, Inpatient and Outpatient Medication) • CHDR NextGen completion ***FY 2023 OOC Plans:*** N/A ***FY 2022 to FY 2023 Increase/Decrease Statement:*** inflationary adjustment					
Accomplishments/Planned Programs Subtotals	0.000	0.000	137.356	0.000	137.356

	FY 2021	FY 2022
Congressional Add: Defense Medical Information Exchange and Interoperability (DMIX) / Enterprise Intelligence and Data Solutions (EIDS) ***FY 2021 Accomplishments:*** N/A ***FY 2022 Plans:*** N/A	0.000	0.000
Congressional Adds Subtotals	0.000	0.000

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2023 Defense Health Agency		Date: March 2022
Appropriation/Budget Activity 0130 / 8	**R-1 Program Element (Number/Name)** PE 0308604DHA / *DoD Medical Information Exchange and Interoperability (DMIX) / Enterprise Intelligence and Data Solutions (EIDS)*	**Project (Number/Name)** 864 / *DoD Medical Information Exchange and Interoperability (DMIX) / Enterprise Intelligence and Data Solutions (EIDS)*

D. Acquisition Strategy

Evaluate and use the most appropriate business, technical, contract and support strategies and acquisition approach to minimize costs, reduce program risks, and remain within schedule while meeting program objectives. Strategy is revised as required as a result of periodic program reviews or major decisions. PEO DHMS is an acquisition organization, reporting to the Under Secretary of Defense for Acquisition and Sustainment.