Appropriation: RDT&E, Defense Health Program ($s M) **Date:** February 2018

R-l Line Item No	Program Element Number	Item	Budget Activity	FY 2017 Actuals[1]	FY 2018 Request[2]	FY 2019 Base	FY 2019 OCO	FY 2019 Total Estima	FY 2020 Estimates	FY 2021 Estimates	FY 2022 Estimates	FY 2023 Estimates
1	0601101	In-House Laboratory Independent Research (ILIR)	2	3.806	2.879	3.687	0.000	3.687	4.013	4.093	4.175	4.259
2	0601117	Basic Operational Medical Research Sciences	2	8.798	6.917	7.699	0.000	7.699	8.608	8.913	9.091	9.273
3	0602115	Applied Biomedical Technology	2	86.322	63.550	73.654	0.000	73.654	82.883	84.408	86.096	87.818
4	0602787	Medical Technology (AFRRI)	2	1.196	1.331	1.356	0.000	1.356	1.383	1.411	1.439	1.468
5	0603002	Medical Advanced Technology (AFRRI)	2	0.299	0.332	0.338	0.000	0.338	0.345	0.352	0.359	0.366
6	0603115	Medical Technology Development	2	1,345.413	245.936	274.920	0.000	274.920	269.421	269.473	274.476	279.965
7	0604110	Medical Products Support and Advanced Concept Development	2	156.960	99.039	117.529	0.000	117.529	128.055	132.331	142.252	145.097
8	0605013	Information Technology Development	2	24.414	25.323	25.228	0.000	25.228	26.497	21.258	21.683	22.116
9	0605023	Integrated Electronic Health Record (iEHR)	2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
10	0605025	Theater Medical Information Program - Joint (TMIP-J)	2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
11	0605026	Information Technology Development - DoD Healthcare Management System Modernization (DHMSM)	2	287.723	42.549	28.326	0.000	28.326	15.771	14.943	13.678	0.300
12	0605039	DoD Medical Information Exchange and Interoperability	2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
13	0605045	Joint Operational Medicine Information System (JOMIS)	2	21.332	87.511	78.136	0.000	78.136	23.071	23.532	24.003	24.483
14	0605145	Medical Products and Support Systems Development	2	17.723	15.219	20.295	0.000	20.295	21.589	22.022	22.462	22.911
15	0605502	Small Business Innovation Research (SBIR) Program	2	58.348	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
16	0606105	Medical Program-Wide Activities	2	74.340	69.191	63.755	0.000	63.755	67.219	68.563	69.934	71.333
17	0607100	Medical Products and Capabilities Enhancement Activities	2	14.953	13.438	15.714	0.000	15.714	16.819	17.215	17.619	17.971
		Total Budget Activity 2		**2,101.627**	**673.215**	**710.637**	**0.000**	**710.637**	**665.674**	**668.514**	**687.267**	**687.360**

Notes:
1. FY 2017 actuals includes congressional additions, reductions, and statutory reductions for FFRDC/SBIR/STTR.
2. FY 2018 reflects the FY 2018 President's Budget.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Defense Health Agency											Date: February 2018	
Appropriation/Budget Activity 0130: *Defense Health Program I* BA 2: *RDT&E*					R-1 Program Element (Number/Name) PE 0601101DHA *I In-House Laboratory Independent Research (ILIR)*							
COST ($ in Millions)	**Prior Years**	**FY 2017**	**FY 2018**	**FY 2019 Base**	**FY 2019 OCO**	**FY 2019 Total**	**FY 2020**	**FY 2021**	**FY 2022**	**FY 2023**	**Cost To Complete**	**Total Cost**
Total Program Element	13.840	3.806	2.879	3.687	-	3.687	4.013	4.093	4.175	4.259	Continuing	Continuing
010A: *CSI - Congressional Special Interests*	1.315	0.000	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
240A: *Infectious Disease (USUHS)*	1.687	0.522	0.421	0.480	-	0.480	0.490	0.500	0.510	0.520	Continuing	Continuing
240B: *Military Operational Medicine (USUHS)*	5.176	1.547	1.251	1.479	-	1.479	1.509	1.539	1.570	1.602	Continuing	Continuing
240C: *Combat Casualty Care (USUHS)*	5.662	1.487	1.207	1.728	-	1.728	2.014	2.054	2.095	2.137	Continuing	Continuing
468: *Metabolomics, Exposure Biomarkers, and Health Outcomes*	-	0.250	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 Uniformed Services of the Health Sciences (USUHS), this program element supports basic medical research at the Uniformed Services University of the Health Sciences (USUHS). It facilitates the recruitment and retention of faculty; supports unique research training for military medical students and resident fellows; and allows the University's faculty researchers to collect pilot data towards military relevant medical research projects in order to secure research funds from extramural sources (estimated $180 million annually). Approximately 48 intramural research projects are active each year, including 18 faculty start-ups. Projects are funded on a peer-reviewed, competitive basis. Results from these studies contribute to the knowledge base intended to enable technical approaches and investment strategies within Defense Science and Technology (S&T) programs. USU 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.

The ILIR 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 Combat Casualty Care, Infectious Diseases, Military Operational Medicine, and Chemical, Biological, and Radiologic Defense. The portfolio of research projects will vary annually because this research is investigator-initiated. Examples of typical research efforts are detailed in R-2a.

Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Defense Health Agency					Date: February 2018
Appropriation/Budget Activity 0130: *Defense Health Program I* BA 2: *RDT&E*		R-1 Program Element (Number/Name) PE 0601101DHA *I In-House Laboratory Independent Research (ILIR)*			
B. Program Change Summary ($ in Millions)	**FY 2017**	**FY 2018**	**FY 2019 Base**	**FY 2019 OCO**	**FY 2019 Total**
Previous President's Budget	2.653	2.879	3.687	-	3.687
Current President's Budget	3.806	2.879	3.687	-	3.687
Total Adjustments	1.153	0.000	0.000	-	0.000
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	1.000	-			
• SBIR/STTR Transfer	-0.097	-			
• Metabolomics, Exposure Biomarkers, and Health Outcomes	0.250	-	-	-	-

Congressional Add Details ($ in Millions, and Includes General Reductions)	FY 2017	FY 2018
Project: 468: *Metabolomics, Exposure Biomarkers, and Health Outcomes*		
Congressional Add: *Metabolomics, Exposure Biomarkers, and Health Outcomes*	0.250	0.000
Congressional Add Subtotals for Project: 468	0.250	0.000
Congressional Add Totals for all Projects	0.250	0.000

Exhibit R-2A, RDT&E Project Justification: PB 2019 Defense Health Agency			Date: February 2018
Appropriation/Budget Activity 0130 / 2	R-1 Program Element (Number/Name) PE 0601101DHA / *In-House Laboratory Independent Research (ILIR)*	Project (Number/Name) 010A / *CSI - Congressional Special Interests*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
010A: *CSI - Congressional Special Interests*	1.315	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

Because of the CSI annual structure, out-year funding is not programmed.

B. Accomplishments/Planned Programs ($ in Millions)

N/A

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2019 Defense Health Agency			Date: February 2018
Appropriation/Budget Activity 0130 / 2	R-1 Program Element (Number/Name) PE 0601101DHA / *In-House Laboratory Independent Research (ILIR)*	Project (Number/Name) 240A / *Infectious Disease (USUHS)*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
240A: *Infectious Disease (USUHS)*	1.687	0.522	0.421	0.480	-	0.480	0.490	0.500	0.510	0.520	Continuing	Continuing

A. Mission Description and Budget Item Justification

For the Uniformed Services of the Health Sciences (USUHS), this program element supports basic medical research at the Uniformed Services University of the Health Sciences (USUHS). It facilitates the recruitment and retention of faculty; supports unique research training for military medical students and resident fellows; and allows the University's faculty researchers to collect pilot data towards military relevant medical research projects in order to secure research funds from extramural sources (estimated $180 million annually). Approximately 48 intramural research projects are active each year, including 18 faculty start-ups. Projects are funded on a peer-reviewed, competitive basis. Results from these studies contribute to the knowledge base intended to enable technical approaches and investment strategies within Defense Science and Technology (S&T) programs. USU 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.

The ILIR 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 Combat Casualty Care, Infectious Diseases, Military Operational Medicine, and Chemical, Biological, and Radiologic Defense. The portfolio of research projects will vary annually because this research is investigator-initiated. Examples of typical research efforts are detailed in R-2a.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Title: Infectious Disease	0.522	0.421	0.480
Description: Immunology and molecular biology of bacterial, viral and parasitic disease threats to military operations. These threats include Bartonella bacilliformis, Clostridium difficile, Escherichia coli and their Shiga toxins, Henipaviruses (Hendra & Nipah), Cedar Virus, Hepatitis A, Helicobacter pylori, HIV, HTLV-1, Leishmaniasis, Litomosoides sigmodontis, Malaria, Neisseria gonorrhoeae, Shigella spp., Streptococcus, and Methicillin-resistant Staphylococcus aureus (MRSA).			
FY 2018 Plans: Efforts will be focused within the Infectious Disease research area. Two to three peer reviewed investigator-initiated projects will be funded for multiple years.			
FY 2019 Plans: Efforts will continue within the Infectious Disease research area in FY 2019. Specific investigator-initiated projects compete for funding each year, usually with two to three-year project periods. Therefore, no detailed description of the research is possible at this time.			
FY 2018 to FY 2019 Increase/Decrease Statement:			

Exhibit R-2A, RDT&E Project Justification: PB 2019 Defense Health Agency		Date: February 2018
Appropriation/Budget Activity 0130 / 2	**R-1 Program Element (Number/Name)** PE 0601101DHA / *In-House Laboratory Independent Research (ILIR)*	**Project (Number/Name)** 240A / *Infectious Disease (USUHS)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Pricing adjustment.			
Accomplishments/Planned Programs Subtotals	0.522	0.421	0.480

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2019 Defense Health Agency			Date: February 2018
Appropriation/Budget Activity 0130 / 2	R-1 Program Element (Number/Name) PE 0601101DHA / *In-House Laboratory Independent Research (ILIR)*	Project (Number/Name) 240B / *Military Operational Medicine (USUHS)*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
240B: *Military Operational Medicine (USUHS)*	5.176	1.547	1.251	1.479	-	1.479	1.509	1.539	1.570	1.602	Continuing	Continuing

A. Mission Description and Budget Item Justification

For the Uniformed Services of the Health Sciences (USUHS), this program element supports basic medical research at the Uniformed Services University of the Health Sciences (USUHS). It facilitates the recruitment and retention of faculty; supports unique research training for military medical students and resident fellows; and allows the University's faculty researchers to collect pilot data towards military relevant medical research projects in order to secure research funds from extramural sources (estimated $180 million annually). Approximately 48 intramural research projects are active each year, including 18 faculty start-ups. Projects are funded on a peer-reviewed, competitive basis. Results from these studies contribute to the knowledge base intended to enable technical approaches and investment strategies within Defense Science and Technology (S&T) programs. USU 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.

The ILIR 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 Combat Casualty Care, Infectious Diseases, Military Operational Medicine, and Chemical, Biological, and Radiologic Defense. The portfolio of research projects will vary annually because this research is investigator-initiated. Examples of typical research efforts are detailed in R-2a.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Title: Military Operational Medicine	1.547	1.251	1.479
Description: Sustainment of individual performance; mapping and managing deployment and operational stressors; cognitive enhancement; use of dietary and nutritional supplements and military and medical training readiness. ***FY 2018 Plans:*** Efforts will be focused within the Military Operational Medicine research area. Two to three peer reviewed investigator-initiated projects will be funded for multiple years. ***FY 2019 Plans:*** Efforts will continue within the Military Operational Medicine research area in FY 2019. Specific investigator-initiated projects compete for funding each year, usually with two to three-year project periods. Therefore, no detailed description of the research is possible at this time. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Pricing adjustment.			
Accomplishments/Planned Programs Subtotals	1.547	1.251	1.479

Exhibit R-2A, RDT&E Project Justification: PB 2019 Defense Health Agency		Date: February 2018
Appropriation/Budget Activity 0130 / 2	**R-1 Program Element (Number/Name)** PE 0601101DHA / *In-House Laboratory Independent Research (ILIR)*	**Project (Number/Name)** 240B / *Military Operational Medicine (USUHS)*

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2019 Defense Health Agency			Date: February 2018
Appropriation/Budget Activity 0130 / 2	R-1 Program Element (Number/Name) PE 0601101DHA / *In-House Laboratory Independent Research (ILIR)*	Project (Number/Name) 240C / *Combat Casualty Care (USUHS)*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
240C: *Combat Casualty Care (USUHS)*	5.662	1.487	1.207	1.728	-	1.728	2.014	2.054	2.095	2.137	Continuing	Continuing

A. Mission Description and Budget Item Justification

For the Uniformed Services of the Health Sciences (USUHS), this program element supports basic medical research at the Uniformed Services University of the Health Sciences (USUHS). It facilitates the recruitment and retention of faculty; supports unique research training for military medical students and resident fellows; and allows the University's faculty researchers to collect pilot data towards military relevant medical research projects in order to secure research funds from extramural sources (estimated $180 million annually). Approximately 48 intramural research projects are active each year, including 18 faculty start-ups. Projects are funded on a peer-reviewed, competitive basis. Results from these studies contribute to the knowledge base intended to enable technical approaches and investment strategies within Defense Science and Technology (S&T) programs. USU 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.

The ILIR 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 Combat Casualty Care, Infectious Diseases, Military Operational Medicine, and Chemical, Biological, and Radiologic Defense. The portfolio of research projects will vary annually because this research is investigator-initiated. Examples of typical research efforts are detailed in R-2a.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Title: Combat Casualty Care	1.487	1.207	1.728
Description: Regenerative medicine, rehabilitation, neurological, limb loss, pain management, readiness, resilience ***FY 2018 Plans:*** Efforts will be focused within the Combat Casualty Care research area. Two to three peer reviewed investigator-initiated projects will be funded for multiple years. ***FY 2019 Plans:*** Efforts will continue within the Combat Casualty Care research area in FY 2019. Specific investigator-initiated projects compete for funding each year, usually with two to three-year project periods. Therefore, no detailed description of the research is possible at this time. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Pricing adjustment.			
Accomplishments/Planned Programs Subtotals	1.487	1.207	1.728

Exhibit R-2A, RDT&E Project Justification: PB 2019 Defense Health Agency		Date: February 2018
Appropriation/Budget Activity 0130 / 2	**R-1 Program Element (Number/Name)** PE 0601101DHA / *In-House Laboratory Independent Research (ILIR)*	**Project (Number/Name)** 240C / *Combat Casualty Care (USUHS)*

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2019 Defense Health Agency			Date: February 2018
Appropriation/Budget Activity 0130 / 2	R-1 Program Element (Number/Name) PE 0601101DHA / *In-House Laboratory Independent Research (ILIR)*	Project (Number/Name) 468 / *Metabolomics, Exposure Biomarkers, and Health Outcomes*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
468: *Metabolomics, Exposure Biomarkers, and Health Outcomes*	-	0.250	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 Uniformed Services of the Health Sciences (USUHS), this program element supports basic medical research at the Uniformed Services University of the Health Sciences (USUHS). It facilitates the recruitment and retention of faculty; supports unique research training for military medical students and resident fellows; and allows the University's faculty researchers to collect pilot data towards military relevant medical research projects in order to secure research funds from extramural sources (estimated $180 million annually). Approximately 48 intramural research projects are active each year, including 18 faculty start-ups. Projects are funded on a peer-reviewed, competitive basis. Results from these studies contribute to the knowledge base intended to enable technical approaches and investment strategies within Defense Science and Technology (S&T) programs. USU 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.

The ILIR 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 Combat Casualty Care, Infectious Diseases, Military Operational Medicine, and Chemical, Biological, and Radiologic Defense. The portfolio of research projects will vary annually because this research is investigator-initiated. Examples of typical research efforts are detailed in R-2a.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018
Congressional Add: Metabolomics, Exposure Biomarkers, and Health Outcomes	0.250	0.000
FY 2017 Accomplishments: This funding was received in the second year of the appropriation, therefore, accomplishments have not yet been identified.		
FY 2018 Plans: None.		
Congressional Adds Subtotals	0.250	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 2019 Defense Health Agency		Date: February 2018
Appropriation/Budget Activity 0130 / 2	**R-1 Program Element (Number/Name)** PE 0601101DHA / *In-House Laboratory Independent Research (ILIR)*	**Project (Number/Name)** 468 / *Metabolomics, Exposure Biomarkers, and Health Outcomes*

E. Performance Metrics

N/A

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Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Defense Health Agency	Date: February 2018
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 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
Total Program Element	28.089	8.798	6.917	7.699	-	7.699	8.608	8.913	9.091	9.273	Continuing	Continuing
100A: *CSI - Congressional Special Interests*	5.976	2.373	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
371A: *GDF-Basic Operational Medical Research Sciences*	22.113	6.425	6.917	7.699	-	7.699	8.608	8.913	9.091	9.273	Continuing	Continuing

A. Mission Description and Budget Item Justification

Guidance for Development of the Force-Basic Operational 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 Protection. 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 DoD 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 Quadrennial Defense Review, the National Research Action Plan for Improving Access to Mental Health Services for Veterans, Service Members, and Military Families, the National Strategy for Combating Antibiotic Resistance, and the National Strategy for Biosurveillance. Research will support efforts such as the Precision Medicine Initiative which seeks to increase the use of big data and interdisciplinary approaches to establish a fundamental understanding of military disease and injury to advance health status assessment, diagnosis, and treatment tailored to individual Service members and beneficiaries, research focused on protection against emerging infectious disease threats, the advancement of state of the art regenerative medicine manufacturing technologies consistent with the National Strategic Plan for Advanced Manufacturing, the advancement of global health engagement and capitalization of complementary research and technology capabilities, improving deployment military occupational and environmental exposure monitoring, and the strengthening of the scientific basis for decision-making in patient safety and quality performance in the Military Health System. The program also supports the Interagency Strategic Plan for Research and Development of Blood Products and Related Technologies for Trauma Care and Emergency Preparedness. 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, the Department of Health and Human Services, and the Department of Homeland Security. Coordination occurs through the planning and execution activities of the Joint Program Committees (JPCs), established to manage research, development, test and evaluation for DHP-sponsored research. The JPCs supported by this PE include military infectious diseases (JPC-2), military operational medicine (JPC-5), and combat casualty care (JPC-6). 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.

In FY 2016, Congressional Special Interest (CSI) funds were provided for Core Research Funding. Because of the CSI annual structure, out-year funding is not programmed.

Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Defense Health Agency	Date: February 2018
Appropriation/Budget Activity 0130: *Defense Health Program* / BA 2: *RDT&E*	**R-1 Program Element (Number/Name)** PE 0601117DHA / *Basic Operational Medical Research Sciences*

B. Program Change Summary ($ in Millions)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Previous President's Budget	6.444	6.917	7.699	-	7.699
Current President's Budget	8.798	6.917	7.699	-	7.699
Total Adjustments	2.354	0.000	0.000	-	0.000
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	2.373	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.019	-			

Congressional Add Details ($ in Millions, and Includes General Reductions)	FY 2017	FY 2018
Project: 100A: *CSI - Congressional Special Interests*		
Congressional Add: *461A – Program Increase: Restore Core Research Funding Reduction (Army)*	2.373	-
Congressional Add Subtotals for Project: 100A	2.373	-
Congressional Add Totals for all Projects	2.373	-

Change Summary Explanation

FY 2017: Realignment from Defense Health Program, Research, Development, Test and Evaluation (DHP RDT&E), Program Element (PE) 0601117-Basic Operational Medical Research Sciences (-$0.019 million) to DHP RDT&E, PE 0605502-Small Business Innovation Research (SBIR) / Small Business Technology Transfer (STTR) Program (+$0.019 million).

Exhibit R-2A, RDT&E Project Justification: PB 2019 Defense Health Agency			Date: February 2018
Appropriation/Budget Activity 0130 / 2	R-1 Program Element (Number/Name) PE 0601117DHA / *Basic Operational Medical Research Sciences*	Project (Number/Name) 100A / *CSI - Congressional Special Interests*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
100A: *CSI - Congressional Special Interests*	5.976	2.373	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 Program (DHP) Congressional Special Interest (CSI) funding was directed toward restoration of core research initiatives in Program Element (PE) 0601117 - Basic Operational Medical Research Sciences. Because of the CSI annual structure, out-year funding is not programmed.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018
Congressional Add: 461A – Program Increase: Restore Core Research Funding Reduction (Army)	2.373	-
FY 2017 Accomplishments: This Congressional Special Interest initiative was directed toward FY 2017 DHP core research initiatives in PE 0601117. Funds supported basic research in military operational medicine and radiation health effects (Project 371A).		
Congressional Adds Subtotals	2.373	-

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2019 Defense Health Agency			Date: February 2018
Appropriation/Budget Activity 0130 / 2	**R-1 Program Element (Number/Name)** PE 0601117DHA / *Basic Operational Medical Research Sciences*	**Project (Number/Name)** 371A / *GDF-Basic Operational Medical Research Sciences*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
371A: *GDF-Basic Operational Medical Research Sciences*	22.113	6.425	6.917	7.699	-	7.699	8.608	8.913	9.091	9.273	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 Quadrennial Defense Review, 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 managed by the Joint Program Committees (JPCs) in the following areas: 1- Military Infectious Diseases basic research develops protection and treatment products for military relevant infectious diseases. 2- Military Operational Medicine basic research focuses on the development of medical countermeasures against operational stressors, prevention of physical and psychological injuries during training and operations, and maximizing the health, performance and fitness of Service members. 3- Combat Casualty Care basic research focuses 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 2017	FY 2018	FY 2019
Title: Project 371 GDF – Basic Operational Medical Research Sciences	6.425	6.917	7.699
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.			
FY 2018 Plans: Military infectious diseases research continues to support multi-year basic research studies in bacterial diseases for the prevention, treatment and management in discovery and development of antibacterial agents for biofilms and multi-drug resistant organisms (MDROs), detection of MDROs, and biomarkers. Successful approaches are being selected for funding. Studies that address the remaining gaps related to infection caused by MDROs are ongoing. These studies support the National Action Plan for Combating Antibiotic-Resistant Bacteria. Military operational medicine research will continue to characterize the biomechanical responses of brain tissue to blast waves and indirect mechanisms of blast wave-induced injury in animal models that will guide the development of interventions for mitigating blast-induced brain injury. Conducting research to define the role of individual and unit climate factors on aggression. Identifying linkages between identified genetic markers and individual performance or health risks. Conducting studies to understand the basic mechanisms underlying psychological resilience to inform potential future intervention and assessment work. Conducting epidemiological studies to identify the nature of the substance abuse problem in the military and possible unique contributing and protective factors. Identifying candidate targets and neurological systems for treatment and diagnostic indicators			

Exhibit R-2A, RDT&E Project Justification: PB 2019 Defense Health Agency		Date: February 2018
Appropriation/Budget Activity 0130 / 2	**R-1 Program Element (Number/Name)** PE 0601117DHA / *Basic Operational Medical Research Sciences*	**Project (Number/Name)** 371A / *GDF-Basic Operational Medical Research Sciences*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
of post-traumatic stress disorder (PTSD). Defining solutions to prevent, mitigate and/or recover from fatigue via electrical brain stimulation. Identifying physical, physiological and psychosocial factors that may differentially impact the performance of female versus male Service members and gender-based susceptibility to musculoskeletal injury. Studying mechanisms of molecular changes in the brain following exposure to inhaled toxicants. Combat casualty care research is focusing on developing an understanding of trauma-associated pathophysiologic (functional changes associated with injury) mechanisms using advanced hemostatic and resuscitation approaches in prolonged field care scenarios when evacuation is delayed ***FY 2019 Plans:*** FY 2019 plans continue efforts as outlined in FY 2018. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Pricing Adjustment.			
Accomplishments/Planned Programs Subtotals	6.425	6.917	7.699

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

Research is evaluated through in-progress reviews, Defense Health Program-sponsored review and analysis meetings, quarterly and annual status reports, and progress reviews to ensure that milestones are met and deliverables are transitioned on schedule. The benchmark performance metric for transition of research conducted with basic science funding is the attainment of a maturity level that is typical of Technology Readiness Level 2 or the equivalent for knowledge products.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Defense Health Agency											Date: February 2018	
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 2017**	**FY 2018**	**FY 2019 Base**	**FY 2019 OCO**	**FY 2019 Total**	**FY 2020**	**FY 2021**	**FY 2022**	**FY 2023**	**Cost To Complete**	**Total Cost**
Total Program Element	310.744	86.322	63.550	73.654	-	73.654	82.883	84.408	86.096	87.818	Continuing	Continuing
200A: *Congressional Special Interests*	107.257	28.133	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	-	-
246A: *Combating Antibiotic Resistant Bacteria (CARB) - WRAIR Discovery and Wound Program (Army)*	2.913	3.116	2.142	1.857	-	1.857	1.949	1.989	2.029	2.070	Continuing	Continuing
306B: *Advanced Diagnostics & Therapeutics Research & Development (AF)*	9.620	3.338	3.975	4.051	-	4.051	4.132	4.215	4.299	4.385	Continuing	Continuing
306C: *Core Adv Diagnostics & Epigenomics Applied Research (AF)*	1.728	0.000	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
306D: *Core Occupational, Bioenvironmental, Aerospace Medicine & Toxicology Applied Research (AF)*	1.728	0.000	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
372A: *GDF Applied Biomedical Technology*	165.077	43.074	49.639	58.724	-	58.724	67.148	68.357	69.724	71.119	Continuing	Continuing
447A: *Military HIV Research Program (Army)*	22.421	8.661	7.794	9.022	-	9.022	9.654	9.847	10.044	10.244	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 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 Quadrennial Defense Review, the National Research Action Plan for Improving Access to Mental Health Services for Veterans, Service Members, and Military Families, the National Strategy for Combating Antibiotic Resistance, and the National Strategy for Biosurveillance. Research will support efforts such as the Precision Medicine Initiative which seeks to increase the use of big data and interdisciplinary approaches to establish a fundamental understanding of military disease and injury to advance health status assessment, diagnosis, and treatment tailored to individual Service members and beneficiaries, translational research focused on protection against emerging infectious disease threats, the advancement of state of the art regenerative medicine manufacturing technologies

consistent with the National Strategic Plan for Advanced Manufacturing, the advancement of global health engagement and capitalization of complementary research and technology capabilities, improving deployment military occupational and environmental exposure monitoring, and the strengthening of the scientific basis for decision-making in patient safety and quality performance in the Military Health System. The program also supports the Interagency Strategic Plan for Research & Development of Blood Products and Related Technologies for Trauma Care and Emergency Preparedness. 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, the Department of Health and Human Services, and the Department of Homeland Security. Coordination occurs through the planning and execution activities of the Joint Program Committees (JPCs), established to manage research, development, test and evaluation for DHP-sponsored research. The JPCs supported by this PE include medical simulation and information sciences, military infectious diseases, military operational medicine, combat casualty care, radiation health effects, and clinical and rehabilitative medicine. 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.

For the Army Medical Command: This PE funds the military HIV research program to refine identification methods for determining genetic diversity of the virus, to conduct preclinical work in laboratory animals including non-human primates to identify candidates for global HIV-1 vaccine, and to evaluate and prepare overseas sites for clinical trials with these vaccine candidates. Funding is also provided to develop strategies to prevent, mitigate, and treat antibiotic resistant bacteria in wounds through the Combating Antibiotic Resistant Bacteria - WRAIR Discovery and Wound Program.

In FY 2016, Congressional Special Interest funds were provided for Traumatic Brain Injury and Psychological Health (TBI/PH) and Core Research Funding. Because of the CSI annual structure, out-year funding is not programmed.

B. Program Change Summary ($ in Millions)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Previous President's Budget	57.275	63.550	73.654	-	73.654
Current President's Budget	86.322	63.550	73.654	-	73.654
Total Adjustments	29.047	0.000	0.000	-	0.000
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	28.133	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	1.806	-			
• SBIR/STTR Transfer	-0.892	-			

Congressional Add Details ($ in Millions, and Includes General Reductions)	FY 2017	FY 2018
Project: 200A: *Congressional Special Interests*		
Congressional Add: *426A – CSI - Traumatic Brian Injury / Psychological Health (TBI/PH) (PE 0602115) (Army)*	13.393	-
Congressional Add: *462A – CSI - GDF Restore Core Applied Biomedical Technology (PE 0602115) (Army)*	14.414	-
Congressional Add: *PC 426 - CSI - Traumatic Brian Injury / Psychological Health (TBI/PH) (PE 0602115) (Navy)*	0.175	-

Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Defense Health Agency	Date: February 2018
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 2017	FY 2018
Congressional Add: *PC 372 - CSI - Applied Biomedical Technology (AF)*	0.151	-
Congressional Add Subtotals for Project: 200A	28.133	-
Congressional Add Totals for all Projects	28.133	-

Change Summary Explanation

FY 2017: Realignment from Defense Health Program, Research, Development, Test and Evaluation (DHP RDT&E), Program Element (PE) 0602115-Applied Biomedical Technology (-$0.892 million) to DHP RDT&E, PE 0605502-Small Business Innovation Research (SBIR) / Small Business Technology Transfer (STTR) Program (+$0.892 million).

Exhibit R-2A, RDT&E Project Justification: PB 2019 Defense Health Agency			Date: February 2018
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 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
200A: *Congressional Special Interests*	107.257	28.133	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	-	-

A. Mission Description and Budget Item Justification

The FY 2016 DHP Congressional Special Interest (CSI) funding was directed toward core research initiatives in PE 0602115 - Applied Biomedical Technology. Because of the CSI annual structure, out-year funding is not programmed.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018
Congressional Add: 426A – CSI - Traumatic Brian Injury / Psychological Health (TBI/PH) (PE 0602115) (Army)	13.393	-
FY 2017 Accomplishments: The Traumatic Brain Injury and Psychological Health (TBI/PH) Congressional Special Interest program supported studies to inform the development of strategies to prevent, mitigate, and treat the effects of combat-relevant traumatic stress and TBI on the function, wellness, and overall quality of life for military Service members and veterans, as well as their family members, caregivers, and communities. A key priority of the TBI/PH applied research program was to complement ongoing DoD efforts to ensure the health and readiness of our military forces by promoting a better standard of care for psychological health disorders and TBI in the areas of prevention, detection, diagnosis, treatment, and rehabilitation. In support, the FY 2016 Military Operational Medicine Research Program Cognitive Resilience and Readiness Research Award Program Announcement was released to solicit research relevant to building and sustaining cognitive resilience in Service members and ensuring short- and long-term readiness of the force. A Broad Agency Announcement focused on supporting the implementation of evidence-based interventions identified by stakeholders for use within the military context as well as for system-wide dissemination. Additionally, studies to identify interventions for reducing the psychological impact of stress and sex differences in the ability to predict and treat opiate abuse were initiated.		
Congressional Add: 462A – CSI - GDF Restore Core Applied Biomedical Technology (PE 0602115) (Army)	14.414	-
FY 2017 Accomplishments: This Congressional Special Interest initiative was directed toward FY 2017 DHP core research initiatives in PE 0602115. Funds supported applied research for military infectious diseases, military operational medicine, combat casualty care, and clinical and rehabilitative medicine (Project 372A).		
Congressional Add: PC 426 - CSI - Traumatic Brian Injury / Psychological Health (TBI/PH) (PE 0602115) (Navy)	0.175	-

Exhibit R-2A, RDT&E Project Justification: PB 2019 Defense Health Agency		Date: February 2018
Appropriation/Budget Activity 0130 / 2	**R-1 Program Element (Number/Name)** PE 0602115DHA / *Applied Biomedical Technology*	**Project (Number/Name)** 200A / *Congressional Special Interests*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018
FY 2017 Accomplishments: The Traumatic Brain Injury and Psychological Health (TBI/PH) Congressional Special Interest program supported studies to inform the development of strategies to prevent, mitigate, and treat the effects of combat-relevant traumatic stress and TBI on the function, wellness, and overall quality of life for military Service members and veterans, as well as their family members, caregivers, and communities. A key priority of the TBI/PH applied research program was to complement ongoing DoD efforts to ensure the health and readiness of our military forces by promoting a better standard of care for psychological health disorders and TBI in the areas of prevention, detection, diagnosis, treatment, and rehabilitation. In support, the FY 2016 Military Operational Medicine Research Program Cognitive Resilience and Readiness Research Award Program Announcement was released to solicit research relevant to building and sustaining cognitive resilience in Service members and ensuring short- and long-term readiness of the force. A Broad Agency Announcement focused on supporting the implementation of evidence-based interventions identified by stakeholders for use within the military context as well as for system-wide dissemination. Additionally, studies to identify interventions for reducing the psychological impact of stress and sex differences in the ability to predict and treat opiate abuse were initiated.		
Congressional Add: PC 372 - CSI - Applied Biomedical Technology (AF) ***FY 2017 Accomplishments:*** This Congressional Special Interest initiative was directed toward FY 2017 DHP core research initiatives in PE 0602115. Funds supported applied research for military infectious diseases, military operational medicine, combat casualty care, and clinical and rehabilitative medicine.	0.151	-
Congressional Adds Subtotals	28.133	-

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

Individual efforts are monitored through a quarterly project performance reporting system and program management review process -- performance is measured against standardized criteria for cost, schedule and performance (technical objectives), key performance parameters, and resolution of Force Health Protection gaps. Variances, deviations, and/or breaches in key areas are reviewed and a decision is rendered on any adjustments through a formalized process of Science and Technology governance. Annual reviews are also conducted in person for all of the projects within a specific program area.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Defense Health Agency			Date: February 2018
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 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
246A: *Combating Antibiotic Resistant Bacteria (CARB) - WRAIR Discovery and Wound Program (Army)*	2.913	3.116	2.142	1.857	-	1.857	1.949	1.989	2.029	2.070	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 2017	FY 2018	FY 2019
Title: Combating Antibiotic Resistant Bacteria (CARB) - WRAIR Discovery and Wound Program (Army)	3.116	2.142	1.857
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.			
FY 2018 Plans: Establishing sustainable research efforts designed to evaluate viable small molecule candidate antibacterial agents for planned development for the DoD and Public Health benefit. Continuing market analysis of external antibiotic programs, compound lead optimization, and Investigational New Drug-enabling study coordination. Establishing partnership and intellectual property rights agreements where necessary to explore and co-develop new antibiotics leads. Conducting screening against military relevant strains and biofilms (microorganisms in which cells stick to each other on a surface) to select compounds for continued development. Synthesizing specifically designed novel drugs for lead optimization efforts, exploiting established in vivo (living			

Exhibit R-2A, RDT&E Project Justification: PB 2019 Defense Health Agency		Date: February 2018
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)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
organism) model standards, and evaluating late stage external programs that could potentially treat military relevant resistant bacteria. ***FY 2019 Plans:*** FY 2019 plans continue efforts as outlined in FY 2018. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Small decrease in program reflects steady-state of the project.			
Accomplishments/Planned Programs Subtotals	3.116	2.142	1.857

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.

E. Performance Metrics

Performance metrics of the CARB drug discovery program will be provided through semi-annual status reports, periodic reviews by the Military Infectious Diseases Research Program Integrating Integrated Product Team (IIPT) and in-process reviews (IPR). The performance metric benchmark is progression of research projects to TRL 5 and their schedule to transition.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Defense Health Agency			Date: February 2018
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 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
306B: *Advanced Diagnostics & Therapeutics Research & Development (AF)*	9.620	3.338	3.975	4.051	-	4.051	4.132	4.215	4.299	4.385	Continuing	Continuing

A. Mission Description and Budget Item Justification

Advanced Diagnostics & Therapeutics Clinical Translational Applied Research (Air Force): This project provides applied research funding needed to increase efficiency and efficacy of care across the spectrum of Advanced Diagnostics and Therapeutics requirements in the defined Modernization Thrust Areas to improve and enhance clinical Diagnosis, Identification, Quantification and Mitigation (DIQM) methods, techniques protocols, guidelines and practices for all DoD wounded, ill and/or injured beneficiaries. This project area seeks to manage and support research activities designed to facilitate the clinical integration of genomic-based medicine across the AFMS. Research in genomic medicine seeks to initiate the transition of genomic research discoveries into clinical practice, specifically applying knowledge derived from the study of pharmacogenomics, cancer genomics, gene-environment interactions, and inherited disease genomics in Airmen and beneficiaries. The program funds applied research which seeks 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. Focus areas for applied research include knowledge generation research; ethical legal and social issues/policy research; bioinformatics research; educational research; research for development of advanced genomic diagnostic system. Plans are to utilize patient modeling algorithms to identify pharmacogenomics interventions that can improve patient health and reduce healthcare costs across the AFMS. Program aims to further conduct analysis in educational interventions for the proper use of genetic testing within the AFMS. Research for pharmacogenomics for anti-depressants and pain medication within the AFMS is also planned. Analysis of methodologies and challenges associated with the establishment of an AFMS genome data repository for future implementation of genomic medicine data is a key program component.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Title: Advanced Diagnostics & Therapeutics Research & Development (AF)	3.338	3.975	4.051
Description: This project provides applied research funding needed to perform research in the area of diagnostic assay development/refinement for diseases of operational significance. This project area seeks to manage and support research activities designed to facilitate the clinical integration of genomic-based medicine across the AFMS. Research in genomic medicine seeks to initiate the transition of genomic research discoveries into clinical practice, specifically applying knowledge derived from the study of pharmacogenomics, cancer genomics, gene-environment interactions, and inherited disease genomics in Airmen and beneficiaries. The program funds seeks 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			

Exhibit R-2A, RDT&E Project Justification: PB 2019 Defense Health Agency		Date: February 2018
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)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
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. Focus areas for applied research include knowledge generation research; ethical legal and social issues/policy research; bioinformatics research; educational research; research for development of advanced genomic diagnostic system. Analyze genomics survey data to identify gaps in genomic education, and development of educational programs to correct these gaps. Plans are to utilize patient modeling algorithms to identify pharmacogenomics interventions that can improve patient health and reduce healthcare costs across the AFMS. Program aims to further conduct analysis in educational interventions for the proper use of genetic testing within the AFMS. Research for pharmacogenomics for anti-depressants and pain medication within the AFMS is also planned. Analysis of methodologies and challenges associated with the establishment of an AFMS genome data repository for future implementation of genomic medicine is a key program component. ***FY 2018 Plans:*** Provide further analysis of genetic, epigenetic, proteomic and pharmacogenetic testing to advance force health protection measures within the AFMS. Implement genomic data into secure DoD Digital BioBank. ***FY 2019 Plans:*** FY 2019 plans continue efforts as outlined in FY 2018. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Pricing Adjustment.			
Accomplishments/Planned Programs Subtotals	3.338	3.975	4.051

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

Interagency Agreements and Interservice Support Agreements with the US Army, US 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 Announcement (BAA) and Intramural calls for proposal are used to award initiatives in this program and 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 2019 Defense Health Agency		Date: February 2018
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)*

E. Performance Metrics

Individual initiatives are measured through a quarterly annual project performance reporting system and program management review process -- performance is measured against standardized criteria for cost, schedule and performance (technical objectives) and key performance parameters. Variances, deviations and/or breaches in key areas are reviewed and a decision is rendered on any adjustments through a formalized process of S&T governance.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Defense Health Agency											Date: February 2018	
Appropriation/Budget Activity 0130 / 2					R-1 Program Element (Number/Name) PE 0602115DHA / *Applied Biomedical Technology*				Project (Number/Name) 306C / *Core Adv Diagnostics & Epigenomics Applied Research (AF)*			
COST ($ in Millions)	**Prior Years**	**FY 2017**	**FY 2018**	**FY 2019 Base**	**FY 2019 OCO**	**FY 2019 Total**	**FY 2020**	**FY 2021**	**FY 2022**	**FY 2023**	**Cost To Complete**	**Total Cost**
306C: *Core Adv Diagnostics & Epigenomics Applied Research (AF)*	1.728	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 perform research in the area of assay development/refinement for diseases of operational significance/ conditions. This will support increased efficiency and efficacy of care across the spectrum of Advanced Diagnostics and Therapeutics requirements in the defined Portfolio Areas. In addition, this project will support research for biosurveillance/occupational health activities and research/development of evidence based therapeutics

B. Accomplishments/Planned Programs ($ in Millions)

N/A

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

Interagency Agreements and Interservice Support Agreements with the US Army, US 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 Announcement (BAA) and Intramural calls for proposal are used to award initiatives in this program and project following determinations of scientific and technical merit, validation of need, prioritization, selection and any necessary legal and/or regulatory approvals (IRB, etc.)

E. Performance Metrics

Individual initiatives are measured through a quarterly annual project performance reporting system and program management review process -- performance is measured against standardized criteria for cost, schedule and performance (technical objectives) and key performance parameters. Variances, deviations and/or breaches in key areas are reviewed and a decision is rendered on any adjustments through a formalized process of S&T governance.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Defense Health Agency			Date: February 2018
Appropriation/Budget Activity 0130 / 2	R-1 Program Element (Number/Name) PE 0602115DHA / *Applied Biomedical Technology*	Project (Number/Name) 306D / *Core Occupational, Bioenvironmental, Aerospace Medicine & Toxicology Applied Research (AF)*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
306D: *Core Occupational, Bioenvironmental, Aerospace Medicine & Toxicology Applied Research (AF)*	1.728	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 supplies applied research funding needed to further develop approaches aimed at increasing the understanding of AF occupational and environmental hazards, advancing new concepts in developing methods of treatment in aeromedical care, and exploring new mechanisms to enhance human performance in critical Air Force occupations in the defined Modernization Thrust Areas to improve and enhance, maintain, preserve, and restore personnel performance, with the end goal of positively affecting personalized health and performance.

B. Accomplishments/Planned Programs ($ in Millions)

N/A

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

Interagency Agreements and Interservice Support Agreements with the US Army, US 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 Announcement (BAA) and Intramural calls for proposal are used to award initiatives in this program and project following determinations of scientific and technical merit, validation of need, prioritization, selection and any necessary legal and/or regulatory approvals (IRB, etc.)

E. Performance Metrics

Individual initiatives are measured through a quarterly annual project performance reporting system and program management review process -- performance is measured against standardized criteria for cost, schedule and performance (technical objectives) and key performance parameters. Variances, deviations and/or breaches in key areas are reviewed and a decision is rendered on any adjustments through a formalized process of S&T governance.***

Exhibit R-2A, RDT&E Project Justification: PB 2019 Defense Health Agency			Date: February 2018
Appropriation/Budget Activity 0130 / 2	R-1 Program Element (Number/Name) PE 0602115DHA / *Applied Biomedical Technology*	Project (Number/Name) 372A / *GDF Applied Biomedical Technology*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
372A: *GDF Applied Biomedical Technology*	165.077	43.074	49.639	58.724	-	58.724	67.148	68.357	69.724	71.119	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- Medical Simulation and Information Sciences applied research is developing informatics-based simulated military medical training. 2- Military Infectious Diseases applied research is developing protection and treatment products for military relevant infectious diseases. 3- Military Operational Medicine applied research goals are to develop medical countermeasures against operational stressors, prevent musculoskeletal, neurosensory, and psychological injuries during training and operations, and to maximize health, performance and fitness of Service members. 4- 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. 5- Radiation Health Effects applied research supports tasks for the development of radiation medical countermeasures. 6- Clinical and Rehabilitative Medicine applied research is focused on efforts to reconstruct, rehabilitate, and provide care for injured Service members.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Title: GDF Applied Biomedical Technology	43.074	49.639	58.724
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 2018 Plans: Medical simulation and information sciences applied research is focusing on researching pharmacodynamics and pharmacokinetics algorithms to support a repository that contains simulated pharmaceuticals and other resuscitative treatments that are the most relevant to point of injury and en route care training. The mathematical algorithms development is focusing on specific pharmacodynamics and pharmacokinetics as well as absorption, distribution, metabolism, and excretion of the pharmaceuticals and resuscitative options. Research is being conducted on high fidelity tactile haptics (recreated sense of touch in simulated settings) to improve tactile sensation and resistance realism of virtual reality systems and mannequin based medical training systems. Military infectious diseases research continues to support multi-year studies in bacterial diseases research, and will down-select promising efforts for further development. Multi-year studies begun in FY17 in wound infections are being supported to address critical research focus areas such as the ability to predict infection and better treatment options for infections with MDROs and development of biomarker assays for diagnosis of infection. Novel and innovative therapeutics and delivery technologies for combat wound infections are being developed. Subject matter expertise in acute respiratory diseases is being maintained. These			

Exhibit R-2A, RDT&E Project Justification: PB 2019 Defense Health Agency		Date: February 2018
Appropriation/Budget Activity 0130 / 2	**R-1 Program Element (Number/Name)** PE 0602115DHA / *Applied Biomedical Technology*	**Project (Number/Name)** 372A / *GDF Applied Biomedical Technology*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
efforts support the National Action Plan for Combating Antibiotic-Resistant Bacteria. Scientific awareness and a capability to respond to emerging infectious diseases are being maintained. Partnerships with other entities are being supported to rapidly accelerate promising, innovative drug and vaccine solutions to combat emerging infectious diseases (e.g., Chikungunya, MERS, Zika). Military operational medicine research is collecting experimental data to validate whole-body computational models of the direct and indirect mechanism of blast brain injury. Conducting research to determine optimal temporal spacing of repeated blast events to prevent cumulative effects and analyze changes in brain injury biomarkers. Collecting impulse noise experimental data from volunteer subjects to validate computational models of inner ear injury. Refining comprehensive aircrew performance risk models of fatigue and hypoxia (oxygen deficiency). Refining models of dietary supplement use patterns by Armed Forces members and determining demographic and lifestyle factors associated with dietary supplement and caffeine use along with risks and benefits of consumption. Assessing the physical, psychosocial and physiological factors affecting overuse injury susceptibility and career success of female Warriors. Delivering prototypes for Service member and family resilience building interventions. Conducting studies aimed at delivering evidence-based substance abuse prevention and training model and screening and compliance tools. Developing an evidence-based approach to reduce stigma and a training program to increase provider skill in assessing and treating suicidality. Investigating novel and evidence-based PTSD interventions. Investigating adaptations in delivery of care toward the goal of increased accessibility. Identifying and developing candidate biomarker panels indicative of PTSD treatment-related improvement, and animal/human PTSD model development. Analyzing novel compounds and existing FDA-approved medications for potential use in treatment of PTSD. Refining candidate biomarkers of exposure to inhaled or ingested toxic substances for establishing the probability of adverse health risk outcomes, and refining a non-invasive tool for diagnosing pulmonary diseases. Conducting research to refine metrics for optimized operational task performance in extreme environmental conditions. Combat casualty care hemorrhage research is investigating new diagnostic tools and continuing the development of treatments for severe hemorrhage following injury. Research is focusing on the pathophysiological impacts of using advanced hemorrhage control and resuscitation approaches in prolonged field care scenarios where evacuation may be delayed. Studying novel oxygen carriers for use in severe casualties where blood transfusions are not available. Inflammatory modulation and other research focused on the time period from 4 to 72 hours post-injury (related to prolonged field care scenarios) are ongoing. Tactical Combat Casualty Care (TCCC) is investigating novel approaches to enable field care of casualties when evacuation is delayed. Neurotrauma research is focusing on precision medicine capabilities. This research is anticipated to improve the characterization of TBI, and lead to the development of targeted therapies, devices and clinical guidelines to improve the care provided to TBI casualties, investigate the impact of pre-injury conditions, genomics (study of genes in an organism), proteomics (study of all the proteins in a cell) and the environment on Service member response to treatment and recovery following TBI. Results are anticipated to lead to an understanding of the factors that influence and inform patient responsiveness to TBI therapeutic			

Exhibit R-2A, RDT&E Project Justification: PB 2019 Defense Health Agency		Date: February 2018
Appropriation/Budget Activity 0130 / 2	**R-1 Program Element (Number/Name)** PE 0602115DHA / *Applied Biomedical Technology*	**Project (Number/Name)** 372A / *GDF Applied Biomedical Technology*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
interventions, as well as the role of environmental and physiological factors that impact injury outcomes. Developing treatments for extremity trauma to advance wound stabilization for prolonged field care scenarios that might enhance initial treatment and improve longer term outcomes. Developing closed loop and decision assist technologies for burns, lung ventilation, organ support, and other complex injuries to include maxillofacial injury. Pre-hospital Tactical Combat Casualty Care research is studying the effectiveness of acute lifesaving interventions and how to improve survival for those in need of critical care on the battlefield, in acute stages of injury, and for those requiring prolonged times until reaching definitive care in the prolonged field care/pre-hospital/hospital setting. En route care research continues to study clinically-relevant testing standards for monitors in the transport environment and to develop new non-invasive monitoring technologies. Radiation health effects research will conduct non-clinical research to identify therapeutic candidates for acute radiation exposure and develop data to support preparation of technical data package requirements for investigational new drug applications. Research also focuses on evaluating candidate preventative radioprotectants (drugs) to determine their feasibility and practicality as candidate solutions to military needs. Objectives include identifying mechanisms of action, efficacy and safety data in animal models for medical countermeasures for Acute Radiation Syndrome. Clinical and rehabilitative medicine research is selecting the most promising candidate products to transition to technology development in the areas of neuromusculoskeletal injury, pain management, and regenerative medicine. Supporting applied research in neuromusculoskeletal injuries to advance the diagnosis, treatment and rehabilitation outcomes after Service-related injuries. Identifying targets for therapies to alleviate acute, chronic, and battlefield pain and identify strategies for addressing psychosocial aspects of pain management and pain-related substance abuse. Studying pain biomarkers to implement precision medicine approaches for pain management. Developing candidate reconstructive and regenerative technologies and methodologies for replacement or regeneration of human cells, tissues, or organs for restoration or establishment of normal tissue form and function of bone, skin, muscle, nerve, vasculature and connective tissue. ***FY 2019 Plans:*** FY 2019 plans continue efforts as outlined in FY 2018 with continued increases through the out-years. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** FY 2019 plans continue efforts as outlined in FY 2018 with continued increases through the out-years.			
Accomplishments/Planned Programs Subtotals	43.074	49.639	58.724

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

Exhibit R-2A, RDT&E Project Justification: PB 2019 Defense Health Agency		Date: February 2018
Appropriation/Budget Activity 0130 / 2	**R-1 Program Element (Number/Name)** PE 0602115DHA / *Applied Biomedical Technology*	**Project (Number/Name)** 372A / *GDF Applied Biomedical Technology*

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.

E. Performance Metrics

Research is evaluated through in-progress reviews, DHP-sponsored review and analysis meetings, quarterly and annual status reports to include information on publications, intellectual property, additional funding support, and progress reviews to ensure that milestones are met and deliverables are transitioned on schedule. The benchmark performance metric for transition of research conducted with applied research funding is the attainment of a maturity level that is at least Technology Readiness Level (TRL) 4, and typically TRL 5, or the equivalent for knowledge products. Products nearing attainment of TRL 5 will be considered for transition.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Defense Health Agency			Date: February 2018
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 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
447A: *Military HIV Research Program (Army)*	22.421	8.661	7.794	9.022	-	9.022	9.654	9.847	10.044	10.244	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 2017	FY 2018	FY 2019
Title: Military HIV Research Program	8.661	7.794	9.022
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.			
FY 2018 Plans: Developing and optimizing methods of large scale production of new vaccine candidates for testing in Africa and Asia representing the breadth of HIV diversity. Producing and characterizing these new vaccine candidates for use in pre-clinical and clinical testing. Evaluating the vaccine candidates of interest to assess their capability to induce protective immune responses in non-human primates by using novel delivery systems. Down-selecting one or more vaccine candidates from non-human primate studies to test for safety and immunogenicity (ability to invoke an immune response). Optimizing a delivery system containing a diverse mixture of antigens (substance that induces an immune response) for HIV subtypes A, B, C, D and E and test in non-human primates. Identifying and developing new clinical trial sites in Europe, Southeast Africa Asia and the US that allows scientists the opportunity to test future vaccine candidates against predominant HIV subtypes circulating in this part of the world.			
FY 2019 Plans:			

Exhibit R-2A, RDT&E Project Justification: PB 2019 Defense Health Agency		Date: February 2018
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)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
FY 2019 plans continue efforts as outlined in FY 2018. Small funding increase is due to right-sizing program to reflect prior year execution. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Pricing Adjustment.			
Accomplishments/Planned Programs Subtotals	8.661	7.794	9.022

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

E. Performance Metrics

Performance of the HIV research program is monitored and evaluated through an external peer review process, with periodic reviews by the HIV Program Steering Committee and the Military Infectious Diseases Research Program Integrating Integrated Product Team and in-process reviews.

Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Defense Health Agency	Date: February 2018
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 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
Total Program Element	8.133	1.196	1.331	1.356	-	1.356	1.383	1.411	1.439	1.468	Continuing	Continuing
020: *CSI - Congressional Special Interests*	0.124	0.000	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
241A: *Biodosimetry (USUHS)*	1.634	0.245	0.272	0.277	-	0.277	0.283	0.289	0.295	0.301	Continuing	Continuing
241B: *Internal Contamination (USUHS)*	0.851	0.128	0.143	0.146	-	0.146	0.149	0.152	0.155	0.158	Continuing	Continuing
241C: *Radiation Countermeasures (USUHS)*	5.524	0.823	0.916	0.933	-	0.933	0.951	0.970	0.989	1.009	Continuing	Continuing

A. Mission Description and Budget Item Justification

For the Uniformed Services University of the Health Sciences (USUHS), Armed Forces Radiobiology Research Institute (AFRRI), this program supports developmental research to investigate new approaches that will lead to advancements in biomedical strategies for preventing, treating, assessing and predicting the health effects of human exposure to ionizing radiation. Program objectives focus on preventing or mitigating the health consequences from exposures to ionizing radiation that represent the highest probable threat to U.S. forces in current tactical, humanitarian and counterterrorism mission environments. New protective 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. Advances in assessment, prognostication, and therapy in case of actual or suspected radiation exposures will enhance triage, treatment decisions and risk assessment in operational settings.

B. Program Change Summary ($ in Millions)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Previous President's Budget	1.242	1.331	1.356	-	1.356
Current President's Budget	1.196	1.331	1.356	-	1.356
Total Adjustments	-0.046	0.000	0.000	-	0.000
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.046	-			

Congressional Add Details ($ in Millions, and Includes General Reductions)	FY 2017	FY 2018
Project: 020: *CSI - Congressional Special Interests*		
Congressional Add: *472A – Program Increase: Restore Core Research Funding Reduction (USUHS)*	0.000	-

Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Defense Health Agency	Date: February 2018
Appropriation/Budget Activity 0130: *Defense Health Program I* BA 2: *RDT&E*	**R-1 Program Element (Number/Name)** PE 0602787DHA *I Medical Technology (AFRRI)*

Congressional Add Details ($ in Millions, and Includes General Reductions)	FY 2017	FY 2018
Congressional Add Subtotals for Project: 020	0.000	-
Congressional Add Totals for all Projects	0.000	-

Exhibit R-2A, RDT&E Project Justification: PB 2019 Defense Health Agency			Date: February 2018
Appropriation/Budget Activity 0130 / 2	R-1 Program Element (Number/Name) PE 0602787DHA / *Medical Technology (AFRRI)*	Project (Number/Name) 020 / *CSI - Congressional Special Interests*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
020: *CSI - Congressional Special Interests*	0.124	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 FY15 DHP Congressional Special Interest (CSI) funding is directed toward core research initiatives in Program Element (PE) 0602787 - Medical Technology (AFRRI). Because of the CSI annual structure, out-year funding is not programmed.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018
Congressional Add: 472A – Program Increase: Restore Core Research Funding Reduction (USUHS)	0.000	-
FY 2017 Accomplishments: [*** PLEASE ENTER CONGRESSIONAL ADD TEXT FOR PRIOR YEAR. ***]		
Congressional Adds Subtotals	0.000	-

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2019 Defense Health Agency			Date: February 2018
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 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
241A: *Biodosimetry (USUHS)*	1.634	0.245	0.272	0.277	-	0.277	0.283	0.289	0.295	0.301	Continuing	Continuing

A. Mission Description and Budget Item Justification

For the Uniformed Services University of the Health Sciences (USU), Armed Forces Radiobiology Research Institute (AFRRI), this program supports developmental research to investigate new approaches that will lead to advancements in biomedical strategies for preventing, treating, assessing and predicting the health effects of human exposure to ionizing radiation. Program objectives focus on preventing or mitigating the health consequences from exposures to ionizing radiation that represent the highest probable threat to U.S. forces in current tactical, humanitarian and counterterrorism mission environments. New protective 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. Advances in assessment, prognostication, and therapy in case of actual or suspected radiation exposures will enhance triage, treatment decisions and risk assessment in operational settings.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Title: Biodosimetry (USUHS)	0.245	0.272	0.277
Description: For the Uniformed Services University of the Health Sciences (USU), the mission and research objectives for biodosimetry are to assess radiation exposure by developing and providing biological and biophysical dosimetry capabilities for acute, protracted, and prior radiation exposures for all relevant military applications.			
FY 2018 Plans: Establish a suite of biodosimetry assays, techniques, and standard operating procedures to support analysis of chromosomal aberrations for assessing radiation injury and dose. Establish dose-response curve for dicentric yields, that is, frequencies of chromosome aberrations in irradiated lymphocytes using automated dicentric scoring software utility. Perform dose response studies to measure dicentric chromosomal aberrations in irradiated lymphocytes after exposure to mixed neutron and photon radiation fields mimicking those from an improvised nuclear device at relevant distances from the epicenter. Identify radiation-responsive biological markers (aka biomarkers) such as microRNAs and proteins that are organ-specific in a mouse model of partial-body radiation exposure. Participate in annual performance evaluation of established techniques and procedures for radiation biodosimetry to demonstrate accuracy in dose assessment methodology such as cytogenetic assays for detecting chromosomal aberrations; implement new approaches through reassessment to enhance throughput capability for processing and scoring of chromosomal aberrations. Establish partial-body animal radiation mouse model of acute radiation syndrome (ARS) using low linear energy transfer(LET)/photon exposure from the small animal radiation research platform (SARRP) and assess organ-specific radiation injury biomarkers similar to ones performed earlier in low-linear energy transfer (LET) Total-body irradiation (TBI) mouse model. Establish partial-body animal radiation models (mouse and nonhuman primates (NHPs)) using low-LET/photon exposure with the SARRP for mice and with the linear accelerator (LINAC) radiation platform for NHPs in order to assess organ-specific radiation injury biomarkers evaluated earlier in low-LET TBI studies. Establish mouse TBI model			

Exhibit R-2A, RDT&E Project Justification: PB 2019 Defense Health Agency		Date: February 2018
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 2017	FY 2018	FY 2019
for combined hematological and proteomic biodosimetry approach following mixed-field (neutrons and photons, high-LET) in addition to one already established and evaluated for a pure photon (60 Co gamma ray, low-LET) exposure. Evaluate IL-18 and IL-12, small protein signaling agents as dual radiation biomarkers in non-human primate urine sampling for assessment of radiation injury and doses, severity and lethality after TBI. Develop microRNAs profile as biomarkers of radiation injury and dose by sampling urine from gamma-irradiated NHPs using microRNAs microarray and quantitative real-time polymerase chain reaction (RT-PCR) methods. Compare microRNAs profiles in gamma-irradiated mouse serum and NHPs urine and identify sensitive and accurate radiation biomarkers. Evaluate effects of low and moderate doses of gamma-radiation from hematopoietic and immune system of mice (in vivo) and human cells (in vitro). Further evaluate mechanisms of radiation-induced lymphocyte damage. Further evaluate additional hematology and leukemia biomarkers during leukemogenesis that are differentially expressed at early and late phases of transformation. Identify additional epigenetic changes that discriminate between differences in dose rate at low doses (<10 cGy). ***FY 2019 Plans:*** FY 2019 plans continue efforts as outlined in FY 2018 in addition to establishing a mouse Total-body irradiation (TBI) model for combined hematological (blood cells) and proteomic (proteins) biodosimetry approach following the mixed-field (neutron and photons) along with one already established and evaluated for a pure photon (60 Co gamma ray, low-LET) exposure. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** N/A			
Accomplishments/Planned Programs Subtotals	0.245	0.272	0.277

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

E. Performance Metrics

By FY 2017

-Perform initial analysis of multiple parameter biodosimetry assessment using murine partial-body exposure model.

-Establish use of automated metaphase finder to enhance throughput for processing samples and automated scoring of dicentrics.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Defense Health Agency		Date: February 2018
Appropriation/Budget Activity 0130 / 2	**R-1 Program Element (Number/Name)** PE 0602787DHA / *Medical Technology (AFRRI)*	**Project (Number/Name)** 241A / *Biodosimetry (USUHS)*

-Evaluate correlations between levels of radiation biomarkers (IL-18, IL-18BP and miR-34) and survival rates in individual mice 1 to 40 days after radiation.
-Report on further analysis of IL-18 and develop algorithm using IL-18 as significant variable for use in combination with archived complete blood count and serum chemistry data (from same NHP dataset) for estimating radiation injury.
-Develop biomarkers which can identify “treatment-point” in individual mice after radiation injury.
-Identify the network of miRNAs and their targeted mRNAs in radiation-induced apoptotic signal pathways.
-Continue evaluating new early-phase and organ-specific damage radiation-responsive biomarkers in animal models.
-Continue comparing and correlating hematology, blood serum chemistry, protein biomarkers and necropsy results in NHP dose-response study to evaluate radiation damage to specific organs.
-Continue comparing results/data from NHP dose-response TBI (photon/low LET) studies with data collected from radiation accident victims and radiation therapy patients.
-Continue refining combination of radiation biomarkers in blood with best balance of discrimination, sensitivity and specificity.
-Continue evaluating the predictive radiation-responsive biomarkers in animal models for prediction of ARS severity and outcome.
-Measure specific methylation and histone changes using Reverse transcription polymerase chain reaction (RT-PCR) technique in murine spleen samples from low dose and high dose radiation exposure studies.
By FY2018
-Characterize partial-body animal radiation models (murine) using animals involving low-LET exposure with AFRRI small-animal irradiator (for mice) to identify organ-specific radiation injury biomarkers evaluated earlier in low-LET TBI studies.
-Initiate studies to characterize cytogenetic chromosomal aberration yields following exposure to neutron and photon mixed field sources.
-Perform mass-casualty exercise to test throughput capability in dose assessment by cytogenetics.
-Continue scoring dicentric aberrations following exposure to neutron and photon mixed field exposures.
-Establish partial-body animal radiation models (mouse and NHP) using low-LET photon exposure with AFRRI small-animal irradiator (for mice) and LINAC (for NHPs) to identify organ-specific radiation injury biomarkers evaluated earlier in low-LET TBI studies.
-Establish mouse TBI model for combined hematological and proteomic biodosimetry following mixed-field (neutrons and photons, high-LET) in addition to one already established and evaluated for a pure photon (60Co gamma-rays, low-LET) exposure.
-Develop miRNA profile for urine of gamma-irradiated NHPs urine using miRNA microarray and quantitative RT-PCR.
-Evaluate IL-18 and IL-12 as dual radiation biomarkers in NHP urine.
-Evaluate effects of low-moderate doses of gamma-radiation on hematopoietic and immune cell injury to understand the molecular targets and cellular “initiating events” after low-moderate doses of radiation exposure in these cells.
-Develop miRNA profile and identify sensitive and accurate biomarkers in mouse and human hematopoietic and immune cells after low-moderate doses radiation exposure.
-Evaluate effects of low-moderate doses of radiation on induced proinflammatory factor activation in mouse thymus, BM and spleen cells and human CD34+ cells.
-Ascertain mechanisms by which low-moderate doses of radiation induce stress responses in mouse and human immune and hematopoietic cells, and lymphocyte depletion.
-Initiate murine leukemia model to concomitantly predict leukemia development based on epigenetic markers identified in FY16 and FY17.
By FY2019

Exhibit R-2A, RDT&E Project Justification: PB 2019 Defense Health Agency		Date: February 2018
Appropriation/Budget Activity 0130 / 2	**R-1 Program Element (Number/Name)** PE 0602787DHA / *Medical Technology (AFRRI)*	**Project (Number/Name)** 241A / *Biodosimetry (USUHS)*

-Establish a mouse TBI model for combined hematological and proteomic biodosimetry approach following the mixed-field (neutrons and photons, high-LET) in addition to one already established and evaluated for a pure photon (60Co gamma-rays, low-LET) exposure.
- Evaluate the acute and delayed effects of low-moderate doses of total body radiation exposure and develop biomarkers to identify the acute and long-term of these low-moderate doses radiation injury in mouse model.
By FY2020
-Establish a mouse partial-body irradiation model for combined hematological and proteomic biodosimetry approach following the mixed-field (neutrons and photons, high-LET) in addition to one already established and evaluated for a pure photon (60Co gamma-rays, low-LET) exposure.
-Identify and evaluate the organ-specific radiation injury biomarkers evaluated earlier in low-LET total-body irradiation studies and partial-body biodosimetry in mouse partial-body irradiation model.
By FY21
- Establish a partial-body nonhuman primate (NHP) radiation model using the LINAC to identify the organ-specific radiation injury proteomic and serum chemistry biomarkers evaluated earlier in low-LET TBI studies.
By FY22
- Identify and evaluate the organ-specific radiation injury biomarkers evaluated earlier in low-LET total-body irradiation studies and partial-body organ-specific biodosimetry in NHP partial-body irradiation model (using LINAC).
- Prepare preliminary report for FDA on combined utility of combined hematological, proteomic and serum chemistry biomarkers in mouse and NHP partial-body irradiation models for organ-specific biodosimetry applications in two FDA-required animal models.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Defense Health Agency			Date: February 2018
Appropriation/Budget Activity 0130 / 2	R-1 Program Element (Number/Name) PE 0602787DHA / *Medical Technology (AFRRI)*	Project (Number/Name) 241B / *Internal Contamination (USUHS)*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
241B: *Internal Contamination (USUHS)*	0.851	0.128	0.143	0.146	-	0.146	0.149	0.152	0.155	0.158	Continuing	Continuing

A. Mission Description and Budget Item Justification

Internal Contamination (USU): For the Uniformed Services University of the Health Sciences (USU), 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 2017	FY 2018	FY 2019
Title: Internal Contamination (USUHS)	0.128	0.143	0.146
Description: For the Uniformed Services University of the Health Sciences (USU), 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.			
FY 2018 Plans: Continue cytotoxicity testing, to predict potential toxic effects in whole animals, of surrogate-templated molecularly imprinted polymers for extraction of radionuclide contaminants; begin assessment of extracorporeal decorporation techniques to determine blood purification and chelation efficiencies of the polymers in a laboratory rat model. Design feasibility study to assess potential of chemically-modified dendrimeric structures as radionuclide decorporation agents and to optimize the efficiency of the designed polymers as decorporation agents. Continue assessment of dendrimeric structures for further optimization as a promising radionuclide decorporation agents in regard to desired properties such as specificity, binding strength and lower cytotoxicity. Initiate a study to determine if non-toxic plant-based metal chelators can be effectively used as radionuclide decorporation agents for the treatment of internal radionuclide contamination.			
FY 2019 Plans: FY2019 plans continue efforts as outlined in FY 2018 in addition to design optimization and feasibility studies to test and evaluate the potential for chemically-modified dendrimeric structures as promising radionuclide decorporation agents			
FY 2018 to FY 2019 Increase/Decrease Statement:			

Exhibit R-2A, RDT&E Project Justification: PB 2019 Defense Health Agency		Date: February 2018
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 2017	FY 2018	FY 2019
N/A			
Accomplishments/Planned Programs Subtotals	0.128	0.143	0.146

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

E. Performance Metrics

By FY 2017
-Complete molecularly imprinted polymer binding specificity studies; initiate cytotoxicity assessments.
By FY2018
-Complete cytotoxicity and extracorporeal decorporation assessments of surrogate-templated molecularly imprinted polymers.
By FY2019
-Initiate study into feasibility of chemically-modified dendrimeric structures as radionuclide decorporation agents.
By FY2020
-Complete feasibility study on the use of chemically-modified dendrimeric structures as radionuclide decorporation agents and determine if continued investigation is warranted.
By FY2021
-Initiate investigation into the applicability of non-toxic plant-based chelators as radionuclide decorporation agents using in vitro model systems.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Defense Health Agency			Date: February 2018
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 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
241C: *Radiation Countermeasures (USUHS)*	5.524	0.823	0.916	0.933	-	0.933	0.951	0.970	0.989	1.009	Continuing	Continuing

A. Mission Description and Budget Item Justification

Radiation Countermeasures (USU): For the Uniformed Services University of the Health Sciences (USU), 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), termed combined injury (CI). Research 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 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.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Title: Radiation Countermeasures (USUHS)	0.823	0.916	0.933
Description: For the Uniformed Services University of the Health Sciences (USU), 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), termed combined injury (CI). Research 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 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.			
FY 2018 Plans: Test and evaluate five or more new compounds in mouse model for the development of new radiation protection (prophylactic) countermeasures. Conduct mechanism of action studies to elucidate the cell signaling transduction pathways for promising drug substances and products as potential radiation countermeasures using cell-based assays for their characterization. Conduct animal studies to evaluate BBT-059, a PEGylated protein analog in a mouse model for radiation countermeasures development. Test and evaluate promising drug substances and products as radiation countermeasures to determine their efficacy and safety in irradiated gut and/or lung mouse model used for studying radiation biology. Evaluate long term effects of acute radiation exposure in surviving mice after exposure to lethal dose of radiation. Evaluate survival effects of ghrelin as a drug substance for radiation treatment in animal model for acute radiation syndrome (ARS). Continue to evaluate and down-select lead drug substances and			

Exhibit R-2A, RDT&E Project Justification: PB 2019 Defense Health Agency		Date: February 2018
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 2017	FY 2018	FY 2019
products and drug combinations that are effective at radiation doses producing hematopoietic (H-ARS) or gastrointestinal (GI-ARS) syndrome and identify those that are effective in treating radiation combined (e.g. burn, wound, etc.) injury in animal model of ARS. Test and evaluate drug substances and products for radiation countermeasures development against mixed-field (neutron and photon) radiation exposure mimicking those from an improvised nuclear device at relevant distances from the epicenter. Conduct further studies to elucidate the mechanism of action of promising drug substances and drug products against mixed-field radiation exposure using cell-based assays for their characterization. Further evaluate radiation sensitivity and variation among different animal models (species). Conduct exploratory studies on radiation effects when combined with insults from viruses or bacteria on the immune system and elucidate the ensuing reactive oxygen species (ROS) produced by cellular metabolism and how by using broad MAPkinase pharmacological inhibitors, antioxidants and modulators, highly selective inhibitors, etc. provide a potential treatment or drug for the radiation combined insults. Establish panel of gene reporter cells system and methodologies to identify potential on and off therapeutic biological targets towards a novel strategy for developing new radiation countermeasures. Continue evaluation of radiation-induced leukemia in murine model to concomitantly predict leukemia development based on epigenetic markers identified previously in FY16 and FY17 at low and high doses of radiation exposure and determine the dual benefit of administering radiation countermeasures (drug substance) for both acute and delayed effects of ionizing radiation exposure. ***FY 2019 Plans:*** FY 2019 plans continue efforts as outlined in FY 2018 in addition to continued discovery effort to advance radiobiology knowledge products and continued development of radiobiology research products for radiation countermeasures and biodosimetry capabilities and assessment of the technology readiness levels of promising material solutions or products for advanced development. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** N/A			
Accomplishments/Planned Programs Subtotals	0.823	0.916	0.933

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 2019 Defense Health Agency		Date: February 2018
Appropriation/Budget Activity 0130 / 2	**R-1 Program Element (Number/Name)** PE 0602787DHA / *Medical Technology (AFRRI)*	**Project (Number/Name)** 241C / *Radiation Countermeasures (USUHS)*

E. Performance Metrics

By FY 2017

-Identify novel radiation countermeasures from drug screening and development. Continue to identify dynamic changes in circulatory blood cell counts, bone marrow cellularity and ileum structure morphology after radiation-wound combined injury (CI).

-Complete evaluation of cells signals such mTOR-AKT signaling and MAPK signaling in ileum and ileal morphology after exposure to gamma-radiation combined with hemorrhage.

-Complete assessment of cytokine profiles in serum and ileum after ghrelin therapy in order to find key cytokines as biomarkers associated with ileal recovery after CI.

-Begin to measure other biomarkers such as CRP, C3, IgM, PGE2, and Flt-3 ligand in serum of minipigs and mice model for acute radiation syndrome after Co-60 irradiation at various dose rates.

-Complete assessment of timing and duration of effects of MAPK cell signaling pathway inhibitors on inflammatory response by macrophages exposed to ionizing radiation.

-Complete assessment of ex vivo human macrophage response to ionizing radiation alone (IR), microbial infection, and to a combination both IR and microbial exposure.

-Complete assessment of transcription factor reporter cells to test biological response modulators of gene activation induced by IR, microbial agonists, and combined exposure to both insults.

-Complete development of oxidation-sensitive drug delivery system at rate corresponding to level of oxidants present within microenvironment of cell system.

-Complete development of multi-photon-responsive nanocarrier designed to respond to UV light, near infrared (NIR), and infrared light exposure.

-Complete assessment of nanoparticle constructs' ability to modulate macrophage inflammatory responses to a combination of ionizing radiation and microbial agonist exposures.

-Identify and measure early epigenomics steps in post-radiation process caused by low doses of gamma radiation and at low dose rates to stem cell populations.

-Identify specific histone modifications associated with low LET radiation (gamma or x-ray) and compare to high LET radiation (alpha or neutron) in low doses at different dose rates of exposure.

-Measure effects of low doses (<100 cGy) at different dose rates (34 µGy to 10 cGy/min) on neural stem (NSC) cell potential, DNA damage, histone acetylation/ methylation, and DNA methylation.

-Compare radiation qualities of different radiation sources (e.g. x-ray/LINAC, gamma, alpha particle, and neutrons) for radiobiology studies.

-Measure effects of low doses (<100 cGy) at different dose rates (34 µGy to 10 cGy/min) on mesenchymal stem cell (MSC) potential, DNA damage, histone acetylation/ methylation, and DNA methylation.

-Measure effects of low doses of gamma (<100 cGy) at different dose rates (34 µGy to 10 cGy/min) on MSC in vivo, evaluating DNA damage, histone acetylation/ methylation, and DNA methylation. Measure effects of low doses of alpha particles (<100 cGy) at different dose rates (34 µGy to 10 cGy/min) on MSC in vivo.

By FY 2018

-FY 2018 performance metrics build on measures outlined in FY 2017 in addition to initiating murine leukemia model and characterizing multiple epigenetic markers in serum to include white blood cells (WBCs) after exposure to low and high doses of radiation as well as at a low versus high dose rate (frequency).

-Start mouse lifespan studies on radiation-induce acute radiation syndrome (ARS) and evaluate countermeasures treatment effects to assess ARS progression to delayed radiation effects such as leukemia and thymic tumors.

-Elucidate the molecular pathways involved in the radioprotection by promising drug substances/products like TPOm and BBT-059 for countermeasures development.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Defense Health Agency		Date: February 2018
Appropriation/Budget Activity 0130 / 2	**R-1 Program Element (Number/Name)** PE 0602787DHA / *Medical Technology (AFRRI)*	**Project (Number/Name)** 241C / *Radiation Countermeasures (USUHS)*

-Elucidate the efficacy of the drug substance, small molecule PrC-210 on the recovery observed from radiation-induced depletion of peripheral blood cells and bone marrow progenitor cells. Test and evaluate new potential drug substances and products for radiation countermeasures development.
By FY 2019
-FY 2019 performance metrics build on measures outlined in FY 2018 and include continued assessment of leukemia progression concomitantly with measurement of multiple epigenetic markers in serum and WBCs using microarray technology.
-Further assess leukemia progression in mice that recovered from ARS but continued receiving countermeasures against late effects of radiation exposure; use necropsy examination to determine the cause of death at later stages.
-Test and evaluate promising drug substances and products for radiation countermeasures development against in mixed field (neutron and photon) radiation exposure.
-Test and evaluate promising drug substances and products for radiation countermeasures development for Radiation-Induced Gastrointestinal Syndrome (GI-ARS) in mice using the small animal radiation research platform (SARRP).
-Conduct mouse studies to elucidate the delayed effects of acute lethal radiation exposure in drug treated survivors.
-Continue to measure radiation-induced biomarkers such as cytokines, CRP, C3, IgM, PGE2, and Flt-3 ligand in serum of mice after Co-60 irradiation at various dose rates.
-Continue to measure cytokines in spleen and bone marrow of mice after mixed field irradiation to study differential effects of genders and radiation dose rate.
-Correlate radiation-induced cellular biomarkers such as mTOR-AKT and MAPK signaling network and ATP production after in vitro radiation-burn combined injury.
-Evaluate mTOR-AKT signaling and MAPK signaling in ex vivo culture of bone marrow mesenchymal cells and in vitro small intestine cells after exposure to gamma-radiation combined with burn trauma to determine survival signaling pathways.
-Complete assessment of MAPK pathway inhibitors in their effectiveness to alter the inflammatory response in macrophages exposed to radiation.
-Complete assessment of ex vivo culture of human macrophage cells response to ionizing radiation, viral infection and combined injury.
-Complete determination of the effect of ionizing radiation on cellular signaling pathways that control production of Type I interferon signaling in inflammation response.
-Evaluate radiation quality effects on gene reporter cells. Evaluate results from pilot studies of cells with high oxidative and virus resistance.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Defense Health Agency	Date: February 2018
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 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
Total Program Element	1.841	0.299	0.332	0.338	-	0.338	0.345	0.352	0.359	0.366	Continuing	Continuing
030A: *CSI - Congressional Special Interests*	0.031	0.000	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
242A: *Biodosimetry (USUHS)*	1.087	0.179	0.199	0.202	-	0.202	0.206	0.210	0.214	0.218	Continuing	Continuing
242B: *Radiation Countermeasures (USUHS)*	0.723	0.120	0.133	0.136	-	0.136	0.139	0.142	0.145	0.148	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), this program supports applied research for advanced development of biomedical strategies to prevent, treat and assess 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 mitigating the health consequences from exposures to ionizing radiation(alone or in combination with other injuries) that represent the highest probable threat to US forces in current tactical, humanitarian and counterterrorism mission environments. Findings from basic and developmental research are integrated into focused advanced technology development studies to produce the following: (1) protective and therapeutic strategies; (2) novel biological markers and delivery platforms for rapid, field-based individual medical assessment; and (3) experimental data needed to build accurate models for predicting casualties from complex injuries involving radiation and other battlefield insults. The AFRRI, because of its multidisciplinary staff and exceptional laboratory and radiation facilities, is uniquely positioned to execute the program as prescribed by its mission.

B. Program Change Summary ($ in Millions)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Previous President's Budget	0.310	0.332	0.338	-	0.338
Current President's Budget	0.299	0.332	0.338	-	0.338
Total Adjustments	-0.011	0.000	0.000	-	0.000
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.011	-			

Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Defense Health Agency	Date: February 2018
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)*

Change Summary Explanation

FY 2018: Realignment from Defense Health Program, Research, Development, Test and Evaluation (DHP RDT&E), PE 0603002-Advanced Technology (AFRRI) (-$0.011 million) to DHP RDT&E PE 0605502-Small Business Innovation Research (SBIR) / Small Business Technology Transfer (STTR) Program (+$0.011 million).

Exhibit R-2A, RDT&E Project Justification: PB 2019 Defense Health Agency			Date: February 2018
Appropriation/Budget Activity 0130 / 2	R-1 Program Element (Number/Name) PE 0603002DHA / *Medical Advanced Technology (AFRRI)*	Project (Number/Name) 030A / *CSI - Congressional Special Interests*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
030A: *CSI - Congressional Special Interests*	0.031	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

Because of the CSI annual structure, out-year funding is not programmed.

B. Accomplishments/Planned Programs ($ in Millions)

N/A

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2019 Defense Health Agency			Date: February 2018
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 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
242A: *Biodosimetry (USUHS)*	1.087	0.179	0.199	0.202	-	0.202	0.206	0.210	0.214	0.218	Continuing	Continuing

A. Mission Description and Budget Item Justification

For the Uniformed Services University of the Health Sciences/Armed Forces Radiobiology Research Institute (USU/AFRRI), this program supports applied research for advanced development of biomedical strategies to prevent, treat and assess 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 mitigating the health consequences from exposures to ionizing radiation (alone or in combination with other injuries) that represent the highest probable threat to US forces in current tactical, humanitarian and counterterrorism mission environments. Findings from basic and developmental research are integrated into focused advanced technology development studies to produce the following: (1) protective and therapeutic strategies; (2) novel biological markers and delivery platforms for rapid, field-based individual medical assessment; and (3) experimental data needed to build accurate models for predicting casualties from complex injuries involving radiation and other battlefield insults. The AFRRI, because of its multidisciplinary staff and exceptional laboratory and radiation facilities, is uniquely positioned to execute the program as prescribed by its mission.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Title: Biodosimetry (USUHS)	0.179	0.199	0.202
Description: Biodosimetry (USUHS): For the Uniformed Services University of the Health Sciences (USUHS), this program supports applied research for advanced development of biomedical and biophysical strategies to assess health consequences from exposure to ionizing radiation. It capitalizes on findings under PE 0602787HP, Medical Technology, and from industry and academia to advance novel biological markers and delivery platforms for rapid, field-based individual dose assessment and experimental data needed to build accurate models for predicting casualties from complex injuries involving radiation and other battlefield insults.			
FY 2018 Plans: Continue evaluation of radiation-induced biomarkers from the database of baboon studies as a nonhuman primate (NHP) model with utility to predict severity of hematopoietic (i.e. blood elements) acute radiation syndrome. Perform internal assessment of quality control program for radiation dose assessment by cytogenetics platform towards an eventual clinical laboratory certification. Develop algorithm using blood cell counts and biochemical biomarkers in NHP radiation dose response model. Initiate efforts to evaluate human blood samples from radiation therapy patients using panel of radiation-responsive biomarkers. Evaluate effects of radioprotectants on radiation risk categorization (RRIC) algorithm based on blood counts and blood chemistry tests using irradiated nonhuman primate archived data.			
FY 2019 Plans: FY 2019 plans continue efforts as outlined in FY 2018 in addition to the following:			

Exhibit R-2A, RDT&E Project Justification: PB 2019 Defense Health Agency		Date: February 2018
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 2017	FY 2018	FY 2019
-Sustain efforts to perform studies to validate the use of multiple parameter biodosimetry assays for optimized radiation injury and dose assessment. -Develop radiation injury risk and dose models based on archived human radiation accident database. -Continue studies to enhance throughput of cytogenetic scoring using the automated dicentric scoring software. -Participate in inter-comparison exercise studies to demonstrate laboratory competencies. -Continue to readily offer the suite of AFRRI's Biodosimetry Tools to DOD customers -Initiate efforts to expand upon the AFRRI Biodosimetry Worksheet to address relevant indicators for assessment of late effects of radiation exposure. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Pricing Adjustment.			
Accomplishments/Planned Programs Subtotals	0.179	0.199	0.202

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

E. Performance Metrics

By FY 2017
-Report on development and use of AFRRI's FRAT application for utility in triage diagnostics of suspected radiation casualties.
-Test ability of PCC assay for assessment of high-dose partial-body exposures.
-Continue evaluating new predictive radiation-responsive biomarkers in NHP models for ARS outcome and their applicability in humans.
-Continue to create human baseline database for evaluated biomarkers for use in human radiation accident cases.
-Establish large animal models (i.e., baboon, Rhesus monkey) radiation biomarker database archive linked to severity of acute radiation syndrome.
By FY2018
-Model radiation risk and injury categorization (RRIC) algorithm using large animal models (i.e., baboon, Rhesus monkey) radiation dose response databases to predict hematopoietic ARS; initiate comparison of RRIC algorithm with human radiation accident data.
-Report use of multiple radiation-responsive endpoints using premature chromosome condensation assay for radiation dose assessment.
-Provide enhanced and updated radiation software application.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Defense Health Agency		Date: February 2018
Appropriation/Budget Activity 0130 / 2	**R-1 Program Element (Number/Name)** PE 0603002DHA / *Medical Advanced Technology (AFRRI)*	**Project (Number/Name)** 242A / *Biodosimetry (USUHS)*

By FY2019
-Perform and report on an evaluation to validate the utility of the human biomarker model.
-Delivery an updated software tools incorporating human radiation risk and dose tool.
-Report on laboratory's competence in inter-comparison exercises for radiation dose assessment.
- Report on recent developments and use of AFRRI's Biodosimetry Tools.
By FY2020
- Obtain CLIP certification for performance of the dicentric assay for dose assessment.
- Report on use of AFRRI's suite of biodosimetry tools in a radiological exercise.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Defense Health Agency			Date: February 2018
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 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
242B: *Radiation Countermeasures (USUHS)*	0.723	0.120	0.133	0.136	-	0.136	0.139	0.142	0.145	0.148	Continuing	Continuing

A. Mission Description and Budget Item Justification

Radiation Countermeasures (USU): For the Uniformed Services University of the Health Sciences (USU), 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 2017	FY 2018	FY 2019
Title: Radiation Countermeasures (USUHS)	0.120	0.133	0.136

Description: Radiation Countermeasures (USU): For the Uniformed Services University of the Health Sciences (USU), 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.

FY 2018 Plans:

Continue development studies in animal models for acute radiation syndrome drug discovery and development to further characterize the efficacy and safety profile of promising drug substances and products and to elucidate their mechanism of action as radiation countermeasures. Radiation countermeasure candidates such CDX-301, TPOm, PrC-210, BBT059 at various stages of preclinical development will be evaluated for advances towards clinical studies and application.

FY 2019 Plans:

FY 2019 plans continue efforts as outlined in FY 2018 in addition to a continued gathering of preclinical data from animal models natural history studies for radiation toxicity and for the discovery and development of radiation countermeasures.

FY 2018 to FY 2019 Increase/Decrease Statement:

Exhibit R-2A, RDT&E Project Justification: PB 2019 Defense Health Agency		Date: February 2018
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 2017	FY 2018	FY 2019
Pricing Adjustment.			
Accomplishments/Planned Programs Subtotals	0.120	0.133	0.136

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

E. Performance Metrics

By FY 2017
- Complete DRF (dose reduction factor) of TPOm, BBT-059 and PrC-210 drug products.
- Study effect of TPOm drug products on radiation-induced endothelial dysfunction.
- Study downstream effect of CDX-301 drug product on signaling targets of ERK, MAP2K, and Smad2/3
- Evaluate efficacy of Phenyl butyrate in CD2F1 mice.
- Identify lncRNAs in spleen from mice treated with CDX-301 drug product.
- Complete evaluation of peg-G-CSF and Alxn4100TPO drug products as co-therapy after irradiation-wound combined injury.
- Evaluate cellular PGC-1α, NF-KB, and MAPK measurements in spleen, ileum, lung, and heart of mice and minipigs after irradiation.

By FY 2018
- Understand molecular pathways involved in radioprotection by the drug product TPOm and BBT-059.
- Understand molecular pathways involved in radioprotection by BBT-059 drug product.
- Understand effect of PrC-210 on recovery of radiation-induced depletion of peripheral blood cells and bone marrow progenitor cells.
- Characterize dynamic changes in miRNA regulation in radiation-wound combined injured mice treated with ghrelin.
- Measure IL-18 and IL-BP biomarkers in serum and various tissues in minipigs after 1.75 Gy.
- Measure cytokines and chemokines biomarkers in serum and various tissues in mice after 9.5 Gy.

By FY 2019
- Evaluate Nrf1, Nrf2, and ATP as biomarkers in various tissues in minipigs after 1.75 Gy.
- Evaluate Nrf1, Nrf2, and ATP as biomarkers in various tissues in mice after 9.5 Gy.

By FY 2020
- Evaluate TFAM, DRP1, OPA1 and Mfn1 as biomarkers in various tissues in minipigs after 1.75 Gy.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Defense Health Agency		Date: February 2018
Appropriation/Budget Activity 0130 / 2	**R-1 Program Element (Number/Name)** PE 0603002DHA / *Medical Advanced Technology (AFRRI)*	**Project (Number/Name)** 242B / *Radiation Countermeasures (USUHS)*

- Evaluate TFAM, DRP1, OPA1 and Mfn1 as biomarkers in various tissues in mice after 9.5 Gy.

By FY 2021

- Evaluate miRNA-696 biomarker in serum and various tissues in minipigs after 1.75 Gy.
- Evaluate miRNA-696 biomarker in serum and various tissues in mice after 9.5 Gy.

By FY 2022

- Predict miRNA targeted signaling pathways using IPA in minipigs after 1.75 Gy.
- Predict miRNA targeted signaling pathways using IPA in mice after 9.5 Gy.
- Compare two species for their similarities and differences.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Defense Health Agency											Date: February 2018	
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 2017**	**FY 2018**	**FY 2019 Base**	**FY 2019 OCO**	**FY 2019 Total**	**FY 2020**	**FY 2021**	**FY 2022**	**FY 2023**	**Cost To Complete**	**Total Cost**
Total Program Element	4,918.428	1,345.413	245.936	274.920	-	274.920	269.421	269.473	274.476	279.875	Continuing	Continuing
300A: *CSI - Congressional Special Interests*	3,880.681	1,119.872	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	-	-
238C: *Enroute Care Research & Development (Budgeted) (AF)*	12.973	5.669	4.479	6.833	-	6.833	8.088	8.249	8.418	8.586	Continuing	Continuing
238D: *Core Enroute Care R&D - Clinical Translational Focus (AF)*	0.997	0.000	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
238E: *Core Enroute Care R&D - Aerospace Medicine/Human Performance Focus (AF)*	0.997	0.000	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
243A: *Medical Development (Lab Support) (Navy)*	164.298	0.000	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	-	-
247A: *Elimination of Malaria in Southeast Asia (CARB) (Navy)*	2.260	2.004	1.548	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	5.812
247B: *Mitigate the Global Impact of Sepsis Through ACESO (CARB) (Navy)*	1.465	1.079	1.238	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	3.782
284B: *USAF Human Physiology, Systems Integration, Evaluation & Optimization Research (Budgeted) (AF)*	10.245	3.471	5.327	5.523	-	5.523	5.633	5.745	5.859	5.976	Continuing	Continuing
284C: *Core Human Performance R&D - Clinical Translational Focus (AF)*	1.003	0.000	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
284D: *Core Human Performance R&D - Aerospace Medicine/ Human Performance Focus (AF)*	1.002	0.000	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
285A: *Operational Medicine Research & Development (Budgeted) (AF)*	16.914	6.194	2.699	4.702	-	4.702	5.514	5.624	5.736	5.851	Continuing	Continuing

Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Defense Health Agency										Date: February 2018		
Appropriation/Budget Activity 0130: *Defense Health Program I* BA 2: *RDT&E*					R-1 Program Element (Number/Name) PE 0603115DHA *I Medical Technology Development*							
285B: *Core Operational Medicine R&D - Clinical Translational Focus (AF)*	0.929	0.000	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
285C: *Core Operational Medicine R&D - Aerospace/ Human Performance Focus (AF)*	0.928	0.000	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
307B: *Force Health Protection, Advanced Diagnostics/ Therapeutics Research & Development (Budgeted) (AF)*	46.948	9.192	9.504	9.725	-	9.725	9.919	10.118	10.319	10.525	Continuing	Continuing
307C: *Core Force Health Protection R&D - Clinical Translational Focus (AF)*	0.545	0.000	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
307D: *Core Force Health Protection R&D - Aerospace Medicine/Human Performance Focus (AF)*	0.400	0.000	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
308B: *Expeditionary Medicine Research & Development (Budgeted) (AF)*	13.340	2.206	4.554	4.645	-	4.645	4.737	4.833	4.929	5.028	Continuing	Continuing
308C: *Core Expeditionary Medicine R&D - Clinical Translational Focus (AF)*	1.503	0.000	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
308D: *Core Expeditionary Medicine R&D - Aerospace/ Human Performance Focus (AF)*	1.502	0.000	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
309A: *Regenerative Medicine (USUHS)*	31.071	9.520	7.373	8.327	-	8.327	10.209	10.413	10.621	10.833	Continuing	Continuing
373A: *GDF - Medical Technology Development*	508.755	135.552	126.790	128.578	-	128.578	130.412	139.561	143.781	146.566	Continuing	Continuing
378A: *CoE-Breast Cancer Center of Excellence (Army)*	39.699	0.000	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 2019 Defense Health Agency										Date: February 2018		
Appropriation/Budget Activity 0130: *Defense Health Program I* BA 2: *RDT&E*					R-1 Program Element (Number/Name) PE 0603115DHA *I Medical Technology Development*							
378B: *CoE-Breast Cancer Center of Excellence (USU)*	0.000	10.552	9.088	10.280	-	10.280	10.475	10.685	10.898	11.116	Continuing	Continuing
379A: *CoE-Gynecological Cancer Center of Excellence (Army)*	34.939	0.000	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
379B: *CoE-Gynecological Cancer Center of Excellence (USU)*	0.000	9.226	7.943	8.987	-	8.987	9.158	9.341	9.528	9.719	Continuing	Continuing
381A: *CoE-Integrative Cardiac Health Care Center of Excellence (Army)*	15.032	3.051	2.697	0.000	-	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
382A: *CoE-Pain Center of Excellence (Army)*	6.436	0.000	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
382B: *CoE-Pain Center of Excellence (USUHS)*	5.094	2.985	2.822	3.310	-	3.310	3.376	3.445	3.514	3.584	Continuing	Continuing
383A: *CoE-Prostate Cancer Center of Excellence (USUHS)*	33.379	8.443	7.250	8.203	-	8.203	8.359	8.526	8.696	8.870	Continuing	Continuing
398A: *CoE-Neuroscience Center of Excellence (USUHS)*	3.679	0.000	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	-	-
429A: *Hard Body Armor Testing (Army)*	1.356	0.000	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	-	-
431A: *Underbody Blast Testing (Army)*	38.742	1.869	8.000	10.800	-	10.800	9.200	1.400	0.000	0.000	-	-
448A: *Military HIV Research Program (Army)*	18.026	7.069	6.359	7.360	-	7.360	7.877	8.035	8.196	8.361	Continuing	Continuing
830A: *Deployed Warfighter Protection (Army)*	23.290	5.693	5.123	5.930	-	5.930	6.345	6.473	6.601	6.733	Continuing	Continuing
478: *Applied Proteogenomics Organizational Learning and Outcomes (APOLLO) Consortium (USUHS)*	0.000	0.000	14.766	14.754	-	14.754	18.556	18.639	18.724	19.098	Continuing	Continuing

Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Defense Health Agency										Date: February 2018		
Appropriation/Budget Activity 0130: *Defense Health Program I* BA 2: *RDT&E*					R-1 Program Element (Number/Name) PE 0603115DHA *I Medical Technology Development*							
479: *Framingham Longitudinal Study (USUHS)*	0.000	0.000	4.920	4.920	-	4.920	4.920	4.920	4.920	5.018	Continuing	Continuing
499: *MHS Financial System Acquisition*	0.000	1.766	13.456	21.129	-	21.129	5.373	1.971	2.011	2.051	Continuing	Continuing
381: *CoE - Integrative Cardiac Health Care (USUHS)*	0.000	0.000	0.000	2.914	0.000	2.914	3.118	3.180	3.244	3.309	Continuing	Continuing
504: *WRAIR Vaccine Production Facility Research*	-	0.000	0.000	8.000	-	8.000	8.152	8.315	8.481	8.651	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 Quadrennial Defense Review, the National Research Action Plan for Improving Access to Mental Health Services for Veterans, Service Members, and Military Families, the National Strategy for Combating Antibiotic Resistance, and the National Strategy for Biosurveillance. Research will support efforts such as the Precision Medicine Initiative which seeks to increase the use of big data and interdisciplinary approaches to establish a fundamental understanding of military disease and injury to advance health status assessment, diagnosis, and treatment tailored to individual Service members and beneficiaries, translational research focused on protection against emerging infectious disease threats, the advancement of state of the art regenerative medicine manufacturing technologies consistent with the National Strategic Plan for Advanced Manufacturing, the advancement of global health engagement and capitalization of complementary research and technology capabilities, improving deployment military occupational and environmental exposure monitoring, and the strengthening of the scientific basis for decision-making in patient safety and quality performance in the Military Health System. The program also supports the Interagency Strategic Plan for Research & Development of Blood Products and Related Technologies for Trauma Care and Emergency Preparedness. 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, the Department of Health and Human Services, and the Department of Homeland Security. Coordination occurs through the planning and execution activities of the Joint Program Committees (JPCs), established to manage research, development, test and evaluation for DHP-sponsored research. The JPCs supported by this PE include medical simulation and information sciences (JPC-1), military infectious diseases (JPC-2), military operational medicine (JPC-5), combat casualty care (JPC-6), radiation health effects (JPC-7), and clinical and rehabilitative medicine (JPC-8). 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.

For the Army Medical Command -

The Underbody Blast (UBB) Testing medical research project provides funds to establish a scientific and statistical basis for evaluating skeletal injuries to vehicle occupants during ground vehicle UBB events. Areas of interest to the Secretary of Defense are medical research that provides an understanding of the human response

and tolerance limits and injury mechanisms needed to accurately predict skeletal injuries to ground combat vehicle occupants caused by UBB events. This enhanced understanding will support the establishment of an improved capability to conduct Title 10 Live Fire Test and Evaluation and to make acquisition decisions.

The military human immunodeficiency virus (HIV) research project provides funds to develop candidate HIV vaccines, to assess their safety and effectiveness in human subjects, and to protect military personnel from risks associated with HIV infection.

The Armed Forces Pest Management Board Deployed Warfighter Protection program provides for the development of new or improved protection of military personnel from insects and tick vectors of disease pathogens.

Three Centers of Excellence (CoE) 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 (Army) 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.

In FY 2017, Congressional Special Interest (CSI) funds were added to support peer-reviewed research programs: Amyotrophic Lateral Sclerosis (ALS), Autism, Bone Marrow Failure Disease, Ovarian Cancer, Multiple Sclerosis, Cancer, Lung Cancer, Orthopedic, Spinal Cord, Vision, Traumatic Brain Injury and Psychological Health (TBI/PH), Breast Cancer, Prostate Cancer, Gulf War Illness, Alcohol and Substance Use Disorders, Medical Research, Alzheimer's, Reconstructive Transplant, Tuberous Sclerosis Complex, Duchenne Muscular Dystrophy, Epilepsy, and Tick-borne diseases. CSI funds were also provided for Joint Warfighter Medical Research, Orthotics and Prosthetics Outcomes, Trauma Clinic Research, HIV/AIDS Program Increase, Global HIV/AIDS Prevention, and Core Research Funding. Because of the CSI annual structure, out-year funding is not programmed.

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.

B. Program Change Summary ($ in Millions)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Previous President's Budget	220.916	245.936	274.920	-	274.920
Current President's Budget	1,345.413	245.936	274.920	-	274.920
Total Adjustments	1,124.497	0.000	0.000	-	0.000
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	1,087.454	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	37.043	-			

Congressional Add Details ($ in Millions, and Includes General Reductions)	FY 2017	FY 2018
Project: 300A: *CSI - Congressional Special Interests*		
Congressional Add: *245A - Amyotrophic Lateral Sclerosis (ALS) Research*	7.248	-
Congressional Add: *293A - Autism Research*	7.248	-
Congressional Add: *296A - Bone Marrow Failure Disease Research*	2.900	-

Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Defense Health Agency	Date: February 2018
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 2017	FY 2018
Congressional Add: *310A - Peer-Reviewed Ovarian Cancer Research*	19.329	-
Congressional Add: *328A - Multiple Sclerosis Research*	5.799	-
Congressional Add: *335A - Peer-Reviewed Cancer Research*	57.987	-
Congressional Add: *336A - Peer-Reviewed Lung Cancer Research*	11.597	-
Congressional Add: *337A - Peer-Reviewed Orthopaedic Research*	28.994	-
Congressional Add: *338A - Peer-Reviewed Spinal Cord Research*	28.994	-
Congressional Add: *339A - Peer-Reviewed Vision Research*	14.497	-
Congressional Add: *352A - Traumatic Brain Injury/Psychological Health Research*	103.482	-
Congressional Add: *380A - Peer-Reviewed Breast Cancer Research*	115.975	-
Congressional Add: *390A - Peer-Reviewed Prostate Cancer Research*	86.981	-
Congressional Add: *392A - Gulf War Illness Peer-Reviewed Research*	19.384	-
Congressional Add: *396A - Research in Alcohol and Substance Use Disorders*	3.865	-
Congressional Add: *400A - Peer-Reviewed Medical Research*	290.046	-
Congressional Add: *417A - Peer-Reviewed Alzheimer Research*	14.497	-
Congressional Add: *439A - Joint Warfighter Medical Research*	28.359	-
Congressional Add: *452A - Peer-Reviewed Reconstructive Transplant Research*	11.597	-
Congressional Add: *454A - Orthotics and Prosthetics Outcomes Research*	9.665	-
Congressional Add: *456A - HIV/AIDS Program*	12.473	-
Congressional Add: *459A - Peer-Reviewed Epilepsy Research*	7.248	-
Congressional Add: *463A – Program Increase: Restore Core Research Funding Reduction (GDF)*	67.921	-
Congressional Add: *474A – Program Increase: Restore Core Research Funding Reduction (Army)*	108.235	-
Congressional Add: *495 - Peer-Reviewed Tick-Borne Disease Research*	4.832	-
Congressional Add: *496 -Trauma Clinical Research Program*	9.665	-
Congressional Add: *501 - Peer-Reviewed Hearing Restoration Research (Army)*	9.665	-
Congressional Add: *502 - CSI - Peer-Reviewed Kidney Cancer Research (Army)*	9.665	-
Congressional Add: *503 - CSI - Peer-Reviewed Lupus Research (Army)*	4.832	-
Congressional Add: *540A - Global HIV/AIDS Prevention (Navy)*	8.000	-

Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Defense Health Agency	Date: February 2018
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 2017	FY 2018
Congressional Add: *660A - Tuberous Sclerosis Complex (TSC)*	5.799	-
Congressional Add: *790A - Duchenne Muscular Dystrophy*	3.093	-
Congressional Add Subtotals for Project: 300A	1,119.872	-
Congressional Add Totals for all Projects	1,119.872	-

Change Summary Explanation

- Realigns the management and associated DHP RDT&E resources for the Integrative Cardiac Health Care CoE from Army DHP to USUHS in FY19 and beyond (FY19, $2.914M).
- Realigns funds within existing resources to provide dedicated funding for ongoing medical research at Walter Reed Army Institute of Research (WRAIR) Vaccine Production Facility in FY19 and beyond (FY19, $+8.0M).

Exhibit R-2A, RDT&E Project Justification: PB 2019 Defense Health Agency			Date: February 2018
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 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
300A: *CSI - Congressional Special Interests*	3,880.681	1,119.872	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	-	-

A. Mission Description and Budget Item Justification

In FY 2017, the Defense Health Program funded Congressional Special Interest (CSI) directed research. The strategy for the FY 2017 Congressionally-directed research is to stimulate innovative research through a competitive, peer-reviewed research program, and focused medical research at intramural and extramural research sites. Specific peer-reviewed research efforts include the following: Amyotrophic Lateral Sclerosis (ALS), Autism, Bone Marrow Failure Disease, Ovarian Cancer, Multiple Sclerosis, Cancer, Lung Cancer, Orthopedic, Spinal Cord, Vision, Traumatic Brain Injury and Psychological Health (TBI/PH), Breast Cancer, Prostate Cancer, Gulf War Illness, Alcohol and Substance Use Disorders, Medical Research, Alzheimer Research, Joint Warfighter Medical Research, Reconstructive Transplant, Orthotics and Prosthetics Outcomes, HIV/AIDS Program, Epilepsy, Core Research Funding, Tick-borne Disease, Trauma Clinical Research, Global HIV/AIDS Prevention, Tuberous Sclerosis Complex, and Duchenne Muscular Dystrophy. Because of the CSI annual structure, out-year funding is not programmed.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018
Congressional Add: 245A - Amyotrophic Lateral Sclerosis (ALS) Research	7.248	-
FY 2017 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. Two award mechanisms were released in May 2017, the Therapeutic Development Award and the Therapeutic Idea Award. Applications were received in August 2017 followed by scientific peer review in October 2017. Funding recommendations will be made at programmatic review in January 2018. Awards will be made by September 2018.		
Congressional Add: 293A - Autism Research	7.248	-
FY 2017 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. Three award mechanisms were released in June 2017, the Clinical Trial Award, the Clinical Translational Research Award and the Idea Development Award. Applications will be received in October 2017 followed by scientific peer review in January 2018. Funding recommendations will be made at programmatic review in March 2018. Awards will be made by September 2018.		
Congressional Add: 296A - Bone Marrow Failure Disease Research	2.900	-

Exhibit R-2A, RDT&E Project Justification: PB 2019 Defense Health Agency		Date: February 2018
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 2017	FY 2018
FY 2017 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. In FY 2017, applications were accepted through one funding opportunity, the Idea Development Award, released in May 2017 . Applications will be received in October 2017 followed by scientific peer review in November 2017. Funding recommendations will be made at programmatic review in January 2018. Awards will be made by September 2018.		
Congressional Add: 310A - Peer-Reviewed Ovarian Cancer Research	19.329	-
FY 2017 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 2017 OCRP supported innovative ideas that provide new paradigms, leverage critical resources, facilitate synergistic, multidisciplinary partnerships, and cultivate the next generation of investigators in ovarian cancer. Four award mechanisms were released in May 2017: Pilot Award, Clinical Development Award, Investigator-Initiated Research Award, and the Ovarian Cancer Academy Award recruiting Early-Career Investigators. Applications were received in August 2017 for the Pilot Award and in September 2017 for the remaining three mechanisms. Scientific peer review will be in October 2017. Funding recommendations will be made at the programmatic reviews in December 2017. Awards will be made by September 2018.		
Congressional Add: 328A - Multiple Sclerosis Research	5.799	-
FY 2017 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 concepts and high-impact research relevant to the prevention, etiology, pathogenesis, assessment, and treatment of MS. The FY 2017 MSRP solicited applications that address Obstacles of Remyelination (nervous system repair) and/or Obstacles to Axonal Protection in MS, Biological Correlates of Disease Activity and Progression in MS, and MS Symptoms (Biology, Measurement, or Treatment). Two award mechanisms were released in June 2017: Exploration Hypothesis Development Award, and Investigator- Initiated Research Award. Applications were received in October 2017 followed by scientific peer review in December 2017. Funding		

Exhibit R-2A, RDT&E Project Justification: PB 2019 Defense Health Agency		Date: February 2018
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 2017	FY 2018
recommendations will be made at programmatic review in January 2018. Awards will be made by September 2018.		
Congressional Add: 335A - Peer-Reviewed Cancer Research ***FY 2017 Accomplishments:*** This Congressional Special Interest initiative provided funds for the study of cancers designated by Congress: bladder cancer, brain cancer, colorectal cancer, immunotherapy, Listeria regimens for cancer, liver cancer, lymphoma, melanoma and other skin cancers, mesothelioma (rare form of cancer developed from the protective lining that cover many of the internal organs of the body caused by exposure to asbestos), 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. Four award mechanisms were released in May and June2017: Career Development Award, Idea Award with Special Focus, Translational Team Science Award, and Expansion. Applications will be received in September 2017 followed by scientific peer review in November/December 2017. Funding recommendations will be made at programmatic review in February 2018. Awards will be made by September 2018.	57.987	-
Congressional Add: 336A - Peer-Reviewed Lung Cancer Research ***FY 2017 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. Five award mechanisms were released in May 2017: Career Development Award, Concept Award, Idea Development Award, Investigator-Initiated Translation Research Award, and Translational Research Partnership Award. Applications were/will be received in August and September 2017 followed by scientific peer review in October and November 2017. Funding recommendations will be made at programmatic review in January 2018. Awards will be made by September 2018.	11.597	-
Congressional Add: 337A - Peer-Reviewed Orthopaedic Research ***FY 2017 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 2017 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. Five award mechanisms were released in May 2017: Clinical Trial Award, Clinical Translational Research Award,	28.994	-

Exhibit R-2A, RDT&E Project Justification: PB 2019 Defense Health Agency		Date: February 2018
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 2017	FY 2018
Integrated Clinical Trial Award, Expansion Award, and Applied Research Award. Pre-applications were received in July 2017 and applications will be received in September 2017, followed by scientific peer review in November 2017. Funding recommendations will be made at programmatic review in January 2018. Awards will be made by September 2018.		
Congressional Add: 338A - Peer-Reviewed Spinal Cord Research ***FY 2017 Accomplishments:*** This Congressional Special Interest initiative provided funds for spinal cord injury (SCI) research. The FY 2017 Spinal Cord Injury Research Program (SCIRP) 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. Five award mechanisms were released in June 2017: Clinical Research Development Award, Clinical Trial Award, Investigator-Initiated Research Award, Qualitative Research Award, Translational Research Award. Pre-applications were received August 2017, applications will be received in November 2017, followed by scientific peer review in January 2018. Funding recommendations will be made at programmatic review in March 2018. Awards will be made by September 2018.	28.994	-
Congressional Add: 339A - Peer-Reviewed Vision Research ***FY 2017 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 maintenance of visual function to ensure and sustain combat readiness and directly benefit the lives of military, Veteran and civilian populations. The FY 2017 Vision Research Program focused on 1- mitigation and treatment of damage to ocular structures and the visual system consistent to military-relevant injuries and diseases incident to military service, 2- vision restoration and regeneration, and 3- knowledge, capabilities, and equipment for early responders to diagnose and mitigate military-relevant eye injuries and diseases in austere or remote environments. Two award mechanisms were released in April 2017: Clinical Trial Award and Technology/Therapeutic Development Award. Applications were received in October 2017, followed by scientific peer review in January 2018, and programmatic review in March 2018. Awards will be made by September 2018.	14.497	-
Congressional Add: 352A - Traumatic Brain Injury/Psychological Health Research	103.482	-

Exhibit R-2A, RDT&E Project Justification: PB 2019 Defense Health Agency		Date: February 2018
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 2017	FY 2018
FY 2017 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 the function, wellness, and overall quality of life, including interventions across the deployment lifecycle for Service members and Veterans, as well as their family members, caregivers, and communities. Key priorities of the FY 2017 Traumatic Brain Injury and Psychological Health (TBI/PH) Research Program were supporting projects aligned with the National Research Action Plan for Improving Access to Mental Health Services for Veterans, Service members, and Military Families; enabling significant research collaborations; and complementing ongoing Department of Defense (DoD) efforts to ensure the health and readiness of our military forces by improving upon and optimizing the standards of care for PH and TBI in the areas of prevention, detection, diagnosis, treatment, and rehabilitation. In support, the FY 2017 Military Operational Medicine Research Program continued to fund the Military Suicide Research Consortium toward development of state-of-the-art, evidence-based, effective suicide prevention tools and interventions to the DoD. The FY 2016 Combat Casualty Care Research Program initiated studies to inform clinical practice guidelines for the management of TBI by analyzing the Deployed Warrior Medical Management Center and the DoD Trauma Registry casualty treatment data containing Operation Iraqi Freedom/ Operation Enduring Freedom (OIF/OEF) TBI clinical management to determine the best treatment outcome for TBI casualties. Moreover, a clinical study was initiated to validate Virtual Care, Telehealth, and Mobile technology applications to enable far forward medical care for the management of TBI.		
Congressional Add: 380A - Peer-Reviewed Breast Cancer Research	115.975	-
FY 2017 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. Program Announcements for six award mechanisms were released in May and August 2017: Breakthrough Award Levels 1 and 2, Breakthrough Award Levels 3 and 4, Distinguished Investigator Award, Era of Hope Scholar Award, Innovator Award, and Breakthrough Fellowship Award. Application submission deadlines were in June, August, and December 2017,		

Exhibit R-2A, RDT&E Project Justification: PB 2019 Defense Health Agency		Date: February 2018
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 2017	FY 2018
scientific peer reviews in August and October 2017 and February 2018, and programmatic reviews in October and December 2017 and January, April, and May 2018. Awards will be made by September 2018.		
Congressional Add: 390A - Peer-Reviewed Prostate Cancer Research	86.981	-
FY 2017 Accomplishments: This Congressional Special Interest initiative provided funds for prostate cancer research. The vision for the FY 2017 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 are being 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. Six award mechanisms were released in May 2017: Clinical Consortium Award, Early Investigator Research Award, Health Disparity Research Award, Idea Development Award, Impact Award, Prostate Cancer Pathology Resource Network Award, and Physician Research Award. Applications were/will be received in August, September, and October 2017, followed by scientific peer reviews in October, November, and December 2017. Funding recommendations will be made at programmatic reviews in January and February 2018. Awards will be made by September 2018.		
Congressional Add: 392A - Gulf War Illness Peer-Reviewed Research	19.384	-
FY 2017 Accomplishments: This Congressional Special Interest initiative provided funds for Gulf War Illness research. The vision for the FY 2017 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. Four award mechanisms were released in May 2016: Biorepository Resource Network Award, Clinical Consortium Award, Investigator-Initiated Focused Research Award, and Qualitative Research Award. Applications will be received in September 2017 followed by scientific peer review in November 2017. Funding recommendations will be made at programmatic review in January 2018. Awards will be made by September 2018.		
Congressional Add: 396A - Research in Alcohol and Substance Use Disorders	3.865	-

Exhibit R-2A, RDT&E Project Justification: PB 2019 Defense Health Agency		Date: February 2018
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 2017	FY 2018
FY 2017 Accomplishments: This Congressional Special Interest initiative provided funds for alcohol and substance use disorders (ASUD) research. The goal of the FY 2017 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). A Consortium Award Program Announcement was released in June 2017. Applications were received in September 2017, followed by scientific peer review in November 2017 and programmatic review in Jan 2018. Awards will be made by September 2018.		
Congressional Add: 400A - Peer-Reviewed Medical Research	290.046	-
FY 2017 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 48 Congressionally-directed topics for FY 2017 were: Acute Lung Injury, Antimicrobial Resistance, Arthritis, Burn Pit Exposure, Chronic Migraine and Post-traumatic Headache, Congenital Heart Disease, Constrictive Bronchiolitis, Diabetes, Diarrheal Diseases, Dystonia, Early Trauma Thermal Regulation, Eating Disorders, Emerging Infectious Diseases, Epidermolysis Bullosa, Focal Segmental Glomerulosclerosis, Fragile X, Guillain-Barre Syndrome, Hepatitis B and C, Hereditary Angioedema, Hydrocephalus, Immunomonitoring of Intestinal Implants, Inflammatory Bowel Disease, Influenza, Integrative Medicine, Interstitial Cystitis, Malaria, Metals Toxicology, Mitochondrial Disease, Musculoskeletal Disorders, Nanomaterials for Bone Regeneration, Non-Opioid Pain Management, Pancreatitis, Pathogen-inactivated Cryoprecipitate, Polycystic Kidney Disease, Post-Traumatic Osteoarthritis, Pulmonary Fibrosis, Respiratory Health, Rett Syndrome, Rheumatoid Arthritis, Scleroderma, Sleep Disorders, Spinal Muscular Atrophy, Sustained-Release Drug Delivery, Tinnitus, Tuberculosis, Vaccine Development for Infectious Disease, Vascular Malformations, and Women's Heart Disease. Five award mechanisms were offered in FY 2017: Clinical Trial Award, Discovery Award, Focused Program Award, Investigator- Initiated Research Award, and Technology/Therapeutic Development Award. For the Discovery Award, application receipt occurred in August 2017, scientific peer review was conducted in August - September 2017, and funding recommendations will be made during programmatic review in November 2017. For the remaining mechanisms, application receipt will occur in October 2017, peer review will be conducted in November - December 2017, and funding recommendations will be made during programmatic review in February 2018. Awards will be made by September 2018.		
Congressional Add: 417A - Peer-Reviewed Alzheimer Research	14.497	-
FY 2017 Accomplishments: This Congressional Special Interest initiative provided funds for Alzheimer's disease research. The FY 2017 Peer-Reviewed Alzheimer's Research Program (PRARP) sought to: 1- address		

Exhibit R-2A, RDT&E Project Justification: PB 2019 Defense Health Agency		Date: February 2018
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 2017	FY 2018
the long-term consequences of traumatic brain injury (TBI) as they pertain to Alzheimer's disease (AD) and Alzheimer's disease-related dementias (ADRD); and 2- reduce the burden on AD/ADRD-affected individuals and caregivers, especially in the military and Veteran communities. Four award mechanisms were released in July 2017: Convergence Science Research Award, Quality of Life Research Award, New Investigator Award, and Research Partnership Award. Pre-applications will be received in early September 2017, applications in late September 2017, followed by peer review in November 2017. Funding recommendations will be made at programmatic review in February 2018. Awards will be made by September 2018.		
Congressional Add: 439A - Joint Warfighter Medical Research	28.359	-
FY 2017 Accomplishments: The FY 2017 Joint Warfighter Medical Research Program (JWMRP) provides continuing support for promising projects previously funded by Congressional Special Interest (CSI) 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. The FY 2017 JWMRP supported military medical research in medical simulation and information sciences, military infectious diseases, military operational medicine, combat casualty care,, and clinical and rehabilitative medicine. For FY17, no advanced development projects were solicited to apply for funding. FY17 JWMRP funding was used to continue support for promising research previously funded through the JWMRP. Awards will be made by September 2018.		
Congressional Add: 452A - Peer-Reviewed Reconstructive Transplant Research	11.597	-
FY 2017 Accomplishments: This Congressional Special Interest initiative provided funds for reconstructive transplantation research. The FY 2017 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. Four award mechanisms were released in August 2017: Concept Award, Investigator-Initiated Research Award (IIRA), Technology Development Award (TDA), and Qualitative Research Award (QRA). Preproposal receipt for the IIRA, QRA, and TDA is in September 2017, with invitations to be sent in October 2017. Letter of Intent receipt for the Concept Award is in November 2017. Full application receipt is due in December 2017. Peer review will take place in January 2018, and Programmatic Review will take place in late March or early April 2018. Awards will be made by September 2018.		
Congressional Add: 454A - Orthotics and Prosthetics Outcomes Research	9.665	-

Exhibit R-2A, RDT&E Project Justification: PB 2019 Defense Health Agency		Date: February 2018
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 2017	FY 2018
FY 2017 Accomplishments: This Congressional Special Interest initiative provided funds for orthotics and prosthetics outcomes research. The goal of the FY 2017 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 was focused on outcomes-based best practices through analysis of the merits of prosthetic and orthotic device potions 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. One award mechanism wills be released in September 2017: Orthotics and Prosthetics Outcomes Research Award. Pre-applications will be received in October 2017 and applications in January 2018. Scientific peer review will be held in February 2018, and programmatic review will occur in April 2018. Awards will be made by September 2018.		
Congressional Add: 456A - HIV/AIDS Program ***FY 2017 Accomplishments:*** This Congressional Special Interest initiative complemented the funding for the HIV/AIDS research program. Several potential vaccine candidates were down-selected for further testing in human volunteers to study their ability to provoke an immune response that can protect against HIV either as a single vaccine or combination of various subtypes.	12.473	-
Congressional Add: 459A - Peer-Reviewed Epilepsy Research ***FY 2017 Accomplishments:*** This Congressional Special Interest initiative provided funds for traumatic brain injury (TBI)-related epilepsy research. The FY 2017 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. Two Award Mechanisms were released for FY17; the Idea Development Award and Epilepsy Risk Factors Award. Letters of intent and applications were received in September 2017. Peer review will be held in November 2017, and programmatic review in February 2018. Awards will be made by September 2018.	7.248	-
Congressional Add: 463A – Program Increase: Restore Core Research Funding Reduction (GDF) ***FY 2017 Accomplishments:*** This Congressional Special Interest initiative was directed toward FY 2017 DHP core research initiatives in PE 0603115. Funds supported medical technology development efforts in medical simulation and information sciences, military infectious diseases, military operational medicine, combat casualty care, and clinical and rehabilitative medicine (Project 373A).	67.921	-
Congressional Add: 474A – Program Increase: Restore Core Research Funding Reduction (Army)	108.235	-

Exhibit R-2A, RDT&E Project Justification: PB 2019 Defense Health Agency		Date: February 2018
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 2017	FY 2018
FY 2017 Accomplishments: This Congressional Special Interest initiative was directed toward the restoral of Army research initiatives in PE 0603115. Funds supported research for the Cardiac Health CoE (381A), Military HIV Research (448A), and Deployed Warfighter Protection (830A).		
Congressional Add: 495 - Peer-Reviewed Tick-Borne Disease Research	4.832	-
FY 2017 Accomplishments: This Congressional Special Interest initiative provided funds for tick-borne diseases research. The FY 2017 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 illness and on delivering innovative solutions to prevent and better diagnose and treat their manifestations. Two funding opportunities were released in May 2017: Idea Award and Investigator-Initiated Research Award. Pre-applications were received in July 2017 and applications will be received in October 2017. Scientific peer review will be held in December 2017, and funding recommendations will be made at programmatic review in February 2018. Awards will be made by September 2018.		
Congressional Add: 496 -Trauma Clinical Research Program	9.665	-
FY 2017 Accomplishments: This Congressional Special Interest initiative provided funds for advancing trauma clinical research. Through a competitive Request for Proposals (RFP) process the DoD has created a coordinated, multi-institution, 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 Department of Defense. 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. During FY17 an Expert Panel of subject matter experts from the DoD (including representatives from the Combat Casualty Care Research Program of the US Army Medical Research and Materiel Command and the US Army Institute of Surgical Research) and other Federal agencies relevant to the research performed or to be performed by the LITES network was established to support research oversight and generation of task orders. FY17 Congressional Special Interest funding will be used to execute new DoD-relevant research task orders for the LITES network. Awards will be made by September 2018.		
Congressional Add: 501 - Peer-Reviewed Hearing Restoration Research (Army)	9.665	-
FY 2017 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		

Exhibit R-2A, RDT&E Project Justification: PB 2019 Defense Health Agency		Date: February 2018
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 2017	FY 2018
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. A Stakeholders Meeting and Vision Setting meeting were held in August 2017. Two program announcements will be released in September 2017 including a Translational Research Award and Focused Research Award. The receipt of all applications is set for the middle of November 2017 with Peer Review in January 2018 and Programmatic Review in March 2018. Awards will be made by September 2018.		
Congressional Add: 502 - CSI - Peer-Reviewed Kidney Cancer Research (Army) ***FY 2017 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. A Stakeholders Meeting and Vision Setting meeting were held in August 2017. Four program announcements will be released in October 2017 including the Idea Development, Concept, Translational Research Partnership, and the Consortium Development Award. The receipt of all applications will be in January 2018 with Peer Review in February 2018 and Programmatic Review in April 2018. Awards will be made by September 2018.	9.665	-
Congressional Add: 503 - CSI - Peer-Reviewed Lupus Research (Army) ***FY 2017 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. The Stakeholders and Vision Setting Meetings were held in August 2017. Two program announcements will be released in October 2017 including the Concept Award and Idea Award. The receipt of all applications will be in January 2018 with Peer Review in February 2018 and Programmatic Review in April 2018. Awards will be made by September 2018.	4.832	-
Congressional Add: 540A - Global HIV/AIDS Prevention (Navy) ***FY 2017 Accomplishments:*** After receipt of Congressional Add Funding, the funds will be used for Global HIV/AIDS Prevention.	8.000	-
Congressional Add: 660A - Tuberous Sclerosis Complex (TSC) ***FY 2017 Accomplishments:*** This Congressional Special Interest initiative provided funds for Tuberous Sclerosis Complex (TSC) research. The FY 2017 Peer Reviewed 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. Three award mechanisms were released in May 2017: Idea Development Award, Exploration-	5.799	-

Exhibit R-2A, RDT&E Project Justification: PB 2019 Defense Health Agency		Date: February 2018
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 2017	FY 2018
Hypothesis Development Award, , and Clinical Translational Research Award. Applications were received in July 2017, followed by scientific peer review in September 2017. Funding recommendations will be made at programmatic review in November 2017. Awards will be made by September 2018.		
Congressional Add: 790A - Duchenne Muscular Dystrophy	3.093	-
FY 2017 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. The goal of the FY 2017 Duchenne Muscular Dystrophy Research Program was to preserve and improve the function and quality of life, and to extend the lifespan of all individuals with Duchenne by supporting research for the discovery, development, and clinical testing of novel therapeutics. Two award mechanisms were released in May 2017: Career Development Award and Investigator-Initiated Research Award. Applications will be received in October 2017 with scientific peer review to be conducted in January 2018 followed by programmatic review in March 2018. Awards will be made by September 2018.		
Congressional Adds Subtotals	1,119.872	-

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.

E. Performance Metrics

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2019 Defense Health Agency			Date: February 2018
Appropriation/Budget Activity 0130 / 2	R-1 Program Element (Number/Name) PE 0603115DHA / *Medical Technology Development*	Project (Number/Name) 238C / *Enroute Care Research & Development (Budgeted) (AF)*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
238C: *Enroute Care Research & Development (Budgeted) (AF)*	12.973	5.669	4.479	6.833	-	6.833	8.088	8.249	8.418	8.586	Continuing	Continuing

A. Mission Description and Budget Item Justification

This project area seeks to advance aeromedical transport capabilities through the research and development of rapid, more efficient, and safer patient transport from the point of injury to definitive care and to understand the effects of altitude on injured war fighters. Efforts will focus on translating technological advancements and groundbreaking clinical research into products. The sub-project areas include: Impact of Transport on patients and providers (physiological effects of transport factors on patients and crew and impact of transport times on En-Route Trauma and Resuscitative Care), patient safety (includes En-Route data analytics and the optimization of patient care), medical technologies which includes technology advances and clinical assessment at altitude, and research to support En-Route education and training with simulation.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Title: Enroute Care Research & Development (Budgeted) (AF)	5.669	4.479	6.833
Description: This project area seeks to advance aeromedical transport capabilities through the research and development of rapid, more efficient, and safer patient transport from the point of injury to definitive care and to understand the effects of altitude on injured war fighters. Efforts will focus on translating technological advancements and groundbreaking clinical research into products. The sub-project areas include: Impact of Transport on patients and providers (physiological effects of transport factors on patients and crew and impact of transport times on En-Route Trauma and Resuscitative Care), patient safety (includes En-Route data analytics and the optimization of patient care), medical technologies which includes technology advances and clinical assessment at altitude, and research to support En-Route education and training with simulation.			
FY 2018 Plans: Continue pursuing the AFMS strategic goal A1 to "Transform the En-Route Care System" based on war fighter identified gaps and validated requirements. Begin and/or continue work that will improve mission effectiveness in the A2AD environment such as closed loop technologies and enabling capabilities leading to autonomous patient transport. Continue austere, pre-transport, qualitative clinical testing. Continue to identify independent predictors that are associated with increased survival among patients in a combat theater and update clinical practice and training guidelines to support resulting best practices. Evaluate mechanisms for neuroprotection including hydroxocobalamin in a hemorrhagic model of global and traumatic brain ischemia and to understand and therapeutically target the physiological response associated with prolonged field care and extended hold time. Perform service-connected life trajectory comparison of psychiatric aeromedical evacuation and non-psychiatric aeromedical evacuation patients. Establish database for medical evacuation treatment indicators with care and resolution outcomes. Discovery, refinement, and implementation of advanced genetics, epigenetics, and transcriptome technologies to predict resiliency and to enhance point-of-care medical and aeromedical decision making.			

Exhibit R-2A, RDT&E Project Justification: PB 2019 Defense Health Agency		Date: February 2018
Appropriation/Budget Activity 0130 / 2	**R-1 Program Element (Number/Name)** PE 0603115DHA / *Medical Technology Development*	**Project (Number/Name)** 238C / *Enroute Care Research & Development (Budgeted) (AF)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Continue to identify independent predictors that are associated with increased survival among patients in a combat theater and update clinical practice and training guidelines to support resulting best practices. Establish database for medical evacuation treatment indicators with care and resolution outcomes. Continue research to identify the effects of altitude on various injury states and investigate biomarkers as predictors of acute lung injury, acute kidney injury, and traumatic brain injury prior to AE movement. Continue simulation research program: validate skill / outcome measures, develop simulation improvements / technologies to achieve those outcomes, understand perishability of skills. Continue medical device clinical validation at altitude work. Continue closed loop medical interventions research and development. Continue to characterize vibration on transport platforms. Continue initial investigation of medication efficacy at altitude. Continue investigating new research and development requirements based on results of prior studies and warfighter gap analyses. Continue development of the En-Route care retrospective research database. Continue research to identify the effects of altitude on various injury states and investigate biomarkers as predictors of acute lung injury, acute kidney injury, and traumatic brain injury prior to AE. Begin simulation research program: validate skill / outcome measures, develop simulation improvements / technologies to achieve those outcomes, understand perishability of skills. Continue medical device clinical validation at altitude work. Continue closed loop medical interventions research and development. Continue multicenter closed-loop ventilation device trials. Continue to characterize vibration on transport platforms. Continue to investigate medication efficacy at altitude. Continue investigating new research and development requirements based on results of prior studies and warfighter gap analyses. Begin development of an animal-free, human-free tool for testing efficacy and safety of medications and biochemical pain mitigation strategies during aeromedical evacuation flights.			
FY 2019 Plans: FY 2019 plans continue efforts as outlined in FY 2018. In addition, plans are to complete multicenter closed-loop ventilation device trials. Evaluate mechanisms for neuroprotection including hydroxocobalamin in a hemorrhagic model of global and traumatic brain ischemia and to understand and therapeutically target the physiological response associated with prolonged field care and extended hold time. Perform service-connected life trajectory comparison of psychiatric aeromedical evacuation and non-psychiatric aeromedical evacuation patients. Establish database for medical evacuation treatment indicators with care and resolution outcomes. Discovery, refinement, and implementation of advanced genetics, epigenetics, and transcriptome technologies to predict resiliency and to enhance point-of-care medical and aeromedical decision making. Evaluate the influence of altitude, oxygenation, and sedation on neurodegeneration following traumatic brain injury (TBI). Initiate a retrospective study of patients with traumatic brain injury transported by critical care transport team (CCATT). Assess the effects of aeromedical evacuation on the risk of vasospasm following TBI. Continue with developing research objectives and end states focused in the AE PoR Core Capability Areas (CCAs): Clinical En Route Care and Patient Safety; En Route Care Education, Training and Simulation; En Route Care Medical Technologies; Impact of Transport; and Clinical/Patient Decision Support and Monitoring.			
FY 2018 to FY 2019 Increase/Decrease Statement:			

Exhibit R-2A, RDT&E Project Justification: PB 2019 Defense Health Agency		Date: February 2018
Appropriation/Budget Activity 0130 / 2	**R-1 Program Element (Number/Name)** PE 0603115DHA / *Medical Technology Development*	**Project (Number/Name)** 238C / *Enroute Care Research & Development (Budgeted) (AF)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Slight increase due to additional efforts to complete multicenter closed-loop ventilation trials as outlined in the FY 2019 Base plans.			
Accomplishments/Planned Programs Subtotals	5.669	4.479	6.833

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
• BA-1, PE 0807714HP: *Other Consolidated Health Support*	14.259	14.655	-	-	-	-	-	-	-	Continuing	Continuing

Remarks

D. Acquisition Strategy

Interagency Agreements and Interservice Support Agreements with the US Army, US 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 Announcement (BAA) and Intramural calls for proposal are used to award initiatives in this program and project following determinations of scientific and technical merit, validation of need, prioritization, selection and any necessary legal and/or regulatory approvals (IRB, etc.)

E. Performance Metrics

Individual initiatives are measured through a quarterly annual project performance reporting system and program management review process -- performance is measured against standardized criteria for cost, schedule and performance (technical objectives) and key performance parameters. Variances, deviations and/or breaches in key areas are reviewed and a decision is rendered on any adjustments through a formalized process of S&T governance.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Defense Health Agency			Date: February 2018
Appropriation/Budget Activity 0130 / 2	R-1 Program Element (Number/Name) PE 0603115DHA / *Medical Technology Development*	Project (Number/Name) 238D / *Core Enroute Care R&D - Clinical Translational Focus (AF)*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
238D: *Core Enroute Care R&D - Clinical Translational Focus (AF)*	0.997	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 area seeks to advance aeromedical transport capabilities through the research and development of rapid, more efficient, and safer patient transport from the point of injury to definitive care and to understand the effects of altitude on seriously injured war fighters. Efforts will focus on translating technological advancements and groundbreaking clinical research into transitionable products. The sub-project areas include: Physiological Effects of Aeromedical Evacuation on patients and crew which includes the optimization of provider performance and patient care, impact of transport times on En-Route Trauma and Resuscitative Care, and En-Route Patient Safety which includes technology advances and assessment. Because patients experience multiple handoffs between teams of caregivers during transport between austere environments and definitive care, efforts in the En-Route Patient Safety sub-project area examine human factors considerations in order to develop new and enhance existing methods to mitigate risk in all En-Route care environments.

B. Accomplishments/Planned Programs ($ in Millions)

N/A

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

Interagency Agreements and Interservice Support Agreements with the US Army, US 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 Announcement (BAA) and Intramural calls for proposal are used to award initiatives in this program and project following determinations of scientific and technical merit, validation of need, prioritization, selection and any necessary legal and/or regulatory approvals (IRB, etc.)

E. Performance Metrics

Individual initiatives are measured through a quarterly annual project performance reporting system and program management review process -- performance is measured against standardized criteria for cost, schedule and performance (technical objectives) and key performance parameters. Variances, deviations and/or breaches in key areas are reviewed and a decision is rendered on any adjustments through a formalized process of S&T governance.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Defense Health Agency			Date: February 2018
Appropriation/Budget Activity 0130 / 2	R-1 Program Element (Number/Name) PE 0603115DHA / *Medical Technology Development*	Project (Number/Name) 238E / *Core Enroute Care R&D - Aerospace Medicine/Human Performance Focus (AF)*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
238E: *Core Enroute Care R&D - Aerospace Medicine/Human Performance Focus (AF)*	0.997	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 area seeks to advance aeromedical evacuation (AE), Critical Care Air Transport Team (CCATT), and Tactical Critical Care Evacuation Team (TCCET) capabilities through the research and development of rapid, more efficient, and safer patient transport from the pre-staging for strategic or intra-theater air evacuation to definitive care, and to understand the effects of transport on injured war fighters. Efforts will focus on translating technological advancements and groundbreaking clinical research into translatable practice and technology products. The sub-project areas include: Impact of Transport on patients and crew which includes the optimization of provider performance and patient care, En-Route Medical Technologies which includes technology advances and assessment, and En-Route Patient Safety which includes efforts to ensure the safe transport of patients through the AE system.

B. Accomplishments/Planned Programs ($ in Millions)

N/A

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

SEE PROJECT CODE 238C PROGRAM FUNDING SUMMARY FOR PROJECT CODE 238E WHICH IS A SUMMARY OF OTHER PROGRAM FUNDING SUPPORT TO ALL PROJECTS AND PROGRAMS IN THIS PE FOR DHP-AF.

D. Acquisition Strategy

Interagency Agreements and Interservice Support Agreements with the US Army, US 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 Announcement (BAA) and Intramural calls for proposal are used to award initiatives in this program and project following determinations of scientific and technical merit, validation of need, prioritization, selection and any necessary legal and/or regulatory approvals (IRB, etc.)

E. Performance Metrics

Individual initiatives are measured through a quarterly annual project performance reporting system and program management review process -- performance is measured against standardized criteria for cost, schedule and performance (technical objectives) and key performance parameters. Variances, deviations and/or breaches in key areas are reviewed and a decision is rendered on any adjustments through a formalized process of S&T governance.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Defense Health Agency			Date: February 2018
Appropriation/Budget Activity 0130 / 2	R-1 Program Element (Number/Name) PE 0603115DHA / *Medical Technology Development*	Project (Number/Name) 243A / *Medical Development (Lab Support) (Navy)*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
243A: *Medical Development (Lab Support) (Navy)*	164.298	0.000	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	-	-

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 U.S. (OCONUS) laboratories conduct focused medical research on vaccine development for Malaria, Diarrhea Diseases, and Dengue Fever. In addition to entomology, the labs focus on 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.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Title: Medical Development (Lab Support) (Navy)	0.000	-	-
Description: Funding in this project code 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.			
Accomplishments/Planned Programs Subtotals	0.000	-	-

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2019 Defense Health Agency			Date: February 2018
Appropriation/Budget Activity 0130 / 2	R-1 Program Element (Number/Name) PE 0603115DHA / *Medical Technology Development*	Project (Number/Name) 247A / *Elimination of Malaria in Southeast Asia (CARB) (Navy)*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
247A: *Elimination of Malaria in Southeast Asia (CARB) (Navy)*	2.260	2.004	1.548	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	5.812

A. Mission Description and Budget Item Justification

This project seeks to demonstrate that malaria can be eliminated in a specific geographically defined area of endemicity through a comprehensive multi-disciplined approach including enhanced surveillance, research to maximize the impact of intervention strategies, and quality improvement of current tools for malaria elimination. The demonstration will focus on Vietnam where multi-drug resistant malaria is prevalent and as such represents a significant threat to US personnel. Additionally, the Vietnamese military and Ministry of Health have a high level of interest in malaria control and will collaborate in the malaria elimination demonstration project, significantly improving the chances of success of this project. Successful completion of this project could significantly enhance force health protection and global engagement by providing a vetted approach to malaria control in the Southeast Asia region where multi-drug resistant malaria is a major infectious disease threat. This project supports (both directly and indirectly in a priority country - Vietnam) Global Health Security Agenda priorities: Combat Antibiotic Resistance Bacteria (CARB); Prevent Avoidable Epidemics; Detect Threats Early; and Respond Rapidly and Effectively to biological threats of international concern.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Title: Elimination of Malaria in Southeast Asia (CARB) (Navy)	2.004	1.548	0.000

Description: This project seeks to demonstrate that malaria can be eliminated in a specific geographically defined area of endemicity through a comprehensive multi-disciplined approach including enhanced surveillance, operations research to maximize the impact of intervention strategies, and quality improvement of current tools for malaria elimination. The demonstration will focus on Vietnam where multi-drug resistant malaria is prevalent and as such represents a significant threat to US personnel. Additionally, the Vietnamese military and Ministry of Health have a high level of interest in malaria control and will collaborate in the malaria elimination demonstration project significantly improving the chances of success of this project.
FY 2017 Accomplishments:
Enhanced surveillance activities with the Ministry of Health were continued at sites in central Vietnam and on the Laos border. This project has identified risk factors among forest goers, similar to US military personnel in terms of age, health and activity, associated with acquiring malaria. Preliminary data from 2015 and 2016 presented at the American Society of Tropical Medicine and Hygiene (Nov 2016); this information will inform future studies on malaria interventions. To continue work in Vietnam with the Ministry of Health a 2-year work plan was approved in July 2016. Continued recruitment of Vietnam-Australia-US military collaborative study to characterize drug resistance in central Vietnam. Preliminary data, indicating no drug resistance present at study site, presented at the USPACOM Asia Pacific Military Health Exchange in Kuantan, Malaysia (Aug 2016). Cross sectional study protocol approved by Vietnam Ministry of Defense; this project started in Q1 FY17 targeting people served by military clinics in Gai Lia Province, a remote area on the Cambodia border.

FY 2018 Plans:

Exhibit R-2A, RDT&E Project Justification: PB 2019 Defense Health Agency		Date: February 2018
Appropriation/Budget Activity 0130 / 2	**R-1 Program Element (Number/Name)** PE 0603115DHA / *Medical Technology Development*	**Project (Number/Name)** 247A / *Elimination of Malaria in Southeast Asia (CARB) (Navy)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Continuing FY17 work, FY18 funding will support the modeling of collected malaria surveillance and intervention data to measure the impact of previous interventions in Vietnam. The Ministry of Health has agreed in principal to provide malaria data from 2010-2015 to study the impact of environmental, climatic and control/elimination factors on malaria burden. This effort will be enhanced by continuation of ongoing surveillance efforts with the Ministry of Health with expanded collection of blood samples to evaluate current malaria infection by microscopic and PCR detection of malaria parasites and historic malaria exposure by antibody testing. These activities will improve the understanding of malaria parasite diversity and the distribution of drug resistance along the Vietnam-Cambodia-Laos border region. The focus of efforts with the Ministry of Health will be studying malaria transmission within the country and transport of malaria parasites along the Laos-Cambodia-Vietnam border, a new project will be initiated to detect malaria infection in people returning from working in Africa. This project will provide insight into the transport of which may impact malaria transmission patterns in Vietnam. In FY18 efforts with the Ministry of Defense will focus on completing the cross-sectional study approved in FY17. This study will be conducted in Gai Lia Province on the Cambodia border and provide information on subclinical malaria infection. Subclinical infections are not captured in routine surveillance activities; this gap impacts Vietnam's malaria elimination program and US force health protection strategy as these cases are part of the malaria transmission cycle. Clinical studies on malaria drug resistance will continue in FY18. The Ministry of Defense is reviewing a new clinical study for malaria drug resistance in Dak Nong Province on the Cambodia border, this study began in Q3 FY17 and will continue for two years. ***FY 2019 Plans:*** Building on partnerships with the Ministries of Health and Defense surveillance activities will continue in border areas with known malaria drug resistance. Surveillance efforts will be augmented by pilot testing intervention products and packages that could be utilized by the Vietnam National Malaria Control Program and the US DoD to inform malaria prevention and control programs. Surveillance and malaria control/elimination products and strategies will be evaluated using approaches harmonized with the World Health Organization and US DoD Defense Malaria Assistance Program. Study results and recommendations will be reported in refereed professional journals and policy recommendations submitted to the Vietnamese and US Governments. The project will come to an end in FY18/19, therefore, no funding is budgeted in the years following. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** The project will come to an end in FY18/19, therefore, no funding is budgeted in the years following.			
Accomplishments/Planned Programs Subtotals	2.004	1.548	0.000

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

Exhibit R-2A, RDT&E Project Justification: PB 2019 Defense Health Agency		Date: February 2018
Appropriation/Budget Activity 0130 / 2	**R-1 Program Element (Number/Name)** PE 0603115DHA / *Medical Technology Development*	**Project (Number/Name)** 247A / *Elimination of Malaria in Southeast Asia (CARB) (Navy)*

D. Acquisition Strategy

N/A

E. Performance Metrics

Successful execution of this project will be measured by significant reduction of malaria parasite incidence and prevalence in the geographic area of study. Study results and recommendations will be reported in refereed professional journals and policy recommendations submitted to the Vietnamese and US Governments.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Defense Health Agency			Date: February 2018
Appropriation/Budget Activity 0130 / 2	R-1 Program Element (Number/Name) PE 0603115DHA / *Medical Technology Development*	Project (Number/Name) 247B / *Mitigate the Global Impact of Sepsis Through ACESO (CARB) (Navy)*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
247B: *Mitigate the Global Impact of Sepsis Through ACESO (CARB) (Navy)*	1.465	1.079	1.238	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	3.782

A. Mission Description and Budget Item Justification

This project seeks to demonstrate that the impact of sepsis (severe infections) in Egypt can be mitigated through the Austere Environment Consortium for Enhanced Sepsis Outcomes (ACESO) approach of discovering common, host-based pathogenic pathways for improved recognition and management of sepsis and point of care (POC) diagnostic and prognostic biomarker panels. Sepsis is the common path to end-organ damage and death for a large proportion of globally-important infectious diseases. This project will improve the understanding of disease pathogenesis and antimicrobial resistance mechanisms through network and biomarker analysis thus offering unique opportunities for improving sepsis diagnosis and management. Through systematic biology, it will develop insight into the disease pathogenesis of sepsis, and host factors which predict susceptibility, and sepsis severity provides opportunity for targeted interventions to forestall morbidity and mortality. Furthermore, enhanced knowledge of emerging antimicrobial resistance in strategic regions informs ongoing surveillance and mitigation efforts of critical importance to deployed forces. Successful completion of this project will provide reliable antimicrobial resistance data for forces deploying to Egypt and the region and also document improved methods for the treatment and management of sepsis. ACESO is an international consortium of sepsis researchers led by NMRC that has established a network of sepsis research sites in SE Asia and Sub-Saharan Africa to improve clinical outcomes and advance our understanding of pathogenesis, biomarkers of sepsis and antimicrobial resistance trends. The largest infectious disease hospital in Egypt, Abbassia Fever Hospital, provides critical severe infection and antimicrobial resistance data from the North African Theater. This project supports (both directly and indirectly) Global Health Security Agenda priorities: Combat Antibiotic Resistance Bacteria (CARB); Prevent Avoidable Epidemics; Detect Threats Early; and Respond Rapidly and Effectively to biological threats of international concern

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Title: Mitigate the Global Impact of Sepsis Through ACESO (CARB) (Navy)	1.079	1.238	0.000
Description: This project seeks to demonstrate that the impact of sepsis from resistant and other high risk organisms in Egypt can be mitigated through the ACESO approach of discovering common, host-based pathogenic pathways for improved recognition and management of sepsis. This project will improve understanding of pathogenesis and antimicrobial resistance mechanisms through network and biomarker analysis to offer unique opportunities for improving sepsis diagnosis and management. Most specifically, ACESO will execute biomarker discovery identifying diagnostic and prognostic biomarker panels which may improve sepsis management in all environments including resourced and austere. FY 2017 Accomplishments: FY17 efforts supported continued enrollment of severely ill patients in an observational study in Cambodia at Takeo Provincial Hospital and in Ghana at Komfo Anoyke Teaching Hospital (KATH). The goals of this study are to 1) identify diagnostic and prognostic markers, 2) investigate common pathogenic pathways, 3) describe the spectrum of pathogens causing sepsis, 4) describe the treatment strategies currently in use, and 5) assess the long-term sequelae. Adult patients with suspected			

Exhibit R-2A, RDT&E Project Justification: PB 2019 Defense Health Agency		Date: February 2018
Appropriation/Budget Activity 0130 / 2	**R-1 Program Element (Number/Name)** PE 0603115DHA / *Medical Technology Development*	**Project (Number/Name)** 247B / *Mitigate the Global Impact of Sepsis Through ACESO (CARB) (Navy)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019

infection and evidence of systemic inflammation were considered for enrollment. Laboratory testing augmented the testing routinely performed at the hospital microbiology laboratory, and included diagnostic tests (e.g. blood cultures, malaria smears, HIV tests, and serology), molecular diagnostics, and assays measuring the host-response (RNA sequencing, proteomics, and metabolomics). Sophisticated analytic and statistical approaches are being applied to the complex data set to identify diagnostic and prognostic markers for sepsis and to investigate common pathogenic pathways.

The Vietnam-Australia-US military study of drug resistance patterns in Central Vietnam was closed in Jan 2017 due to a lower than expected malaria burden. Preliminary data supports previous findings, reported in FY16, that there is no resistance for 1st choice malaria drug treatments. Additionally, a review of Vietnam malaria burden, control measures and environmental factors was initiated; the preliminary findings suggest increased average daily temperature was a primary factor of decreased malaria rates. Recruitment for the cross-sectional study in Gai Lia Province (on the border with Cambodia) started in Dec 2016 and was completed in Feb 2017. Sample and data analysis are ongoing, however, preliminary results from the >3,000 participants indicate the rate of patients without symptoms, but still carrying malaria parasite, was >1.25% in this study population, representing a silent malaria transmission risk in this forested, border region on the Cambodia-Vietnam border. The study of Vietnamese workers returning from Africa was initiated in Q2 FY17 with concurrent records review was stated for malaria patients recently returned from Africa presenting for care at two referral medical facilities in Ha Noi in 2014-2016. Preliminary results were accepted for presentation at the Joint International Tropical Medicine Meeting in Bangkok, Thailand from 06-08 Dec 2017. These data suggest delayed malaria clearance in patients returning from Africa was likely due to delayed medical treatment and not from malaria drug resistance.

FY 2018 Plans:

FY18 funding will support the continuation of the observational study at the Takeo Provincial Hospital in Cambodia and Komfo Anoke Teaching Hospital in Ghana, the sophisticated analytic and statistical approaches leading to development of the diagnostic and prognostic biomarker panels, and verification of the initial findings.

FY18 funding will also support the start of observational study at the Abbassia Fever Hospital and the sophisticated analytic and statistical approaches will be applied to this complex data set to identify diagnostic and prognostic markers for sepsis and to investigate common pathogenic pathways.

FY 2019 Plans:

FY19 funding will continue the support of the observational study at the Takeo Provincial Hospital in Cambodia and Komfo Anoke Teaching Hospital in Ghanna. It will also support the translation of observational studies at the Abbassia Fever Hospital to develop sophisticated analytical and statistical approaches to identify diagnostic and prognostic markers for sepsis and to investigate common pathogenic pathways. Additionally, antimicrobial resistance patterns determined from the observational studies will be

Exhibit R-2A, RDT&E Project Justification: PB 2019 Defense Health Agency		Date: February 2018
Appropriation/Budget Activity 0130 / 2	**R-1 Program Element (Number/Name)** PE 0603115DHA / *Medical Technology Development*	**Project (Number/Name)** 247B / *Mitigate the Global Impact of Sepsis Through ACESO (CARB) (Navy)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
combined with prognostic markers for sepsis and common pathogenic pathway data to achieve improved patient outcomes. The project will come to an end in FY18/19, therefore, no funding is budgeted in the years following. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** The project will come to an end in FY18/19, therefore, no funding is budgeted in the years following.			
Accomplishments/Planned Programs Subtotals	1.079	1.238	0.000

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

Successful execution of this project will be measured by significant reduction in the mortality rate from sepsis, reduced hospitalization days, and by the number and impact factor of publications in refereed professional journals.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Defense Health Agency			Date: February 2018
Appropriation/Budget Activity 0130 / 2	**R-1 Program Element (Number/Name)** PE 0603115DHA / *Medical Technology Development*	**Project (Number/Name)** 284B / *USAF Human Physiology, Systems Integration, Evaluation & Optimization Research (Budgeted) (AF)*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
284B: *USAF Human Physiology, Systems Integration, Evaluation & Optimization Research (Budgeted) (AF)*	10.245	3.471	5.327	5.523	-	5.523	5.633	5.745	5.859	5.976	Continuing	Continuing

A. Mission Description and Budget Item Justification

This project area seeks to enhance, optimize & sustain performance of Air Force personnel through the evaluation and alleviation of health effects associated with carrying out assigned missions. This work addresses unique Air Force operational environments such as the mitigation of stress on personnel involved in remote piloted aircraft operations. The sub-project areas include: Cognitive Performance which includes fatigue management, Physiological Performance and Targeted Conditioning which includes training techniques for optimal performance, and identification of solutions related to Operational and Environmental Challenges to Performance.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Title: USAF Human Physiology, Systems Integration, Evaluation & Optimization Research (Budgeted) (AF)	3.471	5.327	5.523
Description: This project area seeks to enhance, optimize & sustain performance of Air Force personnel through the evaluation and alleviation of health effects associated with carrying out assigned missions. This work addresses unique Air Force operational environments such as the mitigation of stress on personnel involved in remote piloted aircraft operations. The sub-project areas include: Cognitive Performance which includes fatigue management, Physiological Performance and Targeted Conditioning which includes training techniques for optimal performance, and identification of solutions related to Operational and Environmental Challenges to Performance.			
FY 2018 Plans: Introduce early prevention, diagnosis, treatment, and evidence-based training through curriculum modification within U.S. Air Force basic training. Mitigating Heat Stress During Hot Weather Training and Operations In USAF Special Tactics Airmen. Develop clinical and training protocols, in cooperation with military training instructors and clinical treatment teams, to evaluate and improve overall trainee and active duty fitness (e.g., by measuring fitness assessment scores), health and nutrition and augment the capabilities and professional growth of independent duty medical technicians (IDMTs). Evaluate U.S. Air Force basic military trainees with non-fracture lower extremity musculoskeletal injuries for clinical and operational outcomes to determine if gait and activity modification by a certified athletic trainers reduces the risk of progression to lower extremity stress fracture and decreases the discharge rate and days of training lost for lower extremity injuries. Advance understanding of musculoskeletal injury in operational environment and assess new technologies for diagnosis and treatment.			

Exhibit R-2A, RDT&E Project Justification: PB 2019 Defense Health Agency		Date: February 2018
Appropriation/Budget Activity 0130 / 2	**R-1 Program Element (Number/Name)** PE 0603115DHA / *Medical Technology Development*	**Project (Number/Name)** 284B / *USAF Human Physiology, Systems Integration, Evaluation & Optimization Research (Budgeted) (AF)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Mature a comprehensive program working to define and mitigate the extreme physiological and physical demands of higher altitudes to include decompression sickness and hypoxia. Continue work to demonstrate exposure to non-hypoxic hypobaria induces subcortical white matter injury by MRI. Further evaluation in modeling hypobaria-related white matter damage for detection of the biological / neuropathological indicators. Advance understanding of training for the operational environment as it pertains to new accessions, medical readiness, injury reduction, and retention. Complete studies assessing and validating vision standards for high risk and high demand career fields. Continue to understand the operational environment as it pertains to vision screening, evaluation and medical readiness. Further research in cognitive performance and mental resiliency by identifying occupational stressors and indicators to recovery. Converge medical research disciplines by implementing the Optimization of AF Human Capital Plan focused on medical readiness to support airman mission alignment. ***FY 2019 Plans:*** Continue implementation of the Optimization of AF Human Capital Research Plan focused on medical readiness to support airman mission alignment. Advance understanding of appropriate selection pertaining to new accessions, job placement, injury reduction and retention. Continue assessment and validation of standards across research lines in the areas vision, psychological, and physical physiological for high risk and high demand airman career fields. Develop model to assess and validate return of investment on embedded medics. Work to characterize at risk mission sets and operator/aircrew needs to optimize performance in high altitude environment to inform operational changes and determine safe altitudes for long-term exposures. Advance understanding of neuroprotection and/or neurotreatment therapies designed to mitigate hyperoxemic brain injury/effects. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Pricing Adjustment.			
Accomplishments/Planned Programs Subtotals	3.471	5.327	5.523

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

Interagency Agreements and Interservice Support Agreements with the US Army, US 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 Announcement (BAA) and Intramural calls for proposal are used to award initiatives in this program and 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 2019 Defense Health Agency		Date: February 2018
Appropriation/Budget Activity 0130 / 2	**R-1 Program Element (Number/Name)** PE 0603115DHA / *Medical Technology Development*	**Project (Number/Name)** 284B / *USAF Human Physiology, Systems Integration, Evaluation & Optimization Research (Budgeted) (AF)*

E. Performance Metrics

Individual initiatives are measured through a quarterly annual project performance reporting system and program management review process -- performance is measured against standardized criteria for cost, schedule and performance (technical objectives) and key performance parameters. Variances, deviations and/or breaches in key areas are reviewed and a decision is rendered on any adjustments through a formalized process of S&T governance.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Defense Health Agency			Date: February 2018
Appropriation/Budget Activity 0130 / 2	R-1 Program Element (Number/Name) PE 0603115DHA / *Medical Technology Development*	Project (Number/Name) 284C / *Core Human Performance R&D - Clinical Translational Focus (AF)*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
284C: *Core Human Performance R&D - Clinical Translational Focus (AF)*	1.003	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 area seeks to enhance, optimize & sustain performance of Air Force personnel through the evaluation and alleviation of health effects associated with carrying out assigned missions. This work addresses unique Air Force training and operational environments such as the mitigation of Musculoskeletal Injury on personnel in Air Force Basic Training and high demand operations. The sub-project areas include: Cognitive Performance which includes assessing Impact of Recurrent Hypobaric Exposure, Physical Performance and Targeted Conditioning which includes providing Evidence Based Prevention Strategies and Health Programs for Optimal Performance, and Identification of Clinical Solutions to Mitigate Operational and Environmental Challenges to Performance. Optimization of Human Capital Selection: Prognostic parameters to the success of airmen in various career field in particular sustain Airmen Trainee Health. These will include selection in mental, social, and physical determinants. These also may include genomic indicators that might suggest physical and mental resiliency to different occupational stressors (tasks, environment, etc.…) and indicators to recovery to baseline to different occupational stressors or frank injury/disease.

B. Accomplishments/Planned Programs ($ in Millions)

N/A

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

SEE PROJECT CODE 284B PROGRAM FUNDING SUMMARY FOR PROJECT CODE 284C WHICH IS A SUMMARY OF OTHER PROGRAM FUNDING SUPPORT TO ALL PROJECTS AND PROGRAMS IN THIS PE FOR DHP-AF

D. Acquisition Strategy

Interagency Agreements and Interservice Support Agreements with the US Army, US 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 Announcement (BAA) and Intramural calls for proposal are used to award initiatives in this program and project following determinations of scientific and technical merit, validation of need, prioritization, selection and any necessary legal and/or regulatory approvals (IRB, etc.)

E. Performance Metrics

Individual initiatives are measured through a quarterly annual project performance reporting system and program management review process -- performance is measured against standardized criteria for cost, schedule and performance (technical objectives) and key performance parameters. Variances, deviations and/or breaches in key areas are reviewed and a decision is rendered on any adjustments through a formalized process of S&T governance.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Defense Health Agency			Date: February 2018
Appropriation/Budget Activity 0130 / 2	R-1 Program Element (Number/Name) PE 0603115DHA / *Medical Technology Development*	Project (Number/Name) 284D / *Core Human Performance R&D - Aerospace Medicine/Human Performance Focus (AF)*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
284D: *Core Human Performance R&D - Aerospace Medicine/ Human Performance Focus (AF)*	1.002	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 area seeks to enhance, optimize & sustain performance of Air Force personnel through the evaluation and alleviation of health effects associated with carrying out assigned AF missions. This work addresses unique Air Force operational environments such as the mitigation of physiological and cognitive demand on personnel involved in both piloted and remote piloted aircraft operations. Understanding and measuring aviation performance and developing injury prevention strategies to optimize performance of AF personnel. Identification and mitigation of stress on personnel involved in Intelligence, Surveillance, and Reconnaissance operations. The sub-project areas include: Air Force Aircrew Physiology and Cognition Performance which includes pilot performance monitoring, interventions and fatigue management. AF unique Physical, Psychological, Behavioral and Physiological Performance and Targeted Conditioning Mitigation which includes personalized performance and training techniques for optimal performance, Aviator Injury Prevention and Performance Optimization, Select training and simulation to optimize performance of AF operators and personnel. Optimization of Human Capital, Advancing Medical Readiness for Optimal Performance, and Identification of techniques, treatments, and technical solutions to mitigate Operational and Environmental Challenges to Performance.

B. Accomplishments/Planned Programs ($ in Millions)

N/A

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

Interagency Agreements and Interservice Support Agreements with the US Army, US 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 Announcement (BAA) and Intramural calls for proposal are used to award initiatives in this program and project following determinations of scientific and technical merit, validation of need, prioritization, selection and any necessary legal and/or regulatory approvals (IRB, etc.)

E. Performance Metrics

Individual initiatives are measured through a quarterly annual project performance reporting system and program management review process -- performance is measured against standardized criteria for cost, schedule and performance (technical objectives) and key performance parameters. Variances, deviations and/or breaches in key areas are reviewed and a decision is rendered on any adjustments through a formalized process of S&T governance.***

Exhibit R-2A, RDT&E Project Justification: PB 2019 Defense Health Agency			Date: February 2018
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 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
285A: *Operational Medicine Research & Development (Budgeted) (AF)*	16.914	6.194	2.699	4.702	-	4.702	5.514	5.624	5.736	5.851	Continuing	Continuing

A. Mission Description and Budget Item Justification

The Operational Medicine Thrust Area develops validated solutions for the delivery of preventative care, intervention and treatment to Active Duty members and DoD beneficiaries. The primary focus areas include: physiologic and psychological health; sub-topics include resilience, personalized medicine, patient safety, and care coordination. 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. Personalized medicine focuses on genomic issues related to autism, asthma, and obesity.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Title: Operational Medicine Research & Development (Air Force)	6.194	2.699	4.702
Description: The Operational Medicine Thrust Area develops validated solutions for the delivery of preventative care, intervention and treatment to Active Duty members and DoD beneficiaries. The primary focus areas include: physiologic and psychological health; sub-topics include resilience, personalized medicine, patient safety, and care coordination. 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. Personalized medicine focuses on genomic issues related to autism, asthma, and obesity.			
FY 2018 Plans: Further identify practical health delivery platforms using health services research to adapt innovative, evidence-based health solutions to improve troop to beneficiary health. Pilot feasibility studies and expand to large scale, standardized implementation research to address current high diagnoses rates of musculoskeletal pain, anxiety/depressive disorders, autism, obesity and other chronic disease states. Initiate research to enhance accession health and minimize/prevent training injury patterns. Utilize patient genomic information to individualize population health services. Continue regenerative/reconstructive research to validate technologies for surgical reconstruction of service members with previously non-reconstructable injuries. Expand composite tissue transfer to replantation of traumatic amputations and to advanced reconstruction with composite tissue allotransplantation. Provide guidance on the clinical impact of the new cell-based therapies as applied to improvements in fat grafting for warfighters requiring IED and burn wound reconstruction, and beneficiaries with other traumatic injuries. Evaluate silica encapsulated monomers for self-healing dental materials. Characterize Type 2 Diabetes prevention and care in the MHS. Assess proneuroregenerative therapies and collateral sensory reinnervation in peripheral nerve injuries. Evaluate triggable release, reloadable, smart hydrogels			

Exhibit R-2A, RDT&E Project Justification: PB 2019 Defense Health Agency		Date: February 2018
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)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
for graft targeted immunotherapy in reconstructive transplantation. Examine diabetes self-management education via telemedicine in the USAF. ***FY 2019 Plans:*** Provide guidance on the clinical impact of the new cell-based therapies as applied to improvements in fat grafting for warfighters requiring IED and burn wound reconstruction, and beneficiaries with other traumatic injuries. Evaluate silica encapsulated monomers for self-healing dental materials. Characterize Type 2 Diabetes prevention and care in the MHS. Assess proneuroregenerative therapies and collateral sensory reinnervation in peripheral nerve injuries. Evaluate triggable release, reloadable, smart hydrogels for graft targeted immunotherapy in reconstructive transplantation. Examine diabetes self-management education via telemedicine in the USAF. Examine Eustachian Tube Dysfunction (ETD). Compare aeromedical care service delivery methods assessing for efficacy and efficiency in promoting beneficial outcomes in operators and their families. Continue research program to identify biomarkers of traumatic brain injury in warfighters using minimally invasive sample collection methods to improve aeromedical patient care. Develop autonomously designed DNA-based therapeutic interventions against emergent infectious diseases. Evaluate integrated operational medicine approach to characterize individualized aeromedical care. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Increase reflects right-sizing the program funding to reflect the actual execution of the program.			
Accomplishments/Planned Programs Subtotals	6.194	2.699	4.702

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

Interagency Agreements and Interservice Support Agreements with the US Army, US 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 Announcement (BAA) and Intramural calls for proposal are used to award initiatives in this program and 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 2019 Defense Health Agency		Date: February 2018
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)*

E. Performance Metrics

Individual initiatives are measured through a quarterly annual project performance reporting system and program management review process -- performance is measured against standardized criteria for cost, schedule and performance (technical objectives) and key performance parameters. Variances, deviations and/or breaches in key areas are reviewed and a decision is rendered on any adjustments through a formalized process of S&T governance.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Defense Health Agency			Date: February 2018
Appropriation/Budget Activity 0130 / 2	R-1 Program Element (Number/Name) PE 0603115DHA / *Medical Technology Development*	Project (Number/Name) 285B / *Core Operational Medicine R&D - Clinical Translational Focus (AF)*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
285B: *Core Operational Medicine R&D - Clinical Translational Focus (AF)*	0.929	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 Thrust Area develops validated solutions for the delivery of preventative care, intervention and treatment to Active Duty members and DoD beneficiaries. The primary focus areas include: physiologic and psychological health; sub-topics include resilience, personalized medicine, patient safety, and care coordination. 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. Personalized medicine focuses on genomic issues related to autism, asthma, and obesity.

B. Accomplishments/Planned Programs ($ in Millions)

N/A

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

SEE PROJECT CODE 285A PROGRAM FUNDING SUMMARY FOR PROJECT CODE 285B WHICH IS A SUMMARY OF OTHER PROGRAM FUNDING SUPPORT TO ALL PROJECTS AND PROGRAMS IN THIS PE FOR DHP-AF

D. Acquisition Strategy

Interagency Agreements and Interservice Support Agreements with the US Army, US 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 Announcement (BAA) and Intramural calls for proposal are used to award initiatives in this program and project following determinations of scientific and technical merit, validation of need, prioritization, selection and any necessary legal and/or regulatory approvals (IRB, etc.)

E. Performance Metrics

Individual initiatives are measured through a quarterly annual project performance reporting system and program management review process -- performance is measured against standardized criteria for cost, schedule and performance (technical objectives) and key performance parameters. Variances, deviations and/or breaches in key areas are reviewed and a decision is rendered on any adjustments through a formalized process of S&T governance.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Defense Health Agency			Date: February 2018
Appropriation/Budget Activity 0130 / 2	R-1 Program Element (Number/Name) PE 0603115DHA / *Medical Technology Development*	Project (Number/Name) 285C / *Core Operational Medicine R&D - Aerospace/Human Performance Focus (AF)*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
285C: *Core Operational Medicine R&D - Aerospace/ Human Performance Focus (AF)*	0.928	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 area seeks to provide research and development affecting AF beneficiary populations requiring specialized handling during routine medical care such as pilots, RPA operators, special tactics operators and personnel reliability program members. Research will evaluate and determine if special approaches to personal health and performance are required for these beneficiaries. It will also ascertain if conditions not found in the general patient population are applicable to those in this area of interest and conversely if there are conditions or trends in this population requiring attention that are not normally found in the general AF/DoD beneficiary pool. Overall research in this project will support optimization of health care delivery services to all AF/DoD beneficiaries but will focus on high-value asset personnel.

B. Accomplishments/Planned Programs ($ in Millions)

N/A

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

SEE PROJECT CODE 285A PROGRAM FUNDING SUMMARY FOR PROJECT CODE 285C WHICH IS A SUMMARY OF OTHER PROGRAM FUNDING SUPPORT TO ALL PROJECTS AND PROGRAMS IN THIS PE FOR DHP-AF

D. Acquisition Strategy

Interagency Agreements and Interservice Support Agreements with the US Army, US 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 Announcement (BAA) and Intramural calls for proposal are used to award initiatives in this program and project following determinations of scientific and technical merit, validation of need, prioritization, selection and any necessary legal and/or regulatory approvals (IRB, etc.)

E. Performance Metrics

Individual initiatives are measured through a quarterly annual project performance reporting system and program management review process -- performance is measured against standardized criteria for cost, schedule and performance (technical objectives) and key performance parameters. Variances, deviations and/or breaches in key areas are reviewed and a decision is rendered on any adjustments through a formalized process of S&T governance.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Defense Health Agency			Date: February 2018
Appropriation/Budget Activity 0130 / 2	**R-1 Program Element (Number/Name)** PE 0603115DHA / *Medical Technology Development*	**Project (Number/Name)** 307B / *Force Health Protection, Advanced Diagnostics/Therapeutics Research & Development (Budgeted) (AF)*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
307B: *Force Health Protection, Advanced Diagnostics/ Therapeutics Research & Development (Budgeted) (AF)*	46.948	9.192	9.504	9.725	-	9.725	9.919	10.118	10.319	10.525	Continuing	Continuing

A. Mission Description and Budget Item Justification

This project area seeks to deliver improved capabilities across the full spectrum of operations in the areas of Directed Energy and Occupational and Environmental Health. Research in the Directed Energy sub-project area seeks to develop technologies to "detect to warn" and "detect to protect" AF operators such that they can take appropriate actions to prevent or minimize exposure leading to adverse health effects. Research in the Occupational and Environmental Health sub-project area involves the assessment and implementation of innovative new technologies that enable effective surveillance, detection, identification, and mitigation of hazardous chemical, biological, and physical hazards that present a health risk to our forces and threaten to degrade and disrupt the missions they execute. Air Force FHP efforts focus on health protection across the spectrum of AF air and ground operations. These include hazards presented to high performance and high flyer aircraft crews facing extreme environments within their flight envelopes that are potentially more sensitive to physiologic and cognitive stressors and rely on aircraft systems to provide life support for protection. Because Air Force installations are typically very strategically important in combat execution, they are more often tied to performing ops at fixed locations; therefore, they drive the need to detect and identify the USAF and environment-specific risks posed by chemical, biological, directed energy, and other radiological and physical hazards immediately and on-site so that operations can be resumed as quickly as possible. This requires enhanced monitoring capability, such as man-portable gold-standard hazard detection. Research is needed to improve these capabilities and to account for emerging threats. The mission needs driving the ability to detect also drives the need to rapidly reduce or mitigate threats once discovered. State of the art detection and monitoring equipment, therefore, is also an important FHP research need.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Title: Force Health Protection, Advanced Diagnostics/Therapeutics Research & Development (Budgeted) (Air Force)	9.192	9.504	9.725
Description: This project area seeks to deliver improved capabilities across the full spectrum of operations in the areas of Directed Energy and Occupational and Environmental Health. Research in the Directed Energy sub-project area seeks to develop technologies to "detect to warn" and "detect to protect" AF operators such that they can take appropriate actions to prevent or minimize exposure leading to adverse health effects. Research in the Occupational and Environmental Health sub-project area involves the assessment and implementation of innovative new technologies that enable effective surveillance, detection, identification, and mitigation of hazardous chemical, biological, and physical hazards that present a health risk to our forces and threaten to degrade and disrupt the missions they execute. Air Force FHP efforts focus on health protection across the spectrum of AF air and ground operations. These include hazards presented to high performance and high flyer aircraft crews facing extreme environments within their flight envelopes that are potentially more sensitive to physiologic and cognitive			

Exhibit R-2A, RDT&E Project Justification: PB 2019 Defense Health Agency		Date: February 2018
Appropriation/Budget Activity 0130 / 2	**R-1 Program Element (Number/Name)** PE 0603115DHA / *Medical Technology Development*	**Project (Number/Name)** 307B / *Force Health Protection, Advanced Diagnostics/Therapeutics Research & Development (Budgeted) (AF)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
stressors and rely on aircraft systems to provide life support for protection. Because Air Force installations are typically very strategically important in combat execution, they are more often tied to performing ops at fixed locations; therefore, they drive the need to detect and identify the USAF- and environment-specific risks posed by chemical, biological, directed energy, and other radiological and physical hazards immediately and on-site so that operations can be resumed as quickly as possible. This requires enhanced monitoring capability, such as man-portable gold-standard hazard detection. Research is needed to improve these capabilities and to account for emerging threats. The mission needs driving the ability to detect also drives the need to rapidly reduce or mitigate threats once discovered. State of the art detection and monitoring equipment, therefore, is also an important FHP research need. ***FY 2018 Plans:*** Continue the investigation of biomarkers associated with laser lesions, which is exploring the biophysical interactions between directed energy and biological tissue at optical frequencies. Continue developing a retinal injury atlas database for use by clinicians and further apply data to perform a bioinformatics-based analysis of retinal injury treatment alternatives. Continue studying high-powered microwave exposures to establish dose-response relationships. Continue developing and testing prototype devices to detect and quantify lasers used to illuminate aircraft and characterize the health threat to exposed aircrew and pilots. Continue research to develop miniaturized sensors to identify hypoxic/toxic aircrew environments. Continue research to perform high-content, rapid throughput screening with pluripotent cells allowing for rapid determination of possible toxic threats in the aerospace environment. Continue to evaluate leading causes of missed training time and medical attrition from training, significantly affect military readiness, to improve the health and well-being of trainees and active duty service members; save significant money from the associated medical and non-medical costs, including long-term disability costs; and improve operational readiness by eliminating disruptions in the training pipeline. Continue study to evaluate breath biomarkers as diagnostic for influenza A. Examine alternate tinnitus management techniques using blood-oxygen-level-dependent MRI with neurofeedback. Evaluate genetic markers for musculoskeletal injuries and ailments. Continue response to fighter aircraft physiological events with R&D analysis of pilot breath and air cabin environment. Continue development and characterization of air quality sensing packages for aerospace environment and air supplies to determine health hazards and implement mitigations. Continue contaminant and exposure characterization. Perform field testing of smaller/more capable sensors for monitoring remote environmental health hazards and physiological parameters. Continue identifying and characterizing health effects associated with exposure to AF-relevant emerging exposure hazards; nanomaterials, directed energy weapons, newly detected operational chemicals. Develop nanoparticle sensing prototype for infectious disease threat identification and surveillance. Address the enhancement of health risk assessment capabilities to detect measure and assess biological, chemical, directed energy and other physical contaminants in the environment during deployments and operations, mitigating the consequences of hazardous health exposures and allowing for the restoration of safe use of essential contaminated resources. Develop new and innovative technologies to detect and assess hazardous chemical, biological, and physical agents relevant to AF deployment and garrison			

Exhibit R-2A, RDT&E Project Justification: PB 2019 Defense Health Agency		Date: February 2018
Appropriation/Budget Activity 0130 / 2	**R-1 Program Element (Number/Name)** PE 0603115DHA / *Medical Technology Development*	**Project (Number/Name)** 307B / *Force Health Protection, Advanced Diagnostics/Therapeutics Research & Development (Budgeted) (AF)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
operations. Initiate studies identified the Problem Definition Study (PDS) and research strategy to detect and characterize airborne pollution hazards (to include burn pits) in the deployed environment. Continue field testing of smaller/more capable sensors for monitoring remote environmental health hazards and physiological parameters. Continue identifying and characterizing health effects associated with exposure to AF-relevant nanomaterials. Develop capabilities to efficiently and effectively continuously monitor personnel exposures, securely transmit the information and capture in searchable database for future reference. Perform assessment of subtle cognitive and respiratory effects of low-level exposures from low-level exposures in the challenging environments associated with AI operations. Develop capabilities to efficiently and effectively continuously monitor personnel exposures, securely transmit the information and capture in searchable database for future reference. Perform assessment of subtle cognitive and respiratory effects of low-level exposures from low-level exposures in the challenging environments associated with AI operations. Continue to evaluate leading causes of missed training time and medical attrition from training, significantly affect military readiness, to improve the health and well-being of trainees and active duty service members; save significant money from the associated medical and non-medical costs, including long-term disability costs; and improve operational readiness by eliminating disruptions in the training pipeline. Continue study to evaluate breath biomarkers as diagnostic for influenza A. Examine alternate tinnitus management techniques using blood-oxygen-level-dependent MRI with neurofeedback. Evaluate genetic markers for musculoskeletal injuries and ailments. Develop and validate devices or methods that are extremely light weight and easy to use for Air Force Special Operators to diagnose pathogens with almost no medical support in the field. Perform comprehensive study of aircraft breathing air quality across the Air Force fleet to ensure risks are understood and mitigated if needed. Develop capabilities for remote sensing of environmental hazards. Develop capabilities to efficiently and effectively continuously monitor personnel exposures, securely transmit the information and capture in searchable database for future reference. Perform assessment of subtle cognitive and respiratory effects of low-level exposures from low-level exposures in the challenging environments associated with AI operations. Initiate development of automated algorithms that incorporate environmental sensor and risk assessment to determine appropriate mitigation actions in real time as hazards are presented in-flight and in ground operations. Continue to study the role of the gut microbiome relevance to deployed airmen health and performance. Continue early detection, real time prediction of bioenvironmental impact, disease outbreak and intervention, data analytics and information sharing. Continue development and demonstration of the rapid transition of analytics tools that convert a multitude of health related data sources into actionable information based on operational context. Develop a communications platform that can collected exposure and health care data from multiple sources and transmit that data in a compressed format.			
FY 2019 Plans:			

Exhibit R-2A, RDT&E Project Justification: PB 2019 Defense Health Agency		Date: February 2018
Appropriation/Budget Activity 0130 / 2	**R-1 Program Element (Number/Name)** PE 0603115DHA / *Medical Technology Development*	**Project (Number/Name)** 307B / *Force Health Protection, Advanced Diagnostics/Therapeutics Research & Development (Budgeted) (AF)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Develop Force and Individual Comprehensive Health Protection System (FInCH) that knows an individual health threat environment and assesses, documents, and informs actions on a real-time basis. Continue to evaluate leading causes of missed training time and medical attrition from training, significantly affect military readiness, to improve the health and well-being of trainees and active duty service members; save significant money from the associated medical and non-medical costs, including long-term disability costs; and improve operational readiness by eliminating disruptions in the training pipeline. Continue study to evaluate breath biomarkers as diagnostic for influenza A. Examine alternate tinnitus management techniques using blood-oxygen-level-dependent MRI with neurofeedback. Evaluate genetic markers for musculoskeletal injuries and ailments. Develop capabilities for remote sensing of environmental hazards. Develop capabilities to efficiently and effectively continuously monitor personnel exposures, securely transmit the information and capture in searchable database for future reference. Perform assessment of subtle cognitive and respiratory effects of low-level exposures from low-level exposures in the challenging environments associated with AI operations. Initiate development of automated algorithms that incorporate environmental sensor and risk assessment to determine appropriate mitigation actions in real time as hazards are presented in-flight and in ground operations. Continue early detection, real time prediction of bioenvironmental impact, disease outbreak and intervention, data analytics and information sharing. Continue development and demonstration of the rapid transition of analytics tools that convert a multitude of health related data sources into actionable information based on operational context. Develop a communications platform that can collected exposure and health care data from multiple sources and transmit that data in a compressed format. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Pricing Adjustment.			
Accomplishments/Planned Programs Subtotals	9.192	9.504	9.725

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

Interagency Agreements and Interservice Support Agreements with the US Army, US 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 Announcement (BAA) and Intramural calls for proposal are used to award initiatives in this program and 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 2019 Defense Health Agency		Date: February 2018
Appropriation/Budget Activity 0130 / 2	**R-1 Program Element (Number/Name)** PE 0603115DHA / *Medical Technology Development*	**Project (Number/Name)** 307B / *Force Health Protection, Advanced Diagnostics/Therapeutics Research & Development (Budgeted) (AF)*

E. Performance Metrics

Individual initiatives are measured through a quarterly annual project performance reporting system and program management review process -- performance is measured against standardized criteria for cost, schedule and performance (technical objectives) and key performance parameters. Variances, deviations and/or breaches in key areas are reviewed and a decision is rendered on any adjustments through a formalized process of S&T governance.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Defense Health Agency			Date: February 2018
Appropriation/Budget Activity 0130 / 2	R-1 Program Element (Number/Name) PE 0603115DHA / *Medical Technology Development*	Project (Number/Name) 307C / *Core Force Health Protection R&D - Clinical Translational Focus (AF)*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
307C: *Core Force Health Protection R&D - Clinical Translational Focus (AF)*	0.545	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 seeks to deliver improved capabilities across the full spectrum of operations in the areas of Directed Energy and Occupational and Environmental Health. Research in the Directed Energy sub-project area seeks to develop technologies to "detect to warn" and "detect to protect" AF operators such that they can take appropriate actions to prevent or minimize exposure leading to adverse health effects. Research in the Occupational and Environmental Health sub-project area involves the assessment and implementation of innovative new technologies that enable effective surveillance, detection, identification, and mitigation of hazardous chemical, biological, and physical hazards that present a health risk to our forces and threaten to degrade and disrupt the missions they execute. Air Force FHP efforts focus on health protection across the spectrum of AF air and ground operations. These include hazards presented to high performance and high flyer aircraft crews facing extreme environments within their flight envelopes that are potentially more sensitive to physiologic and cognitive stressors and rely on aircraft systems to provide life support for protection. Because Air Force installations are typically very strategically important in combat execution, they are more often tied to performing ops at fixed locations; therefore, they drive the need to detect and identify the USAF and environment-specific risks posed by chemical, biological, directed energy, and other radiological and physical hazards immediately and on-site so that operations can be resumed as quickly as possible. This requires enhanced monitoring capability, such as man-portable gold-standard hazard detection. Research is needed to improve these capabilities and to account for emerging threats. The mission needs driving the ability to detect also drives the need to rapidly reduce or mitigate threats once discovered. State of the art detection and monitoring equipment, therefore, is also an important FHP research need.

B. Accomplishments/Planned Programs ($ in Millions)

N/A

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

Interagency Agreements and Interservice Support Agreements with the US Army, US 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 Announcement (BAA) and Intramural calls for proposal are used to award initiatives in this program and 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 2019 Defense Health Agency		Date: February 2018
Appropriation/Budget Activity 0130 / 2	**R-1 Program Element (Number/Name)** PE 0603115DHA / *Medical Technology Development*	**Project (Number/Name)** 307C / *Core Force Health Protection R&D - Clinical Translational Focus (AF)*

E. Performance Metrics

Individual initiatives are measured through a quarterly annual project performance reporting system and program management review process -- performance is measured against standardized criteria for cost, schedule and performance (technical objectives) and key performance parameters. Variances, deviations and/or breaches in key areas are reviewed and a decision is rendered on any adjustments through a formalized process of S&T governance.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Defense Health Agency			Date: February 2018
Appropriation/Budget Activity 0130 / 2	**R-1 Program Element (Number/Name)** PE 0603115DHA / *Medical Technology Development*	**Project (Number/Name)** 307D / *Core Force Health Protection R&D - Aerospace Medicine/Human Performance Focus (AF)*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
307D: *Core Force Health Protection R&D - Aerospace Medicine/Human Performance Focus (AF)*	0.400	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 area conducts research to identify, evaluate and control occupational hazards in the workplace-including all settings such as deployed, in the aircraft, in the industrial (in garrison) environment or during emergency response. Information gained means risks are more fully understood with respect to potential mission impact or long-term health effect (Go vs. No Go above some pre-defined hazard level). Key focus areas include a better understanding of dosing, rates of dosing, and mechanistic effects of chemical, biological, radiological, directed energy, and other occupational exposure threats. This includes subtle cognitive effects where there is potential mission impact. Technological opportunities towards non-invasive sensing of the human and the environment are growing and can be exploited to enhance understanding of the risks and enable development of appropriate mitigation and treatment options.

B. Accomplishments/Planned Programs ($ in Millions)

N/A

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

Interagency Agreements and Interservice Support Agreements with the US Army, US 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 Announcement (BAA) and Intramural calls for proposal are used to award initiatives in this program and project following determinations of scientific and technical merit, validation of need, prioritization, selection and any necessary legal and/or regulatory approvals (IRB, etc.)

E. Performance Metrics

Individual initiatives are measured through a quarterly annual project performance reporting system and program management review process -- performance is measured against standardized criteria for cost, schedule and performance (technical objectives) and key performance parameters. Variances, deviations and/or breaches in key areas are reviewed and a decision is rendered on any adjustments through a formalized process of S&T governance.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Defense Health Agency			Date: February 2018
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 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
308B: *Expeditionary Medicine Research & Development (Budgeted) (AF)*	13.340	2.206	4.554	4.645	-	4.645	4.737	4.833	4.929	5.028	Continuing	Continuing

A. Mission Description and Budget Item Justification

This project area identifies cutting edge techniques and technologies that can be employed by AF medics during contingency operations. Sub-project areas include: Expeditionary Logistics and Expeditionary Casualty Care. Expeditionary Logistics seeks to develop/validate novel procedures, materials, techniques, and tools to reduce size and weight, optimize power requirements, and minimize logistics footprint associated with expeditionary operations. It also examines ways to standardize equipment and supplies used by medical response teams because of the increasing number of missions that find teams from different countries working together. Expeditionary Casualty Care focuses on optimizing existing and developing new casualty care tools and techniques, improving methods and techniques for remote monitoring and triage systems, identifying and mitigating issues related to casualty care in an expeditionary setting, and validation of best-fit technologies in casualty care missions.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Title: Expeditionary Medicine Research & Development (Air Force)	2.206	4.554	4.645
Description: This project area identifies cutting edge techniques and technologies that can be employed by AF medics during contingency operations. Sub-project areas include: Expeditionary Logistics and Expeditionary Casualty Care. Expeditionary Logistics seeks to develop/validate novel procedures, materials, techniques, and tools to reduce size and weight, optimize power requirements, and minimize logistics footprint associated with expeditionary operations. It also examines ways to standardize equipment and supplies used by medical response teams because of the increasing number of missions that find teams from different countries working together. Expeditionary Casualty Care focuses on optimizing existing and developing new casualty care tools and techniques, improving methods and techniques for remote monitoring and triage systems, identifying and mitigating issues related to casualty care in an expeditionary setting, and validation of best-fit technologies in casualty care missions. ***FY 2018 Plans:*** Investigate lifesaving hemorrhage control products that can be introduced to the field of combat casualty care as lifesaving interventions. Determine the efficacy of advanced hemorrhage control technologies in models of uncontrolled hemorrhage. Evaluate prehospital and en route analgesic use in traumatically injured patients to decrease post-treatment morbidity and mortality. Evaluate key components of blood to optimize initial hemostatic resuscitation and promote casualty stabilization. Characterize the effects of trauma and damage control resuscitation at the molecular level in blood from patients with exsanguination shock. Characterize the effects of pharmacological intervention on complement activation and coagulation. Evaluate the ability of complement inhibitors to reduce mortality and morbidity of trauma and hemorrhagic shock. Evaluate long-term outcomes and life-long follow-up of the injured Service Members with vascular injury to address late repair success and functional outcomes. Investigate the near and long-term microvascular damage on normal intimal tissue caused by thoracic			

Exhibit R-2A, RDT&E Project Justification: PB 2019 Defense Health Agency		Date: February 2018
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)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
endograft stents as the first endovascular therapeutic modality for aortic tears. Evaluate the efficacy of Extra-corporeal life support technologies for “suspended animation” approaches that apply both pharmacological and physiological modalities for reducing the impact of metabolism and cellular damage following traumatic injury. Establish Swine Mesenchymal Stromal Cell Library for use in pre-clinical and translational research pertaining to acute lung injury and adjunct therapies for “suspended animation” technologies. Evaluate the current capability gap of emergency preservation and resuscitation for patient transport to higher echelons of care. Perform Selective Aortic Arch Perfusion (SAAP) to treat both uncontrolled hemorrhage and to induce suspended animation by profound hypothermia. Determine optimal infusion solutions and delivery paradigm for inducing hypothermic arrest in a model of noncompressible torso hemorrhage with a SAAP catheter. Determine the ability to improve the practicality of using SAAP by testing new and advanced SAAP mechanical components, pumps, catheters, and oxygenators. Continue research and development of therapeutic interventions to sustain life through transfer to definitive care to include research on blood sparing drugs for hemorrhagic shock resuscitation and treatment for neuroprotection, cryopreserved blood products, rhabdomyolysis and ischemia-reperfusion injury. Transition multi-channel negative pressure wound treatment system to advanced development. Support advanced development of TS-VIS if necessary. Continuation of studies to test and compare point of care testing devices for field use. Continue identification of biomarkers and development of decision support algorithms which predict the need for life saving interventions and non-invasively estimate current and future intracranial pressure and neurologic status. Continue research addressing needs related to Expeditionary Casualty Care and Expeditionary Logistics. Investigate lifesaving hemorrhage control product that can be introduced to the field of combat casualty care as lifesaving interventions. Investigate novel targeted intravascular therapeutics which provides hemorrhage control. Pilot the use of ECMO and developing closed loop control. Continue to investigate small molecules which modulate the immune system and the response to trauma. Investigate lifesaving hemorrhage control products that can be introduced to the field of combat casualty care as lifesaving interventions. Determine the efficacy of advanced hemorrhage control technologies in models of uncontrolled hemorrhage. Evaluate prehospital and en route analgesic use in traumatically injured patients to decrease post-treatment morbidity and mortality. Evaluate key components of blood to optimize initial hemostatic resuscitation and promote casualty stabilization. Characterize the effects of trauma and damage control resuscitation at the molecular level in blood from patients with exsanguination shock. Characterize the effects of pharmacological intervention on complement activation and coagulation. Evaluate the ability of complement inhibitors to reduce mortality and morbidity of trauma and hemorrhagic shock. Evaluate long-term outcomes and life-long follow-up of the injured Service Members with vascular injury to address late repair success and functional outcomes. Investigate the near and long-term microvascular damage on normal intimal tissue caused by thoracic endograft stents as the first endovascular therapeutic modality for aortic tears. Evaluate the efficacy of Extra-corporeal life support technologies for “suspended animation” approaches that apply both pharmacological and physiological modalities for reducing the impact of metabolism and cellular damage following traumatic injury. Establish Swine Mesenchymal Stromal Cell Library			

Exhibit R-2A, RDT&E Project Justification: PB 2019 Defense Health Agency		Date: February 2018
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)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
for use in pre-clinical and translational research pertaining to acute lung injury and adjunct therapies for “suspended animation” technologies. Evaluate the current capability gap of emergency preservation and resuscitation for patient transport to higher echelons of care. Perform Selective Aortic Arch Perfusion (SAAP) to treat both uncontrolled hemorrhage and to induce suspended animation by profound hypothermia. Determine optimal infusion solutions and delivery paradigm for inducing hypothermic arrest in a model of noncompressible torso hemorrhage with a SAAP catheter. Determine the ability to improve the practicality of using SAAP by testing new and advanced SAAP mechanical components, pumps, catheters, and oxygenators.			
FY 2019 Plans: Continue research and development of therapeutic interventions to sustain life through transfer to definitive care to include research on blood sparing drugs for hemorrhagic shock resuscitation and treatment for cryopreserved blood products, rhabdomyolysis, neuroprotection, and ischemia-reperfusion injury. Transition multi-channel negative pressure wound treatment system to advanced development. Continue research addressing needs related to Expeditionary Casualty Care and Expeditionary Logistics. Continue to evaluate novel hemorrhage control products that utilize alternative technologies to active hemostatic coatings to provide a lower-cost, safer and more versatile solution to various hemorrhage control pathologies across the continuum of care. Demonstrate feasibility of training AHR to Level II/III emergency care providers to increase survivability of hemorrhage induced traumatic cardiac arrest. Evaluate Cell-free DNA as an Injury Severity Marker in traumatic brain injury and acute lung injury. Assess the use of the Abdominal Aortic and Junctional Tourniquet (AAJT) during CPR after traumatic cardiac arrest and as a Stop-Gap for Resuscitative Endovascular Balloon Occlusion of the Aorta (REBOA) insertion. Determine the comparative benefit of prolonged exposure to an FDA approved complement inhibitor in a pre-/early hospital swine model of polytrauma. Evaluate sustained release, stimuli responsive, smart hydrogels for prevention, modulation and management of acute pain. Continue characterization of early biomarkers in a swine model of polytrauma. Optimize REBOA and ECLS to treat combat relevant trauma at ground level and high altitude. Compare utility of standard left lateral thoracotomy vs. modified bilateral “clam shell” thoracotomy by emergency physicians. Evaluate hydroxocobalamin for neuroprotection and survival in a hemorrhagic swine model of traumatic brain ischemia. Evaluation of Stem-Cell Based Therapeutics for protection from Acute Lung Injury and Acute Respiratory Distress Syndrome. Assessment of a pharmacologic blockade of Interleukin-1 (IL-1) signaling to promote systemic and cerebral protection after hemorrhagic shock and traumatic brain injury. Evaluation of the mitigation of burn injury severity and infection rates using a novel dressing that targets multiple burn-related pathologies. Evaluation of prolonged field care resuscitation guided by blood pressure versus cerebral perfusion in a swine model of hemorrhage and traumatic brain injury. Evaluate the efficacy of prophylactically reducing post-trauma sepsis risks with TLR8 agonists. Transition multi-channel negative pressure wound treatment system to advanced development. Support advanced development of TS-VIS if necessary. Continuation of studies to test and compare point of care testing devices for field use. Continue identification of biomarkers and development of decision support algorithms which predict the need for life saving interventions and non-invasively estimate current and future intracranial pressure and neurologic status. Continue research addressing needs related to Expeditionary Casualty Care and Expeditionary Logistics. Investigate lifesaving hemorrhage control product that can			

Exhibit R-2A, RDT&E Project Justification: PB 2019 Defense Health Agency		Date: February 2018
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)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
be introduced to the field of combat casualty care as lifesaving interventions. Investigate novel targeted intravascular therapeutics which provides hemorrhage control. Pilot the use of ECMO and developing closed loop control. Continue to investigate small molecules which modulate the immune system and the response to trauma. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Pricing Adjustment.			
Accomplishments/Planned Programs Subtotals	2.206	4.554	4.645

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

Interagency Agreements and Interservice Support Agreements with the US Army, US 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 Announcement (BAA) and Intramural calls for proposal are used to award initiatives in this program and project following determinations of scientific and technical merit, validation of need, prioritization, selection and any necessary legal and/or regulatory approvals (IRB, etc.)

E. Performance Metrics

Individual initiatives are measured through a quarterly annual project performance reporting system and program management review process -- performance is measured against standardized criteria for cost, schedule and performance (technical objectives) and key performance parameters. Variances, deviations and/or breaches in key areas are reviewed and a decision is rendered on any adjustments through a formalized process of S&T governance.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Defense Health Agency			Date: February 2018
Appropriation/Budget Activity 0130 / 2	R-1 Program Element (Number/Name) PE 0603115DHA / *Medical Technology Development*	Project (Number/Name) 308C / *Core Expeditionary Medicine R&D - Clinical Translational Focus (AF)*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
308C: *Core Expeditionary Medicine R&D - Clinical Translational Focus (AF)*	1.503	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 area identifies cutting edge techniques and technologies that can be employed by AF medics during contingency operations. Sub-project areas include: Expeditionary Logistics and Expeditionary Casualty Care. Expeditionary Logistics seeks to develop/validate novel procedures, materials, techniques, and tools to reduce size and weight, optimize power requirements, and minimize logistics footprint associated with expeditionary operations. It also examines ways to standardize equipment and supplies used by medical response teams because of the increasing number of missions that find teams from different countries working together. Expeditionary Casualty Care focuses on optimizing existing and developing new casualty care tools and techniques, improving methods and techniques for remote monitoring and triage systems, identifying and mitigating issues related to casualty care in an expeditionary setting, and validation of best-fit technologies in casualty care missions.

B. Accomplishments/Planned Programs ($ in Millions)

N/A

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

SEE PROJECT CODE 308B PROGRAM FUNDING SUMMARY FOR PROJECT CODE 308C WHICH IS A SUMMARY OF OTHER PROGRAM FUNDING SUPPORT TO ALL PROJECTS AND PROGRAMS IN THIS PE FOR DHP-AF

D. Acquisition Strategy

Interagency Agreements and Interservice Support Agreements with the US Army, US 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 Announcement (BAA) and Intramural calls for proposal are used to award initiatives in this program and project following determinations of scientific and technical merit, validation of need, prioritization, selection and any necessary legal and/or regulatory approvals (IRB, etc.)

E. Performance Metrics

Individual initiatives are measured through a quarterly annual project performance reporting system and program management review process -- performance is measured against standardized criteria for cost, schedule and performance (technical objectives) and key performance parameters. Variances, deviations and/or breaches in key areas are reviewed and a decision is rendered on any adjustments through a formalized process of S&T governance.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Defense Health Agency			Date: February 2018
Appropriation/Budget Activity 0130 / 2	R-1 Program Element (Number/Name) PE 0603115DHA / *Medical Technology Development*	Project (Number/Name) 308D / *Core Expeditionary Medicine R&D - Aerospace/Human Performance Focus (AF)*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
308D: *Core Expeditionary Medicine R&D - Aerospace/ Human Performance Focus (AF)*	1.502	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 area seeks to standardize training in use of deployed equipment and supplies because of the increasing number of missions that find teams from different countries working together. Evaluation of skills required in an environment with a lack of air dominance and vast geographic distances in future theaters that increases the tactical field care required and tactical evacuation care phases of casualty care in Role II care that may be unavailable for up to 48 hrs after injury and casualties will be maintained by field providers. Determination of what is required to train peacetime military care providers military medical providers with minimal experience in pre-hospital or acute trauma/critical care yet expert delivery of this care is absolutely required in an austere, isolated environment.

B. Accomplishments/Planned Programs ($ in Millions)

N/A

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

SEE PROJECT CODE 308B PROGRAM FUNDING SUMMARY FOR PROJECT CODE 308D WHICH IS A SUMMARY OF OTHER PROGRAM FUNDING SUPPORT TO ALL PROJECTS AND PROGRAMS IN THIS PE FOR DHP-AF

D. Acquisition Strategy

Interagency Agreements and Interservice Support Agreements with the US Army, US 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 Announcement (BAA) and Intramural calls for proposal are used to award initiatives in this program and project following determinations of scientific and technical merit, validation of need, prioritization, selection and any necessary legal and/or regulatory approvals (IRB, etc.)

E. Performance Metrics

Individual initiatives are measured through a quarterly annual project performance reporting system and program management review process -- performance is measured against standardized criteria for cost, schedule and performance (technical objectives) and key performance parameters. Variances, deviations and/or breaches in key areas are reviewed and a decision is rendered on any adjustments through a formalized process of S&T governance.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Defense Health Agency			Date: February 2018
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 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
309A: *Regenerative Medicine (USUHS)*	31.071	9.520	7.373	8.327	-	8.327	10.209	10.413	10.621	10.833	Continuing	Continuing

A. Mission Description and Budget Item Justification

For the Uniformed Services University of the Health Sciences (USUHS), 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 2017	FY 2018	FY 2019
Title: Regenerative Medicine (USUHS)	9.520	7.373	8.327

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 119 research projects.

FY 2018 Plans:

CNRM objectives include: (1) Continue interdisciplinary, collaborative studies that bring together expertise across USU, WRNMMC, and intramural NIH to address the highest priority TBI research in diagnosis through treatment and recovery as relevant to military service members; (2) Continue operational capability of all Cores to provide efficient research infrastructure with high quality resources and technical expertise; (3)Fund Clinical Trials Unit and start-up research of one new USU faculty member to develop clinical research capability; (4) Define focus areas of next research stage and best funding format for those directions, optimize research teams, and support new research projects pending availability of FY18 funding; (5) Disseminate findings of CNRM basic, translational, and clinical research; (6) Host internal CNRM data discussions to foster cross-fertilization of expertise and innovative development across basic, translational, and clinical research; (7) Host annual research symposium to foster interaction between CNRM investigators and other local research organizations; (8) Support open data access to completed clinical studies to qualified federal and academic investigators; (9) Provide human brain and biofluids specimens for use in approved research protocols within CNRM and to other qualified federal and academic investigators; (10) Partner with other funding agencies and commercial entities to advance translation of CNRM research;(11) Support fellowship program to facilitate neuroscience and regenerative medicine research capabilities at DoD sites in NCA; (12) Participate on the Traumatic Brain Injury (TBI) Research Synergy Board (RSB) and contribute to the TBI “Unity of Effort” to strategically strengthen and accelerate TBI research on “America’s Health Campus;” (13) Utilize Biospecimen Bank of blood specimens linked to MRI and clinical assessment data in longitudinal studies of TBI patients and relevant comparison cohorts; (14) Brain Tissue Repository of brains donated from military TBI patients, including state-of-the-art neuropathological analysis of blast cases and relevant comparison cohorts;

Exhibit R-2A, RDT&E Project Justification: PB 2019 Defense Health Agency		Date: February 2018
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 2017	FY 2018	FY 2019
(15) Deployment of multi-modal forms of advanced imaging technology for diagnosis of TBI, with and without co-morbid PTSD, including MRI-PET, hyperacute MRI, and novel diffusion imaging techniques such as Mean Apparent Propagator; (16) Creation of Work flow pipeline for accurate and efficient analysis of neuroimaging data relevant to TBI, including quantitative analysis of microhemorrhages, traumatic meningeal injury, and white matter abnormalities; (17) Utilize multiple animal models involving multiple species for improved analysis of acute and chronic effects of TBI relevant to the warfighter, including blast exposure, repetitive injury, and stress conditions.			
FY 2019 Plans: FY19 Plans: CNRM objectives include: (1) Continue interdisciplinary, collaborative studies that bring together expertise across USU, WRNMMC, and intramural NIH to address the highest priority TBI research in diagnosis through treatment and recovery as relevant to military service members; (2) Continue operational capability of all Cores to provide efficient research infrastructure with high quality resources and technical expertise; (3)Develop Clinical Trials Unit and expand clinical research capability to increase the number of interventional trials ; (4) Define focus areas of next research stage and best funding format for those directions, optimize research teams, and support new research projects pending availability of FY19 funding; (5) Disseminate findings of CNRM basic, translational, and clinical research; (6) Host CNRM retreat and internal data discussions to foster cross-fertilization of expertise and innovative development across basic, translational, and clinical research; (7) Host annual research symposium to foster interaction between CNRM investigators and other local research organizations; (8) Support open data access to completed clinical studies to qualified federal and academic investigators; (9) Provide human brain and biofluids specimens for use in approved research protocols within CNRM and to other qualified federal and academic investigators; (10) Partner with other funding agencies and commercial entities to advance translation of CNRM research;(11) Support fellowship program to facilitate neuroscience and regenerative medicine research capabilities at DoD sites in NCA; (12) Participate on the Traumatic Brain Injury (TBI) Research Synergy Board (RSB) and contribute to the TBI “Unity of Effort” to strategically strengthen and accelerate TBI research on “America’s Health Campus;” (13) Utilize Biospecimen Bank of blood specimens linked to MRI and clinical assessment data in longitudinal studies of TBI patients and relevant comparison cohorts; (14) Brain Tissue Repository of brains donated from military TBI patients, including state-of-the-art neuropathological analysis of blast cases and relevant comparison cohorts; (15) Deployment of multi-modal forms of advanced imaging technology for diagnosis of TBI, with and without co-morbid PTSD, including MRI-PET, hyperacute MRI, and novel diffusion imaging techniques such as Mean Apparent Propagator; (16) Creation of Work flow pipeline for accurate and efficient analysis of neuroimaging data relevant to TBI, including quantitative analysis of microhemorrhages, traumatic meningeal injury, and white matter abnormalities; (17) Utilize multiple animal models involving multiple species for improved analysis of acute and chronic effects of TBI relevant to the warfighter, including blast exposure, repetitive injury, and stress conditions.			
FY 2018 to FY 2019 Increase/Decrease Statement:			

Exhibit R-2A, RDT&E Project Justification: PB 2019 Defense Health Agency		Date: February 2018
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 2017	FY 2018	FY 2019
Pricing Adjustment.			
Accomplishments/Planned Programs Subtotals	9.520	7.373	8.327

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
• BA-1, 0806721HP: *Uniformed Services University of the Health Sciences*	9.272	9.458	9.647	-	9.647	9.840	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

N/A

E. Performance Metrics

Center for Neuroscience and Regenerative Medicine: In FY16 through FY19, identify, design protocols, perform scientific and program reviews, and conduct research in Clinical Core activities such as Phenotyping, Imaging and Imaging Analysis, to aid in patient diagnosis and evaluation.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Defense Health Agency			Date: February 2018
Appropriation/Budget Activity 0130 / 2	R-1 Program Element (Number/Name) PE 0603115DHA / *Medical Technology Development*	Project (Number/Name) 373A / *GDF - Medical Technology Development*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
373A: *GDF - Medical Technology Development*	508.755	135.552	126.790	128.578	-	128.578	130.412	139.561	143.781	146.566	Continuing	Continuing

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 six Joint Program Committees: 1- Medical Simulation and Information Sciences research aims to coordinate health information technology, simulation, and training research across the Military Health System. Technology development efforts are directed toward the medical simulation task. 2- Military Infectious Diseases research is developing protection and treatment products for military relevant infectious diseases. 3- 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 fitness of Service members. 4- 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. 5- Radiation Health Effects research focuses on technology development of acute radiation exposure medical countermeasures development. 6- Clinical and Rehabilitative Medicine research is developing knowledge and materiel products to reconstruct, rehabilitate, and provide care for injured Service members. Technology development efforts are directed against tasks in neuromusculoskeletal rehabilitation, pain management, regenerative medicine, and sensory systems.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Title: GDF – Medical Technology Development	135.552	126.790	128.578
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 2018 Plans: Medical simulation and information sciences technology maturation is focusing on developing and integrating pharmacodynamics and pharmacokinetics algorithms into an open source physiology research engine that is used to support a repository that contains simulated pharmaceuticals and other resuscitative treatments that are the most relevant to point of injury and en route care training. It is incorporating the side effects of the drugs and drug/drug interactions to elicit how to deal with additional acute reactions. This repository is designed to improve medical simulation and training. Research also is also focusing on assessment system tools with emphasis on combat casualty care training. Synthetic materials are being optimized for part-task mannequins, full body mannequins, or peripherals that could be used on the Advanced Modular Manikin in order to better represent tissues under different environments.			

Exhibit R-2A, RDT&E Project Justification: PB 2019 Defense Health Agency		Date: February 2018
Appropriation/Budget Activity 0130 / 2	**R-1 Program Element (Number/Name)** PE 0603115DHA / *Medical Technology Development*	**Project (Number/Name)** 373A / *GDF - Medical Technology Development*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Military infectious diseases research continues to support the inter-service efforts between DoD clinical and research and development groups to develop novel and innovative therapeutics and delivery technologies for combat wound infections. Ongoing multi-year studies addressing critical research focus areas in wound infections, such as improved treatment options for infections with multi-drug resistant organisms, are also being supported. These efforts are in alignment with the National Action Plan for Combating Antibiotic-Resistant Bacteria. Results of studies to develop antibacterial and clinical practice guidelines for better wound infection management are being evaluated in order to down-select promising solutions. Efforts aimed at partnering with other entities to rapidly accelerate promising, innovative drug and vaccine solutions to combat emerging infectious diseases (e.g., Chikungunya, MERS, Zika) are ongoing. Military operational medicine: Researchers continue to collect blast exposure data to validate whole body models of blast injury exposure in the training environment. Refining and improving predictive auditory injury models in order to update acoustic injury standards for health hazard assessment. Developing tools to optimize return to duty after lower extremity (foot and ankle) injury, and head supported mass acute injury predictive models for mounted and dismounted environments. Collecting data to improve multisensory cueing criteria for aircrew performance optimization in degraded visual environments. Evaluating longitudinal data collected for dietary supplement use with correlation to usage patterns with associated negative and positive health effects. Providing guidance on the effects of healthy cooking for food choice behaviors, nutritional status, and psychological states in wounded Warriors and their families. Evaluating the physical demands associated with selection to historically male military occupations to develop gender-neutral Military Occupational Specialty assignment standards. Conducting research aimed at delivering assessment, prevention, and treatment interventions and tools that mitigate substance abuse, including prescription drug misuse and alcohol and other drug abuse. Developing interventions to prevent suicide behaviors and conduct clinical trials to test the efficacy of the interventions. Continuing efforts toward delivering resilience building/prevention programs focused on education, skills, and novel service delivery methods for Service member and Family resilience. Concluding several large scale intervention studies evaluating pharmacologic (drug action), psychotherapy, and augmented psychotherapy (virtual reality and/or pharmacologic cognitive enhancement) treatments for PTSD. Using newly built and existing large-scale PTSD datasets and state-of-the-art analytic methods to produce individualized treatment guidelines for PTSD as well as PTSD-related sleep disturbances. Validating candidate biomarkers of exposure to inhaled or ingested toxic substances and developing medical guidance for risk assessment of adverse health outcomes. Conducting research to provide validated metrics for optimized operational task performance in extreme environments. Validating novel methods for estimating thermal strain from non-invasive measures. Combat casualty care hemorrhage research is evaluating immune system modulating drugs to treat hemorrhagic shock with a focus on the time period of 4 to 72 hours post injury (relevant to prolonged field care). Research is continuing on the pathophysiological (functional changes associated with injury) impacts of using advanced hemorrhage (bleeding) control and resuscitation approaches in prolonged field care scenarios where evacuation may be delayed. In animal studies, oxygen delivery solutions that can be infused to maintain survivability are being evaluated for potential use in severe casualties where blood			

Exhibit R-2A, RDT&E Project Justification: PB 2019 Defense Health Agency		Date: February 2018
Appropriation/Budget Activity 0130 / 2	**R-1 Program Element (Number/Name)** PE 0603115DHA / *Medical Technology Development*	**Project (Number/Name)** 373A / *GDF - Medical Technology Development*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
transfusion is not available. Neurotrauma research is focusing on the development of novel technologies to better assess, monitor and maintain the stability of more severely injured TBI casualties closer to point of injury and during prolonged field care. Precision medicine research is anticipated to improve the characterization of TBI, development of targeted therapies, devices, clinical guidelines, and assessment of the impact of pre-injury conditions and the environment to improve the care provided to TBI casualties. Neurotrauma research is investigating the impact of pre-injury conditions and the environment on Service member response to treatment and recovery following TBI. The program leverages data from Combat Operations to improve management of TBI by correlating injury events and medical records. Treatments for extremity trauma is continuing to develop specialized fracture stabilization techniques, address treatments for organ support and stabilization of craniomaxillofacial wounds. Pre-hospital Tactical Combat Casualty Care is developing enhanced surgical procedures and equipment. En Route Care research is continuing to develop the specifications of an integrated system to support safe patient care and hand-offs, and to develop expanded en route care interventions and treatment capabilities, to include non-invasive monitoring technologies. The military medical photonics program is developing light-based technologies and systems for combat casualty care and transition to advanced development. Particular emphasis is on creating a portable platform for photo-acoustic imaging, and demonstrating its application to detecting blood pooling in the abdomen and oxygen content in the pulmonary artery. Photochemical cross-linking (the use of light to create new molecular bonds) to strengthen veins for grafting to arteries in wounded warrior surgery is being evaluated, as are the post-surgical benefits of photochemical bonding (the use of light to create new molecular bonds) in reducing scarring and adhesions. The general theme of the medical photonics program is developing miniaturized sensors and actuators which can be inserted or implanted for important new kinds of diagnostic and therapeutic benefit. Radiation health effects research continues to evaluate therapeutic candidates and radioprotectants for acute radiation exposure, and develop data to support preparation of a technical data package for investigational new drug applications. Research is developing data to support qualification of models for use in FDA approved trials. Objectives include demonstrating improved survivability following high doses of radiation exposure with treatment at 24 hours and less after exposure. Clinical and rehabilitative medicine efforts are focused on early human trials of promising products, evaluating preclinical safety of promising treatments, and testing FDA-licensed products in the areas of neuromusculoskeletal injury, pain management, and regenerative medicine. Supporting clinical trials in neuromusculoskeletal injuries to provide products and information solutions for diagnosis, treatment and rehabilitation outcomes after Service-related injuries. Evaluating novel therapeutics and devices for pain management. Assessing chronic pain risk factors. Assessing preclinical and early clinical safety and efficacy of technologies designed to alter or regulate immune functions, skin substitutes to treat burn injury, treatments for volumetric muscle loss, treatments for segmental bone defects, and strategies for stabilization or regeneration of neuromuscular junctions for nerve injury.			
FY 2019 Plans:			

Exhibit R-2A, RDT&E Project Justification: PB 2019 Defense Health Agency		Date: February 2018
Appropriation/Budget Activity 0130 / 2	**R-1 Program Element (Number/Name)** PE 0603115DHA / *Medical Technology Development*	**Project (Number/Name)** 373A / *GDF - Medical Technology Development*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Medical simulation and information sciences technology maturation will continue to focus on developing and integrating pharmacodynamics and pharmacokinetics algorithms into an open source physiology research engine that is used to support a repository that contains simulated pharmaceuticals and other resuscitative treatments that are the most relevant to point of injury and en route care training. It will incorporate the side effects of the drugs and drug/drug interactions to elicit how to deal with additional acute reactions. This repository is designed to improve medical simulation and training. Research will also continue to focus on assessment system tools with emphasis on combat casualty care training. Will continue to optimize synthetic materials used in part-task mannequins, full body mannequins, or peripherals that could be used on the Advanced Modular Manikin in order to better represent tissues under different environments. Military infectious diseases research will continue supporting the inter-service efforts between DoD clinical and research and development groups to develop novel and innovative therapeutics and delivery technologies for combat wound infections. On-going multi-year studies addressing critical research focus areas in wound infections, such as improved treatment options for infections with multi-drug resistant organisms, will continue to be supported. These efforts will be in alignment with the National Action Plan for Combating Antibiotic-Resistant Bacteria. Results of studies to develop antibacterial agents and clinical practice guidelines for better wound infection management will continue to be evaluated for down-selection. Will continue efforts aimed at partnering with other entities to rapidly accelerate promising, innovative drug and vaccine solutions to combat emerging infectious diseases (e.g., Chikungunya, MERS, Zika). Military operational medicine: Researchers will continue to collect blast exposure data to validate whole body models of blast injury exposure in the training environment. Will continue research to refine and improve predictive auditory injury models in order to update acoustic injury standards for health hazard assessment. Will continue to develop tools to optimize return to duty after lower extremity (foot and ankle) injury, and head supported mass acute injury predictive models for mounted and dismounted environments. Will continue to collect data to improve multisensory cueing criteria for aircrew performance optimization in degraded visual environments. Will continue to evaluate longitudinal data collected for dietary supplement use with correlation to usage patterns with associated negative and positive health effects. Will continue to provide guidance on the effects of healthy cooking for food choice behaviors, nutritional status, and psychological states in Wounded Warriors and their families. Will continue studies evaluating the physical demands associated with selection to historically male military occupations to develop gender-neutral Military Occupational Specialty assignment standards. Will continue research aimed at delivering assessment, prevention, and treatment interventions and tools that mitigate substance abuse, including prescription drug misuse and alcohol and other drug abuse. Will continue efforts toward delivery of interventions to prevent suicide behaviors and conduct clinical trials to test the efficacy of the interventions. Will perform studies aimed at delivering resilience building/prevention programs focused on education, skills, and novel service delivery methods for Service member and Family resilience. Will use newly built and existing large-scale PTSD datasets and state-of-the-art analytic methods to produce individualized treatment guidelines for PTSD as well as PTSD-related sleep disturbances. Will continue to validate candidate biomarkers of exposure to inhaled or ingested toxic			

Exhibit R-2A, RDT&E Project Justification: PB 2019 Defense Health Agency		Date: February 2018
Appropriation/Budget Activity 0130 / 2	**R-1 Program Element (Number/Name)** PE 0603115DHA / *Medical Technology Development*	**Project (Number/Name)** 373A / *GDF - Medical Technology Development*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
substances and develop medical guidance for risk assessment of adverse health outcomes. Will continue to conduct research to provide validated metrics for optimized operational task performance in extreme environments. Will continue to validate novel methods for estimating thermal strain from non-invasive measures. Combat casualty care hemorrhage research will continue to evaluate immune system modulating drugs to treat hemorrhagic shock with a focus on the time period 4 to 72 hours post injury (relevant to prolonged field care). In addition, work will continue on the pathophysiological (functional changes associated with injury) impacts of using advanced hemorrhage (bleeding) control and resuscitation approaches in prolonged field care scenarios where evacuation may be delayed. Will continue animal studies to evaluate oxygen delivery solutions that can be infused to maintain survivability for potential use in severe casualties where blood transfusion is not available. Neurotrauma research will continue to focus on the development of novel technologies to better assess, monitor and maintain the stability of more severely injured TBI casualties closer to point of injury and during prolonged field care. Precision medicine research will continue to improve the characterization of TBI, develop targeted therapies, devices, clinical guidelines, the impact of pre-injury conditions and the environment to improve the care provided to TBI casualties. Furthermore, neurotrauma research will continue to investigate the impact of pre-injury conditions and the environment on Service member response to treatment and recovery following TBI. The program will also leverage data from Combat Operations to improve management of TBI by correlating injury events and medical records. Treatments for extremity trauma will continue to develop specialized fracture stabilization techniques, address treatments for organ support and stabilization of craniomaxillofacial wounds. Pre-hospital Tactical Combat Casualty Care will develop enhanced surgical procedures and equipment. En Route Care research will continue to develop the specifications of an integrated system to support safe patient care and hand-offs, and the development of expanded En Route care interventions and treatment capabilities, to include non-invasive monitoring technologies. The military medical photonics program will continue to develop light-based technologies and systems for combat casualty care and transition to advanced development. Particular emphasis will continue to be on creating a portable platform for photo-acoustic imaging, and demonstrating its application to detecting blood pooling in the abdomen and oxygen content in the pulmonary artery. Photochemical cross-linking (the use of light to create new molecular bonds) to strengthen veins for grafting to arteries in wounded warrior surgery will continue to be evaluated, as will the post-surgical benefits of photochemical bonding (the use of light to create new molecular bonds) in reducing scarring and adhesions. The general theme of the medical photonics program will be to develop miniaturized sensors and actuators which can be inserted or implanted for important new kinds of diagnostic and therapeutic benefit. Radiation health effects research will continue to evaluate therapeutic candidates and radioprotectants for acute radiation exposure, and develop data to support preparation of a technical data package for investigational new drug applications. Research will develop data to support qualification of models for use in FDA approved trials. Objectives will include demonstrating improved survivability following high doses of radiation exposure with treatment at 24 hours and less after exposure.			

Exhibit R-2A, RDT&E Project Justification: PB 2019 Defense Health Agency		Date: February 2018
Appropriation/Budget Activity 0130 / 2	**R-1 Program Element (Number/Name)** PE 0603115DHA / *Medical Technology Development*	**Project (Number/Name)** 373A / *GDF - Medical Technology Development*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Clinical and rehabilitative medicine will conduct early human trials of promising products, evaluate preclinical safety of promising treatments, and test FDA-licensed products in the areas of neuromusculoskeletal injury, pain management, and regenerative medicine. Will support clinical trials in neuromusculoskeletal injuries to provide products and information solutions for diagnosis, treatment and rehabilitation outcomes after Service-related injuries. Will assess chronic pain risk factors and evaluate novel therapeutics and devices for pain management. Will assess preclinical and early clinical safety and efficacy of technologies designed to alter or regulate immune functions, skin substitutes to treat burn injury, treatments for volumetric muscle loss, treatments for segmental bone defects, and strategies for stabilization or regeneration of neuromuscular junctions for nerve injury. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Includes $8.0 million realignment for the WRAIR research project.			
Accomplishments/Planned Programs Subtotals	135.552	126.790	128.578

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.

E. Performance Metrics

Research is evaluated through in-progress reviews, DHP-sponsored review and analysis meetings, quarterly and annual status reports, and Program Sponsor Representative's progress reviews to ensure that milestones are met and deliverables are transitioned on schedule. The benchmark performance metric for transition of research conducted with medical technology development funding is the attainment of maturity level that is typical of Technology Readiness level 6 or the equivalent for knowledge products.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Defense Health Agency			Date: February 2018
Appropriation/Budget Activity 0130 / 2	R-1 Program Element (Number/Name) PE 0603115DHA / *Medical Technology Development*	Project (Number/Name) 378A / *CoE-Breast Cancer Center of Excellence (Army)*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
378A: *CoE-Breast Cancer Center of Excellence (Army)*	39.699	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 Breast Cancer Center of Excellence 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. The objective of this research is to reduce the incidence, morbidity (illness), and mortality (death) of breast diseases and breast cancer among all military beneficiaries.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Title: Breast Cancer Center of Excellence	0.000	0.000	0.000
Description: Provides a multidisciplinary approach as the standard of care for treating breast diseases and breast cancer. ***FY 2018 Plans:*** No funding programmed. ***FY 2019 Plans:*** No funding programmed. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** N/A			
Accomplishments/Planned Programs Subtotals	0.000	0.000	0.000

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, incorporation into training curriculum throughout the Military Health System, and other applicable means.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Defense Health Agency		Date: February 2018
Appropriation/Budget Activity 0130 / 2	**R-1 Program Element (Number/Name)** PE 0603115DHA / *Medical Technology Development*	**Project (Number/Name)** 378A / *CoE-Breast Cancer Center of Excellence (Army)*

E. Performance Metrics

Performance is judged on the number of active protocols, the number of articles that appear in peer-reviewed journals, and the number of contact hours in support of the training of residents and fellows in the Military Health System.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Defense Health Agency			Date: February 2018
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 (USU)*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
378B: *CoE-Breast Cancer Center of Excellence (USU)*	0.000	10.552	9.088	10.280	-	10.280	10.475	10.685	10.898	11.116	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 2017	FY 2018	FY 2019
Title: Breast Cancer Center of Excellence	10.552	9.088	10.280
Description: Breast Cancer CoE provides a multidisciplinary approach as the standard of care for treating breast diseases and breast cancer.			
FY 2018 Plans: The Breast Cancer CoE will continue to enhance active duty female readiness through study of the increased breast cancer incidence rate in the active duty force by the process of banking biospecimens in the DoD's biorepository, using the repository for intramural/extramural collaborations and secondary usage research. Will continue to develop and improve quality assurance programs and standard operating procedures for the Tissue Bank including conducting biospecimen science research. Will continue to conduct integrative profiling research, for protein-expression based, clinically relevant breast cancer stratification on active case IHC assays of a panel of 20 ImmunoHistoChemical (IHA) biomarker and IHC assays of a panel of 27 biomarkers named Connectivity Map EnHigh Density TMA analysis of biomarkers associated with the development of endocrine resistance. Will conduct 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 African American women. Will conduct breast cancer heterogeneity studies, including cellular heterogeneity of tumor development environment and lineage heterogeneity within one physical cancer tumor. Will conduct 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 life style factors as well as comorbidities. Will conduct breast cancer drug target studies focusing on the triple negative and HER2 subtypes, using 2D and 3D tissue culturing systems and human breast cancer tissues, respectively. Will further develop the informatics infrastructure system to support the evolving needs of Breast Cancer-COE research. Will conduct integrative biomedical data analysis and develop a Breast Cancer Knowledge Base to aid clinical decision-making.			
FY 2019 Plans:			

Exhibit R-2A, RDT&E Project Justification: PB 2019 Defense Health Agency		Date: February 2018
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 (USU)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
The Breast Cancer CoE will identify and consent patients (to include patients at high risk for development of breast cancer) annually to the MCC ORIEN research study, with special focus on active duty females as a Force Protection / Readiness sustainment issue to the DoD. Will continue to accrue patients annually to the "core" BC-COE protocols through consenting patients in the main BC-COE clinical sites, with the main site being the Breast Center at the Murtha Cancer Center of Walter Reed NMMC, the military's largest and only NAPBC (National Accreditation Program for Breast Centers) approved breast center in the entire DoD MHS. Will acquire through consented protocol acquisitions, over 5,000 specimens annually (neo-plastic 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. Will bank these biospecimens in the BC-COE Biorepository as the substrate for all molecular analyses carried out in BC-COE labs, as outlined in the BC-COE Core Protocols. Will utilize the repository as the basis for intramural and extramural collaborations for secondary usage research. Will continue to conduct integrative profiling research, for protein-expression based, clinically relevant breast cancer stratification on active case IHC assays of a panel of 20 ImmunoHistoChemical (IHA) biomarker and IHC assays of a panel of 27 biomarkers named Connectivity Map EnHigh Density TMA analysis of biomarkers associated with the development of endocrine resistance. Will continue to focus breast cancer studies on two special patients groups bearing poor outcomes, who are enriched in the military active-duty military population: young women, and African American women. Will continue to conduct breast cancer heterogeneity studies, including cellular heterogeneity of tumor development environment and lineage heterogeneity within one physical cancer tumor. Focus areas will be (Breast Cancer Immunome, identification of molecular factors in tumor epithelium and stroma contributing to tumor etiology and breast cancer tumor heterogeneity study through Whole Genome Sequencing. Will conduct 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 life style factors as well as comorbidities. Will continue to conduct breast cancer drug target studies focusing on the triple negative and HER2 subtypes, using 2D and 3D tissue culturing systems and human breast cancer tissues, respectively. Will further develop the informatics infrastructure system to support the evolving needs of Breast Cancer-COE research which will include developing the replacement system for the Clinical Laboratory Workflow System that was implemented years ago, develop and improve data QA programs and SOPs and improve the Data Warehouse for Translational Research by integrating data generated by internal scientists, through collaborations, and those available in the public as needed to facilitate integrative data analysis. The Breast Cancer COE will also continue its Collaborative Translational Research Program. CBCP will fund breast specific collaborative research that addresses problems with translational potential with a focus on environmental factors and the tumor microenvironment. The translational research program will consist of numerous investigators pursuing basic research on breast specific cancer etiology and biology or translational cancer research studies. CBCP will seek to establish support of novel intramural research that has the potential to improve breast cancer outcomes. The goal is to promote collaborative translational research efforts among translational science laboratories at the Clinical Breast Care Project, WRNNMC-MCC, WRI and NCI.			
FY 2018 to FY 2019 Increase/Decrease Statement:			

Exhibit R-2A, RDT&E Project Justification: PB 2019 Defense Health Agency		Date: February 2018
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 (USU)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
N/A			
Accomplishments/Planned Programs Subtotals	10.552	9.088	10.280

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, incorporation into training curriculum throughout the Military Health System and other applicable means.

E. Performance Metrics

Performance is judged on the number of active protocols, the number of articles that appear in peer-reviewed journals, and the number of contact hours in support of the training of residents and fellows in the Military Health System.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Defense Health Agency			Date: February 2018
Appropriation/Budget Activity 0130 / 2	R-1 Program Element (Number/Name) PE 0603115DHA / *Medical Technology Development*	Project (Number/Name) 379A / *CoE-Gynecological Cancer Center of Excellence (Army)*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
379A: *CoE-Gynecological Cancer Center of Excellence (Army)*	34.939	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 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 biologic therapeutics for the management of gynecological disease. The objective of this research is to reduce the incidence, morbidity (illness), and mortality (death) of gynecological diseases among all military beneficiaries.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Title: Gynecological Cancer Center of Excellence (Army) ***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. ***FY 2018 Plans:*** No funding programmed. ***FY 2019 Plans:*** No funding programmed. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** N/A	0.000	0.000	0.000
Accomplishments/Planned Programs Subtotals	0.000	0.000	0.000

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, incorporation into training curriculum throughout the Military Health System, and other applicable means.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Defense Health Agency		Date: February 2018
Appropriation/Budget Activity 0130 / 2	**R-1 Program Element (Number/Name)** PE 0603115DHA / *Medical Technology Development*	**Project (Number/Name)** 379A / *CoE-Gynecological Cancer Center of Excellence (Army)*

E. Performance Metrics

Performance of the Gynecological Cancer Center of Excellence is judged on the number of active protocols, the number of articles that appear in peer-reviewed journals, and the number of contact hours in support of the training of residents and fellows in the Military Health System.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Defense Health Agency			Date: February 2018
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 (USU)*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
379B: *CoE-Gynecological Cancer Center of Excellence (USU)*	0.000	9.226	7.943	8.987	-	8.987	9.158	9.341	9.528	9.719	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. This is why the GYN-COE FY17 and FY18 plans are similar.

A. Mission Description and Budget Item Justification

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 objective of this research is to reduce the incidence, morbidity (illness), and mortality (death) of gynecological diseases among all military beneficiaries.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Title: Gynecological Cancer Center of Excellence	9.226	7.943	8.987
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.			
FY 2018 Plans: The FY2018 program will continue to identify molecular alterations in gynecologic cancers and develop novel strategies for prevention, early detection, and precision treatment of these diseases. This will be accomplished by investigating ovarian, uterine and cervical carcinogenesis (the initiation, progression, and metastatic spread of cancer) and drug resistance in pre-clinical and clinical biospecimens. We will develop and deploy clinical biomarkers and assays for gynecologic malignancies throughout the spectrum of care and improve clinical care and outcome through evaluation of novel therapeutics, prevention strategies, assessments and interventions in gynecological oncology using pre-clinical studies and clinical trials. We will continue to collaborate in investigations of racial and ethnic disparities, risk, outcome, natural history, lifestyle, staging and treatment in cancer including gynecologic malignancies. Military and civilian biobanks, registries, core facilities, training programs, and multidisciplinary investigations will be used to advance applied proteogenomics and organizational learning, and to ensure			

Exhibit R-2A, RDT&E Project Justification: PB 2019 Defense Health Agency		Date: February 2018
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 (USU)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
readiness, cost containment and improvements in clinical care and outcomes in gynecologic oncology. An overarching goal during this period is to advance patient awareness, education, support and survivorship to improve quality of life, patient experience and mitigate effects. These efforts enhance the experience of care, ensure readiness of the fighting force, and improve beneficiary health adding value while decreasing cost for the Department of Defense. ***FY 2019 Plans:*** The FY2019 program will continue to develop novel strategies for prevention, early detection, and precision treatment of gynecologic cancers by identifying molecular alterations in these diseases. We will deeply interrogate ovarian and uterine cancer looking at the complex interplay of tumor cells and the surrounding stroma (or physiologic niche) that supports carcinogenesis (the initiation, progression, and metastatic spread of cancer) as well as the molecular landscape of primary versus metastatic disease. These investigations will facilitate development of clinical biomarkers and assays for gynecologic malignancies throughout the spectrum of care and improve early diagnosis and clinical care. Beyond the above studies, we will continue to build on studies examining molecular determinants of recurrent versus non-recurrent disease and how distribution or disease and post-surgical tumor residual influences outcome. Deep proteogenomic analyses will extend current state of the art to reveal clinically actionable data to improve readiness by earlier detection and prevention of disease in the active duty force and decrease the economic burden of disease in the MHS which his typically diagnosed at late stages and treated without great specificity. We will expand collaborations in investigations of racial and ethnic disparities, risk, outcome, natural history, lifestyle, staging and treatment in cancer including gynecologic malignancies. Under the broad umbrella of outreach and patient reported outcomes research, an overarching goal during this period is to advance patient awareness, education, support and survivorship to improve quality of life, patient experience and mitigate effects. These efforts enhance the experience of care, ensure readiness of the fighting force, and improve beneficiary health adding value while decreasing cost for the Department of Defense. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** N/A			
Accomplishments/Planned Programs Subtotals	9.226	7.943	8.987

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 2019 Defense Health Agency		Date: February 2018
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 (USU)*

E. Performance Metrics

Performance of the Gynecological Cancer Center of Excellence is judged on the number of active protocols, the number of articles that appear in peer-reviewed journals, presentation at national and international meetings, and the number of contact hours in support of the training of residents and fellows in the Military Health System.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Defense Health Agency			Date: February 2018
Appropriation/Budget Activity 0130 / 2	R-1 Program Element (Number/Name) PE 0603115DHA / *Medical Technology Development*	Project (Number/Name) 381A / *CoE-Integrative Cardiac Health Care Center of Excellence (Army)*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
381A: *CoE-Integrative Cardiac Health Care Center of Excellence (Army)*	15.032	3.051	2.697	0.000	-	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing

A. Mission Description and Budget Item Justification

For the Integrative Cardiac Health Center of Excellence (Army), also known as the Integrative Cardiac Health Project (ICHP), the focus is the investigation of cutting edge patient-centric approaches to cardiovascular disease (CVD), risk assessment and risk reduction by incorporating biomolecular (pertaining to organic molecules occurring in living organisms) research to detect CVD at an early stage, and identifying markers of increased risk for heart attack in Service members. Using a systems biology outcomes research approach, ICHP characterizes relationships between CVD, other cardio-metabolic disease states and maladaptive lifestyle behavior patterns unique to Service members such as pre-diabetes, stress, obesity and sleep disorders with the aim of targeting these disorders in their pre-clinical phase and achieving ideal/optimal cardiovascular health goals outlined by the American Heart Association. ICHP's ultimate goal is to translate the evidence-based research findings for application into clinical practice in an effort to achieve the following research aims: (1) improve Force Health by better understanding the CVD risk susceptibility of military-specific populations such as Wounded Warriors through leading-edge research using novel tools and technologies, (2) investigate and create transformational models of healthcare delivery through personalized CVD prevention tracks as an adjunct to traditional care, and (3) refine individualized prevention strategies through statistical data modeling to define the most cost-effective and sustainable approaches in promoting cardiovascular health throughout the military lifecycle.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Title: Integrative Cardiac Health Center of Excellence (Army)	3.051	2.697	0.000
Description: The focus is the investigation of cutting edge patient-centric approaches to cardiovascular disease (CVD), risk assessment and risk reduction by combining bimolecular research with lifestyle change strategies to detect CVD at an early stage, and identifying markers of increased risk for heart attack in Service members.			
FY 2018 Plans: The Integrative Cardiac Health Center of Excellence (ICHP) will influence clinical practice guidelines by developing clinical decision support tools and new models for cardiovascular and overall health; will conduct research studies to improve the health of the Active Duty force by investigating the effectiveness of personalized (gender specific) lifestyle change interventions specifically designed for the military and the effects of these interventions on preclinical atherosclerosis (plaque in arteries). ICHP will continue recruitment in the study to investigate the effects of lifestyle intervention to improve cardiovascular health and reduce cardiovascular disease risk in AD Service members and beneficiaries especially targeting the population that are presumably fit but still vulnerable for sudden cardiac death and heart attacks. ICHP will initiate a precision medicine effort that will explore novel biomolecular markers and tests as indicators for early (preclinical) cardiovascular disease risk assessment, and discover and characterize new clinical phenotypes, detect cardiovascular disease in early stages when it is more likely to be reversible. ICHP will collaborate with Walter Reed Bethesda Cardiovascular Service, the Mayo Clinic, Abbott Laboratories, and Integrative			

Exhibit R-2A, RDT&E Project Justification: PB 2019 Defense Health Agency		Date: February 2018
Appropriation/Budget Activity 0130 / 2	**R-1 Program Element (Number/Name)** PE 0603115DHA / *Medical Technology Development*	**Project (Number/Name)** 381A / *CoE-Integrative Cardiac Health Care Center of Excellence (Army)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Systems Biology for these efforts. ICHP will use this information to tailor personalized health interventions and build resiliency in the military population before disease affects quality of life. ICHP will collaborate with the Department of Psychology within the Uniformed Services University of Health Sciences to evaluate the benefits of ICHP Cognitive Behavioral Therapy intervention to relieve insomnia. The Wounded Warriors project will explore cardiovascular risk in the amputee and injured Warfighter to include the collection of bio-samples for novel biomolecular markers designed to significantly advance the precision of risk detection to better tailor health interventions. ***FY 2019 Plans:*** No funding programmed. Beginning in FY19, the ICHP funding line is transferred from the Army to USUHS Project 381. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** No funding programmed. Beginning in FY19, the ICHP funding line is transferred from the Army to USUHS Project 381.			
Accomplishments/Planned Programs Subtotals	3.051	2.697	0.000

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 training of residents and fellows in the Military Health System

E. Performance Metrics

Integrative Cardiac Health Care Center of Excellence performance is judged on high impact discoveries, development of new diagnostic and treatment strategies, identification of emerging issues of disease feature and patterns, the amount of extramural funding received, the number of active protocols, the number of articles that appear in peer reviewed journals, and the number of contact hours in support of the training of medical students, residents and post-doctoral fellows in the Military Health System.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Defense Health Agency			Date: February 2018
Appropriation/Budget Activity 0130 / 2	R-1 Program Element (Number/Name) PE 0603115DHA / *Medical Technology Development*	Project (Number/Name) 382A / *CoE-Pain Center of Excellence (Army)*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
382A: *CoE-Pain Center of Excellence (Army)*	6.436	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 Pain Center of Excellence (Army) 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 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, the Pain CoE funding line is transferred from Army to USUHS.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Title: Pain Center of Excellence (Army)	0.000	0.000	0.000
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 the effect pain has throughout the continuum of care to rehabilitation and reintegration. ***FY 2018 Plans:*** No funding programmed. ***FY 2019 Plans:*** No funding programmed. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** N/A			
Accomplishments/Planned Programs Subtotals	0.000	0.000	0.000

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

Exhibit R-2A, RDT&E Project Justification: PB 2019 Defense Health Agency		Date: February 2018
Appropriation/Budget Activity 0130 / 2	**R-1 Program Element (Number/Name)** PE 0603115DHA / *Medical Technology Development*	**Project (Number/Name)** 382A / *CoE-Pain Center of Excellence (Army)*

D. Acquisition Strategy

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

E. Performance Metrics

Performance by the Pain Center of Excellence is judged on the number of active protocols, the number of articles that appear in peer reviewed journals, and the number of contact hours in support of the training of residents and fellows in the Military Health System.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Defense Health Agency			Date: February 2018
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 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
382B: *CoE-Pain Center of Excellence (USUHS)*	5.094	2.985	2.822	3.310	-	3.310	3.376	3.445	3.514	3.584	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 2017	FY 2018	FY 2019
Title: Pain Center of Excellence (USUHS)	2.985	2.822	3.310
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.			
FY 2018 Plans: The DVCIPM will continue to focus on further building and streamlining the Pain Assessment Screening Tool and Outcomes Registry (PASTOR)and apply for grants for data analysis. DVCIPM will continue to focus on complementary and integrative pain management (CIPM) through clinical assimilation studies of modalities such as: battlefield acupuncture (BFA); yoga and massage; evaluation of novel analgesics; and interventional technologies for improved pain management. Pain education and policy development will continue to be a primary theme.			
FY 2019 Plans: The DVCIPM will continue to focus on further building and streamlining the Pain Assessment Screening Tool and Outcomes Registry (PASTOR) and apply for funding for data analysis. Continue to foster collaborative relationships and focus on complementary and integrative pain management (CIPM) through clinical assimilation studies of modalities such as: battlefield acupuncture (BFA); yoga and massage; evaluation of novel analgesics; and interventional technologies for improved pain management. DVCIPM will seek additional funding to sustain the Pain Education Program, as well as support the increasing requirements for the MHS DVCIPM's designation as a MHS CoE, and DVCIPM's recognized track record of effective facilitating collaborations across the Uniformed Services, VA, and Civilian Medicine has resulted in an ever-growing number of tasks.			
FY 2018 to FY 2019 Increase/Decrease Statement:			

Exhibit R-2A, RDT&E Project Justification: PB 2019 Defense Health Agency		Date: February 2018
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 2017	FY 2018	FY 2019
Pricing Adjustment.			
Accomplishments/Planned Programs Subtotals	2.985	2.822	3.310

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, incorporation into training curriculum throughout the Military Health System, and other applicable means.

E. Performance Metrics

Performance by the Pain Center of Excellence is judged on the number of active protocols, the number of articles that appear in peer reviewed journals, and the number of contact hours in support of the training of residents and fellows in the Military Health System.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Defense Health Agency			Date: February 2018
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 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
383A: *CoE-Prostate Cancer Center of Excellence (USUHS)*	33.379	8.443	7.250	8.203	-	8.203	8.359	8.526	8.696	8.870	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 (USU), 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 (USU, WRNMMC, JPC, NMCSD, MAMC, SAMMC, and TAMC).

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Title: CoE-Prostate Cancer Center of Excellence (USUHS)	8.443	7.250	8.203
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 27,500 DoD health care beneficiaries under suspicion for prostate cancer, with longitudinal follow up to 23 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-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.			

Exhibit R-2A, RDT&E Project Justification: PB 2019 Defense Health Agency		Date: February 2018
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 2017	FY 2018	FY 2019
FY 2018 Plans: Precision Medicine Focus: • Refine and develop modalities for diagnosing and prognosing clinically significant cancers prostate cancers. Build on the molecular/clinico-pathologic prognostic signatures of MRI-ultrasound fusion image guided biopsy specimens. • Enhance the support for national cancer precision medicine initiatives e.g., Cancer Moonshot under the Murtha Cancer Center. Build on APOLLO projects initial experience on proteogenomics signatures. • Continue to leverage the large, longitudinal DoD cohort of racially diverse prostate cancer patients to develop and validate prediction models for disease progression, quality of life, and overall survival across the spectrum of cancer treatments, as well as identify factors that predict definitive treatment for patients initially managed on active surveillance. • Build on data that will lead to military-specific exposures in prostate cancer onset and progression assessing the role of predisposing conditions (e.g., environmental and genetic) to service members. • Deploy multi-center validation of the diagnostic and prognostic biomarker panels from integrated omics study addressing the limitations of currently used serum PSA diagnostic test (collaboration with Berg Pharma). Health Disparity Research: • Continue to leverage CPDR's lead towards identification of genes that will enhance diagnosis, prognosis and treatment of racially diverse prostate cancer patients in MHS: Develop synergy with USU, The American Genome Center to perform whole-genome and whole-transcriptome sequencing on a large CPDR cohort of African American and Caucasian American patients with defined clinical attributes (patients with aggressive disease progression versus indolent disease). • Lead the research delineating the comprehensive molecular taxonomy of under studied prostate cancer genomes (African American and Asians) towards enhancing diagnosis, prognosis and treatment broadly applicable to the US population. • Continue to enhance experimental models focusing on prostate cancer driver genes prevalent for innovating novel therapeutic strategies. • Enhance collaborations with NCI investigators on genetic predisposition for metastatic prostate cancer. Development of Molecular Diagnostic and Prognostic Tools: • Continue to enhance and leverage the unique DoD prostate cancer research resources integration of clinical, biospecimen and molecular databases through advanced informatics platforms to enhance development of diagnostic and prognostic tools. • Continue to enhance the prognostic utility of the CPDR-ERG monoclonal antibody in the context of ethnicity and co-morbidities. • Develop and validate gene-based broadly applicable diagnostic and prognostic biomarkers in multi-center setting, e.g., evaluation of CPDR gene panels in urine exosomes in clinical trial and collaboration with the Exosome Diagnostics Inc. • Expand the research on serum and tissue based omics-defined biomarkers (mass spectrometry-based, serum antigen- and autoantibody-based detections). Novel Strategies for Stratification and Treatment of Prostate Cancers:			

Exhibit R-2A, RDT&E Project Justification: PB 2019 Defense Health Agency		Date: February 2018
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 2017	FY 2018	FY 2019
• Continue to employ state-of-the-art clinical trials for the treatment of metastatic prostate cancers and develop new trials targeting prostate cancer driver genes, e.g., ERG. • Develop studies focusing on enhancing immunotherapy of prostate cancer. • Complete comprehensive evaluations of ERGi to support Phase I clinical trial. • Enhance biological understanding of less understood prostate cancer driver genes through cell culture based and engineered mouse models and tumorigenicity models for developing novel therapeutics. • Develop novel concepts, e.g., targeting the androgen receptor modulator, PMEPA1 gene in facilitating degradation of androgen receptor, a central player in development of castration resistant prostate cancer. • Develop multi-center evaluation of the CPDR androgen receptor function index (ARFI) gene panel towards earlier and more effective stratification of patients for androgen axis targeting drugs. Education and Training Program: • Continue investing in the training of next generation of DoD physicians and researchers. Leverage the strong track record in translational research training for medical researchers at DoD institutions, e.g., WRNMMC urology residents, post-doctoral fellows, USU Capstone medical and graduate students.			
FY 2019 Plans: Precision Medicine Focus: Continue to leverage long term assets of DoD patient database (30K subjects with up to 25 yrs of follow up) and biospecimen bank (230K aliquots) towards delineation of molecular markers to enhance treatment decisions through precision medicine with emphasis on racially diverse patients in equal access military healthcare system. Define prostate cancer prevention strategies by addressing the role of predisposing conditions military-specific exposures and genetic components in prostate cancer onset and progression of service members. Validate prediction models for disease progression, quality of life, and overall survival across the spectrum of cancer treatments and determine factors that predict definitive treatment for patients initially managed on active surveillance. Develop modalities for diagnosing and prognosing clinically significant prostate cancers to reduce over diagnosis and treatment, through molecular/clinico-pathologic prognostic signatures of MRI-ultrasound fusion image guided biopsy specimens. Enhance pre/post-operative follow-up for cancer diagnosis, progression, pain, mobility deficits and restoration of function through the CoE's long-term database.			

Exhibit R-2A, RDT&E Project Justification: PB 2019 Defense Health Agency		Date: February 2018
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 2017	FY 2018	FY 2019
Continue to strengthen the Cancer Moonshot and APOLLO prostate cancer proteogenomics discovery and targeted therapy focus under the Murtha Cancer Center aligned with the national cancer precision medicine initiatives. Validate prognostic biomarker panels developed from biofluid-based metabolome, proteome and lipidome analyses addressing the limitations of currently used serum PSA diagnostic test in multi-center validation setting. Health Disparity Research: Continue to lead discoveries of prostate cancer causing genes for diagnosing, prognosing and targeted therapy of racially diverse DoD prostate cancer patients with indolent and aggressive disease. Leverage established key collaborations with DoD academy and industry to integrate whole genome, whole-transcriptome sequencing, proteome, lipidome and metabolome analyses on a large CPDR cohort of African American and Caucasian American patients. Delineate the prostate cancer genomic landscape of under studied African American, Asian and Hispanic patients towards the development of broadly applicable diagnostic, prognostic markers and treatment approaches. Develop innovative experimental models for establishing the mechanisms of newly discovered race/ethnicity associated prostate cancer genes towards ethnicity-informed therapeutic strategies. Continue to leverage established collaborations with NCI investigators addressing race/ethnicity associated genetic predisposition for metastatic prostate cancer. Development of Molecular Diagnostic and Prognostic Tools: Strengthen the CoE's unique DoD prostate cancer research resources by employing advanced informatics and logistic platforms for enhancing the integration of clinical, biospecimen and molecular databases towards the development of diagnostic and prognostic tools. Validate in multi-center setting the prognostic utility of CoE developed prostate cancer biomarkers including urine exosome-based mRNA panels, serum multi-omics based panels, cytogenetic tests and the ERG monoclonal antibody (e.g., urine exosomes clinical trial in collaboration with the Exosome Diagnostics Inc.). Continue to enhance knowledge of prostate cancer driver genes as exemplified by CoE leadership in the discovery/delineation of biological function and biomarker/ therapeutic utility of the most common prostate cancer gene, ERG.			

Exhibit R-2A, RDT&E Project Justification: PB 2019 Defense Health Agency		Date: February 2018
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 2017	FY 2018	FY 2019
Expand the research on serum and urine based protein and omics-defined biomarkers including serum antigen- autoantibody-based and mass spectrometry-based detections. Novel Strategies for Stratification and Treatment of Prostate Cancers: Continue to employ state-of-the-art clinical trials and research evaluating novel therapies for androgen axis inhibitors and immuno/radiation therapy complemented by emerging approaches targeting newly discovered prostate cancer driver gene alterations (e.g., ERG and DNA repair gene defects). Evaluate strategies for enhancing immunotherapy of advanced prostate cancer. Complete developments of new small molecule ERG inhibitors in collaboration with Stanford Medical School to enter Phase I clinical trials. Develop innovative cell culture, engineered mouse models and tumorigenicity models for defining the mechanisms of prostate cancer driver genes with the objective of discovering new therapeutic opportunities. Leverage newly developed concepts of combination therapies targeting adaptive mechanisms of prostate cancer progression, e.g., androgen receptor (and its modulator, PMEPA1) in combination of TGF-beta inhibitors or NOTCH1 inhibitors in the context of early stage and advanced disease. Develop multi-center evaluation of the CPDR androgen receptor function index (ARFI) gene panel towards earlier and more effective stratification of patients for androgen axis targeting drugs. Education and Training Program: Leverage the strong track record in translational research training of the next generation of physicians, researchers, medical researchers at DoD institutions, e.g., WRNMMC urology residents, post-doctoral fellows, USU Capstone medical and graduate students. Enhance patient education focusing on quality-of-life, active surveillance and new treatment opportunities and integration with patient support groups. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Pricing Adjustment.			
Accomplishments/Planned Programs Subtotals	8.443	7.250	8.203

Exhibit R-2A, RDT&E Project Justification: PB 2019 Defense Health Agency		Date: February 2018
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

N/A

E. Performance Metrics

Prostate Cancer Center of Excellence: Performance is judged on high impact discoveries, development of new diagnostic and treatment strategies, identification of emerging issues of disease feature and patterns, the amount of extramural funding received, the number of active protocols, the number of articles that appear in peer reviewed journals, and the number of contact hours in support of the training of medical students, residents and post-doctoral fellows in the Military Health System.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Defense Health Agency			Date: February 2018
Appropriation/Budget Activity 0130 / 2	R-1 Program Element (Number/Name) PE 0603115DHA / *Medical Technology Development*	Project (Number/Name) 398A / *CoE-Neuroscience Center of Excellence (USUHS)*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
398A: *CoE-Neuroscience Center of Excellence (USUHS)*	3.679	0.000	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	-	-

Note

The Center for Excellence in Neuroscience Project is closed. All future projects will be supported by This project was consumed under the Center for Neuroscience and Regenerative Medicine (CNRM).

A. Mission Description and Budget Item Justification

For the Uniformed Services University of the Health Sciences (USUHS), the Military Clinical Neuroscience Center of Excellence (MCNCoE), formerly a Congressional Special Interest program, was chartered in 2002 to conduct basic, clinical, and translational research studies of militarily relevant neurological disorders affecting U.S. service members and military beneficiaries. The Center's mission is to improve prevention, diagnosis, and treatment of neurological disorders that directly affect warfighters through a multi-site research program that collaborates broadly with military, civilian and federal medical institutions. The MCNCoE goals include supporting neuroscience education and research endeavors at military treatment facilities across the DOD healthcare system and facilitating a network of collaborations between investigators across these facilities.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Title: CoE-Neuroscience Center of Excellence (USUHS) ***Description:*** The Military Clinical Neuroscience Center of Excellence (MCNCoE) is to improve prevention, diagnosis, and treatment of neurological disorders that directly affect warfighters through a multi-site research program that collaborates broadly with military, civilian and federal medical institutions. The MCNCoE's approach to its goals includes supporting the research potential of military treatment facilities across the DOD system as well as the national capital area, and facilitating a network of collaborations between investigators across these facilities.	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 2019 Defense Health Agency		Date: February 2018
Appropriation/Budget Activity 0130 / 2	**R-1 Program Element (Number/Name)** PE 0603115DHA / *Medical Technology Development*	**Project (Number/Name)** 398A / *CoE-Neuroscience Center of Excellence (USUHS)*

E. Performance Metrics

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2019 Defense Health Agency			Date: February 2018
Appropriation/Budget Activity 0130 / 2	R-1 Program Element (Number/Name) PE 0603115DHA / *Medical Technology Development*	Project (Number/Name) 429A / *Hard Body Armor Testing (Army)*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
429A: *Hard Body Armor Testing (Army)*	1.356	0.000	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	-	-

A. Mission Description and Budget Item Justification

The Hard Body Armor project plans to develop a surface-mounted sensor system that will add critical dynamic data to the current clay test procedure and develops human skull fracture injury criteria for focused blunt impacts to the human head. This research develops and validates a method for assessing body armor performance against blunt trauma and will be fully compatible with the current testing method. The adoption of armor and helmet design standards that estimate injury type and severity based on biomechanics will allow designers to rationally create armor and helmets that protect each body region and allow the development of standards based on true protection outcomes.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Title: Hard Body Armor	0.000	0.000	0.000
Description: Develop a surface-mounted sensor system that will add critical dynamic data to the current clay test procedure and develops human skull fracture injury criteria for focused blunt impacts to the human head. ***FY 2018 Plans:*** No funding programmed. ***FY 2019 Plans:*** No funding programmed. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** N/A			
Accomplishments/Planned Programs Subtotals	0.000	0.000	0.000

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

Disseminate to the DoD testing community an improved biofidelic blast test manikin (model with characteristics that mimic pertinent human physical ones such as size, shape, mass)that includes the capability to measure and predict skeletal occupant injury during under body blast events in combat and transport vehicles involving a landmine or improvised explosive device.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Defense Health Agency		Date: February 2018
Appropriation/Budget Activity 0130 / 2	**R-1 Program Element (Number/Name)** PE 0603115DHA / *Medical Technology Development*	**Project (Number/Name)** 429A / *Hard Body Armor Testing (Army)*

E. Performance Metrics

Principal investigators will participate in In-Progress Reviews, DHP-sponsored review and analysis meetings, submit quarterly and annual status reports, and/or are subjected to Program Sponsor Representative progress review to ensure that milestones are being met and deliverables will be transitioned on schedule.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Defense Health Agency			Date: February 2018
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 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
431A: *Underbody Blast Testing (Army)*	38.742	1.869	8.000	10.800	-	10.800	9.200	1.400	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 2017	FY 2018	FY 2019
Title: Underbody Blast Testing	1.869	8.000	10.800
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.			
FY 2018 Plans: Biofidelity response corridors are being used to validate second generation prototypes of the WIAMan. Human injury assessment curves continue to be developed for the lower extremities, pelvis and spine from laboratory testing that created thresholds of cadaveric fractures and subsequent severe injuries (i.e., complex fractures). Laboratory testing to generate female post mortem human subject injury tolerances continue and are being used to inform the analysis of alternatives for developing a female specific manikin.			
FY 2019 Plans: FY 2019 plans continue efforts as outlined in FY 2018.			
FY 2018 to FY 2019 Increase/Decrease Statement:			

Exhibit R-2A, RDT&E Project Justification: PB 2019 Defense Health Agency		Date: February 2018
Appropriation/Budget Activity 0130 / 2	**R-1 Program Element (Number/Name)** PE 0603115DHA / *Medical Technology Development*	**Project (Number/Name)** 431A / *Underbody Blast Testing (Army)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Pricing Adjustment.			
Accomplishments/Planned Programs Subtotals	1.869	8.000	10.800

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

E. Performance Metrics

PIs will participate in In-Progress Reviews, technical interchange meetings, and theater injury analysis reviews. PIs will publish emerging results in the Proceedings of Injury Biomechanics Symposia and in relevant journals. As required, PIs will participate in DHP-sponsored review and analysis meetings, submit quarterly and annual status reports, and are subjected to periodic progress reviews to ensure that milestones are being met and deliverables will be transitioned on schedule. An external peer review of the medical research will be conducted to ensure the medical research is scientifically valid and suitable for accreditation for use in supporting acquisition decisions.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Defense Health Agency			Date: February 2018
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 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
448A: *Military HIV Research Program (Army)*	18.026	7.069	6.359	7.360	-	7.360	7.877	8.035	8.196	8.361	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 2017	FY 2018	FY 2019
Title: Military HIV Research Program	7.069	6.359	7.360
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.			
FY 2018 Plans: In FY18, plans are to extend an Early Capture HIV Cohort studies in Europe and Asia with the purpose of characterizing recruitment, retention, HIV prevalence, HIV incidence and biological characteristics of acute HIV infection in high-risk volunteers and extend human population studies to Asia, Europe and West Africa that will provide knowledge about the earliest HIV events to provide possible clues in developing preventive and/or therapeutic vaccines with the best combination of candidates of interest. This project will conduct human clinical trials in Europe, Africa, Asia and the US to test for safety and immunogenicity, and early proof of concept efficacy testing with selected vaccine candidates that have shown efficacy in non-human primate model.			
FY 2019 Plans:			

Exhibit R-2A, RDT&E Project Justification: PB 2019 Defense Health Agency		Date: February 2018
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)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
FY 2019 plans continue efforts as outlined in FY 2018. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Pricing Adjustment.			
Accomplishments/Planned Programs Subtotals	7.069	6.359	7.360

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

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.

E. Performance Metrics

Performance of the HIV research program will be monitored and evaluated through an external peer review process, with periodic reviews by the HIV Program Steering Committee and the Military Infectious Diseases Research Program Integrating Integrated Product Team, and in-process reviews.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Defense Health Agency			Date: February 2018
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 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
830A: *Deployed Warfighter Protection (Army)*	23.290	5.693	5.123	5.930	-	5.930	6.345	6.473	6.601	6.733	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 2017	FY 2018	FY 2019
Title: Deployed Warfighter Protection	5.693	5.123	5.930
Description: The Deployed Warfighter Protection project will develop new or improved protection for ground forces from disease-carrying insects. ***FY 2018 Plans:*** In FY 2018 the DWFP research project continues to lead translational research to develop and field tools that protect against emerging infectious disease threats and enable deployed forces to enhance protection from biting insects, primarily mosquitoes and sand flies, which transmit force degrading diseases. The completion of the AFPMB Vector Control Capabilities Gap Analysis in FY 2016 is used to develop acquisition-based research and development requirements. The AFPMB develops test and evaluation plans necessary to determine a product's ability to meet the requirement. ***FY 2019 Plans:*** FY 2019 plans continue efforts as outlined in FY 2018. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Pricing Adjustment.			
Accomplishments/Planned Programs Subtotals	5.693	5.123	5.930

C. Other Program Funding Summary ($ in Millions)

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2019 Defense Health Agency		Date: February 2018
Appropriation/Budget Activity 0130 / 2	**R-1 Program Element (Number/Name)** PE 0603115DHA / *Medical Technology Development*	**Project (Number/Name)** 830A / *Deployed Warfighter Protection (Army)*

C. Other Program Funding Summary ($ in Millions)

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.

E. Performance Metrics

Performance for the DWFP program is measured by the insecticides and other products given EPA registration and added to the military stock system, changes in pest management techniques or technologies used by the military to control biting/disease causing insects, patents, and peer-reviewed scientific manuscripts. The Program conducts an annual Research Review during which a panel of DoD subject matter experts provides input on programmatic alignment and strategic priorities.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Defense Health Agency			Date: February 2018
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 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
478: *Applied Proteogenomics Organizational Learning and Outcomes (APOLLO) Consortium (USUHS)*	0.000	0.000	14.766	14.754	-	14.754	18.556	18.639	18.724	19.098	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 USU 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 ASDMs 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 2017	FY 2018	FY 2019
Title: DoD Cancer Moonshot - Applied Proteogenomics Organizational Learning and Outcomes (APOLLO) Consortium (USUHS)	0.000	14.766	14.754
Description: Description: DoD's Cancer Moonshot at USU's MCC 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 MCC collection protocol sites (e.g.. Walter Reed NMMC;NMC Portsmouth; NMC San Diego; Womack AMC; Keesler AFB) and, then, sequencing the entire DNA genome and RNA sequence at USU, while analyzing the entire protein expression profile of these same cancers in MCC's Proteomics Laboratory, as well as other affiliated protein laboratories. The vast molecular data that will be derived from these analyses (in the terabyte			

Exhibit R-2A, RDT&E Project Justification: PB 2019 Defense Health Agency		Date: February 2018
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 2017	FY 2018	FY 2019
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 five 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 = all other cancer types. 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 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 2018 Plans:*** APOLLO - Collect 1,000 cancer specimens (all cancer types) and run them though the DNA, RNA, and protein molecular analysis lab platforms of USU, and perform initial data analytics on the results. Perform final data analytics on previously analyzed APOLLO samples. ***FY 2019 Plans:*** APOLLO - FY 2019 plans continue efforts as outlined in FY 2018. Framingham – Identify Framingham 3 serum specimens and run them through the serum protein analysis lab platform, and perform initial data analytics on the results. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Pricing Adjustment.			
Accomplishments/Planned Programs Subtotals	0.000	14.766	14.754

C. Other Program Funding Summary ($ in Millions)

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2019 Defense Health Agency		Date: February 2018
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)*

C. Other Program Funding Summary ($ in Millions)

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

To be determined.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Defense Health Agency			Date: February 2018
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 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
479: *Framingham Longitudinal Study (USUHS)*	0.000	0.000	4.920	4.920	-	4.920	4.920	4.920	4.920	5.018	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 USU 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 ASDMs 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 2017	FY 2018	FY 2019
Title: DoD Cancer Moonshot Program - DoD Framingham Longitudinal Study	0.000	4.920	4.920
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. 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			

Exhibit R-2A, RDT&E Project Justification: PB 2019 Defense Health Agency		Date: February 2018
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 2017	FY 2018	FY 2019
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. 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 2018 Plans:*** Identify Framingham 2 (Lymphoma) serum specimens and run them through the serum protein analysis lab platform, and perform initial data analytics on the results. A de-identified dataset will be obtained from the Armed Forces Health Surveillance Branch related to serum samples identified by and pulled from the Department of Defense Serum Repository (DoDSR). This data set will include the following: 1) case status (i.e., case or control); 2) year of diagnosis; 3) year of the sample acquisition; 4) year of birth of the subject; 5) gender of the subject; 6) tumor stage at time of diagnosis for the cases; and 7) p16 status at time of diagnosis for the cases. If information on recurrences of the cancer for the case subjects is available, that will be provided as well (i.e., in yes/no format and with date of recurrence if applicable). Specimens to be used in this study will be serum samples from the DoDSR. The DoDSR is a repository of serially collected serum samples obtained from active duty service members from the time of their military in-processing through their discharge, taken at a minimum at two year intervals ***FY 2019 Plans:*** Identify Framingham 3 serum specimens and run them through the serum protein analysis lab platform, and perform initial data analytics on the results.			
Accomplishments/Planned Programs Subtotals	0.000	4.920	4.920

C. Other Program Funding Summary ($ in Millions)

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2019 Defense Health Agency		Date: February 2018
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)

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

Performance Metrics to be determined.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Defense Health Agency			Date: February 2018
Appropriation/Budget Activity 0130 / 2	R-1 Program Element (Number/Name) PE 0603115DHA / *Medical Technology Development*	Project (Number/Name) 499 / *MHS Financial System Acquisition*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
499: *MHS Financial System Acquisition*	0.000	1.766	13.456	21.129	-	21.129	5.373	1.971	2.011	2.051	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 2017	FY 2018	FY 2019
Title: MHS Financial System Acquisition	1.766	13.456	21.129
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 2018 Plans:*** Research to consolidate all DHP appropriations into a single Financial Management System (FMS) system to provide the following capabilities: 1. Improved FMS functionality 2. Financial compliance and accountability 3. Improved business processes and enterprise data visibility 4. Improved cost management structure and financial reporting for the military medical system. ***FY 2019 Plans:*** FY 2019 plans continue efforts as outlined in FY 2018. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Additional research funding necessary to continue the consolidation all DHP appropriations into a single Financial Management System (FMS) system to provide the following capabilities:			
Accomplishments/Planned Programs Subtotals	1.766	13.456	21.129

Exhibit R-2A, RDT&E Project Justification: PB 2019 Defense Health Agency			Date: February 2018
Appropriation/Budget Activity 0130 / 2	**R-1 Program Element (Number/Name)** PE 0603115DHA / *Medical Technology Development*	**Project (Number/Name)** 499 / *MHS Financial System Acquisition*	

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
• BA 3: *PE 0807721 Replacement & Modernization*	0.000	9.031	10.409	-	10.409	22.611	0.000	0.000	0.000	Continuing	Continuing

Remarks

D. Acquisition Strategy

Acquisition Strategy is to be determined.

E. Performance Metrics

Performance metrics to be determined.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Defense Health Agency			Date: February 2018
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 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
381: *CoE - Integrative Cardiac Health Care (USUHS)*	0.000	0.000	0.000	2.914	0.000	2.914	3.118	3.180	3.244	3.309	Continuing	Continuing

A. Mission Description and Budget Item Justification

The USU Integrative Cardiac Health Program is a Center of Excellence whose mission is to:
1. Improve force health by an improved understanding of the CVD risk susceptibility and adoption of healthy lifestyles in military-specific populations (e.g. Wounded Warriors) through leading-edge research using novel tools and biotechnologies.
2. Investigate and create transformational models of practical and personalized CVD prevention tracks as an adjunct to traditional care for dissemination to MHS.
3. Refine individualized prevention strategies through "big Data" modeling to define the most cost-effective and sustainable approaches in promoting CV health throughout the military lifecycle.
4. 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 2017	FY 2018	FY 2019
Title: Integrative Cardiac Health Center of Excellence	0.000	0.000	2.914
Description: USU 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.			
FY 2018 Plans: No funding programmed. Beginning in FY19, the ICHP funding line is transferred from the Army to USUHS Project 381.			
FY 2019 Plans: The Integrative Cardiac Health Center of Excellence (ICHP) will continue development and refinement of clinical decision support tools and new models for cardiovascular and overall health; will conduct research studies to improve the health of the Active Duty force by investigating the effectiveness of personalized (gender specific) interventions specifically designed for the military and the effects of these interventions on preclinical atherosclerosis (plaque in arteries). Precision medicine efforts exploring novel biomolecular markers and tests as indicators for early (preclinical) cardiovascular disease risk assessment will continue. Will characterize new clinical phenotypes; detect cardiovascular disease in early stages when it is more likely to be reversible. ICHP will collaborate with Walter Reed Bethesda Cardiovascular Service, the Mayo Clinic, Abbott Laboratories, and Integrative Systems Biology for these efforts. ICHP will use this information to tailor personalized health interventions and build resiliency in the military population before disease affects quality of life. The Wounded Warriors project will continue to examine cardiovascular risk in the amputee and injured Warfighter and begin analysis of bio-samples collected to detect novel biomolecular markers. Study is			

Exhibit R-2A, RDT&E Project Justification: PB 2019 Defense Health Agency		Date: February 2018
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 2017	FY 2018	FY 2019
designed to significantly advance the precision of risk detection and lead to an improvement of current interventions and patient outcomes. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Beginning in FY19, the ICHP funding line is transferred from the Army to USUHS Project 381.			
Accomplishments/Planned Programs Subtotals	0.000	0.000	2.914

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 training of residents and fellows in the Military Health System

E. Performance Metrics

Integrative Cardiac Health Care Center of Excellence performance has been judged on high impact discoveries, development of new diagnostic and treatment strategies, identification of emerging issues of disease feature and patterns, the amount of extramural funding received, the number of active protocols, the number of articles that appear in peer reviewed journals, and the number of contact hours in support of the training of medical students, residents and post-doctoral fellows in the Military Health System. Additional performance metrics may be developed after the strategic alliance has been formalized.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Defense Health Agency			Date: February 2018
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*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
504: *WRAIR Vaccine Production Facility Research*	-	0.000	0.000	8.000	-	8.000	8.152	8.315	8.481	8.651	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 2017	FY 2018	FY 2019
Title: WRAIR Vaccine Production Facility	0.000	-	8.000
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. ***FY 2019 Plans:*** Complete commissioning and validation of the renovated facility and resume vaccine and biologic production efforts. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** The PBF research will begin in FY 2019.			
Accomplishments/Planned Programs Subtotals	0.000	-	8.000

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

Exhibit R-2A, RDT&E Project Justification: PB 2019 Defense Health Agency		Date: February 2018
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*

D. Acquisition Strategy

N/A

E. Performance Metrics

Performance of the WRAIR PBF program is measured by the number of products used in clinical trials, number of pilot lots produced (for USG, DoD, and non-federal partners), number of doses vialed, and other biologics produced. Additionally, the WRAIR PBF program will conduct an annual research review during which a panel of DoD subject matter experts provide input on programmatic alignment and strategic priorities.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Defense Health Agency	Date: February 2018
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 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
Total Program Element	967.402	156.960	99.039	117.529	-	117.529	128.055	132.331	142.252	145.097	Continuing	Continuing
374A: *GDF-Medical Products Support and Advanced Concept Development*	706.702	91.337	95.039	113.529	-	113.529	124.055	128.251	138.090	140.852	Continuing	Continuing
400Z: *CSI - Congressional Special Interests*	249.791	61.769	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
434A: *Medical Products Support and Advanced Concept Development (AF)*	10.909	3.854	4.000	4.000	-	4.000	4.000	4.080	4.162	4.245	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: 1-advanced concept development of medical products that are regulated by the US Food and Drug Administration (FDA), 2-clinical and field validation studies supporting the transition of FDA-licensed and unregulated products and medical practice guidelines to the military operational user, 3-prototyping, 4-risk reduction and product transition efforts for medical information technology applications such as coordination with the Program Execution Office for possible integration into the Military Health System (MHS), and 5-medical simulation and training system technologies. 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 multiagency 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 Quadrennial Defense Review, the National Research Action Plan for Improving Access to Mental Health Services for Veterans, Service Members, and Military Families, the National Strategy for Combating Antibiotic Resistance, and the National Strategy for Biosurveillance. Research will support efforts such as the Precision Medicine Initiative, translational research focused on protection against emerging infectious disease threats, the advancement of state of the art regenerative medicine manufacturing technologies consistent with the National Strategic Plan for Advanced Manufacturing, the advancement of global health engagement and capitalization of complementary research and technology capabilities, improving deployment military occupational and environmental exposure monitoring, and the strengthening of the scientific basis for decision-making in patient safety and quality performance in the MHS. The program also supports the Interagency Strategic Plan for Research and Development of Blood Products and Related Technologies for Trauma Care and Emergency Preparedness. 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, the Department of Health and Human Services, and the Department of Homeland Security. Coordination occurs through the planning and execution activities of the Joint Program Committees (JPCs), established to manage research, development, test and evaluation for DHP-sponsored research. The JPCs supported by this PE include medical simulation and information sciences, military infectious diseases, military operational medicine, combat casualty care, and clinical and rehabilitative medicine. As the research efforts mature, the most promising will transition to medical products and support systems development funding, PE 0605145.

Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Defense Health Agency	Date: February 2018
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*

The Army Medical Command received FY 2016 DHP Congressional Special Interest (CSI) research funding focused on Peer-Reviewed Traumatic Brain Injury/ Psychological Health, Joint Warfighter Medical Research, and Core Research funding. Because of the CSI annual structure, out-year funding is not programmed.

For the Air Force Medical Service, funding in this program element supports technology development for the rapid transition of medical products and capabilities from Air Force laboratories, and the ability to perform modifications/enhancements required to integrate commercial off-the-shelf (COTS) and near-COTS products into the military operating environment. Ability to enhance or modify existing COTS is a cost effective technique we should maximize where possible, ensuring warfighters have appropriate technology at hand to care for wounded at the point of injury through definitive care and on to rehabilitation and reintegration at the most efficient cost and schedule possible. Significant benefits can be obtained from rapid insertion of high value/impact technologies into healthcare operations to address capabilities that enter the acquisition life-cycle at high TRL levels that can readily be implemented with significant upside potential. The viability of S&T and translational research with a materiel component cannot be ensured without correctly programmed funding for logical progression and transition of those activities in the product development lifecycle. This PE ensures viability of S&T and translational research efforts with a materiel component by providing programmed funding for logical progression and transition of those activities in the product development lifecycle.

B. Program Change Summary ($ in Millions)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Previous President's Budget	96.602	99.039	117.529	-	117.529
Current President's Budget	156.960	99.039	117.529	-	117.529
Total Adjustments	60.358	0.000	0.000	-	0.000
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	61.769	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-1.411	-			

Congressional Add Details ($ in Millions, and Includes General Reductions)	FY 2017	FY 2018
Project: 400Z: *CSI - Congressional Special Interests*		
Congressional Add: *427A - Traumatic Brain Injury / Psychological Health*	4.665	-
Congressional Add: *441A - Joint Warfighter Medical Research Program*	20.000	-
Congressional Add: *464A – Program Increase: Restore Core Research Funding Reduction (GDF)*	29.104	-
Congressional Add: *PC 540 - CSI HIV/AIDSPrevention Program*	8.000	-
Congressional Add Subtotals for Project: 400Z	61.769	-
Congressional Add Totals for all Projects	61.769	-

Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Defense Health Agency	Date: February 2018
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*

Change Summary Explanation

FY 2017: Realignment from DHP RDTE PE 0604110-Medical Products Support and Advanced Concept Development (-$13.403 million) to DHP RDTE PE 0603115-Medical Technology Development for the rebalancing of the Joint Program Committees (+$13.403 million).

FY 2017: Realignment from Defense Health Program, Research, Development, Test and Evaluation (DHP RDT&E), Program Element (PE) 0604110-Medical Products Support and Advanced Concept Development (-$9.738 million) to DHP O&M Account, Budget Activity Group (BAG) 3 - Private Sector Care (+$9.738 million).

FY 2017: Realignment from DHP RDTE PE 0604110-Medical Products Support and Advanced Concept Development (-$7.000 million) as a result of DoD CIO Health Information Technology Optimization review.

FY 2017: Realignment from DHP RDTE PE 0604110-Medical Products Support and Advanced Concept Development (-$2.394 million) to DHP RDTE PE 0603115-Medical Technology Development for Breast, Gynecological and Prostate Cancer Centers of Excellence (+2.394 million).

FY 2018: Realignment from GDF DHP RDTE PE 0604110-Medical Products Support and Advanced Concept Development (-$8.343 million) to DHP RDTE PE 0603115-Medical Technology Development, Uniformed Services University, Applied Proteogenomics Organization Learning and Outcomes (APOLLO) Consortium (+$8.343 million) so support the White House-directed Cancer Moonshot initiative.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Defense Health Agency			Date: February 2018
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 Products Support and Advanced Concept Development*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
374A: *GDF-Medical Products Support and Advanced Concept Development*	706.702	91.337	95.039	113.529	-	113.529	124.055	128.251	138.090	140.852	Continuing	Continuing

A. Mission Description and Budget Item Justification

Guidance for Development of the Force -Medical Products Support and Advanced Concept Development: This funding supports 1- clinical trials of promising technologies that may provide solutions for the most pressing medical needs of the Warfighter, 2- accelerated transition of promising technologies to the field, and 3- promulgation of new, evidence-based approaches to the practice of medicine as clinical practice guidelines. Medical products advanced concept development is managed by the Joint Program Committees (JPCs) in the following areas: 1- The Medical Simulation and Information Sciences JPC seeks to promote long-term efficiencies by defining processes improving the electronic healthcare record/other medical related systems, and the implementation of new trends and advancements in technology to improve healthcare access, availability, continuity, cost effectiveness, quality, and patient safety through improved decision making via training, education, and informatics. 2- The Military Infectious Diseases JPC supports the advanced development of systems to rapidly detect pathogens (infectious agents), as well as efforts related to the prevention and management of wound infections and the development of antimicrobial countermeasures and infectious disease-related diagnostic systems. 3- The Military Operational Medicine JPC supports clinical assessments related to interventions for post-traumatic stress disorder, nutrition and dietary supplementation to promote health and resilience, real-time physiological status monitoring, interventions for hearing loss and tinnitus, enhancement of military family and community health and resilience techniques, validation trials for suicide prevention, and the accomplishment of related field studies with end users. 4- Combat Casualty Care JPC supports clinical trials such as those assessing biomarkers (biological indicators) for Traumatic Brain Injury (TBI), and advanced product development related to hemorrhage, extremity trauma, pre-hospital combat casualty care, and en route care. 5- Clinical and Rehabilitative Medicine JPC supports clinical research related to pain management and regenerative medicine.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Title: GDF – Medical Product Support and Advanced Concept Development	91.337	95.039	113.529
Description: Product support and advanced concept development of medical products that are regulated by the US Food and Drug Administration (FDA); the accelerated transition of 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 2018 Plans: Medical simulation and information sciences is conducting engineering and manufacturing development in two primary research tasks: medical simulation and health information technology and informatics (HITI). Under the medical simulation task: Completing work on the Advanced Modular Manikin core (torso). Low and mid fidelity peripherals that attach or insert onto the core manikin are being developed. Conducting research on the underlying architecture to support the development of the			

Exhibit R-2A, RDT&E Project Justification: PB 2019 Defense Health Agency		Date: February 2018
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 Products Support and Advanced Concept Development*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
future Joint Evacuation and Transport Simulation (JETS) System of Systems. Research is being conducted on the integration of virtual standardized patients and virtual technology applications to represent a broader range of burn training scenarios with increased physiological responsiveness to not only the user's actions but also further environmental exposure. Under the HITI task: Conducting proof of concept demonstrations for Theater and Operational Medicine, to include Medical Command and Control, Leading edge options for tracking logistics items across theater using sensors or other novel approaches being used in industry, synchronous/asynchronous theater/operational medicine approaches for teleconsultation and telementoring, and hands-free electronic record data entry. These topics are being studied to reduce risk associated with the modernization of existing Military Health System legacy systems in support of Defense Health System Modernization for MHS Genesis and Joint Operational Medical Information System (JOMIS) in accordance with FY16 NDAA Section 217. Demonstrating and defining Medical device interoperability requirements for use of medical devices and patient data in a closed loop to deliver medical care during prolonged field care scenarios. Supporting efforts to transition technology products and services to external stakeholders in order to address operational medicine health information technology capability gaps, such as capturing and transmitting point of injury data to improve quality of care and patient safety. Completing Digital Biobank research to share genomic data with Department of Defense and Veterans Affairs in support of the Precision Medicine Initiative. Military Infectious Diseases supports studies aligning to the National Action Plan for Combating Antibiotic-Resistance. It supports the ongoing development of prototype diagnostic devices and the evaluation of assay performance in an operational environment to detect pathogen associated nucleic acids, proteins and toxins. Efforts involve prospective collection and evaluation of standardized infection data including therapy, microbiology, and clinical outcomes of combat-related injuries across treatment facilities. Continue optimization and clinical validation studies for a malaria, dengue, chikungunya, and leptospirosis nucleic acid-based assay panel to be used on the Next Generation Diagnostic System. Complete skin and soft tissue infection clinical study in military trainees at Fort Benning, Georgia, with results are expected to inform potential prevention and treatment strategies. Continue to support Adenovirus vaccine production modernization efforts. Military Operational Medicine: Develop guidance regarding calcium and vitamin D intake to support optimal bone health during training. Will optimize and validate brief cognitive behavior therapies for decreasing suicide. Advance technologies supporting the Integrated Soldier Sensor System to include sensor(s) quantifying the impact of energy expenditure and physical load on Soldier Service members' performance, improved metabolic monitoring in training environments, and the assessment of cognitive status in operational settings via the monitoring of fatigue and nutritional status. Continue to prepare for a clinical study for pharmaceutical (drug) interventions for noise induced hearing loss. Prepare for study assessing new pharmacotherapeutics to foster recovery of Service members and Veterans with combat-related posttraumatic stress disorder. Assess a biomarker panel to predict the risk of Acute Mountain Sickness for Service members who rapidly ascent to high altitude to perform their mission.			

Exhibit R-2A, RDT&E Project Justification: PB 2019 Defense Health Agency		Date: February 2018
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 Products Support and Advanced Concept Development*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Clinical and rehabilitative medicine: Continue efforts in the areas of military-relevant pain management focusing on the validation of non-pharmacologic approaches to managing pain. Conduct studies pursuing a route of administration change for ketamine, a pain management product for use after surgery, from intravenous to oral transmucosal. Perform an Analysis of Alternatives for a nerve repair biologic product to guide a Milestone A decision. Perform an Analysis of Alternatives for a functional skin regeneration product to guide a Milestone A decision. Tri-Service Translational Research is continuing FY 2014 and 2015 efforts, and beginning FY 2016 tri-Service translational research studies at Military Treatment Facilities and intramural organizations recommended for funding. Applications are being solicited to focus on advanced concept development efforts in combat casualty care, operational medicine, infectious diseases, and clinical and rehabilitative medicine. ***FY 2019 Plans:*** Medical simulation and information sciences will conduct engineering and manufacturing development in two primary research tasks: medical simulation and health information technology and informatics (HITI). Under the medical simulation task: Will continue the development of low and mid fidelity peripherals that attach or insert onto the core manikin. Research will continue on the underlying architecture to support the development of the future Joint Evacuation and Transport Simulation (JETS) System of Systems. Research will continue on the integration of virtual standardized patients and virtual technology applications to represent a broader range of burn training scenarios with increased physiological responsiveness to not only the user's actions but also further environmental exposure. Will continue efforts to transition technology products and services to external stakeholders in order to address operational medicine health information technology capability gaps, such as capturing and transmitting point of injury data to improve quality of care and patient safety. Military infectious diseases research will continue to support studies aligning to the National Action Plan for Combating Antibiotic-Resistant Bacteria. Will continue to support the ongoing development of prototype diagnostic devices and the evaluation of assay performance in an operational environment to detect pathogen associated nucleic acids, proteins and toxins. Efforts will involve prospective collection and evaluation of standardized clinical data including therapy, microbiology, and clinical outcomes of combat-related injuries across treatment facilities. Will continue to support optimization and clinical validation studies for a malaria, dengue, chikungunya, and leptospirosis nucleic acid-based assay panel to be used on the Next Generation Diagnostic System. Will continue to support Adenovirus vaccine production modernization efforts. Military Operational Medicine: Will continue to develop guidance regarding calcium and vitamin D intake to support optimal bone health during training. Will continue to optimize and validate brief cognitive behavior therapies for decreasing suicide. Will conduct advanced development on a real-time physiological status monitoring system that integrates algorithms and sensors into			

Exhibit R-2A, RDT&E Project Justification: PB 2019 Defense Health Agency		Date: February 2018
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 Products Support and Advanced Concept Development*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
actionable real-time physiological status, health, and readiness information. Continue to advance technologies that support the Integrated Soldier Sensor System to include sensor(s) quantifying the impact of energy expenditure and physical load on Soldier Service members' performance, improved metabolic monitoring in training environments, and the assessment of cognitive status in operational settings via the monitoring of fatigue and nutritional status. Will initiate a clinical study for pharmaceutical (drug) interventions for noise induced hearing loss. Will continue to prepare for study assessing new pharmacotherapeutics to foster recovery of Service members and Veterans with combat-related posttraumatic stress disorder. Will complete assessment on a biomarker panel to predict the risk of Acute Mountain Sickness for Service members who rapidly ascent to high altitude to perform their mission. Clinical and rehabilitative medicine: Will continue efforts in the areas of military-relevant pain management focusing on the validation of non-pharmacologic approaches to managing pain. Will continue to conduct studies pursuing a route of administration change for ketamine, a pain management product for use after surgery, from intravenous to oral transmucosal. Will prepare for initiation of a burn trauma clinical study related to functional skin regeneration Tri-Service Translational Research will continue studies at Military Treatment Facilities and intramural organizations recommended for funding Applications will be solicited to focus on advanced concept development efforts in combat casualty care, operational medicine, infectious diseases, and clinical and rehabilitative medicine. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Pricing adjustment.			
Accomplishments/Planned Programs Subtotals	91.337	95.039	113.529

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

Test and evaluate medical device prototypes, medical procedures, and drug and vaccine candidates in government-managed Phase 2 clinical trials to gather data required for military and regulatory requirements prior to production and fielding, to include FDA approval and Environmental Protection Agency registration.

E. Performance Metrics

Research is evaluated through In-Progress Reviews, Defense Health Program-sponsored review and analysis meetings, quarterly and annual status reports, and is subject to Program Office or Program Sponsor Representatives progress reviews to ensure that milestones are met and deliverables are transitioned on schedule. In

Exhibit R-2A, RDT&E Project Justification: PB 2019 Defense Health Agency		Date: February 2018
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 Products Support and Advanced Concept Development*

addition, Integrated Product Teams, if established for a therapy or device, will monitor progress in accordance with the DoD Instruction 5000 series on the Operation of the Defense Acquisition System. The benchmark performance metric for transition of research supported in this PE will be the attainment of a maturity level that is typical of Technology Readiness Level 7.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Defense Health Agency			Date: February 2018
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 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
400Z: *CSI - Congressional Special Interests*	249.791	61.769	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing

A. Mission Description and Budget Item Justification

The FY 2016 Defense Health Program Congressional Special Interest (CSI) funding supported peer-reviewed directed research for Traumatic Brain Injury and Psychological Health, and Joint Warfighter Medical Research. Because of the CSI annual structure, out-year funding is not programmed.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018
Congressional Add: 427A - Traumatic Brain Injury / Psychological Health	4.665	-
FY 2017 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 the function, wellness, and overall quality of life, including interventions across the deployment lifecycle for Service members and Veterans, as well as their family members, caregivers, and communities. Key priorities of the FY 2017 Traumatic Brain Injury and Psychological Health (TBI/PH) Research Program were supporting projects aligned with the National Research Action Plan for Improving Access to Mental Health Services for Veterans, Service members, and Military Families; enabling significant research collaborations; and complementing ongoing Department of Defense (DoD) efforts to ensure the health and readiness of our military forces by improving upon and optimizing the standards of care for PH and TBI in the areas of prevention, detection, diagnosis, treatment, and rehabilitation. In support, the FY 2017 Military Operational Medicine Research Program continued to fund the Military Suicide Research Consortium toward development of state-of-the-art, evidence-based, effective suicide prevention tools and interventions to the DoD. The FY 2016 Combat Casualty Care Research Program initiated studies to inform clinical practice guidelines for the management of TBI by analyzing the Deployed Warrior Medical Management Center and the DoD Trauma Registry casualty treatment data containing Operation Iraqi Freedom/ Operation Enduring Freedom (OIF/OEF) TBI clinical management to determine the best treatment outcome for TBI casualties. Moreover, a clinical study was initiated to validate Virtual Care, Telehealth, and Mobile technology applications to enable far forward medical care for the management of TBI.		
Congressional Add: 441A - Joint Warfighter Medical Research Program	20.000	-
FY 2017 Accomplishments: The Joint Warfighter Medical Research Program (JWMRP) provides continuing support for promising research previously funded under Congressional Special Interest programs. The focus is		

Exhibit R-2A, RDT&E Project Justification: PB 2019 Defense Health Agency		Date: February 2018
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*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018
to augment and accelerate high priority DoD and Service medical requirements that are close to achieving their objectives, and yielding a benefit to military medicine. Project funding is divided into technology development and engineering and manufacturing development efforts. The JWMRP directly supports military medical research in military infectious diseases, combat casualty care, military operational medicine, medical simulation and information sciences, and clinical and rehabilitative medicine. For FY17, no advanced development projects were solicited to apply for funding. FY17 JWMRP funding was used to continue support for promising research previously funded through the JWMRP. Awards will be made by September 2018. Awards will be made by September 2018.		
Congressional Add: 464A – Program Increase: Restore Core Research Funding Reduction (GDF) ***FY 2017 Accomplishments:*** This Congressional Special Interest initiative was directed toward DHP core research initiatives in PE 0604110. Funds supported medical products support and advanced concept development in medical simulation and information sciences, military infectious diseases and combat casualty care, and clinical and rehabilitative medicine (Project 374A).	29.104	-
Congressional Add: PC 540 - CSI HIV/AIDSPrevention Program ***FY 2017 Accomplishments:*** This Congressional Special Interest initiative is directed toward research initiatives for the HIV/AIDs Prevention Program.	8.000	-
Congressional Adds Subtotals	61.769	-

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

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.

E. Performance Metrics

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2019 Defense Health Agency			Date: February 2018
Appropriation/Budget Activity 0130 / 2	**R-1 Program Element (Number/Name)** PE 0604110DHA / *Medical Products Support and Advanced Concept Development*	**Project (Number/Name)** 434A / *Medical Products Support and Advanced Concept Development (AF)*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
434A: *Medical Products Support and Advanced Concept Development (AF)*	10.909	3.854	4.000	4.000	-	4.000	4.000	4.080	4.162	4.245	Continuing	Continuing

A. Mission Description and Budget Item Justification

Air Force Medical Products Support and Advanced Concept Development & Prototyping efforts are focused on achieving rapid transition of promising, high TRL commercially-available off-the-shelf products through minor modifications and/or enhancements to address the most pressing medical needs of the Warfighter, accelerating transition of those technologies to operators in the field. Development, Modification, and Enhancement projects will emphasize technologies supporting Expeditionary Medicine, Human Performance, En-Route Care, Force Health Protection, and Operational Medicine. Funding provides critical flexibility to make and act on materiel solution investment decisions in an annual cycle. Derive benefits from rapid insertion of high value / impact technologies into healthcare operations with programmed funding to address capabilities that enter the acquisition life-cycle at high TRL levels that can readily be implemented with significant upside potential. Program ensures viability of S&T and translational research efforts with a materiel component by providing programmed funding for logical progression and transition of those activities in the product development lifecycle.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Title: Medical Products Support and Advanced Concept Development (AF)	3.854	4.000	4.000

Description: Rapidly transition key COTS and near-COTS based technology solutions to the warfighter through assessment/ evaluation and minor modification or enhancement of solutions to address threshold operational requirements and associated key performance parameters. Provide core capability to rapidly address capability gaps and requirements with affordable state-of-the art commercial technologies in support of the operational mission. Provide core capability to logically progress initiatives and concepts from S&T and translational/knowledge-focused programs (6.1-6.3) into materiel solutions and conduct the advanced development and transition activities needed to ensure those products are fielded in an effective, affordable, timely and efficient manner.

FY 2018 Plans:

Continue development, evaluation, modification, and refinement of the multichannel infusion pump and complete transition to meet customer urgent operational requirement to provide multiple drugs and therapeutics simultaneously for DoD injured personnel. Obtain FDA approval and complete transition of the 59 MDW's vascular shunt sets to all DoD surgical teams. Continue project to develop commercially-available system for producing upon-demand sterile water for injection and generate Intravenous (IV) solutions in deployed EMEDS using onsite water sources that will eventually include reconstitution of dried human plasma when available commercially. Begin development of patient movement and transport product that provides spinal immobilization and reduces potential for secondary injuries during Aeromedical Evacuations (AE). Continue development of an

Exhibit R-2A, RDT&E Project Justification: PB 2019 Defense Health Agency		Date: February 2018
Appropriation/Budget Activity 0130 / 2	**R-1 Program Element (Number/Name)** PE 0604110DHA / *Medical Products Support and Advanced Concept Development*	**Project (Number/Name)** 434A / *Medical Products Support and Advanced Concept Development (AF)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
enhanced clinical and infectious disease diagnostics capability. Evaluate 6.3 funded projects for future advanced development transition and funding. ***FY 2019 Plans:*** Begin advanced development and refinement of variable-flow aortic hemostasis and resuscitation balloon treatment for combat casualty care in developing a prototype field catheter with packaging and inserts for testing in preparation of FDA approval and pending clinical trials. Continue assessment and development of Medical Modernization efforts including, but not limited to, automated/autonomous control of oxygen and ventilation intervention for patient care; continue developing a commercially-available system for producing upon-demand sterile water for injection and Intravenous (IV) solutions in deployed EMEDS and Naval vessels using onsite/onboard water sources that will eventually include reconstitution of dried human plasma when available commercially; technology that utilizes elemental oxygen to cause immediate coagulation in wounds at the point of injury, and ruggedized, portable materiel products for use in expeditionary settings.			
Accomplishments/Planned Programs Subtotals	3.854	4.000	4.000

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

Partnership with the USAMRMC, Navy Medical Research Center (NMRC), AFRL, 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 IDIQ vehicles to include those awarded under SBIR phase III provisions or similar. Utilization of Small Business Innovative Research 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 Air Force Life Cycle Management Center (AFLCMC), Wright-Patterson AFB.

E. Performance Metrics

Achievement of affordable and effective fielded medical technologies and capabilities for warfighter; achievement of required TRL for each advanced concept development/product support project and fulfillment of established key performance parameters (KPPs) for projects.

Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Defense Health Agency											Date: February 2018	
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 2017**	**FY 2018**	**FY 2019 Base**	**FY 2019 OCO**	**FY 2019 Total**	**FY 2020**	**FY 2021**	**FY 2022**	**FY 2023**	**Cost To Complete**	**Total Cost**
Total Program Element	299.414	24.414	25.323	25.228	-	25.228	26.497	21.258	21.683	22.116	Continuing	Continuing
239B: *Health Services Data Warehouse (Air Force)*	1.766	0.000	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
239F: *IM/IT Test Bed (Air Force)*	7.709	0.000	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
239G: *Clinical Enterprise Intelligence Program (CEIP) (DHA)*	1.877	0.926	1.436	1.461	-	1.461	1.490	1.520	1.550	1.581	Continuing	Continuing
239H: *IM/IT Test Bed (Air Force) at DHA*	0.000	1.769	2.222	2.686	-	2.686	2.740	2.795	2.851	2.908	Continuing	Continuing
283C: *Medical Operational Data System (MODS) (Army)*	5.715	2.678	2.705	2.732	-	2.732	2.759	2.787	2.842	2.899	Continuing	Continuing
283D: *Army Medicine CIO Management Operations*	0.488	0.687	0.000	0.000	-	0.000	0.000	0.000	0.378	0.385	Continuing	Continuing
283H: *Psychological and Behavioral Health - Tools for Evaluation, Risk, and Management (PBH-TERM)*	0.125	0.000	0.080	0.080	-	0.080	0.000	0.000	0.000	0.000	Continuing	Continuing
283J: *Antibiotic Resistance Monitoring and Research (ARMoR-D)*	1.582	0.878	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
283L: *Pharmacovigilance Defense Application System*	0.624	0.400	0.350	0.350	-	0.350	0.350	0.350	0.350	0.357	Continuing	Continuing
283M: *Business Intelligence Competency Center (BICC)*	1.488	0.000	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
283N: *Corporate Dental System (CDS)*	0.709	0.000	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
283P: *Mobile HealthCare Environment (MHCE)*	0.362	0.300	0.417	0.331	-	0.331	0.473	0.364	0.000	0.000	Continuing	Continuing
385A: *Integrated Electronic Health Record Inc 1 (Tri-Service)*	146.417	0.000	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 2019 Defense Health Agency										Date: February 2018		
Appropriation/Budget Activity 0130: *Defense Health Program I* BA 2: *RDT&E*					R-1 Program Element (Number/Name) PE 0605013DHA *I Information Technology Development*							
386A: *Virtual Lifetime Electronic Record (VLER) HEALTH (Tri-Service)*	14.464	0.000	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
423A: *Defense Center of Excellence (FHP&RP)*	3.464	0.000	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
423B: *Defense Center of Excellence (Army)*	0.996	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)*	0.000	1.318	1.395	1.422	-	1.422	1.450	1.478	1.509	1.539	Continuing	Continuing
435A: *NICOE Continuity Management Tool*	2.855	0.000	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
446A: *Disability Mediation Service (DMS)*	1.286	0.000	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
480B: *Defense Medical Human Resources System (Internet) (DMHRSi) (Tri-Service)*	0.585	0.000	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
480C: *Defense Medical Logistics Standard Support (DMLSS) (Tri-Service)*	15.490	2.242	2.363	0.000	-	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
480D: *Defense Occupational and Environmental Health Readiness System - Industrial Hygiene (DOEHRS-IH) (Tri-Service)*	8.052	5.915	6.025	5.559	-	5.559	6.416	6.902	7.040	7.181	Continuing	Continuing
480F: *Executive Information/ Decision Support (EI/DS) (Tri-Service)*	5.936	0.000	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
480G: *Health Artifact and Image Management Solution (HAIMS) (Tri-Service)*	8.123	0.000	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
480K: *Integrated Federal Health Registry Framework (Tri-Service)*	4.065	0.000	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 2019 Defense Health Agency										Date: February 2018		
Appropriation/Budget Activity 0130: *Defense Health Program I* BA 2: *RDT&E*					R-1 Program Element (Number/Name) PE 0605013DHA *I Information Technology Development*							
480M: *Theather Medical Information Program - Joint (TMIP-J) (Tri-Service)*	28.731	0.000	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
480P: *Other Related Technical Activities (Tri-Service)*	4.139	0.668	3.500	0.000	-	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
480Y: *Clinical Case Management (Tri-Service)*	2.925	0.000	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
481A: *Theather Enterprise Wide Logistics System (TEWLS) Tri-Service)*	5.127	0.000	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
482A: *E-Commerce (DHA)*	10.468	2.725	3.704	4.200	-	4.200	4.284	4.370	4.457	4.546	Continuing	Continuing
490I: *Navy Medicine Chief Information Officer*	6.237	0.000	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
490J: *Navy Medicine Online*	5.259	0.000	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
480A: *Electronic Surveillance System for the Early Notification of Community-based Epidemics (ESSENCE) (Tri-Service)*	2.350	2.681	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
480Z: *Patient Assessment Screening Tool Outcome Registry (Tri-Service)*	0.000	0.798	0.538	0.000	-	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
480R: *Joint Disability Evaluation System IT (DHA)*	0.000	0.429	0.588	0.666	-	0.666	0.679	0.692	0.706	0.720	Continuing	Continuing
485: *Legacy Data Repository (DHA-C)*	-	0.000	0.000	5.741	-	5.741	5.856	0.000	0.000	0.000	Continuing	Continuing
Program MDAP/MAIS Code: **Project MDAP/MAIS Code(s):** 465												

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); Antibiotic Resistance Monitoring and Research (ARMoR-D); 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 2019 Defense Health Agency	Date: February 2018
Appropriation/Budget Activity 0130: *Defense Health Program* / BA 2: *RDT&E*	**R-1 Program Element (Number/Name)** PE 0605013DHA / *Information Technology Development*

The Navy Medical Command RDT&E funding supports the development required for those systems which are integral to Navy Medicine (i.e., Navy Medicine Online (NMO)). Navy Medicine also funds, when appropriate, a number of small-scale, opportunistic business improvements when the technology makes a sudden advance. These projects are generally not in the scope of the TRICARE Management Activity (TMA) Central Programs such as the development/integration of Defense Optical Fabrication Enterprise Management System (DOFEMS) into a fully automated system to support workload distribution, performance metrics, staffing requirements, supply management, calculation of operating costs from the current independently or manually DOFEMS system. This effort will be a web based centralized management tool and provide a standalone standard set of Lab Management software for all 26 Navy labs. Additionally, the re-design of HIV Management System (HMS) will be more user friendly, less time to perform everyday tasks and prevents the need to maintain separate databases. The re-design will also automate and minimize functions that require manual assistance and assist in fulfilling new requirements.

For the Air Force Medical Service (AFMS), this program element supports IM/IT development requirements within four AFMS Chief Information Officer defined core capabilities as essential to Air Force Medical Service IM/IT mission support. Data warehousing, reporting services, systems integration, and custom application development are featured in almost all IM/IT systems and application requests. The information needs of the AFMS are growing in volume, complexity, and delivery formats. In order to meet future requirements, aggregation of more and varied data sources require increasingly complex data warehousing capabilities. Demand for dynamic analytic capability will require investments in business intelligence, predictive analytic tools, open source research data models, and emerging personalized medicine analysis. Information is still largely produced in an ad hoc manner without standard methodologies, mapping of business requirements, transparent analytic models, and distributed by office productivity software. Centralized production of standard reports, balance sheets, and dynamic query tools would relieve many managers and action officer of routine work and increase leadership decision support. AFMS medical readiness reporting and tracking has set the standard in the DoD for over a decade but multiple applications now encompass what has merged into a common process of tracking unit capability and personal health assessments. Consolidation of medical readiness applications would streamline disability, medical readiness, deployment surveillance, and flying status tracking and reporting who currently must move between multiple applications.

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).

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 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

Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Defense Health Agency	Date: February 2018
Appropriation/Budget Activity 0130: *Defense Health Program I* BA 2: *RDT&E*	**R-1 Program Element (Number/Name)** PE 0605013DHA *I Information Technology Development*

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 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Previous President's Budget	25.340	25.323	19.487	-	19.487
Current President's Budget	24.414	25.323	25.228	-	25.228
Total Adjustments	-0.926	0.000	5.741	-	5.741
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.926	-			
• LDR	-	-	5.741	-	5.741

Congressional Add Details ($ in Millions, and Includes General Reductions)	FY 2017	FY 2018
Project: 485: *Legacy Data Repository (DHA-C)*		
Congressional Add: *** *PLEASE ENTER CONGRESSIONAL ADD TITLE* ***	0.000	-
Congressional Add Subtotals for Project: 485	0.000	-
Congressional Add Totals for all Projects	0.000	-

Change Summary Explanation

Funding added for the new initiative Legacy Data Repository added to the MHS IT portfolio to provide strategy, analysis, and solution to assume data management and governance for legacy Clinical and Business data for Solution Delivery Division systems decommissioned through the MHS GENESIS deployment (FY19, $+5.741M; FY20, $+5.856M).

Exhibit R-2A, RDT&E Project Justification: PB 2019 Defense Health Agency			Date: February 2018
Appropriation/Budget Activity 0130 / 2	R-1 Program Element (Number/Name) PE 0605013DHA / *Information Technology Development*	Project (Number/Name) 239B / *Health Services Data Warehouse (Air Force)*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
239B: *Health Services Data Warehouse (Air Force)*	1.766	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

Previously known as Assessment Demonstration Center (ADC), Health Services Data Warehouse (HSDW) addresses and focuses on Air Force Medical Service (AFMS) Data Strategy under the DoD and AF Net Centric Enterprise Services. HSDW will develop an Enterprise Data Warehouse (EDW) and Data Marts consolidating databases and transition to a SOA architecture. Program will improve data collection, aggregation, analysis, and data visualization of medical information. New data models will allow rapid development of enterprise-wide reports utilizing Business Intelligence tools.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Title: 239B - Health Services Data Warehouse	0.000	-	-
Description: AFMS will purchase COTS software/licenses and build custom scripts for development of the data warehouse. The COTS software will expedite consolidation and cleansing of data, measure data quality, merge and organize data for reporting tools. These efforts will be used to complete the transition of CDM data into the HSDW.			
Accomplishments/Planned Programs Subtotals	0.000	-	-

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
• BA-1, 0807781HP: *Non-Central Information Management/ Information Technology*	0.000	0.000	0.000	-	0.000	0.000	0.000	-	-	Continuing	Continuing

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2019 Defense Health Agency			Date: February 2018
Appropriation/Budget Activity 0130 / 2	**R-1 Program Element (Number/Name)** PE 0605013DHA / *Information Technology Development*	**Project (Number/Name)** 239F / *IM/IT Test Bed (Air Force)*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
239F: *IM/IT Test Bed (Air Force)*	7.709	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

Dedicated operational test (OT) location and staff encompassing the entire spectrum of healthcare services and products available in Military Treatment Facilities (MTFs), 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.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Title: 239F IM/IT Test Bed (Air Force)	0.000	-	-
Description: 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.			
Accomplishments/Planned Programs Subtotals	0.000	-	-

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
• N/A: *N/A*	0.000	0.000	-	-	-	-	-	-	-	Continuing	Continuing

Remarks

D. Acquisition Strategy

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2019 Defense Health Agency		Date: February 2018
Appropriation/Budget Activity 0130 / 2	**R-1 Program Element (Number/Name)** PE 0605013DHA / *Information Technology Development*	**Project (Number/Name)** 239F / *IM/IT Test Bed (Air Force)*

E. Performance Metrics

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2019 Defense Health Agency			Date: February 2018
Appropriation/Budget Activity 0130 / 2	**R-1 Program Element (Number/Name)** PE 0605013DHA / *Information Technology Development*	**Project (Number/Name)** 239G / *Clinical Enterprise Intelligence Program (CEIP) (DHA)*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
239G: *Clinical Enterprise Intelligence Program (CEIP) (DHA)*	1.877	0.926	1.436	1.461	-	1.461	1.490	1.520	1.550	1.581	Continuing	Continuing

A. Mission Description and Budget Item Justification

The goal of the Clinical Enterprise Intelligence Program (CEIP) strategic initiative is to advance patient-centered healthcare delivery through integration of informatics and thus transforming our enterprise to a rapid learning organization. The CEIP platform is a combination of hardware, software and technologists that together deliver the ability to use enterprise clinical data. The collection of these capabilities enables CEIP projects. These capabilities are in the following: Program Management, Data Warehousing, Application Portal; Infrastructure and Operations; Application Support; Business Intelligence; Analytics. Types of projects enabled by this platform include clinical dashboards, reports, data feeds, ad-hoc data requests, and data-mart.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Title: CEIP Platform Integration	0.926	1.436	1.461
Description: The CEIP platform is a combination of hardware, software and technologists that together deliver the ability to use enterprise clinical data.			
FY 2018 Plans: Start MHS Data Customer Service Initiative: Increase customer engagement, productivity, and satisfaction by expanding collaboration tools, streamlining processes, and providing data valet service with data and tools experts. Start Enhancement of Metadata Management: Start expanded use of Metadata Management for technical data management, enterprise functional goals, and project specific goals. Provide expanded column-based data security based upon functional requirements to protect PHI/PII. Start Improvement of Dashboards: Start the creation and maintenance of data quality dashboards. Includes the expansion of data quality management with increased manual data checks to proactively identify data quality issues and communicate those issues to the analytic community.			
FY 2019 Plans: Continue MHS Data Customer Service Initiative: Increase customer engagement, productivity, and satisfaction by expanding collaboration tools, streamlining processes, and providing data valet service with data and tools experts.			

Exhibit R-2A, RDT&E Project Justification: PB 2019 Defense Health Agency		Date: February 2018
Appropriation/Budget Activity 0130 / 2	**R-1 Program Element (Number/Name)** PE 0605013DHA / *Information Technology Development*	**Project (Number/Name)** 239G / *Clinical Enterprise Intelligence Program (CEIP) (DHA)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Continue Enhancement of Metadata Management: Expanded use of Metadata Management for technical data management, enterprise functional goals, and project specific goals. Provide expanded column-based data security based upon functional requirements to protect PHI/PII. Continue Improvement of Dashboards: Creation and maintenance of data quality dashboards. Includes the expansion of data quality management with increased manual data checks to proactively identify data quality issues and communicate those issues to the analytic community. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Continued development of the CEIP requirements.			
Accomplishments/Planned Programs Subtotals	0.926	1.436	1.461

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
• BA-1, 0807793DHA: *MHS Tri-Service Information*	29.435	31.191	28.319	-	28.319	23.366	28.764	28.780	29.356	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.

E. Performance Metrics

Each program establishes performance measurements which are usually included in the MHS IT Annual Performance Plan. Program cost, schedule and performance are measured periodically using a systematic approach. The results of these measurements are presented to management on a regular basis in various as part of the Integrated Product and Process Development (IPPD) process, In Process Reviews (IPRs), or other reviews to determine program effectiveness and provide new direction as needed to ensure the efficient use of resources. Performance metrics for specific projects may be viewed at the OMB Federal IT Dashboard website.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Defense Health Agency			Date: February 2018
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 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
239H: *IM/IT Test Bed (Air Force) at DHA*	0.000	1.769	2.222	2.686	-	2.686	2.740	2.795	2.851	2.908	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. Funding will be transferred to Air Force Medical IT during year of execution.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Title: Operational Testing Service	1.769	2.222	2.686
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 2018 Plans:*** As in prior years, DHA will transfer funding to AF Medical IT during year of execution. AF will continue to test the DHMSM Electronic Health Record, JOMIS, Legacy TMIP, DMIX and HAIMS. Multi-Service Operational Test and Evaluation(s) will be conducted for the DHMSM Fixed Facility sites and the JOMIS Operational Medicine locations. Plans are to 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, similar to FY17. ***FY 2019 Plans:*** As in prior years, DHA will transfer funding to AF Medical IT during year of execution. AF will continue to test the DHMSM Electronic Health Record, JOMIS, Legacy TMIP, DMIX and HAIMS. Multi-Service Operational Test and Evaluation(s) will be conducted for the DHMSM Fixed Facility sites and the JOMIS Operational Medicine locations. Plans are to continue capability			

Exhibit R-2A, RDT&E Project Justification: PB 2019 Defense Health Agency		Date: February 2018
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 2017	FY 2018	FY 2019
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, similar to FY18. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Inflation.			
Accomplishments/Planned Programs Subtotals	1.769	2.222	2.686

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. Funding will be transferred to Air Force Medical IT during year of execution.

E. Performance Metrics

As determined by and based on the requirements for Air Force Medical IT operational testing.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Defense Health Agency			Date: February 2018
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 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
283C: *Medical Operational Data System (MODS) (Army)*	5.715	2.678	2.705	2.732	-	2.732	2.759	2.787	2.842	2.899	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 2017	FY 2018	FY 2019
Title: Medical Operational Data System (MODS)	2.678	2.705	2.732
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. ***FY 2018 Plans:*** FY 2018 funds are being used to respond to Milestone Decision Authority decisions to add new capabilities, significantly enhance, and technically upgrade existing capabilities, and use federally funded research and development center resources for system engineering and acquisition effectiveness services. These technology upgrades support the system's ability to help strengthen the scientific basis for decision-making in patient safety and quality performance within the MHS. ***FY 2019 Plans:*** FY 2019 funds will be used to respond to Milestone Decision Authority decisions to add new capabilities, significantly enhance, and technically upgrade existing capabilities, and use federally funded research and development center resources for system engineering and acquisition effectiveness services. These technology upgrades will support the system's ability to help strengthen the scientific basis for decision-making in patient safety and quality performance within the MHS. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** N/A			
Accomplishments/Planned Programs Subtotals	2.678	2.705	2.732

Exhibit R-2A, RDT&E Project Justification: PB 2019 Defense Health Agency			Date: February 2018
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)*	

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
• BA-1, 0807781HP: *Non-Central Information Management/ Information Technology*	12.984	13.385	13.628	-	13.628	13.878	13.937	14.076	14.358	Continuing	Continuing
• BA-3, 0807721HP: *Replacement/Modernization*	0.620	0.300	0.400	-	0.400	0.200	0.202	0.204	0.208	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.

E. Performance Metrics

1. MEASURE: Data Warehouse reduces total number of database maintenance hours.
METRIC: % database maintenance hours = number of monthly database maintenance hours/total database maintenance hours of previous year average.

2. MEASURE: Data Warehouse supports queries and reports with few data errors (information quality/accuracy).
METRIC: % of reports and queries that contain data errors = total number of reports and queries with data errors /total number of reports and queries.

3. MEASURE: Data Warehouse provides the data needed by users and applications (information quality/completeness).
METRIC: % post-Data Warehouse = total number (post-Data Warehouse) queries and reports/total number (pre + post-Data Warehouse) queries and reports.

4. MEASURE: Three-Tier Object Oriented Architectural Design (3TOOAD) benefits are reduced costs for implementation of new functionalities.
METRIC: % of labor cost = cost of MSR for functional implementation/average cost of similar MSR from previous year(s).

5. MEASURE: Organizational and individual impact of Data Warehouse, 3TOOAD, and Robust Business Intelligence.
METRIC: >= 8.5 avg. benchmark score (0 to 10 scale) on quarterly quality and impact surveys from users.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Defense Health Agency			Date: February 2018
Appropriation/Budget Activity 0130 / 2	R-1 Program Element (Number/Name) PE 0605013DHA / *Information Technology Development*	Project (Number/Name) 283D / *Army Medicine CIO Management Operations*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
283D: *Army Medicine CIO Management Operations*	0.488	0.687	0.000	0.000	-	0.000	0.000	0.000	0.378	0.385	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 Army Medicine CIO Management Operations program includes development projects for Army service level support. Specifically, the Army Medicine CIO Management Operations encompasses the Army Medical CIO's Information Management/Information Technology (IM/IT) development activities to ensure compliance with Congressional, Office of Management and Budget, DoD, and Military Health System requirements.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Title: 283D - Army Medicine CIO Management Operations	0.687	0.000	0.000
Description: The Army Medicine CIO Management Operations will provide system development, engineering, and testing requirements of interim Army medical applications in an operationally realistic, risk controlled test environment to comply with Congressional, Office of Management and Budget, DoD, and Military Health System requirements. ***FY 2018 Plans:*** No funding programmed. ***FY 2019 Plans:*** No funding programmed.			
Accomplishments/Planned Programs Subtotals	0.687	0.000	0.000

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
• BA-1, 0807781HP: *Non-Central Information Management/ Information Technology*	25.070	19.430	8.705	-	8.705	3.936	5.626	8.143	11.088	Continuing	Continuing
• BA-1, 0807721HP: *Replacement/Modernization*	3.186	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
• BA-1, 0807798HP: *Management Headquarters*	2.890	2.784	2.830	-	2.830	2.880	2.879	2.882	2.884	Continuing	Continuing

Exhibit R-2A, RDT&E Project Justification: PB 2019 Defense Health Agency		Date: February 2018
Appropriation/Budget Activity 0130 / 2	**R-1 Program Element (Number/Name)** PE 0605013DHA / *Information Technology Development*	**Project (Number/Name)** 283D / *Army Medicine CIO Management Operations*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
• BA-1, 0807796HP: *Base Operations*	0.510	0.522	0.536	-	0.536	0.536	0.536	0.536	0.536	Continuing	Continuing

Remarks

Controls for AMCMO were reduced to support the Desktop to Datacenter initiative that transferred funding to DHA HIT, per the FY18 POM MOA.

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.

E. Performance Metrics

Periodic management evaluation based on ability to provide system development, engineering, and testing requirements of new Army medical applications.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Defense Health Agency			Date: February 2018
Appropriation/Budget Activity 0130 / 2	**R-1 Program Element (Number/Name)** PE 0605013DHA / *Information Technology Development*	**Project (Number/Name)** 283H / *Psychological and Behavioral Health - Tools for Evaluation, Risk, and Management (PBH-TERM)*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
283H: *Psychological and Behavioral Health - Tools for Evaluation, Risk, and Management (PBH-TERM)*	0.125	0.000	0.080	0.080	-	0.080	0.000	0.000	0.000	0.000	Continuing	Continuing

A. Mission Description and Budget Item Justification

The US Army Medical Command (MEDCOM) and Defense Centers of Excellence (DCoE) have partnered to develop this information technology project for joint Service level support. The PBH-TERM platform addresses two congressionally mandated initiatives including the behavioral health management within the Warrior Transition Command (GH risk Management module/BHRM and within primary care settings (FIRST-STEPS). Further development efforts allow expansion of capabilities to deliver ongoing user support and training via web-based modules within PBH-TERM and will provide costs casings in terms of staffing requirements, conferencing and reporting.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Title: Psychological and Behavioral Health – Tools for Evaluation, Risk, and Management (PBH-TERM)	0.000	0.080	0.080
Description: PBH-TERM is a web-based psychological and Behavioral Health (BH) information technology platform, which supports evidence-based, standardized and integrated BH risk and case management initiatives as well as program evaluation for the Warrior Transition Command and Patient/Soldier-Centered BH (PCBH) care in primary care settings. ***FY 2018 Plans:*** FY 2018 funds are being used to complete the self-service functionality of the system through adding a “view” only feature, which allows enhanced visibility by authorized BH providers. These system enhancements will support the Army’s ability to help effective diagnostic and treatment methodologies with the aim of improved mental health. ***FY 2019 Plans:*** FY 2019 funds will be used to support any further enhancements that may be required after the Behavioral Health Recovery Management(BHRM) self-service functionality is put into production during Fiscal Year 2018.			
Accomplishments/Planned Programs Subtotals	0.000	0.080	0.080

Exhibit R-2A, RDT&E Project Justification: PB 2019 Defense Health Agency		Date: February 2018
Appropriation/Budget Activity 0130 / 2	**R-1 Program Element (Number/Name)** PE 0605013DHA / *Information Technology Development*	**Project (Number/Name)** 283H / *Psychological and Behavioral Health - Tools for Evaluation, Risk, and Management (PBH-TERM)*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
• BA-1, 0807781HP: *Non-Central Information Management/ Information Technology*	0.000	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
• BA-1, 0807714HP: *other health Activities*	0.000	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
• BA-1, 0807793DHA: *MHS Tri-Service Information Management/ Information Technology (IM/IT)*	0.074	0.074	0.074	-	0.074	0.074	0.074	0.074	0.074	Continuing	Continuing

Remarks

BAG 104 funding moved to DHA starting on 01 Oct 2015 per FY 2016 POM MOA.
BAG 103 funding moved to DHA starting on 01 Oct 2016 per FY 2017 POM MOA. Moving DCoE to DHA (BA-1, 0807714HP)

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 congressional mandates and program objectives. Strategy is revised as required as a result of periodic program reviews or major decisions.

E. Performance Metrics

FY 2018
Measure: Improved user efficiencies through automation of support/training modules and guidelines.
Baseline: January 2014, 25% user efficiency rating.
Target: March 2018, 90% user efficiency rating.
Source: Audits and analysis performed by Defense Centers of Excellence, Patient-Centered Behavioral Health personnel.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Defense Health Agency			Date: February 2018
Appropriation/Budget Activity 0130 / 2	R-1 Program Element (Number/Name) PE 0605013DHA / *Information Technology Development*	Project (Number/Name) 283J / *Antibiotic Resistance Monitoring and Research (ARMoR-D)*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
283J: *Antibiotic Resistance Monitoring and Research (ARMoR-D)*	1.582	0.878	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing

Note

In FY 2018, the title of project code 283J is changed from "Multi-Drug Resistant Surveillance Network (MSRN)" to "Antibiotic Resistance Monitoring and Research (ARMoR-D)".

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 Antibiotic Resistance Monitoring and Research (ARMoR-D) program includes development projects for Army Service level support. Specifically, the ARMoR-D is the Enterprise Antibiotic Resistant Bacteria program, which collects, characterizes, and conducts epidemiologic surveillance of highly resistant bacteria. ARMoR-D promotes best clinical practices, enhances performance improvement, and focuses infection control strategies.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Title: Antibiotic Resistance Monitoring and Research (ARMoR-D)	0.878	0.000	0.000
Description: ARMoR-D is the Enterprise effort to collect and characterize bacterial isolates to inform best practice, such as patient management and antibiotic selection. ***FY 2018 Plans:*** No funding programmed. ***FY 2019 Plans:*** No funding programmed. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** N/A.			
Accomplishments/Planned Programs Subtotals	0.878	0.000	0.000

Exhibit R-2A, RDT&E Project Justification: PB 2019 Defense Health Agency		Date: February 2018
Appropriation/Budget Activity 0130 / 2	**R-1 Program Element (Number/Name)** PE 0605013DHA / *Information Technology Development*	**Project (Number/Name)** 283J / *Antibiotic Resistance Monitoring and Research (ARMoR-D)*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
• BA-1, 0807781HP: *Non-Central Information Management/ Information Technology*	0.544	0.757	0.684	-	0.684	0.700	0.719	0.735	0.829	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.

E. Performance Metrics

Business metrics:
1. Turn-around time from receipt of isolate shipment to initial test results being available on ARMoR-D System.
Current Performance : 2 weeks
Target Performance: 4 days
Data Source: Comparison of isolate receipt date and test result date

2. Time to prepare monthly Antibiogram Report
Current Performance: 8 weeks
Target Performance: 2 weeks
Data Source: Number of days following the end of the month that the report is distributed/posted

3. Antibiogram (or other major product) Report Views
Current Performance: N/A (not currently implemented)
Target Performance: 30 per month
Data Source: Server logs

Exhibit R-2A, RDT&E Project Justification: PB 2019 Defense Health Agency			Date: February 2018
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 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
283L: *Pharmacovigilance Defense Application System*	0.624	0.400	0.350	0.350	-	0.350	0.350	0.350	0.350	0.357	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 2017	FY 2018	FY 2019
Title: Pharmacovigilance Defense Application System (PVDAS)	0.400	0.350	0.350
Description: 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. ***FY 2018 Plans:*** Funding will be used to start the planning and development to refine the drug surveillance capabilities and data visualization capabilities of PVDAS. ***FY 2019 Plans:*** Funding will be used to implement the testing of the drug surveillance and data visualization capabilities that were developed during Fiscal Year 2018.			
Accomplishments/Planned Programs Subtotals	0.400	0.350	0.350

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
• BA-1, 0807781HP: *Non-Central Information Management/ Information Technology*	0.000	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
• BA-1, 0807714HP: *Other Health Activities*	0.980	0.974	1.036	-	1.036	2.048	1.134	1.222	1.258	Continuing	Continuing
• BA-1, 0807798HP: *Management Headquarters*	1.500	1.550	1.600	-	1.600	1.650	1.700	1.700	1.752	Continuing	Continuing

Exhibit R-2A, RDT&E Project Justification: PB 2019 Defense Health Agency		Date: February 2018
Appropriation/Budget Activity 0130 / 2	**R-1 Program Element (Number/Name)** PE 0605013DHA / *Information Technology Development*	**Project (Number/Name)** 283L / *Pharmacovigilance Defense Application System*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost

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.

E. Performance Metrics

1. MEASURE: All Tier 2 tickets were resolved as required.
METRIC: Maintain application including software components resolving 100% of all problems resolvable at the Tier 2 level

2. MEASURE: Hosted Environment up time maintained at 98%.
METRIC: Provide an operational readiness up time of 98% for the hosted environment, where the application is never inoperable for longer than 3 business days.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Defense Health Agency			Date: February 2018
Appropriation/Budget Activity 0130 / 2	R-1 Program Element (Number/Name) PE 0605013DHA / *Information Technology Development*	Project (Number/Name) 283M / *Business Intelligence Competency Center (BICC)*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
283M: *Business Intelligence Competency Center (BICC)*	1.488	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 Business Intelligence Competency Center (BICC) is the business intelligence capability and management processes, focused on providing actionable data at the point of service that facilitates provisioning of actionable information for MTF Commanders, AMEDD Leadership and end users.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Title: Business Intelligence Competency Center (BICC)	0.000	0.000	-
Description: The Business Intelligence Competency Center (BICC) is the business intelligence capability and management processes, focused on providing actionable data at the point of service that facilitates provisioning of actionable information for MTF Commanders, AMEDD Leadership and end users. ***FY 2018 Plans:*** No Funding Programmed. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** N/A.			
Accomplishments/Planned Programs Subtotals	0.000	0.000	-

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
• BA-1, 0807781HP: *Non-Central Information Management/ Information Technology*	0.000	0.000	0.000	-	0.000	0.000	-	-	-	Continuing	Continuing
• BA-3, 0807721HP: *Replacement/Modernization*	0.000	0.000	0.000	-	0.000	0.000	-	-	-	Continuing	Continuing

Remarks

O&M Funding transferred to DHA starting on 01OCT2015, per FY16POM MOA.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Defense Health Agency		Date: February 2018
Appropriation/Budget Activity 0130 / 2	**R-1 Program Element (Number/Name)** PE 0605013DHA / *Information Technology Development*	**Project (Number/Name)** 283M / *Business Intelligence Competency Center (BICC)*

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.

E. Performance Metrics

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2019 Defense Health Agency			Date: February 2018
Appropriation/Budget Activity 0130 / 2	R-1 Program Element (Number/Name) PE 0605013DHA / *Information Technology Development*	Project (Number/Name) 283N / *Corporate Dental System (CDS)*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
283N: *Corporate Dental System (CDS)*	0.709	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 Corporate Dental System (CDS) is the Dental digital web based DICOM image capture and viewing application.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Title: Corporate Dental System (CDS) ***Description:*** The Corporate Dental System (CDS) is the Dental digital web based DICOM image capture and viewing application.	0.000	-	-
Accomplishments/Planned Programs Subtotals	0.000	-	-

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
• BA-1, 0807781HP: *Non-Central Information Managment/ Information Technology*	0.111	0.112	0.114	-	0.114	0.115	0.117	-	-	Continuing	Continuing
• BA-1, 0807715HP: *Dental Care Activities*	12.772	13.051	13.386	-	13.386	13.656	13.851	-	-	Continuing	Continuing
• BA-3, 0807721HP: *Replacement/Modernization*	0.600	0.600	0.600	-	0.600	0.600	0.600	-	-	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.

E. Performance Metrics

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2019 Defense Health Agency			Date: February 2018
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 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
283P: *Mobile HealthCare Environment (MHCE)*	0.362	0.300	0.417	0.331	-	0.331	0.473	0.364	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 2017	FY 2018	FY 2019
Title: Mobile HealthCare Environment (MHCE)	0.300	0.417	0.331
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. ***FY 2018 Plans:*** FY 2018 certification/funding is being utilized to continue the expansion of the MHCE functionality deployed in FY 2017, which will be the data exchange with other systems, specifically a patient's personal health record, and enterprise systems such as their electronic health record. These system enhancements will support the Army's ability to help strengthen the scientific basis for decision-making in patient safety and quality performance within the Military Health System. ***FY 2019 Plans:*** FY 2019 funding will be utilized to finalize the expansion of the MHCE functionality deployed in FY 2017-2018, which will be the data exchange with other systems, specifically a patient's personal health record, and enterprise systems such as their electronic health record. These system enhancements will support the Army's ability to help strengthen the scientific basis for decision-making in patient safety and quality performance within the Military Health System. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** N/A			
Accomplishments/Planned Programs Subtotals	0.300	0.417	0.331

Exhibit R-2A, RDT&E Project Justification: PB 2019 Defense Health Agency		Date: February 2018
Appropriation/Budget Activity 0130 / 2	**R-1 Program Element (Number/Name)** PE 0605013DHA / *Information Technology Development*	**Project (Number/Name)** 283P / *Mobile HealthCare Environment (MHCE)*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
• BA-1, 0807781HP: *Non-Central Information Management/ Information Technology*	1.350	1.416	1.477	-	1.477	1.551	1.561	1.571	1.571	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.

E. Performance Metrics

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2019 Defense Health Agency			Date: February 2018
Appropriation/Budget Activity 0130 / 2	R-1 Program Element (Number/Name) PE 0605013DHA / *Information Technology Development*	Project (Number/Name) 385A / *Integrated Electronic Health Record Inc 1 (Tri-Service)*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
385A: *Integrated Electronic Health Record Inc 1 (Tri-Service)*	146.417	0.000	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing

Project MDAP/MAIS Code: 465

A. Mission Description and Budget Item Justification

The integrated Electronic Health Record (iEHR) was approved to provide seamless integrated sharing of electronic health data between the DoD and Department of Veterans Affairs (VA).
Commensurate with the OSD AT&L Acquisition Decision Memoranda (ADM), dated July 21, 2013 and January 2, 2014, the former joint DoD and VA iEHR program has been restructured within the DoD to pursue two separate but related healthcare information technology efforts, the DoD Healthcare Management System Modernization (DHMSM) program and a redefined iEHR program. These programs report through the PEO DoD Healthcare Management Systems (DHMS) to the USD (AT&L).

iEHR RDT&E is reported under the program element 0605013 through FY 2013 inclusive, but will be reported under new program element 0605023 for FY 2014 and out.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Title: Integrated Electronic Health Record (iEHR) Inc 1 (Tri-Service)	0.000	-	-
Description: The iEHR primary role is health care delivery services. iEHR 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.			
Accomplishments/Planned Programs Subtotals	0.000	-	-

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

None planned.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Defense Health Agency			Date: February 2018
Appropriation/Budget Activity 0130 / 2	R-1 Program Element (Number/Name) PE 0605013DHA / *Information Technology Development*	Project (Number/Name) 386A / *Virtual Lifetime Electronic Record (VLER) HEALTH (Tri-Service)*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
386A: *Virtual Lifetime Electronic Record (VLER) HEALTH (Tri-Service)*	14.464	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 primary goal of the VLER Health initiative is to enable the secure sharing of health information (i.e., demographic and clinical data) between DoD and external Federal and private sector partners which meets Meaningful Use (MU) requirements to improve healthcare quality, safety, and efficiency. By electronically sharing health information using national standards, that information can support tracking key clinical conditions, communicating that information to better coordinate care, and engaging patients in their own care. The VLER Health initiative provides clinicians with the most up-to-date information, potentially reducing redundant diagnostic tests, medical errors, paperwork and handling, and overall healthcare costs. These benefits, in turn, align with the MHS quadruple aim by ensuring that the military force is medically ready to deploy; the military beneficiary population remains healthy through focused prevention; patient care is convenient, equitable, safe, and of the highest quality; and the total cost of healthcare is reduced through the reduction of waste and focus on quality.

VLER Health funding will be reflected in the Integrated Electronic Health Record Program Element 0605023 in FY 2014 and out.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Title: Virtual Lifetime Electronic Record (VLER) HEALTH (Tri-Service) ***Description:*** Work with Department of Veterans Affairs (VA), Department of Health & Human Services (HHS), and Private Sector to expand VLER.	0.000	-	-
Accomplishments/Planned Programs Subtotals	0.000	-	-

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
• BA-1, 0807793HP: *MHS Tri-Service Information*	-	-	-	-	-	-	-	-	-		

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 2019 Defense Health Agency		Date: February 2018
Appropriation/Budget Activity 0130 / 2	**R-1 Program Element (Number/Name)** PE 0605013DHA / *Information Technology Development*	**Project (Number/Name)** 386A / *Virtual Lifetime Electronic Record (VLER) HEALTH (Tri-Service)*

E. Performance Metrics

Each program establishes performance measurements which are usually included in the MHS IT Annual Performance Plan. Program cost, schedule and performance are measured periodically using a systematic approach.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Defense Health Agency			Date: February 2018
Appropriation/Budget Activity 0130 / 2	R-1 Program Element (Number/Name) PE 0605013DHA / *Information Technology Development*	Project (Number/Name) 423A / *Defense Center of Excellence (FHP&RP)*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
423A: *Defense Center of Excellence (FHP&RP)*	3.464	0.000	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing

Note

In FY15, transferred from FHP&R (Project Code 423A) to Army (Project Code 423B).

A. Mission Description and Budget Item Justification

The Defense Centers of Excellence for Psychological Health and Traumatic Brain Injury (DCoE) is a United States Department of Defense (DoD) organization that provides guidance across DoD programs related to psychological health (PH) and traumatic brain injury (TBI) issues. The organization's mission statement is: "DCoE assesses, validates, oversees and facilitates prevention, resilience, identification, treatment, outreach, rehabilitation, and reintegration programs for PH and TBI to ensure the Department of Defense meets the needs of the USA's military communities, warriors and families." DCoE focuses on education and training; clinical care; prevention; research; and service member, family and community outreach. In collaboration with the Department of Veterans Affairs, the organization supports the Department of Defense's commitment of caring for service members from the time they enter service and throughout the completion of their service. DCoE also seeks to mitigate the stigma that still deters some from reaching out for help for problems such as post-traumatic stress disorder and TBI. The organization has a leadership role in collaborating with a national network of external entities[1] including non-profit organizations,[2] other DoD agencies, academia, Congress,[3] military services and other federal agencies.[4] Public health service and civil service workers, including personnel from the Department of Veterans Affairs and individuals from all the military services as well as contract personnel comprise the staff of DCoE. DCoE's goals include providing the necessary resources to facilitate the care of service members who experience TBI or PH concerns and ensuring that appropriate standards of care exist and are maintained across the Department of Defense. DCoE seeks to create, identify and share best practices, conducting necessary pilot or demonstration projects to better inform quality standards when best practices or evidence based recommendations are not readily available. Other DCoE goals include ensuring that program standards are executed and quality is consistent and creating a system in which individuals across the United States expect and receive the same level and quality of service regardless of their service branch, component, rank or geographic location. DCoE comprises eight directorates and six component centers responsible for TBI/PH issues. These DCoE entities execute programs, provide clinical care, conduct research, identify and share best practices and provide strategic planning for PH and TBI across the DoD.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Title: Defense Center Of Excellence (FHP&RP) ***Description:*** DCoE programs and products are developed to drive innovation across the continuum of care by identifying treatment options and other clinical and research methods that deliver superior outcomes. Products range from tools customized for health care providers to electronic resources for service members and families.	0.000	-	-
Accomplishments/Planned Programs Subtotals	0.000	-	-

Exhibit R-2A, RDT&E Project Justification: PB 2019 Defense Health Agency		Date: February 2018
Appropriation/Budget Activity 0130 / 2	**R-1 Program Element (Number/Name)** PE 0605013DHA / *Information Technology Development*	**Project (Number/Name)** 423A / *Defense Center of Excellence (FHP&RP)*

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2019 Defense Health Agency			Date: February 2018
Appropriation/Budget Activity 0130 / 2	R-1 Program Element (Number/Name) PE 0605013DHA / *Information Technology Development*	Project (Number/Name) 423B / *Defense Center of Excellence (Army)*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
423B: *Defense Center of Excellence (Army)*	0.996	0.000	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing

Note

Transferred from FHP&R (Project Code 423A) to Army (Project Code 423B) in FY 2015.
Transferred from Army (Project Code 423B) to DHA (Project Code 423C) in FY 2017.

A. Mission Description and Budget Item Justification

The Defense Centers of Excellence for Psychological Health and Traumatic Brain Injury is administratively managed under the US Army Medical Command (MEDCOM) that provides guidance across DoD programs related to psychological health (PH) and traumatic brain injury (TBI) issues. DCoE focuses on education and training; clinical care; prevention; research; and Service Member, Family, and community outreach. In collaboration with the Department of Veterans Affairs, DCoE supports the DoD's commitment of caring for Service members from the time they enter service and throughout the completion of their service. DCoE also seeks to mitigate the stigma that still deters some from reaching out for help for problems such as post-traumatic stress disorder and TBI. The organization has a leadership role in collaborating with a national network of external entities to include: 1- Non-profit organizations, 2- Other DoD agencies, academia, and Congress, 3- Military services and other federal agencies and, 4- Public Health Service and civil service workers, to include personnel from the Department of Veterans Affairs and individuals from all military services as well as contractor personnel assigned to DCoE. DCoE's goals include providing the necessary resources to facilitate the care of Service members who experience TBI and/or PH concerns and ensuring that appropriate standards of care exist and are maintained across the DoD. DCoE seeks to create, identify, and share best practices; conducting necessary pilot or demonstration projects to better inform quality standards when best practices or evidence-based recommendations are not available. Additional goals include ensuring that program standards are executed and quality is consistent for all individuals throughout the United States so that they receive the same level and quality of service regardless of service branch, component, rank, or location. DCoE is comprised of a HQs element and three component centers responsible for PH/TBI issues. These DCoE directorates and centers execute programs, provide clinical care, conduct research, and identify and share best practices and provide strategic planning for all PH and TBI throughout the DoD. Management of IMIT funds are transferred from Army to DHA effective in FY 2017.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Title: Defense Center of Excellence (Army)	0.000	0.000	0.000
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.			
FY 2018 Plans:			

Exhibit R-2A, RDT&E Project Justification: PB 2019 Defense Health Agency		Date: February 2018
Appropriation/Budget Activity 0130 / 2	**R-1 Program Element (Number/Name)** PE 0605013DHA / *Information Technology Development*	**Project (Number/Name)** 423B / *Defense Center of Excellence (Army)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
No funding programmed. ***FY 2019 Plans:*** No funding programmed. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** N/A			
Accomplishments/Planned Programs Subtotals	0.000	0.000	0.000

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
• BA-1, 0807781HP: *Non-Central Information Management/ Information Technology*	-	-	-	-	-	-	-	-	-		
• BA-1, 0807724HP: *Military Unique - Other Medical*	-	-	-	-	-	-	-	-	-		

Remarks

Transferred from Army (Project Code 423B) to DHA (Project Code 423C) in FY 2017.

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.

E. Performance Metrics

Each program establishes performance measurements. Program cost, schedule and performance are measured periodically using a systematic approach.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Defense Health Agency			Date: February 2018
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 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
423C: *Defense Center of Excellence (T2T/PBH TERM) (DHA)*	0.000	1.318	1.395	1.422	-	1.422	1.450	1.478	1.509	1.539	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 2017	FY 2018	FY 2019
Title: Defense Center of Excellence (DHA) T2T and PBH TERM	1.318	1.395	1.422

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 2018 Plans:
FY18 plans to continue the development and deployment of 3-4 mobile applications each year. Remaining funding will be used for application sustainment of the mobile applications, T2health.dcoe.mil website, and the retirement of specific mobile applications. PBH TERM funding will be used to support the DoD Strategic Management Plan Objective 3 – Increased HIT Effectiveness and DHA Strategic Objective IP8 – Improve Comprehensive Primary Care.

FY 2019 Plans:

Exhibit R-2A, RDT&E Project Justification: PB 2019 Defense Health Agency		Date: February 2018
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 2017	FY 2018	FY 2019
Continue the development and deployment of 3-4 mobile applications each year. Remaining funding will be used for application sustainment of the mobile applications, T2health.dcoe.mil website, and the retirement of specific mobile applications. PBH TERM funding will be used to support the DoD Strategic Management Plan Objective 3 – Increased HIT Effectiveness and DHA Strategic Objective IP8 – Improve Comprehensive Primary Care. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Inflation.			
Accomplishments/Planned Programs Subtotals	1.318	1.395	1.422

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
• BA-1, 0807793DHA: *MHS Tri-Service Information Management/ Information Technology (IM/IT)*	2.159	2.198	2.239	-	2.239	0.000	0.000	0.000	0.000	Continuing	Continuing
• BA-1, 0807724DHA: *Military Unique Requirements - Other Medical - Health Care*	3.733	3.768	3.080	-	3.080	6.148	6.271	6.458	6.580	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.

E. Performance Metrics

Each program establishes performance measurements. Program cost, schedule and performance are measured periodically using a systematic approach.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Defense Health Agency											Date: February 2018	
Appropriation/Budget Activity 0130 / 2					R-1 Program Element (Number/Name) PE 0605013DHA / *Information Technology Development*				Project (Number/Name) 435A / *NICOE Continuity Management Tool*			
COST ($ in Millions)	**Prior Years**	**FY 2017**	**FY 2018**	**FY 2019 Base**	**FY 2019 OCO**	**FY 2019 Total**	**FY 2020**	**FY 2021**	**FY 2022**	**FY 2023**	**Cost To Complete**	**Total Cost**
435A: *NICOE Continuity Management Tool*	2.855	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 NICoE Continuity Management Tool (NCMT) is a business intelligence tool to perform healthcare modeling and analysis of NICoE activities.

Major capabilities defined by the NICoE in Jun 2009 and refined in Jun 2010 prior to the program procurement in Sep 2010, are subsystems that make up the NCMT end-to-end system, and were prioritized in the following order: Continuity Management Subsystem, Scheduling Subsystem, Clinical Subsystem, Research Subsystem, Training and Education Subsystem, Administration Subsystem.

Continuity Management Subsystem: Records every interaction with a particular Warrior and his or her Family as one entity to manage initial contact, referral, screening, intake, pre-admission, admission, discharge and follow-up processes.

Scheduling Subsystem: Captures, organizes, displays the complex schedules of the NICoE. Used to manage patient appointments, the utilization of facility resources including treatment rooms, modalities, provider staff and support staff.

Clinical Subsystem: A clinical application and clinical database that includes the functions that allow the user to store, classify, analyze, retrieve, interpret, present clinical data. Allows the visualization of all of the various components of the patient's health record: radiology, pathology, lab results, neurological assessments, etc.

Research Subsystem: Consists of the research database and the applications that allow the user to store, classify, analyze, retrieve, interpret, present data. Allows NICoE to aggregate data from disparate systems, both within the NICoE and from partner organizations, helping the research move faster, with more agility, and with purpose and direction supported by validated facts. Allows researchers to address many data challenges from a single system and transforms the way they do research.

Training and Education Subsystem: Provides the ability to share relevant research, diagnosis, treatment information with authorized users.

Administration Subsystem: Provides the ability to manage a portfolio of projects related to continuity of care, clinical operations, research, training and education functions in the NICoE.

The NCMT is supported by Three Contracts: Hosting (Provides Hardware, Software, Maintenance), System Integration (Implements NICoE Functional Requirements, Turns NICoE Ideas and Goals into Computer Screens, Templates, Applications – Capabilities) and Decision Support (Acquisition Management, Requirements Definition, Implementation Planning).
The NICoE's missions are to:

Exhibit R-2A, RDT&E Project Justification: PB 2019 Defense Health Agency		Date: February 2018
Appropriation/Budget Activity 0130 / 2	**R-1 Program Element (Number/Name)** PE 0605013DHA / *Information Technology Development*	**Project (Number/Name)** 435A / *NICOE Continuity Management Tool*

1) Explore novel, promising, and futuristic solutions to the complex spectrum of combat brain injury from TBI to posttraumatic stress disorder (PTSD) and other psychological injuries;

2) Ensure – through continuous outreach and high quality health care – that America embraces those who have served and sacrificed so much on its behalf; and

3) Train the next generation of providers in the most effective approaches to prevention, detection, and treatment options.

Currently the established AHLTA specification does not adequately support the specialized care and continuity management integration necessary to support NICoE clinical operations and research. Additionally, AHLTA does not support the data mining and pattern recognition requirements of the NICoE.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Title: NICOE Continuity Management Tool	0.000	-	-
Description: The NCMT is a tool designed to perform healthcare modeling and analysis of NICoE activities. Major capabilities include Continuity Management, Scheduling, Clinical Database, Research Database, Training and Education, and Administration.			
Accomplishments/Planned Programs Subtotals	0.000	-	-

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
• 4187 807783: *NCMT*	0.000	0.000	-	-	-	-	-	-	-	Continuing	Continuing
• 4187 807781: *NCMT*	4.259	4.332	-	-	-	-	-	-	-	Continuing	Continuing
• 1690 807781: *HEIS*	0.000	0.000	-	-	-	-	-	-	-	Continuing	Continuing
• 4859 807781: *JMED*	0.000	0.000	-	-	-	-	-	-	-	Continuing	Continuing
• 4940 807781: *JTFCMI*	42.395	43.267	-	-	-	-	-	-	-	Continuing	Continuing
• 4940 807720: *JTFCMI*	0.000	0.000	-	-	-	-	-	-	-	Continuing	Continuing
• 4273 807781: *Engineering and Deployment*	0.000	0.000	-	-	-	-	-	-	-	Continuing	Continuing
• 4280 807721: *Engineering and Deployment*	0.000	0.000	-	-	-	-	-	-	-	Continuing	Continuing
• 4361 807781: *IA Operational Resiliency*	0.000	0.000	-	-	-	-	-	-	-	Continuing	Continuing
• 4126 807781: *Computer Network Defense*	0.000	0.000	-	-	-	-	-	-	-	Continuing	Continuing

Exhibit R-2A, RDT&E Project Justification: PB 2019 Defense Health Agency		Date: February 2018
Appropriation/Budget Activity 0130 / 2	**R-1 Program Element (Number/Name)** PE 0605013DHA / *Information Technology Development*	**Project (Number/Name)** 435A / *NICOE Continuity Management Tool*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
• 4111 807781: *Computer Network Defense*	0.492	0.502	-	-	-	-	-	-	-	Continuing	Continuing
• 4165 807781: *Computer Network Defense*	0.000	0.000	-	-	-	-	-	-	-	Continuing	Continuing
• 4177 807781: *Computer Network Defense*	0.000	0.000	-	-	-	-	-	-	-	Continuing	Continuing
• 4364 807781: *Workforce Development*	0.000	0.000	-	-	-	-	-	-	-	Continuing	Continuing

Remarks

D. Acquisition Strategy

This requirement is currently contracted through the USA Medical Research Activity. The vender is Evolvent Technologies Inc.

E. Performance Metrics

This performance metrics or milestones shall include, but is not limited to:

Coordination with Government representatives
Review, evaluation and transition of current support services
Transition of historic data to new contractor system
Government-approved training and certification process
Transfer of hardware warranties and software licenses
Transfer of all System/Tool documentation to include, at a minimum: user manuals, system administration manuals, training materials, disaster recovery manual, requirements traceability matrix, configuration control documents and all other documents required to operate, maintain and administer systems and tools
If another contractor follows this contractor with work related to this work, this contractor will provide any developed source code (compiled and uncompiled, including all versions, maintenance updates and patches) with written instructions for the source code on which this contractor has worked, so that an experienced software engineer, previously not familiar with the source code can understand and efficiently work with the source code. In addition, this contractor will provide for 30 days, a software engineer (or person of comparable work level) with significant experience working with the source code, to assist the new contractor
Orientation phase and program to introduce Government personnel, programs, and users to the Contractor's team, tools, methodologies, and business processes
Disposition of Contractor purchased Government owned assets, including facilities, equipment, furniture, phone lines, computer equipment, etc.
Transfer of Government Furnished Equipment (GFE) and Government Furnished Information (GFI), and GFE inventory management assistance
Applicable TMA debriefing and personnel out-processing procedures
Turn-in of all government keys, ID/access cards, and security codes.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Defense Health Agency			Date: February 2018
Appropriation/Budget Activity 0130 / 2	R-1 Program Element (Number/Name) PE 0605013DHA / *Information Technology Development*	Project (Number/Name) 446A / *Disability Mediation Service (DMS)*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
446A: *Disability Mediation Service (DMS)*	1.286	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

Disability Mediation Service (DMS): The VTA (Veteran's Tracking Application) has been the primary system to track, record, and report data for the IDES (Integrated Disability Evaluation System) process. The VTA is scheduled to sun-set, by VA (Veterans Affairs), and the data is being moved to another application. Migration of VTA to another application creates the requirement to allow data exchange between Service non-medical case management and new VA DES (Disability Evaluation System) IT application. The BEC (Benefits Executive Council) is looking to create a DMS (Disability Mediation Service), which is an integrator between the Services and VA.
The DMS will facilitate the improvement of non-medical case management tracking and IDES data/information management. It will eliminate redundant data entry within DoD (Department of Defense), improving data quality by capturing more data for operational reporting from the Services and WCP, decrease backlog by eliminating data entry duplication, and minimize impact to DoD Services by allowing the Services to continue using their existing/planned systems without requiring retraining on a new applications.
The DMS will be created from existing technology. It will provide a mediation service to help isolate each system from changes and uniqueness in the other systems and allow the Services and WCP to report and drill down on data that we capture during the exchange. This IT solution will not replace current DoD systems, but will require some modifications and enhancements to those systems to support the date exchange. WCP will support development costs for these efforts. Services will assume responsibility and POM costs for modifications, enhancements, and maintenance in the out years."

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Title: Disability Mediation Service (DMS)	0.000	0.000	-
Description: The VTA (Veteran's Tracking Application) has been the primary system to track, record, and report data for the IDES (Integrated Disability Evaluation System) process. The VTA is scheduled to sun-set, by VA (Veterans Affairs), and the data is being moved to another application. Migration of VTA to another application creates the requirement to allow data exchange between Service non-medical case management and new VA DES (Disability Evaluation System) IT application. The BEC (Benefits Executive Council) is looking to create a DMS (Disability Mediation Service), which is an integrator between the Services and VA. The DMS will facilitate the improvement of non-medical case management tracking and IDES data/information management. It will eliminate redundant data entry within DoD (Department of Defense), improving data quality by capturing more data for operational reporting from the Services and WCP, decrease backlog by eliminating data entry duplication, and minimize impact to DoD Services by allowing the Services to continue using their existing/planned systems without requiring retraining on a new applications. The DMS will be created from existing technology. It will provide a mediation service to help isolate each system from changes and uniqueness in the other systems and allow the Services and WCP to report and drill down on data that we capture during the			

Exhibit R-2A, RDT&E Project Justification: PB 2019 Defense Health Agency		Date: February 2018
Appropriation/Budget Activity 0130 / 2	**R-1 Program Element (Number/Name)** PE 0605013DHA / *Information Technology Development*	**Project (Number/Name)** 446A / *Disability Mediation Service (DMS)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
exchange. This IT solution will not replace current DoD systems, but will require some modifications and enhancements to those systems to support the date exchange. WCP will support development costs for these efforts. Services will assume responsibility and POM costs for modifications, enhancements, and maintenance in the out years." ***FY 2018 Plans:*** No Funding Programmed. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** N/A			
Accomplishments/Planned Programs Subtotals	0.000	0.000	-

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2019 Defense Health Agency			Date: February 2018
Appropriation/Budget Activity 0130 / 2	R-1 Program Element (Number/Name) PE 0605013DHA / *Information Technology Development*	Project (Number/Name) 480B / *Defense Medical Human Resources System (Internet) (DMHRSi) (Tri-Service)*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
480B: *Defense Medical Human Resources System (Internet) (DMHRSi) (Tri-Service)*	0.585	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 Defense Medical Human Resources System – internet (DMHRSi) enables the Services to standardize and optimize the management of human resource assets across the Military Health System (MHS). DMHRSi is a Web-based system that enables improved decision making by facilitating the collection and analysis of critical human resource data. It standardizes medical human resource information and provides enterprise-wide visibility for all categories of human resources (Active Duty, Reserve, Guard, civilian, contractor, and volunteer medical personnel); improves reporting of medical personnel readiness and; streamlines business processes to improve data quality for management decision making and managing the business; provides Tri-Service visibility of associated labor costs and is source for personnel cost data.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Title: Defense Medical Human Resources System (internet) (DMHRSi) (Tri-Service)	0.000	0.000	-
Description: The Defense Medical Human Resources System – internet (DMHRSi) enables the Services to standardize and optimize the management of human resource assets across the Military Health System (MHS). DMHRSi is a Web-based system that enables improved decision making by facilitating the collection and analysis of critical human resource data. It standardizes medical human resource information and provides enterprise-wide visibility for all categories of human resources (Active Duty, Reserve, Guard, civilian, contractor, and volunteer medical personnel); improves reporting of medical personnel readiness and; streamlines business processes to improve data quality for management decision making and managing the business; provides Tri-Service visibility of associated labor costs and is source for personnel cost data. ***FY 2018 Plans:*** No Funding Programmed. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** N/A			
Accomplishments/Planned Programs Subtotals	0.000	0.000	-

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

Exhibit R-2A, RDT&E Project Justification: PB 2019 Defense Health Agency		Date: February 2018
Appropriation/Budget Activity 0130 / 2	**R-1 Program Element (Number/Name)** PE 0605013DHA / *Information Technology Development*	**Project (Number/Name)** 480B / *Defense Medical Human Resources System (Internet) (DMHRSi) (Tri-Service)*

D. Acquisition Strategy

N/A

E. Performance Metrics

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2019 Defense Health Agency			Date: February 2018
Appropriation/Budget Activity 0130 / 2	R-1 Program Element (Number/Name) PE 0605013DHA / *Information Technology Development*	Project (Number/Name) 480C / *Defense Medical Logistics Standard Support (DMLSS) (Tri-Service)*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
480C: *Defense Medical Logistics Standard Support (DMLSS) (Tri-Service)*	15.490	2.242	2.363	0.000	-	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing

A. Mission Description and Budget Item Justification

Purpose: DMLSS provides a standard Department of Defense (DoD) medical logistics system. DMLSS suite of applications provides healthcare driven capability to support medical logistics needs for critical medical commodities - pharmaceuticals and medical/surgical supplies across continuum of care from the battlefield to tertiary care at a major DoD military treatment facility (MTF). This capability is enabled by the partnership of the Defense Logistics Agency (DLA) – Troop Support Medical and the Military Health System (MHS) providing an industry to practitioner supply chain for the medical commodity. The DMLSS DLA Wholesale (DMLSS-W) applications are funded by DLA while the garrison medical treatment facilities and theater applications are funded by the Defense Health Program.
Goal: The current DMLSS system provides full spectrum capability for medical logistics management.
Benefits: Stock control, Prime Vendor operations, preparation of procurement documents, research and price comparison for products, property accounting, biomedical maintenance operations, capital equipment, property management, inventory, and a facility management application that supports the operations of a fixed MTF physical plant and supports the Joint Commission accreditation requirements. DMLSS, in coordination with Joint Operational Medicine Information Systems (JOMIS), is providing to Services and Combatant Commanders the logistics capabilities necessary to rapidly project and sustain joint medical capabilities for medical logistics management of theater medical materiel operations. Products deployed to the theater include the DMLSS Customer Assistance Module (DCAM), a medical logistics ordering tool that allows users to view their supplier's catalog and generate electronic orders. Primarily focused on the theater environment, DCAM automates the Class VIII supply process at lower levels of care, and allows non-logisticians to electronically exchange catalog, order, and status information with their supply activity. The Joint Medical Asset Repository (JMAR) provides Enterprise asset visibility and business intelligence tool. JMAR is web-based application that provides Enterprise medical logistics (MEDLOG) asset visibility, transactional data and business intelligence (BI) and Decision Support (DS) across the MHS.
Stakeholders: MHS and DLA troop support. Customers: medical logisticians, biomedical technicians, clinical staff, and facilities management personnel in MTFs

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Title: Defense Medical Logistics Standard Support (DMLSS) (Tri-Service)	2.242	2.363	-
Description: Development, integration and modernization of DMLSS modules.			
FY 2018 Plans: Continue the development of a secure drug and medical device supply chain traceability capability. And, also continue the development of a patient safety / FDA recall alerts medical material quality control capability. They will also be used to continue to update the Medical Vendor product and pricing management routines.			
FY 2018 to FY 2019 Increase/Decrease Statement:			

Exhibit R-2A, RDT&E Project Justification: PB 2019 Defense Health Agency		Date: February 2018
Appropriation/Budget Activity 0130 / 2	**R-1 Program Element (Number/Name)** PE 0605013DHA / *Information Technology Development*	**Project (Number/Name)** 480C / *Defense Medical Logistics Standard Support (DMLSS) (Tri-Service)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
RDT&E not required in FY19.			
Accomplishments/Planned Programs Subtotals	2.242	2.363	-

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
• BA-1, 0807793DHA: *MHS Tri-Service Information*	35.014	35.624	36.143	-	36.143	35.494	35.206	35.961	36.680	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.

E. Performance Metrics

Each program establishes performance measurements which are usually included in the MHS IT Annual Performance Plan. Program cost, schedule and performance are measured periodically using a systematic approach. The results of these measurements are presented to management on a regular basis in various as part of the Integrated Product and Process Development (IPPD) process, In Process Reviews (IPRs), or other reviews to determine program effectiveness and provide new direction as needed to ensure the efficient use of resources. Performance metrics for specific projects may be viewed at the OMB Federal IT Dashboard website.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Defense Health Agency			Date: February 2018
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 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
480D: *Defense Occupational and Environmental Health Readiness System - Industrial Hygiene (DOEHRS-IH) (Tri-Service)*	8.052	5.915	6.025	5.559	-	5.559	6.416	6.902	7.040	7.181	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 MemberÂ´s 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 2017	FY 2018	FY 2019
Title: Defense Occupational and Environmental Health Readiness System - Industrial Hygiene (DOEHRS-IH) (Tri-Service)	5.915	6.025	5.559
Description: Configure, enhance, and interface DOEHRS-IH modules. ***FY 2018 Plans:*** Modernization funds will be used to continue to address a backlog of Critical User Enhancements that will dramatically increase the ease of use and data integrity of the DOEHRS-IH application. Major development tasks planned include Hazardous Material (HAZMAT) Safety Data Sheet (SDS) Phase II.. ***FY 2019 Plans:*** They will also be used to implement an interface to DOEHRS-Hearing Conservation (HC) to support an automated capability to rapidly access, extract and incorporate information from DOEHRS-HC. This will assist occupational and environmental health (OEH) personnel in providing guidance in the prevention and treatment of noise exposures and injuries. In addition this funding will support a Data Entry User Interface, which will support a new graphical user interface (GUI) that enables the user to more efficiently and accurately enter data in the system and retrieve information to determine potential exposures. ***FY 2018 to FY 2019 Increase/Decrease Statement:***			

Exhibit R-2A, RDT&E Project Justification: PB 2019 Defense Health Agency		Date: February 2018
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 2017	FY 2018	FY 2019
Less funding required in FY19 due to funding in FY18 which started Critical User Enhancements.			
Accomplishments/Planned Programs Subtotals	5.915	6.025	5.559

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
• BA-1, 0807793DHA: *MHS Tri-Service Information*	12.262	14.835	14.850	-	14.850	15.676	16.779	17.139	17.482	Continuing	Continuing
• BA-3, 0807721DHA: *Replacement/Modernization*	0.000	0.000	0.000	-	0.000	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.

E. Performance Metrics

Each program establishes performance measurements which are usually included in the MHS IT Annual Performance Plan. Program cost, schedule and performance are measured periodically using a systematic approach. The results of these measurements are presented to management on a regular basis in various as part of the Integrated Product and Process Development (IPPD) process, In Process Reviews (IPRs), or other reviews to determine program effectiveness and provide new direction as needed to ensure the efficient use of resources. Performance metrics for specific projects may be viewed at the OMB Federal IT Dashboard website.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Defense Health Agency			Date: February 2018
Appropriation/Budget Activity 0130 / 2	R-1 Program Element (Number/Name) PE 0605013DHA / *Information Technology Development*	Project (Number/Name) 480F / *Executive Information/Decision Support (EI/DS) (Tri-Service)*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
480F: *Executive Information/ Decision Support (EI/DS) (Tri-Service)*	5.936	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

EI/DS was comprised of a central datamart Military Health System Data Repository (MDR) and several smaller datamarts: MHS Management Analysis and Reporting Tool (M2), Electronic Surveillance System for the Early Notification of Community-based Epidemics (ESSENCE), and Purchased Care Operations Systems -TRICARE Encounter Data (TED) & Patient Encounter Processing and Reporting (PEPR). Many of these operate within a Business Objects XI (BOXI) environment. EI/DS manages receipt, processing, and storage of over 155 terabytes of data from both Military Treatment Facilities (MTF) and the TRICARE purchased care network systems. These data include inpatient dispositions, outpatient encounters, laboratory, radiology, and pharmacy workload, TRICARE network patient encounter records, TRICARE mail order pharmacy patient encounter records, beneficiary demographics, MTF workload and cost information, eligibility and enrollment, Pharmacy Data Transaction Service data, customer satisfaction surveys, and data associated with the Wounded Warrior care. EI/DS provides centralized collection, storage and availability of data, in various data marts, to managers, clinicians, and analysts for the management of the business of health care. EI/DS has been broken apart into 4 separate initiatives beginning in FY17. These initiatives are (1) ESSENCE), (2) PHIMT, (3) CEIS, and (PCOS).

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Title: Executive Information/Decision Support (EI/DS) (Tri-Service)	0.000	0.000	-
Description: Development, modernization, upgrades and testing for various EI/DS modules. EI/DS has been broken apart into 4 separate initiatives beginning in FY17. These initiatives are (1) ESSENCE), (2) PHIMT, (3) CEIS, and (PCOS). ***FY 2018 Plans:*** No Funding Programmed. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** N/A			
Accomplishments/Planned Programs Subtotals	0.000	0.000	-

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

Not applicable.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Defense Health Agency		Date: February 2018
Appropriation/Budget Activity 0130 / 2	**R-1 Program Element (Number/Name)** PE 0605013DHA / *Information Technology Development*	**Project (Number/Name)** 480F / *Executive Information/Decision Support (EI/DS) (Tri-Service)*

E. Performance Metrics

Not applicable.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Defense Health Agency			Date: February 2018
Appropriation/Budget Activity 0130 / 2	**R-1 Program Element (Number/Name)** PE 0605013DHA / *Information Technology Development*	**Project (Number/Name)** 480G / *Health Artifact and Image Management Solution (HAIMS) (Tri-Service)*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
480G: *Health Artifact and Image Management Solution (HAIMS) (Tri-Service)*	8.123	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 Health Artifact and Image Management Solution (HAIMS) enables the DoD and the VA healthcare providers to have global access and awareness of artifacts and images (A&I) generated during the healthcare delivery process. HAIMS will provide the new capability for users throughout the MHS to be aware and have access to A&I that have been registered with the central “system”, currently on local workstations and Military Treatment Facility (MTF) Picture Archive and Communications Systems (PACs). As patients move through the continuum of care from Continental United States to Theater and then return to DoD sustaining bases facilities, healthcare A&I moves seamlessly and simultaneously with the patient. This advances several MHS strategy initiatives such as achievement of paperless record, global access of Wounded Warrior scanned documents, and an alternative to finding storage space for paper records of merging MTFs. HAIMS will supply access to VHA and other external A&I both inside and outside the Military Health System (MHS) Electronic Health Record (EHR).

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Title: Health Artifact and Image Management Solution (HAIMS) (Tri-Service)	0.000	0.000	-
Description: Integrate new functionality into HAIMS. ***FY 2018 Plans:*** No Funding Programmed. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** N/A.			
Accomplishments/Planned Programs Subtotals	0.000	0.000	-

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
• BA-1, 0807793DHA: *MHS Tri-Service Information*	25.634	25.298	22.398	-	22.398	22.919	23.377	31.663	-	Continuing	Continuing
• BA-3, 0807721DHA: *Replacement/Modernization*	12.500	12.604	13.732	-	13.732	14.007	14.287	6.755	-	Continuing	Continuing

Remarks

Exhibit R-2A, RDT&E Project Justification: PB 2019 Defense Health Agency		Date: February 2018
Appropriation/Budget Activity 0130 / 2	**R-1 Program Element (Number/Name)** PE 0605013DHA / *Information Technology Development*	**Project (Number/Name)** 480G / *Health Artifact and Image Management Solution (HAIMS) (Tri-Service)*

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.

E. Performance Metrics

Each program establishes performance measurements which are usually included in the MHS IT Annual Performance Plan. Program cost, schedule and performance are measured periodically using a systematic approach. The results of these measurements are presented to management on a regular basis in various as part of the Integrated Product and Process Development (IPPD) process, In Process Reviews (IPRs), or other reviews to determine program effectiveness and provide new direction as needed to ensure the efficient use of resources.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Defense Health Agency			Date: February 2018
Appropriation/Budget Activity 0130 / 2	R-1 Program Element (Number/Name) PE 0605013DHA / *Information Technology Development*	Project (Number/Name) 480K / *Integrated Federal Health Registry Framework (Tri-Service)*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
480K: *Integrated Federal Health Registry Framework (Tri-Service)*	4.065	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 purpose of an integrated Federal Health Registry capability is to provide a viable solution to fulfill a critical need for improved sharing and exchange of Service member and Veteran health information and data between the Department of Defense - Health Affairs and the Department of Veterans Affairs Veterans Health Administration communities of interest (COIs) as mandated in Section 1635 of the 2008 National Defense Authorization Act (NDAA, 2008). This ability to share and exchange vital health care data between the respective specialties of care is essential to conduct longitudinal analyses necessary to improve patient care and quality of life outcomes. To maximize efficiencies and most effectively meet the needs of the functional communities, the Centers of Excellence (CoEs) have developed a consolidated framework solution for an integrated Federal Health Registry capability. This effort provides a comprehensive solution that meets the specialty care needs of each of the Services and Veteran Affairs that are represented by the Joint DoD and VA CoEs, (Army-Extremity Trauma and Amputation Center of Excellence; Defense Health Agency-Defense Centers of Excellence for Psychological Health and Traumatic Brain Injury; Navy-DoD/VA Vision Center of Excellence; Air Force-Hearing Center of Excellence; and National Capital Region-National Intrepid Center of Excellence). 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.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Title: integrated Health Registry Framework (Tri-Service) ***Description:*** Develop, integrate and test a common registry. ***FY 2018 Plans:*** No Funding Programmed. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** N/A.	0.000	0.000	-
Accomplishments/Planned Programs Subtotals	0.000	0.000	-

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
• BA-1, 0807793DHA: *MHS Tri-Service Information*	2.865	2.913	0.000	-	0.000	0.000	0.000	0.000	-	Continuing	Continuing

Exhibit R-2A, RDT&E Project Justification: PB 2019 Defense Health Agency		Date: February 2018
Appropriation/Budget Activity 0130 / 2	**R-1 Program Element (Number/Name)** PE 0605013DHA / *Information Technology Development*	**Project (Number/Name)** 480K / *Integrated Federal Health Registry Framework (Tri-Service)*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
• BA-3, 0807721DHA: *Replacement/Modernization*	0.094	0.066	0.000	-	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.

E. Performance Metrics

Program cost, schedule and performance are measured periodically using a systematic approach as required for Major Automated Information Systems (MAIS) per DoD Directives and Instructions.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Defense Health Agency			Date: February 2018
Appropriation/Budget Activity 0130 / 2	R-1 Program Element (Number/Name) PE 0605013DHA / *Information Technology Development*	Project (Number/Name) 480M / *Theather Medical Information Program - Joint (TMIP-J) (Tri-Service)*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
480M: *Theather Medical Information Program - Joint (TMIP-J) (Tri-Service)*	28.731	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 Theater Medical Information Program - Joint (TMIP-J) integrates components of the Military Health System sustaining base systems and the ServicesÂ´ medical information systems to ensure timely interoperable medical support for mobilization, deployment and sustainment of all Theater and deployed forces in support of any mission. TMIP-J enhances the clinical care and information capture at all levels of care in Theater, transmits critical information to the Theater Commander, the evacuation chain for combat and non-combat casualties, and forges the theater links of the longitudinal health record to the sustaining base and the Department of Veterans Affairs. TMIP-J is the medical component of the Global Combat Support System. TMIP-J provides information at the point of care and to the Theater tactical and strategic decision makers through efficient, reliable data capture, and data transmission to a centralized Theater database. This delivers TMIP-JÂ´s four pillars of information support through the electronic health record, integrated medical logistics, patient movement and tracking, and medical command and control through data aggregation, reporting and analysis tools for trend analysis and situational awareness. TMIP-J fulfills the premise of "Train as you fight" through the integration of components which are identical or analogous to systems from the sustaining base. TMIP-J adapts and integrates these systems to specific Theater requirements and assures their availability in the no- and low- communications settings of the deployed environment through store and forward capture and transmission technology.

TMIP-J RDT&E is reported under the program element 0605013 through FY 2013 inclusive, but will be reported under new program element 0605023 for FY 2014 and out.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Title: Theather Medical Information Program - Joint (TMIP-J) (Tri-Service)	0.000	-	-
Description: The Theater Medical Information Program - Joint (TMIP-J) integrates components of the Military Health System sustaining base systems and the ServicesÂ´ medical information systems to ensure timely interoperable medical support for mobilization, deployment and sustainment of all Theater and deployed forces in support of any mission. TMIP-J enhances the clinical care and information capture at all levels of care in Theater, transmits critical information to the Theater Commander, the evacuation chain for combat and non-combat casualties, and forges the theater links of the longitudinal health record to the sustaining base and the Department of Veterans Affairs. TMIP-J is the medical component of the Global Combat Support System. TMIP-J provides information at the point of care and to the Theater tactical and strategic decision makers through efficient, reliable data capture, and data transmission to a centralized Theater database. This delivers TMIP-JÂ´s four pillars of information support through the electronic health record, integrated medical logistics, patient movement and tracking, and medical command and control through data aggregation, reporting and analysis tools for trend analysis and situational awareness. TMIP-J fulfills the premise of "Train as you fight" through the integration of components which are identical or analogous to systems from the			

Exhibit R-2A, RDT&E Project Justification: PB 2019 Defense Health Agency		Date: February 2018
Appropriation/Budget Activity 0130 / 2	**R-1 Program Element (Number/Name)** PE 0605013DHA / *Information Technology Development*	**Project (Number/Name)** 480M / *Theather Medical Information Program - Joint (TMIP-J) (Tri-Service)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
sustaining base. TMIP-J adapts and integrates these systems to specific Theater requirements and assures their availability in the no- and low- communications settings of the deployed environment through store and forward capture and transmission technology. TMIP-J RDT&E is reported under the program element 0605013 through FY 2013 inclusive, but will be reported under new program element 0605023 for FY 2014 and out.			
Accomplishments/Planned Programs Subtotals	0.000	-	-

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2019 Defense Health Agency			Date: February 2018
Appropriation/Budget Activity 0130 / 2	R-1 Program Element (Number/Name) PE 0605013DHA / *Information Technology Development*	Project (Number/Name) 480P / *Other Related Technical Activities (Tri-Service)*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
480P: *Other Related Technical Activities (Tri-Service)*	4.139	0.668	3.500	0.000	-	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing

A. Mission Description and Budget Item Justification

Other Related Technical Activities includes funding for Information Technology activities common to multiple or all Tri-Service systems/programs and cannot be associated with any one individual Tri-Service initiative, which includes enterprise Messaging and other common IT services requirements. Additionally, in standing up the new Defense Health Agency (DHA) on October 1, 2013, one of the signature efforts of the reorganization is the establishment of a Shared Services model for the delivery of enterprise-wide support services to the Military Health System (MHS). One of the five shared services in DHA is Health Information Technology (HIT). The MHS Shared Services Portfolio Rationalization (MHS SSPR) is an initiative to capture those costs which need to be called out separately to implement the share services HIT portfolio rationalization.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Title: Other Related Technical Activities (Tri-Service)	0.668	3.500	-
Description: Activities common to multiple or all Tri-Service systems/programs and cannot be associated with any one individual Tri-Service initiative, which includes MHS SSPR. Funding in FY17 used for AACE Mobile Development. ***FY 2018 Plans:*** In FY18, funding requirements will continue to support the Health Information Technology Shared Services investment. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** No funding requirements in FY19 for the Health Information Technology Shared Services investment.			
Accomplishments/Planned Programs Subtotals	0.668	3.500	-

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
• BA-3, 0807721DHA: *Replacement/Modernization*	2.310	2.730	0.000	-	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 2019 Defense Health Agency		Date: February 2018
Appropriation/Budget Activity 0130 / 2	**R-1 Program Element (Number/Name)** PE 0605013DHA / *Information Technology Development*	**Project (Number/Name)** 480P / *Other Related Technical Activities (Tri-Service)*

E. Performance Metrics

Each activity establishes performance measurements. Program cost, schedule and performance are measured periodically using a systematic approach. Since this is an enterprise initiative which crosses mutliple initiatives, performance metrics of the common activities are part of and/or contributing factors in the measurement of the performacne metrics of the individual initiatives.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Defense Health Agency			Date: February 2018
Appropriation/Budget Activity 0130 / 2	R-1 Program Element (Number/Name) PE 0605013DHA / *Information Technology Development*	Project (Number/Name) 480Y / *Clinical Case Management (Tri-Service)*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
480Y: *Clinical Case Management (Tri-Service)*	2.925	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

Provides a seamless view of the care and the health of the patient from the origin of injury or illness to the end of the need for that episode of care. It will capture relevant events, information, documents and other data to support the overall improvement of the patient's condition utilizing medical Case Management practices. It will provide the ability to collect clinical information in support of the medical Case Manager's mission and will provide information gathered to MTFs and MSCSs.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Title: Clinical Case Management (Tri-Service)	0.000	0.000	-
Description: Provides a seamless view of the care and the health of the patient from the origin of injury or illness to the end of the need for that episode of care. It will capture relevant events, information, documents and other data to support the overall improvement of the patient's condition utilizing medical Case Management practices. It will provide the ability to collect clinical information in support of the medical Case Manager's mission and will provide information gathered to MTFs and MSCSs. ***FY 2018 Plans:*** No Funding Programmed. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** N/A.			
Accomplishments/Planned Programs Subtotals	0.000	0.000	-

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2019 Defense Health Agency			Date: February 2018
Appropriation/Budget Activity 0130 / 2	R-1 Program Element (Number/Name) PE 0605013DHA / *Information Technology Development*	Project (Number/Name) 481A / *Theather Enterprise Wide Logistics System (TEWLS) Tri-Service)*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
481A: *Theather Enterprise Wide Logistics System (TEWLS) Tri-Service)*	5.127	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

Theater Enterprise-Wide Logistics System (TEWLS) supports critical medical logistics warfighter requirements in a net-centric environment. It ties the national, regional, and deployed units into a single business environment. It creates the necessary links for planners, commercial partners, and AMEDD logisticians to accomplish essential care in the theater through a single customer facing portal. It removes disparate data and replaces it with a single instance of actionable data. TEWLS supports todayÂ ´s modern, non-contiguous battlefield at the regional, COCOM, and Service levels by leveraging emerging Medical Materiel Executive Agency and Theater Lead Agent infrastructure concepts to manage the entire medical supply chain from the industrial base to the end user.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Title: Theather Enterprise Wide Logistics System (TEWLS) Tri-Service)	0.000	-	-
Description: Theater Enterprise-Wide Logistics System (TEWLS) supports critical medical logistics warfighter requirements in a net-centric environment. It ties the national, regional, and deployed units into a single business environment. It creates the necessary links for planners, commercial partners, and AMEDD logisticians to accomplish essential care in the theater through a single customer facing portal. It removes disparate data and replaces it with a single instance of actionable data. TEWLS supports todayÂ´s modern, non-contiguous battlefield at the regional, COCOM, and Service levels by leveraging emerging Medical Materiel Executive Agency and Theater Lead Agent infrastructure concepts to manage the entire medical supply chain from the industrial base to the end user.			
Accomplishments/Planned Programs Subtotals	0.000	-	-

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2019 Defense Health Agency			Date: February 2018
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 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
482A: *E-Commerce (DHA)*	10.468	2.725	3.704	4.200	-	4.200	4.284	4.370	4.457	4.546	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 2017	FY 2018	FY 2019
Title: E-Commerce (DHA)	2.725	3.704	4.200
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-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			

Exhibit R-2A, RDT&E Project Justification: PB 2019 Defense Health Agency		Date: February 2018
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 2017	FY 2018	FY 2019
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 2018 Plans:*** In FY18, plans include more modernization to healthcare financial processing, contracts, and reporting as well as adapting to health care policy and guidance. This funding will help to improve operational efficiency for DHA personnel in areas of new health care contracts, processing changes to requirements, and improving private sector care assessments and deliverable processing. Other plans include accounting improvements and better budget management. There will also be software changes, mandated by Congress and the DoD to accommodate financial application policy modifications, BEA SFIS changes, and PDS compliance. ***FY 2019 Plans:*** In FY19, plans include more modernization to healthcare financial processing, contracts, and reporting as well as adapting to health care policy and guidance. This funding will help to improve operational efficiency for DHA personnel in areas of new health care contracts, processing changes to requirements, and improving private sector care assessments and deliverable processing. Other plans include accounting improvements and better budget management. There will also be software changes, mandated by Congress and the DoD to accommodate financial application policy modifications, BEA SFIS changes, and PDS compliance ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Inflation.			
Accomplishments/Planned Programs Subtotals	2.725	3.704	4.200

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
• BA-1, 0807752HP: *Miscellaneous Support Activities*	0.132	0.132	0.132	-	0.132	0.132	0.132	0.135	0.138	Continuing	Continuing
• BA-3, 0807721HP: *Replacement/Modernization*	0.000	0.000	0.550	-	0.550	0.561	0.571	0.583	0.595	Continuing	Continuing

Remarks

Program transfer from project 480R.

D. Acquisition Strategy

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2019 Defense Health Agency		Date: February 2018
Appropriation/Budget Activity 0130 / 2	**R-1 Program Element (Number/Name)** PE 0605013DHA / *Information Technology Development*	**Project (Number/Name)** 482A / *E-Commerce (DHA)*

E. Performance Metrics

The benchmark performance metric for transition of research supported in this PE will be the attainment of a maturity level that is typical of TRL8.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Defense Health Agency			Date: February 2018
Appropriation/Budget Activity 0130 / 2	R-1 Program Element (Number/Name) PE 0605013DHA / *Information Technology Development*	Project (Number/Name) 490I / *Navy Medicine Chief Information Officer*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
490I: *Navy Medicine Chief Information Officer*	6.237	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

Navy Medicine CIO Management Operations - IM/IT RDT&E requests will be vetted through the Bureau of Navy Medicine (BUMED) Governance Process. BUMED IM/IT CIO Governance will monitor progress and milestones every six months.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Title: Navy Medicine Chief Information Officer (CIO) Management Operations	0.000	-	-
Description: Navy Medicine CIO Management Operations - IM/IT RDT&E requests will be vetted through the Bureau of Navy Medicine (BUMED) Governance Process. BUMED IM/IT CIO Governance will monitor progress and milestones every six months.			
Accomplishments/Planned Programs Subtotals	0.000	-	-

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
• BA-1, 0807781HP: *Non-Central Information Management/ Information Technology*	82.427	83.778	68.129	-	68.129	71.102	72.458	-	-	Continuing	Continuing
• BA-1, PE 0807795HP: *Base Communications - CONUS*	17.153	17.458	17.793	-	17.793	18.151	18.505	-	-	Continuing	Continuing
• BA-1, PE 0807995HP: *Base Communications - OCONUS*	2.552	2.599	2.646	-	2.646	2.696	2.750	-	-	Continuing	Continuing
• BA-3, PE 0807721HP: *Replacement/Modernization*	0.000	0.000	0.000	-	0.000	0.000	0.000	-	-	Continuing	Continuing

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2019 Defense Health Agency			Date: February 2018
Appropriation/Budget Activity 0130 / 2	R-1 Program Element (Number/Name) PE 0605013DHA / *Information Technology Development*	Project (Number/Name) 490J / *Navy Medicine Online*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
490J: *Navy Medicine Online*	5.259	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 Navy Medicine Online System (NMO) is the designated data broker for Navy Medicine. Previous to FY 2016 Navy used funding to provide support on various initiatives. Funding transferred to Defense Health Agency starting in FY 2016. FY 2016 funding will be used for application platform usability and interoperability to deliver apps for patients and staff.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Title: Navy Medicine Online (NMO)	0.000	0.000	-
Description: The Navy Medicine Online System (NMO) is the designated data broker for Navy Medicine. Funding transferred to Defense Health Agency starting in FY 2016. ***FY 2018 Plans:*** No Funding Programmed. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** N/A.			
Accomplishments/Planned Programs Subtotals	0.000	0.000	-

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2019 Defense Health Agency			Date: February 2018
Appropriation/Budget Activity 0130 / 2	R-1 Program Element (Number/Name) PE 0605013DHA / *Information Technology Development*	Project (Number/Name) 480A / *Electronic Surveillance System for the Early Notification of Community-based Epidemics (ESSENCE) (Tri-Service)*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
480A: *Electronic Surveillance System for the Early Notification of Community-based Epidemics (ESSENCE) (Tri-Service)*	2.350	2.681	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing

A. Mission Description and Budget Item Justification

ESSENCE is the global, MHS monitoring capability for the early detection of health threats to force readiness. The Armed Forces Health Surveillance Center (AFHSC), the Service-specific public health centers, and Medical Treatment Facilities (MTFs) worldwide use ESSENCE on a daily basis to monitor the health status of the Military Health System (MHS) population in a time of concerns about possible biomedical terrorist attack and naturally occurring emerging infections. ESSENCE monitors the direct care MHS population, containing data on over 9 million lives. ESSENCE facilitates recognition and investigation of Tri-Service Reportable Medical Events and permits access to aggregate data and individual data to analyze the epidemiologic characteristics of health events of interest for Medical situational awareness.

This initiative is a split investment from the original Executive Information/Decision Support (EI/DS) initiative for reporting purposes.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Title: Electronic Surveillance System for the Early Notification of Community-based Epidemics (ESSENCE)	2.681	0.000	-
Description: Web-based syndromic surveillance used worldwide to identify rapid or unusual increases in certain syndromes. Automatically alerts users to these unusual increases and uses geographic information system mapping to display occurrences geographically. ***FY 2018 Plans:*** No funding programmed. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** N/A.			
Accomplishments/Planned Programs Subtotals	2.681	0.000	-

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
• BA-1: *0807793DHA: MHS Tri-Service Information*	6.459	6.609	6.711	-	6.711	6.769	6.874	7.024	7.164	Continuing	Continuing

Exhibit R-2A, RDT&E Project Justification: PB 2019 Defense Health Agency		Date: February 2018
Appropriation/Budget Activity 0130 / 2	**R-1 Program Element (Number/Name)** PE 0605013DHA / *Information Technology Development*	**Project (Number/Name)** 480A / *Electronic Surveillance System for the Early Notification of Community-based Epidemics (ESSENCE) (Tri-Service)*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost

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.

E. Performance Metrics

Each program establishes performance measurements which are usually included in the MHS IT Annual Performance Plan. Program cost, schedule and performance are measured periodically using a systematic approach. The results of these measurements are presented to management on a regular basis in various as part of the Integrated Product and Process Development (IPPD) process, In Process Reviews (IPRs), or other reviews to determine program effectiveness and provide new direction as needed to ensure the efficient use of resources.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Defense Health Agency			Date: February 2018
Appropriation/Budget Activity 0130 / 2	R-1 Program Element (Number/Name) PE 0605013DHA / *Information Technology Development*	Project (Number/Name) 480Z / *Patient Assessment Screening Tool Outcome Registry (Tri-Service)*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
480Z: *Patient Assessment Screening Tool Outcome Registry (Tri-Service)*	0.000	0.798	0.538	0.000	-	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing

A. Mission Description and Budget Item Justification

PASTOR is a GOTS system based recommendations from the Pain Management Taskforce (PMTF) to adopt a clinical information system that provides standardized pain assessment with an outcome registry to promote consistency in pain care delivery, and from National Institute of Health (NIH) Patient-Reported Outcomes Measurement Information System (PROMIS) to deliver computerized adaptive testing through various information communication modalities and provide decision support for patients and clinical staffs.

When deployed, PASTOR will support tracking/reporting of Warrior Transition Care, prescription opioid analgesics usage, poly-pharmacy, and sole prescriber program. PASTOR will also be used to evaluate performance/impact of Pain Departments, Interdisciplinary Pain Management Centers, and pain management programs in Patient Centered Medical Home. It will provide clinicians and MHS decision makers with data related to the appropriateness and effectiveness of a spectrum of Pain Management procedures and techniques. It will also provide a capability to meet emerging Joint Commission requirements for measuring and reporting patient reported outcomes. This initiative will enable more consistent pain treatment; greater accuracy in modeling requirements for pain medicine, personnel, equipment and space, specialty care referrals; and greater fidelity on impact of pain on Traumatic Brian Injury (TBI) and co-morbid behavioral health conditions.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Title: Patient Assessment Screening Tool Outcome Registry (PASTOR) (Tri-Service)	0.798	0.538	-
Description: Current capabilities completed with advanced concept technology re-modernization funding, reported under the MHS Information Technology Research Projects (MHSITRP) initiative, at pilot facilities include: • Capability to create, store, deliver, and maintain patient reported responses to outcome measurement questions. • Capability for patient to complete questionnaire with computer adaptive testing on self-entered electronic data device either through the internet, via a patient portal or in the clinic setting. • Capability for staff to view the patient self- entered data (ie. dashboard, visual representation, trends reports, and summaries). • Capability to provide decision support for staff based on data collected from patient (i.e. identify risk or potential problems, summarizing key information, follow trends over time, medication order sets, evaluate effectiveness of interventions). • Capability to identify and enroll patients in a pain management registry (which is a part of the PASTOR package and maintained at Madigan).			
FY 2018 Plans: FY18 plans include the continuation of the building and integration to provide pain patient focused outcomes data to improve clinical decision making, develop data driven and military specific clinical practice guidelines, obtain critical data to assure needs			

Exhibit R-2A, RDT&E Project Justification: PB 2019 Defense Health Agency		Date: February 2018
Appropriation/Budget Activity 0130 / 2	**R-1 Program Element (Number/Name)** PE 0605013DHA / *Information Technology Development*	**Project (Number/Name)** 480Z / *Patient Assessment Screening Tool Outcome Registry (Tri-Service)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
based alignment of resources, and integrate existing validated outcome measures into PASTOR (data is collected and is waiting on analysis). In addition, the plan is to complete enterprise deployment of PASTOR to Pain Departments, Interdisciplinary Pain Management Centers, and in support of pain management care in Patient Centered Medical Homes in the MHS and to continue sustainment and maintenance of all deployed sites. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** RDT&E funding not required.			
Accomplishments/Planned Programs Subtotals	0.798	0.538	-

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
• BA-1: *0807793DHA: MHS Tri-Service Information*	1.138	1.221	4.566	-	4.566	5.038	4.751	4.846	5.272	Continuing	Continuing
• BA-3: *0807721DHA: Other Procurement, Replacement/Modernization*	0.864	0.065	0.064	-	0.064	0.000	0.000	0.000	-	Continuing	Continuing

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2019 Defense Health Agency			Date: February 2018
Appropriation/Budget Activity 0130 / 2	R-1 Program Element (Number/Name) PE 0605013DHA / *Information Technology Development*	Project (Number/Name) 480R / *Joint Disability Evaluation System IT (DHA)*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
480R: *Joint Disability Evaluation System IT (DHA)*	0.000	0.429	0.588	0.666	-	0.666	0.679	0.692	0.706	0.720	Continuing	Continuing

A. Mission Description and Budget Item Justification

JDES-IT will provide case level management, tracking and reporting capability that will provide Disability Evaluation System (DES) processors and stakeholders increased transparency of a case through an automated IT solution. Case files and DES information will be electronically transferred and shared within Service components, between the Services, and with Veterans Affairs. The future environment would also include information exchange capability with existing Human Resources (HR) and medical systems to reduce duplicative entry. Funding previously reported under Disability Mediation Service prior to finalize decision on the JDES-IT.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Title: Joint Disability Evaluation System IT (JDES-IT)	0.429	0.588	0.666
Description: JDES-IT will provide case level management, tracking and reporting capability that will provide Disability Evaluation System (DES) processors and stakeholders increased transparency of a case through an automated IT solution.			
FY 2018 Plans: In FY18 plans include funding the below requirements intended to reduce technology risks associated with the JDES-IT product solution and to develop a sufficient understanding of a solution baseline to make sound business decisions on initiating a formal acquisition: 1. Review and validate final capability requirements. 2. Review and validate final system requirements. 3. Complete preliminary product design and reviews. 4. Start critical design. 5. Review test readiness requirements.			
FY 2019 Plans: 1. Complete preliminary product design and reviews. 2. Start critical design. 3. Review test readiness requirements. 4. Complete analysis of product design.			
FY 2018 to FY 2019 Increase/Decrease Statement:			

Exhibit R-2A, RDT&E Project Justification: PB 2019 Defense Health Agency		Date: February 2018
Appropriation/Budget Activity 0130 / 2	**R-1 Program Element (Number/Name)** PE 0605013DHA / *Information Technology Development*	**Project (Number/Name)** 480R / *Joint Disability Evaluation System IT (DHA)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Cost estimate indicates that the amount in prior year is appropriate but needs to account for inflation.			
Accomplishments/Planned Programs Subtotals	0.429	0.588	0.666

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

To be determined.

E. Performance Metrics

To be determined.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Defense Health Agency			Date: February 2018
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 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
485: *Legacy Data Repository (DHA-C)*	-	0.000	0.000	5.741	-	5.741	5.856	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 2017	FY 2018	FY 2019
Title: Legacy Data Repository	0.000	-	5.741
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.			
FY 2019 Plans:			

Exhibit R-2A, RDT&E Project Justification: PB 2019 Defense Health Agency		Date: February 2018
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 2017	FY 2018	FY 2019
Complete RMF Process • Step 1: System Categorization • Step 2: Select Controls • Step 3 ATO Activity Kickoff • Step 3: Implement • Complete Annual Review Data Migration • Identify Data mapping based on FY18 Data Architecture activities • Map out ETL process, Data Quality Checks, and final validation • Delivery final Data Migration Plan • Implement System Development • Configure staging area, landing zone, and operational data store • Deliver iterative/Agile plan for front end development and data delivery elements • Conduct Systems Requirements Review (SRR) for Presentation Layer • Conduct Preliminary Design Review (PDR) for Presentation Layer • Complete Critical Design Review (CDR) for Presentation Layer • Document and Deliver Test Strategy and OT&E Plan ***FY 2018 to FY 2019 Increase/Decrease Statement:*** RDT&E funding begins in FY19.			
Accomplishments/Planned Programs Subtotals	0.000	-	5.741

	FY 2017	FY 2018
Congressional Add: *** PLEASE ENTER CONGRESSIONAL ADD TITLE ***	0.000	-
FY 2017 Accomplishments: *** PLEASE ENTER CONGRESSIONAL ADD TEXT FOR PRIOR YEAR. ***		
Congressional Adds Subtotals	0.000	-

Exhibit R-2A, RDT&E Project Justification: PB 2019 Defense Health Agency			Date: February 2018
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)*	

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
• BA-1, 0807793DHA: *MHS Tri-Service Information*	0.000	0.000	3.172	0.000	3.172	4.191	7.874	8.032	8.193	Continuing	Continuing
• BA-3, 0807721DHA: *Other Procurement, Replacement/Modernization*	0.000	0.000	11.937	0.000	11.937	0.840	0.406	0.414	0.422	Continuing	Continuing

Remarks

D. Acquisition Strategy

To be determined.

E. Performance Metrics

To be determined.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Defense Health Agency	Date: February 2018
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 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
Total Program Element	451.532	287.723	42.549	28.326	-	28.326	15.771	14.943	13.678	0.300	Continuing	Continuing
483A: *Information Technology Development - DoD Healthcare Management System Modernization (DHMSM) at DHA*	451.532	287.723	42.549	28.326	-	28.326	15.771	14.943	13.678	0.300	Continuing	Continuing

Program MDAP/MAIS Code:
Project MDAP/MAIS Code(s): 496

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 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.

B. Program Change Summary ($ in Millions)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Previous President's Budget	298.623	42.549	28.326	-	28.326
Current President's Budget	287.723	42.549	28.326	-	28.326
Total Adjustments	-10.900	0.000	0.000	-	0.000
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-10.900	-			
• Other	0.000	0.000	0.000	0.000	0.000

Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Defense Health Agency	Date: February 2018
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)*

Change Summary Explanation

Funding added for the implementation of the Cemer Patient Accounting Module (CPAM) and the 3M 360 Encompass coding application necessary to provide integrated patient level billing in the MHS GENESIS EHR system (FY 2019, $+34.4M; FYDP, $+89.1M).

Exhibit R-2A, RDT&E Project Justification: PB 2019 Defense Health Agency			Date: February 2018
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 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
483A: *Information Technology Development - DoD Healthcare Management System Modernization (DHMSM) at DHA*	451.532	287.723	42.549	28.326	-	28.326	15.771	14.943	13.678	0.300	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 2017	FY 2018	FY 2019
Title: DoD Healthcare Management System Modernization (DHMSM) Program	287.723	42.549	28.326
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 2018 Plans: FY18 RDT&E:			

Exhibit R-2A, RDT&E Project Justification: PB 2019 Defense Health Agency		Date: February 2018
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 2017	FY 2018	FY 2019
• Conduct Test Planning and execute Developmental Test & Evaluation (DT&E) of Segment 2, of new interfaces, patches, and of semi-annual releases. • Support continued configuration efforts for interfaces with legacy systems, engineering and configuration at the Initial Operational Capability (IOC) sites, completing system updates, testing, integration and deployment in response to the results of the Initial Operational Test & Evaluation (IOT&E), and addressing additional configurations identified for the modernized DHMSM Electronic Health Record (EHR) during limited fielding for IOC. FY18 Procurement: • Purchase required commercial software licenses and multiple deployments of the modernized DHMSM EHR to Military Treatment Facilities (MTFs) after the scheduled Full Deployment Decision is approved by the Milestone Decision Authority (MDA). • 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). FY18 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 2019 Plans: FY19 RDT&E: • Conduct Test Planning of new interfaces, patches, and of semi-annual releases. • Configure and test the Cerner Patient Accounting Module (CPAM) and 3M 360 applications to provide integrated patient level billing in the MHS GENESIS Electronic Health Record System. FY19 Procurement: • Purchase required commercial software licenses and multiple deployments of the modernized DHMSM Electronic Health Record (EHR to Military Treatment Facilities (MTFs) to include 3M 360. • 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). FY19 O&M:			

Exhibit R-2A, RDT&E Project Justification: PB 2019 Defense Health Agency		Date: February 2018
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 2017	FY 2018	FY 2019
• 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.			
FY 2018 to FY 2019 Increase/Decrease Statement: The decrease is in compliance with the life cycle cost estimate to go from development to testing and evaluation.			
Accomplishments/Planned Programs Subtotals	287.723	42.549	28.326

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
• BA-1, PE 0807787: *DoD Healthcare Management Systems*	129.969	203.961	308.273	-	308.273	317.512	340.362	354.807	376.701	Continuing	Continuing
• BA-3, PE 0807787: *Information Technology Development and Sustainment - DoD Healthcare Management System Modernization*	29.468	499.193	486.680	-	486.680	532.476	474.888	266.526	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.

E. Performance Metrics

Each program establishes performance measurements which are usually included in the MHS IT Annual Performance Plan. Program cost, schedule and performance are measured periodically using a systematic approach. The results of these measurements are presented to management on a regular basis in various as part of the Integrated Product and Process Development (IPPD) process, In Process Reviews (IPRs), or other reviews to determine program effectiveness and provide new direction as needed to ensure the efficient use of resources are also used.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Defense Health Agency	Date: February 2018
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 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
Total Program Element	42.005	20.909	87.511	78.136	-	78.136	23.071	23.532	24.003	24.483	Continuing	Continuing
447A: *Joint Operational Medicine Information System (JOMIS)*	42.005	20.909	87.511	78.136	-	78.136	23.071	23.532	24.003	24.483	Continuing	Continuing

Program MDAP/MAIS Code: 521

A. Mission Description and Budget Item Justification

The JOMIS Program will modernize, deploy, and sustain the DoD's operational medicine information systems using MHS GENESIS, while developing and fielding new theater capabilities that enable comprehensive health services to meet Warfighter requirements for military medical operations. JOMIS - MHS GENESIS is intended to function in constrained, intermittent, and non-existent communications environments while providing access to authoritative sources of clinical data. The JOMIS Program is declared Joint Interest for capability requirements to be executed under the Joint Capabilities Integration and Development System (JCIDS), with oversight by the Joint Staff J8 (Force Structure, Resources and Assessments) and the Joint Requirements Oversight Council (JROC).

The JOMIS Increment 1 Program is planned to deliver the MHS GENESIS Electronic Health Record (EHR) to meet the healthcare and dental documentation requirements validated by the JCIDS approved Theater Medical Information Requirements (TMIR) Capabilities Development Document (CDD) signed February 28, 2017. JOMIS Increment 1 is planned to deliver MHS GENESIS to replace/retire the legacy AHLTA-T and TC2 systems (under TMIP-J). The JOMIS Increment 1 Program is pre-Milestone B.

B. Program Change Summary ($ in Millions)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Previous President's Budget	22.140	87.511	22.619	-	22.619
Current President's Budget	20.909	87.511	78.136	-	78.136
Total Adjustments	-1.231	0.000	55.517	-	55.517
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.808	-			
• JOMIS Realignment	-	-	55.517	-	55.517
• Other	-0.423	-	-	-	-

Change Summary Explanation

FY 2017: SBIR

Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Defense Health Agency	Date: February 2018
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)*

FY 2018: No change.

FY 2019: Realignment from JOMIS PROC to JOMIS RDT&E.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Defense Health Agency			Date: February 2018
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 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
447A: *Joint Operational Medicine Information System (JOMIS)*	42.005	20.909	87.511	78.136	-	78.136	23.071	23.532	24.003	24.483	Continuing	Continuing

A. Mission Description and Budget Item Justification

The purpose of the Department of Defense (DoD) Joint Operational Medicine Information Systems (JOMIS) Program is to modernize, deploy, and sustain the DoD's operational medicine information systems using MHS GENESIS Electronic Health Record (EHR), while developing and fielding new theater 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. The JOMIS Program is declared Joint Interest for capability requirements to be executed under the Joint Capabilities Integration and Development System (JCIDS) and the oversight of the Joint Requirements Oversight Council (JROC).

The goals of the JOMIS Increment 1 Program are to:
• Meet existing and emerging operational medicine requirements in the theater
• Fully leverage MHS GENESIS for medical care in Theater
• Provide two way information flow between garrison and theater environments in support of a longitudinal health record

Anticipated benefits of the JOMIS Increment 1 Program include:
• Delivery of uniform clinical information across both garrison and theater environments through the use of MHS GENESIS EHR
• Enhancements to the clinical care and information captured at all levels of care in tactical environments
• Transmission of critical information to the combatant commander, the evacuation chain for combat and non-combat casualties

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Title: Joint Operational Medicine Information System (JOMIS)	20.909	87.511	78.136
Description: Specific contribution to mission delivery: JOMIS Increment 1 Program will serve as the primary tactical system to meet the needs of the Warfighter by enabling the provision of coordinated healthcare services. MHS GENESIS is planned to provide for key capabilities in Healthcare Services & Documentation (including Blood Management and Dental Services and Documentation. The JOMIS Increment 1 Program will also integrate MHS GENESIS for interoperability with existing Theater system capabilities for Medical Logistics, Patient Movement and Evacuation, Medical Situational Awareness and Medical Command & Control.			
FY 2018 Plans: - Continue development and integration work to integrate the MHS GENESIS Gold Disk into TMIP-J system portfolio			

Exhibit R-2A, RDT&E Project Justification: PB 2019 Defense Health Agency		Date: February 2018
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 2017	FY 2018	FY 2019
- Conduct Independent Verification and Validation (IV&V), and Development Testing (DT) activities - Conduct Operational Assessment on Service platforms, and obtain Service Network Certification and Accreditation - Initiate planning activities, user readiness, user training, and change management activities for the Initial Operating Capacity (IOC) sites - Support Department of Defense Healthcare Management System Modernization (DHMSM) Program Management Office (PMO) for Contractor Testing and DT of MHS GENESIS Gold Disk ***FY 2019 Plans:*** - Complete development and integration work to integrate the MHS GENESIS Gold Disk into TMIP-J system portfolio - Begin DT - Continue planning activities, user readiness, user training, and change management activities for the IOC sites ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Slight decrease due to transitioning/development efforts (interface design and development in FY18 to test activities; integration activities planned to be funded with FY18			
Accomplishments/Planned Programs Subtotals	20.909	87.511	78.136

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
• BA1 0807746DHA: *JOMIS*	11.136	13.595	15.357	-	15.357	36.281	42.719	43.484	44.357	Continuing	Continuing
• BA3 0807746DHA: *JOMIS*	2.413	8.326	0.000	-	0.000	75.150	73.605	75.077	76.579	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.

E. Performance Metrics

Each program establishes performance measurements which are usually included in the MHS IT Annual Performance Plan. Program cost, schedule and performance are measured periodically using a systematic approach. The results of these measurements are presented to management on a regular basis in various as part of the Integrated Product and Process Development (IPPD) process, In Process Reviews (IPRs), or other reviews to determine program effectiveness and provide new direction as needed to ensure the efficient use of resources.

Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Defense Health Agency											Date: February 2018	
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 2017**	**FY 2018**	**FY 2019 Base**	**FY 2019 OCO**	**FY 2019 Total**	**FY 2020**	**FY 2021**	**FY 2022**	**FY 2023**	**Cost To Complete**	**Total Cost**
Total Program Element	97.701	17.723	15.219	20.295	-	20.295	21.589	22.022	22.462	22.911	Continuing	Continuing
375A: *GDF-Medical Products and Support System Development*	58.546	16.832	14.464	19.421	-	19.421	20.654	21.068	21.489	21.919	Continuing	Continuing
399A: *Hyperbaric Oxygen Therapy Clinical Trial (Army)*	26.124	0.891	0.755	0.874	-	0.874	0.935	0.954	0.973	0.992	Continuing	Continuing
500A: *CSI - Congressional Special Interests*	13.031	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 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. These clinical trials are conducted to obtain US Food and Drug Administration approval, a requirement for use of all medical products. 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 priorities for the Defense Health Program (DHP) are guided by, and will support, the Quadrennial Defense Review, the National Research Action Plan for Improving Access to Mental Health Services for Veterans, Service Members, and Military Families, the National Strategy for Combating Antibiotic Resistance, and the National Strategy for Biosurveillance. Research will support efforts such as the Precision Medicine Initiative which seeks to increase the use of big data and interdisciplinary approaches to establish a fundamental understanding of military disease and injury to advance health status assessment, diagnosis, and treatment tailored to individual Service members and beneficiaries, translational research focused on protection against emerging infectious disease threats, the advancement of state of the art regenerative medicine manufacturing technologies consistent with the National Strategic Plan for Advanced Manufacturing, the advancement of global health engagement and capitalization of complementary research and technology capabilities, improving deployment military occupational and environmental exposure monitoring, and the strengthening of the scientific basis for decision-making in patient safety and quality performance in the Military Health System. 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, the Department of Health and Human Services, and the Department of Homeland Security. Coordination occurs through the planning and execution activities of the Joint Program Committees (JPCs), established to manage research, development, test and evaluation for DHP sponsored research. The JPCs supported by this PE include medical simulation and information sciences (JPC-1), military operational medicine (JPC-5) combat casualty care (JPC-6), and clinical and rehabilitative medicine (JPC-8). The funding also supports the clinical evaluation of hyperbaric oxygenation for post-concussion syndrome (PCS). The effort encompasses development, initiation, operation, analysis, and subsequent publication of clinical trials to compare and assess the long-term benefit of hyperbaric oxygen (HBO2) therapy on Service members with PCS. As the research efforts mature, the most promising will transition to production and deployment or to industry.

Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Defense Health Agency	Date: February 2018
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*

The Army Medical Command received DHP Congressional Special Interest (CSI) research funding to Core Research Funding. Because of the CSI annual structure, out-year funding is not programmed.

B. Program Change Summary ($ in Millions)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Previous President's Budget	17.954	15.219	20.295	-	20.295
Current President's Budget	17.723	15.219	20.295	-	20.295
Total Adjustments	-0.231	0.000	0.000	-	0.000
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	0.145	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.376	-			

Change Summary Explanation

FY 2017: Realignment from Defense Health Program, Research, Development, Test and Evaluation (DHP RDT&E), PE 0605145-Medical Products and Support Systems Development (-$0.376 million) to DHP RDT&E PE 0605502-Small Business Innovation Research (SBIR) / Small Business Technology Transfer (STTR) Program (+$0.376 million).

FY 2017: Congressional Special Interest (CSI) Additions to DHP RDT&E, PE 0605145-Medical Products and Support Systems Development (+$0.145 million).

FY 2017: Realignment from DHP RDTE PE 0605145 (-$0.913 million) to DHP RDTE PE 0603115 for rebalancing JPC portfolios (+$0.913 million).

FY 2017: Realignment from DHP RDTE PE 0605145 (-$0.633 million) to DHP RDTE PE 0603115 for Breast, GYN and Prostate Cancer Centers of Excellence (+$0.633 million).

FY 2017: Realignment from Defense Health Program, Research, Development, Test and Evaluation (DHP RDT&E), Program Element (PE) 0605145-Medical Products and Support Systems Development (+$0.594 million) to DHP O&M Account, Budget Activity Group (BAG) 3 - Private Sector Care (+$0.594 million).

FY 2018: No changes.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Defense Health Agency			Date: February 2018
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 Products and Support System Development*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
375A: *GDF-Medical Products and Support System Development*	58.546	16.832	14.464	19.421	-	19.421	20.654	21.068	21.489	21.919	Continuing	Continuing

A. Mission Description and Budget Item Justification

Guidance for Development of the Force-Medical Products and Support Systems Development: Activities conducted in this project are intended to support system development and demonstration prior to initial full rate production and fielding of commodities. Medical products and support systems development is managed by the following Joint Program Committees (JPCs). 1- The Medical Simulation and Information Sciences JPC seeks to improve military medical training through informatics based training and education. This involves simulation, educational gaming, and health-focused and objective training metrics. Within this JPC, the Combat Casualty Training Initiative supports the testing and evaluation of innovative medical simulation technologies with the goal of improving healthcare access, availability, continuity, cost effectiveness, quality, and patient safety through improved decision-making. 2 - The Military Operational Medicine JPC supports the testing and evaluation of real-time physiological (normal function of living organisms and their parts) status monitoring in order to provide actionable patient information. 3- The Combat Casualty Care JPC seeks Food and Drug Administration (FDA) approval of methods, drugs and devices through human clinical trials. Within this JPC, advanced product development to improve the quality of care is ongoing within the areas of hemorrhage, shock, and coagulopathy of trauma. In addition, the traumatic brain injury (TBI) neurotrauma and brain dysfunction area is validating TBI therapeutics and testing new imaging techniques, battlefield devices for operational decision making, and behavioral physiologic assessment tools for mild TBI. 4- The Clinical Rehabilitation Medicine JPC seeks FDA approval of fast-acting, easily dispensed oral battlefield pain management products that have minimal side effects.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Title: GDF - Medical Products and Support Systems Development (GDF-MPSSD)	16.832	14.464	19.421
Description: GDF-Medical Products and Support Systems Development: Activities conducted are intended 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).			
FY 2018 Plans: Medical simulation and information sciences efforts are supporting the Special Operation Forces (SOF) with additional training for prolonged field care to support anti-access and area denial requirements. Military operational medicine will test a real-time physiological status monitoring system that integrates algorithms and sensors into actionable real-time physiological status, health, and readiness information. Combat casualty care will continue clinical studies supporting FDA clearance of a device using ultraviolet light to kill infectious organisms present in fresh whole blood collected on the battlefield for transfusion into casualties.			

Exhibit R-2A, RDT&E Project Justification: PB 2019 Defense Health Agency		Date: February 2018
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 Products and Support System Development*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Clinical and rehabilitative medicine will seek FDA approval for Sufentanil, a rapid acting pain medication with minimal side effects. ***FY 2019 Plans:*** Military operational medicine will continue the development of a real-time physiological status monitoring system that integrates algorithms and sensors into actionable real-time physiological status, health, and readiness information. Combat casualty care will continue clinical studies supporting FDA clearance of a device using ultraviolet light to kill infectious organisms present in fresh whole blood collected on the battlefield for transfusion into casualties. Will continue clinical studies in humans in support of a FDA Biologic License Application for a spray-dried plasma product. Will continue clinical studies on the Wound Stasis System, a product to control non-compressible hemorrhage within a body cavity. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Pricing Adjustment.			
Accomplishments/Planned Programs Subtotals	16.832	14.464	19.421

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

Test and evaluate medical procedures and prototype devices in government-managed Phase 2 and Phase 3 clinical trials in order to gather data to meet military and regulatory (e.g., FDA, Environmental Protection Agency) requirements for production and fielding.

E. Performance Metrics

Research is evaluated through in-progress reviews, DHP-sponsored review and analysis meetings, and quarterly and annual status reports and is subject to Program Office or Program Sponsor Representatives progress reviews to ensure that milestones are met and deliverables are transitioned on schedule. In addition, Integrated Product Teams, if established for a therapy or device, will monitor progress in accordance with DoD Instruction 5000 series on the Operation of the Defense Acquisition System. The benchmark performance metric for transition of research supported in this PE will be the attainment of a maturity level that is typical of Technology Readiness Level 8 and/or the achievement of established Key Performance Parameters.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Defense Health Agency			Date: February 2018
Appropriation/Budget Activity 0130 / 2	R-1 Program Element (Number/Name) PE 0605145DHA / *Medical Products and Support Systems Development*	Project (Number/Name) 399A / *Hyperbaric Oxygen Therapy Clinical Trial (Army)*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
399A: *Hyperbaric Oxygen Therapy Clinical Trial (Army)*	26.124	0.891	0.755	0.874	-	0.874	0.935	0.954	0.973	0.992	Continuing	Continuing

A. Mission Description and Budget Item Justification

For the Army, the Hyperbaric Oxygen Therapy (HBO2) clinical trials focus on research related to the development of treatment modalities using HBO2 for chronic post-concussion syndrome after mild traumatic brain injury (mTBI). Three HBO2 human clinical trials were designed to evaluate the effectiveness of HBO2 treatments for Service members who have experienced one or more concussions and who are symptomatic at, or after, the time of post-deployment health reassessments: 1- A pilot phase II (narrow population safety and effectiveness) study of hyperbaric oxygen for persistent post-concussive symptoms after mild traumatic brain injury (HOPPS), 2- Brain Injury and Mechanisms of Action of Hyperbaric Oxygen for Persistent Post-Concussive Symptoms after Mild Traumatic Brain Injury (BIMA), and 3- Development of Normative Datasets for Assessments Planned for Use in Patients with Mild Traumatic Brain Injury (Normal). A fourth retrospective study, Long Term Follow-up (LTFU), is focused on the lessons learned from long-term follow-up of subjects enrolled in the Department of Defense (DoD) primary HBO2 trials. To support these protocols, four HBO2 study sites were established within the Military Health System. Each of the research sites consisted of a hyperbaric oxygen chamber enclosed in a mobile trailer, a second mobile trailer for testing and evaluation of the subjects, and a third subject staging trailer. This information is intended to inform DoD policy decisions regarding the use of HBO2 therapy as a treatment for mTBI.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Title: Hyperbaric Oxygen Therapy Clinical Trial (Army)	0.891	0.755	0.874
Description: The HBO2 clinical trials are designed to test the effectiveness of HBO2 treatments for Service members who have experienced one or more concussions and who are symptomatic at, or after, the time of post-deployment health reassessments. ***FY 2018 Plans:*** Publish the BIMA / Normal study primary manuscript and other secondary peer-reviewed manuscripts detailing outcomes and additional findings. Transfer mTBI study data into the FITBIR informatics system. Develop and implement a multi-Service protocol designed to further evaluate previously identified dose-response improvements in combat-related PTSD symptoms secondary to HBO2 exposure. Complete protocol development and initiate a three-phased study effort with Compass Laboratories to differentiate genomic biomarkers in individuals with mTBI (only) from mTBI with coexisting PTSD. Partner with USAMMA to evaluate NIRS technology as a non-invasive treatment monitor for crush injury and compartment syndrome. Explore the ability of HBO2 to speed maturation of osseointegrated prostheses. Continue to store and dispense residual BIMA and Normal study blood specimens for research. ***FY 2019 Plans:*** Continue study efforts, to include enrollment of subjects in the multi-Service protocol evaluating dose-response effects of HBO2 on combat-related PTSD symptoms. Conduct secondary and tertiary phases of the Compass Laboratories supported			

Exhibit R-2A, RDT&E Project Justification: PB 2019 Defense Health Agency		Date: February 2018
Appropriation/Budget Activity 0130 / 2	**R-1 Program Element (Number/Name)** PE 0605145DHA / *Medical Products and Support Systems Development*	**Project (Number/Name)** 399A / *Hyperbaric Oxygen Therapy Clinical Trial (Army)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
protocol validating and refining small RNA biomarkers as diagnostic tools for differentiating personnel with mTBI from those with mTBI and coexisting PTSD. Complete impact analyses and protocol development on efforts evaluating the effect of HBO2 on osseointegration maturity speed and alleviation of compartment syndrome. Continue to store and dispense residual BIMA and Normal study blood specimens for research. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Pricing adjustment.			
Accomplishments/Planned Programs Subtotals	0.891	0.755	0.874

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

The acquisition outcome of this effort is a knowledge product, with the results intended to inform DoD mTBI treatment and reimbursement policies. The decision to pursue FDA registration/off-label application of an existing drug-device combination product will be made as part of a formal decision by leadership after the DoD HBO2 trial results are reviewed. If future work using HBO2 proves beneficial in the treatment of PTSD this knowledge product would inform DoD treatment and reimbursement policies.

E. Performance Metrics

The HBO2 Program Management Office monitors the performance of contracts through review of monthly, yearly and final progress reports to ensure that milestones are met, deliverables will be transitioned on schedule and within budget and in accordance with DoD Instruction 5000. The HBO2 Executive Committee meets bi-monthly to evaluate the direction of the science, discuss future actions, and resolve any current or potential issues or areas of concern.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Defense Health Agency			Date: February 2018
Appropriation/Budget Activity 0130 / 2	R-1 Program Element (Number/Name) PE 0605145DHA / *Medical Products and Support Systems Development*	Project (Number/Name) 500A / *CSI - Congressional Special Interests*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
500A: *CSI - Congressional Special Interests*	13.031	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 FY 2016 DHP Congressional Special Interest (CSI) funding is directed toward core research initiatives in Program Element (PE) 0605145 - Medical Products and Support Systems Development. Because of the CSI annual structure, out-year funding is not programmed.

B. Accomplishments/Planned Programs ($ in Millions)

N/A

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

N/A

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Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Defense Health Agency											Date: February 2018	
Appropriation/Budget Activity 0130: *Defense Health Program* / BA 2: *RDT&E*					R-1 Program Element (Number/Name) PE 0605502DHA / *Small Business Innovation Research (SBIR) Program*							
COST ($ in Millions)	**Prior Years**	**FY 2017**	**FY 2018**	**FY 2019 Base**	**FY 2019 OCO**	**FY 2019 Total**	**FY 2020**	**FY 2021**	**FY 2022**	**FY 2023**	**Cost To Complete**	**Total Cost**
Total Program Element	241.252	58.348	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
470A: *Small Business Innovation Research (SBIR) (Army)*	224.819	51.156	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
470B: *Small Business Technology Transfer (STTR) Program*	16.433	7.192	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 DHP SBIR Program includes stimulating technological innovation, strengthening the role of small business in meeting Department of Defense (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 DHP, 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 programs' 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.

Both the SBIR and STTR programs address the President's multi-agency science and technology priority of innovation in life sciences, biology, and neuroscience through coordination with the Joint Program Committees, which manage multi-Service DHP-sponsored research.

Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Defense Health Agency					Date: February 2018
Appropriation/Budget Activity 0130: *Defense Health Program* / BA 2: *RDT&E*			R-1 Program Element (Number/Name) PE 0605502DHA / *Small Business Innovation Research (SBIR) Program*		
B. Program Change Summary ($ in Millions)	**FY 2017**	**FY 2018**	**FY 2019 Base**	**FY 2019 OCO**	**FY 2019 Total**
Previous President's Budget	0.000	0.000	0.000	-	0.000
Current President's Budget	58.348	0.000	0.000	-	0.000
Total Adjustments	58.348	0.000	0.000	-	0.000
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	58.348	-			

Exhibit R-2A, RDT&E Project Justification: PB 2019 Defense Health Agency			Date: February 2018
Appropriation/Budget Activity 0130 / 2	R-1 Program Element (Number/Name) PE 0605502DHA / *Small Business Innovation Research (SBIR) Program*	Project (Number/Name) 470A / *Small Business Innovation Research (SBIR) (Army)*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
470A: *Small Business Innovation Research (SBIR) (Army)*	224.819	51.156	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 Materiel Command (USAMRMC) 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 USAMRMC 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 $150K for 6 months. Follow-on Phase II projects can be awarded up to $1M for 24 months. This process ensures the SBIR program addresses the multi-agency science and technology priority of innovation in life sciences, biology, and neuroscience.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Title: Small Business Innovation Research (SBIR) Program	51.156	0.000	0.000
Description: The program funds small business proposals chosen to enhance military medical research and information technology research. For FY 2017, twenty-seven DHA SBIR topics were developed for the 2017.1, 2017.2 and 2017.3 DoD SBIR Broad Agency Announcements (BAA). Funding for each topic was based on the technical merits of the proposals submitted. ***FY 2018 Plans:*** No funding programmed. The DHA SBIR program is funded in the year of execution. ***FY 2019 Plans:*** No funding programmed. The DHA SBIR program is funded in the year of execution.			
Accomplishments/Planned Programs Subtotals	51.156	0.000	0.000

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

Exhibit R-2A, RDT&E Project Justification: PB 2019 Defense Health Agency		Date: February 2018
Appropriation/Budget Activity 0130 / 2	**R-1 Program Element (Number/Name)** PE 0605502DHA / *Small Business Innovation Research (SBIR) Program*	**Project (Number/Name)** 470A / *Small Business Innovation Research (SBIR) (Army)*

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 Food and Drug Administration licensure and Environmental Protection Agency registration.

E. Performance Metrics

The number of Phase I awards supporting innovative technology development. The number of Phase II and III awards leading to technology transition.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Defense Health Agency			Date: February 2018
Appropriation/Budget Activity 0130 / 2	**R-1 Program Element (Number/Name)** PE 0605502DHA / *Small Business Innovation Research (SBIR) Program*	**Project (Number/Name)** 470B / *Small Business Technology Transfer (STTR) Program*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
470B: *Small Business Technology Transfer (STTR) Program*	16.433	7.192	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 Materiel Command (USAMRMC) 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 USAMRMC 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 $150K for 6 months. Follow-on Phase II projects can be awarded up to $1M for 24 months. This process ensures the STTR program addresses the multi-agency science and technology priority of innovation in life sciences, biology, and neuroscience.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Title: Small Business Technology Transfer (STTR) Program	7.192	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. For FY 2017, thirteen topics were developed for the 2017.A, 2017.B and 2017.C DoD STTR Broad Agency Announcement (BAA). Funding for the topics was based on the merits of responses to the BAA.			
FY 2018 Plans: No funding programmed. The DHA STTR program is funded in the year of execution.			
FY 2019 Plans:			

Exhibit R-2A, RDT&E Project Justification: PB 2019 Defense Health Agency		Date: February 2018
Appropriation/Budget Activity 0130 / 2	**R-1 Program Element (Number/Name)** PE 0605502DHA / *Small Business Innovation Research (SBIR) Program*	**Project (Number/Name)** 470B / *Small Business Technology Transfer (STTR) Program*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
No funding programmed. The DHA STTR program is funded in the year of execution.			
Accomplishments/Planned Programs Subtotals	7.192	0.000	0.000

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

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 Food and Drug Administration licensure and Environmental Protection Agency registration.

E. Performance Metrics

The number of Phase I awards supporting innovative technology development. The number of Phase II and III awards leading to technology transition.

Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Defense Health Agency											Date: February 2018	
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 2017**	**FY 2018**	**FY 2019 Base**	**FY 2019 OCO**	**FY 2019 Total**	**FY 2020**	**FY 2021**	**FY 2022**	**FY 2023**	**Cost To Complete**	**Total Cost**
Total Program Element	245.227	74.340	69.191	63.755	-	63.755	67.219	68.563	69.934	71.333	Continuing	Continuing
305T: *USAMRIID IO&T (Army)*	90.906	5.409	13.708	0.455	-	0.455	0.000	0.000	0.000	0.000	Continuing	Continuing
368A: *Pacific-Based Joint Information Technology Center - Maui (JITC-Maui) (HIT)*	18.869	0.000	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
397T: *USAMRICD IO&T (Army)*	35.693	0.000	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
401A: *CONUS Laboratory Support Clinical Infrastructure (Army)*	23.839	4.699	5.155	5.253	-	5.253	5.358	5.465	5.574	5.685	Continuing	Continuing
432A: *OCONUS Laboratory Infrastructure Support (Army)*	39.210	12.973	11.419	13.218	-	13.218	14.144	14.427	14.715	15.010	Continuing	Continuing
433A: *NMRC Biological Defense Research Directorate (BDRD) (Navy)*	12.651	2.071	2.968	3.109	-	3.109	5.163	5.266	5.371	5.479	Continuing	Continuing
442A: *USARIEM Pike's Peak IO&T (Army)*	0.186	0.234	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
600A: *CSI - Congressional Special Interests*	22.207	5.406	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
494A: *Medical Development (Lab Support) (Navy)*	0.000	43.548	35.941	41.720	-	41.720	42.554	43.405	44.274	45.159	Continuing	Continuing
376A: *GDF - Medical Program-Wide Activities*	1.666	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 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.

Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Defense Health Agency	Date: February 2018
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*

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.

B. Program Change Summary ($ in Millions)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Previous President's Budget	58.410	69.191	63.755	-	63.755
Current President's Budget	74.340	69.191	63.755	-	63.755
Total Adjustments	15.930	0.000	0.000	-	0.000
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	16.726	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.796	-			

Congressional Add Details ($ in Millions, and Includes General Reductions)	FY 2017	FY 2018
Project: 600A: *CSI - Congressional Special Interests*		
Congressional Add: *PC 476 - CSI Core Restoral Medical Program-wide Activities (Navy)*	1.245	-
Congressional Add: *PC 476 - CSI Core Restoral Medical Program-wide Activities (Army)*	3.222	-
Congressional Add: *PC 466 - CSI Core Restoral Medical Program-wide Activities*	0.939	-
Congressional Add Subtotals for Project: 600A	5.406	-
Congressional Add Totals for all Projects	5.406	-

Change Summary Explanation

FY 2017: Congressional Special Interest (CSI) Additions to DHP RDT&E, PE 0606105-Medical Program-Wide Activities (+$16.649 million).

Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Defense Health Agency	Date: February 2018
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*

FY 2017: Realignment from Defense Health Program, Research, Development, Test and Evaluation (DHP RDT&E), PE 0606105-Medical Program-Wide Activities (-$0.796 million) to DHP RDT&E PE 0605502-Small Business Innovation Research (SBIR) / Small Business Technology Transfer (STTR) Program (+ $0.796 million).

FY 2017: Realignment from Defense Health Program, Research, Development, Test and Evaluation (DHP RDT&E), Program Element (PE) 0603115-Medical Technology Development (-$38.211 million) to DHP RDT&E, PE 0606105-Medical Program-Wide Activities (+$38.211 million).

FY 2017: Realignment from Defense Health Program, Research, Development, Test and Evaluation (DHP RDT&E), Program Element (PE) PE 0606105-Medical Program-Wide Activities (-$5.191 million) to DHP O&M, BAG 3 - Private Sector Care (+$5.191 million).

FY 2017: Pike's Peak Investment, PE 0606105-Medical Program-Wide Activities (+$0.234 million).

Exhibit R-2A, RDT&E Project Justification: PB 2019 Defense Health Agency			Date: February 2018
Appropriation/Budget Activity 0130 / 2	R-1 Program Element (Number/Name) PE 0606105DHA / *Medical Program-Wide Activities*	Project (Number/Name) 305T / *USAMRIID IO&T (Army)*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
305T: *USAMRIID IO&T (Army)*	90.906	5.409	13.708	0.455	-	0.455	0.000	0.000	0.000	0.000	Continuing	Continuing

A. Mission Description and Budget Item Justification

Funding supports the initial outfitting and transition (IO&T) costs associated with military construction (MILCON) for the US Army Medical Research Institute of Infectious Diseases (USAMRIID), Fort Detrick, Maryland.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Title: USAMRIID IO&T (Army)	5.409	13.708	0.455
Description: US Army Medical Research Institute of Infectious Diseases in Fort Detrick, Maryland, IO&T costs associated with MILCON. ***FY 2018 Plans:*** The FY 2018 USAMRIID IO&T program reflects the phased requirements as safety and CDC certification activities will continue to completion. FY 2018 costs will cover decommissioning costs of the existing USAMRIID facilities, the turn in and clean up of hazardous material, chemical material, and the decontamination of existing laboratory spaces. Funds will also be used to support the final relocation of personnel, equipment, and research products to the USAMRIID Replacement Facility. ***FY 2019 Plans:*** Requested funds provide for the completion of the IO&T program associated with the USAMRIID MILCON project. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** There is a decrease in funds because the USAMRIID IO&T program is scheduled to be completed in FY 2019.			
Accomplishments/Planned Programs Subtotals	5.409	13.708	0.455

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

Metric includes completed and documented analysis by the performer reflecting program execution and completion dates based on approved phasing.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Defense Health Agency			Date: February 2018
Appropriation/Budget Activity 0130 / 2	R-1 Program Element (Number/Name) PE 0606105DHA / *Medical Program-Wide Activities*	Project (Number/Name) 368A / *Pacific-Based Joint Information Technology Center - Maui (JITC-Maui) (HIT)*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
368A: *Pacific-Based Joint Information Technology Center - Maui (JITC-Maui) (HIT)*	18.869	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

Pacific Joint Information Technology Center (Pacific JITC) (DHA HIT Directorate) was established to rapidly research, test and develop Warfighter medical solutions and products, through pilot projects or prototypes that provide mission critical value and actionable information to the DoD, including Services, combatant commanders, and the Department of Veterans Affairs.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Title: Pacific-Based Joint Information Technology Center - Maui (JITC-Maui) (HIT) ***Description:*** Management support for research projects at Pacific Joint Information Technology Center (JITC).	0.000	-	-
Accomplishments/Planned Programs Subtotals	0.000	-	-

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

Metric includes completed and documented analysis by the performer reflecting program execution and completion dates based on approved phasing.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Defense Health Agency			Date: February 2018
Appropriation/Budget Activity 0130 / 2	R-1 Program Element (Number/Name) PE 0606105DHA / *Medical Program-Wide Activities*	Project (Number/Name) 397T / *USAMRICD IO&T (Army)*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
397T: *USAMRICD IO&T (Army)*	35.693	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

Funding supports the initial outfitting and transition (IO&T) costs associated with military construction (MILCON) for the US Army Medical Research Institute of Chemical Defense (USAMRICD), Aberdeen Proving Ground, Maryland.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Title: USAMRICD IO&T (Army)	0.000	0.000	0.000
Description: The USAMRICD, Aberdeen Proving Ground, Maryland, IO&T costs associated with MILCON. ***FY 2018 Plans:*** No funding programmed. ***FY 2019 Plans:*** No funding programmed.			
Accomplishments/Planned Programs Subtotals	0.000	0.000	0.000

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

Metrics include completed and documented analysis by the performer reflecting program execution and completion dates based on approved phasing. Successful establishment of a sufficient infrastructure will result in close coordination and cooperation between the research, development, test and evaluation community, Clinical Investigation Program, Military Treatment Facilities, and Defense Centers of Excellence communities with the initiation of new collaborative clinical studies and trials.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Defense Health Agency			Date: February 2018
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 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
401A: *CONUS Laboratory Support Clinical Infrastructure (Army)*	23.839	4.699	5.155	5.253	-	5.253	5.358	5.465	5.574	5.685	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 2017	FY 2018	FY 2019
Title: CONUS Laboratory Support Clinical Infrastructure (Army)	4.699	5.155	5.253
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.			
FY 2018 Plans: Will support efforts for military medical research. These efforts will include support staff engaged in multiple clinical investigations and performing critical roles in research subject engagement, development and review of research protocols, and the creation, analysis, and communication of research data. Examples of the clinical research specialties to be supported by the program are: clinical research associate, study coordinator, human subjects protection scientist, budget analyst, computer information technology and management specialist, biomedical scientist/molecular biologist, statistician, database manager, biostatistics/ bioinformatics analyst, biobank manager, research assistant, and clinical research coordinator. Efforts with the funding will include: support for clinical investigations, submission for external funding applications, sustainment of a Clinical Investigation Committee to review research protocols and provide research support services, solicitation of collaborative research partnerships with non-federal organizations, utilization of funding opportunities database to assist MTF investigators, and identification of ways to improve submission competitiveness.			
FY 2019 Plans: Will support efforts for military medical research. These efforts will include support staff engaged in multiple clinical investigations and performing critical roles in research subject engagement, development and review of research protocols, and the creation,			

Exhibit R-2A, RDT&E Project Justification: PB 2019 Defense Health Agency		Date: February 2018
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)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
analysis, and communication of research data. Examples of the clinical research specialties to be supported by the program are: clinical research associate, study coordinator, human subjects protection scientist, budget analyst, computer information technology and management specialist, biomedical scientist/molecular biologist, statistician, database manager, biostatistics/ bioinformatics analyst, biobank manager, research assistant, and clinical research coordinator. Efforts with the funding will include: support for clinical investigations, submission for external funding applications, sustainment of a Clinical Investigation Committee to review research protocols and provide research support services, solicitation of collaborative research partnerships with non-federal organizations, utilization of funding opportunities database to assist MTF investigators, and identification of ways to improve submission competitiveness. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** N/A			
Accomplishments/Planned Programs Subtotals	4.699	5.155	5.253

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

Metrics include completed and documented analysis by the performer reflecting program execution and completion dates based on approved phasing. Successful establishment of a sufficient infrastructure will result in close coordination and cooperation between the RDT&E community, Clinical Investigation Program, MTFs, and Defense Centers of Excellence communities with the initiation of new collaborative clinical studies and trials.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Defense Health Agency			Date: February 2018
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 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
432A: *OCONUS Laboratory Infrastructure Support (Army)*	39.210	12.973	11.419	13.218	-	13.218	14.144	14.427	14.715	15.010	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 2017	FY 2018	FY 2019
Title: OCONUS Laboratory Infrastructure Support (Army)	12.973	11.419	13.218
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.			
FY 2018 Plans: Infrastructure funding costs for USAMD-AFRIMS, USAMRD-K, and USAMRD-G laboratories will consist of administration and infrastructure support, which will sustain medical research platforms for surveillance, testing, and evaluation of products to inform the development of interventions for military-relevant endemic diseases. Sustainment costs will include resource management, logistics, safety, information technology activities, salaries, utilities, maintenance, transportation, shipping, vehicle maintenance and generator fuel.			
FY 2019 Plans: Provides for the sustainment of the administration and infrastructure support for USAMD-AFRIMS, USAMRD-K, and USAMRD-G laboratories. These laboratories provide medical research platforms for surveillance, testing, and evaluation of products to inform the development of interventions for military-relevant endemic diseases. Administration and infrastructure support efforts include			

Exhibit R-2A, RDT&E Project Justification: PB 2019 Defense Health Agency		Date: February 2018
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)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
resource management, logistics, safety, information technology activities, salaries, utilities, maintenance, transportation, shipping, vehicle maintenance and generator fuel. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** N/A			
Accomplishments/Planned Programs Subtotals	12.973	11.419	13.218

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

Metrics include documented analysis reflecting program execution of sustainment and modernization of the administration and infrastructure support required for general research, test, and evaluation at the laboratories in Kenya, Thailand, and Georgia.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Defense Health Agency			Date: February 2018
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 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
433A: *NMRC Biological Defense Research Directorate (BDRD) (Navy)*	12.651	2.071	2.968	3.109	-	3.109	5.163	5.266	5.371	5.479	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 2017	FY 2018	FY 2019
Title: NMRC Biological Defense Research Directorate (BDRD) (Navy)	2.071	2.968	3.109
Description: Funding for this project code 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 2017 Accomplishments: Provided funding for the Central Utility Plant, Entry Control 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 2018 Plans:*** Provide funding for the Central Utility Plant, Entry Control Points Security Force and operational costs necessary to achieve the mission critical functions of BW agent detection, analysis, and deployable BW diagnostic lab service. ***FY 2019 Plans:*** FY 2019 plans continue efforts as outlined in FY 2018. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Funding for Biological Defense Research continues for efforts as outlined in FY 2018 plans. Pricing adjustments reflect the increase.			
Accomplishments/Planned Programs Subtotals	2.071	2.968	3.109

C. Other Program Funding Summary ($ in Millions)

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2019 Defense Health Agency		Date: February 2018
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)

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

Metrics include timely delivery of targeted funding support for BDRD operations, required to meet mission of developing and deploying BW assays, therapeutics, forensic analysis, and BW diagnostic lab services in response to science sponsor timelines.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Defense Health Agency			Date: February 2018
Appropriation/Budget Activity 0130 / 2	R-1 Program Element (Number/Name) PE 0606105DHA / *Medical Program-Wide Activities*	Project (Number/Name) 442A / *USARIEM Pike's Peak IO&T (Army)*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
442A: *USARIEM Pike's Peak IO&T (Army)*	0.186	0.234	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing

A. Mission Description and Budget Item Justification

Funding supports the initial outfitting and transition (IO&T) research, development, test and evaluation (RDT&E) costs associated with military construction (MILCON) for the US Army Research Institute of Environmental Medicine (USARIEM) at Pike's Peak, Colorado.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Title: USARIEM Pike's Peak IO&T (Army)	0.234	0.000	0.000
Description: Supports the initial outfitting and transition (IO&T) research, development, test and evaluation (RDT&E) costs associated with MILCON for the US Army Research Institute of Environmental Medicine (USARIEM) at Pike's Peak, Colorado. ***FY 2018 Plans:*** No funding programmed. ***FY 2019 Plans:*** No funding programmed.			
Accomplishments/Planned Programs Subtotals	0.234	0.000	0.000

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

Metric includes completed and documented analysis by the performer reflecting program execution and completion dates based on approved phasing.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Defense Health Agency			Date: February 2018
Appropriation/Budget Activity 0130 / 2	R-1 Program Element (Number/Name) PE 0606105DHA / *Medical Program-Wide Activities*	Project (Number/Name) 600A / *CSI - Congressional Special Interests*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
600A: *CSI - Congressional Special Interests*	22.207	5.406	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing

A. Mission Description and Budget Item Justification

The FY 2017 DHP Congressional Special Interest (CSI) funding is directed toward core research initiatives in Program Element (PE) 0606105 - Medical Program-Wide Activities. Because of the CSI annual structure, out-year funding is not programmed.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018
Congressional Add: PC 476 - CSI Core Restoral Medical Program-wide Activities (Navy) ***FY 2017 Accomplishments:*** PLACE HOLDER	1.245	-
Congressional Add: PC 476 - CSI Core Restoral Medical Program-wide Activities (Army) ***FY 2017 Accomplishments:*** PLACE HOLDER	3.222	-
Congressional Add: PC 466 - CSI Core Restoral Medical Program-wide Activities ***FY 2017 Accomplishments:*** SPACE HOLDER	0.939	-
Congressional Adds Subtotals	5.406	-

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2019 Defense Health Agency			Date: February 2018
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 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
494A: *Medical Development (Lab Support) (Navy)*	0.000	43.548	35.941	41.720	-	41.720	42.554	43.405	44.274	45.159	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 U.S. (OCONUS) laboratories conduct focused medical research on vaccine development for Malaria, Diarrhea Diseases, and Dengue Fever. In addition to entomology, the labs focus on 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.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Title: Medical Development (Lab Support) (Navy)	43.548	35.941	41.720
Description: Funding in this project code 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 2017 Accomplishments: Provided operating support for 8 medical RDT&E labs across 15 research focus areas with the goal of developing products and strategies that protect, treat, rehabilitate and enhance the performance of the Warfighter. Requested funding enabled the labs to meet or exceed science performance metric objectives.			
FY 2018 Plans: Continue to provide operating support for 8 medical RDT&E labs across 15 research focus areas with the goal of developing products and strategies that protect, treat, rehabilitate and enhance the performance of the Warfighter. Requested funding will enable the labs to meet or exceed science performance metric objectives.			
FY 2019 Plans: FY 2019 plans continue efforts as outlined in FY 2018.			
FY 2018 to FY 2019 Increase/Decrease Statement:			

Exhibit R-2A, RDT&E Project Justification: PB 2019 Defense Health Agency		Date: February 2018
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)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Funding for Biological Defense Research continues for efforts as outlined in FY 2018 plans. Pricing adjustments reflect the increase.			
Accomplishments/Planned Programs Subtotals	43.548	35.941	41.720

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

Metrics include timely and proportionate distribution of funds to labs and product lines to optimize resource utilization in the development and evaluation of products that protect, treat, rehabilitate and enhance the performance of the Warfighter.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Defense Health Agency			Date: February 2018
Appropriation/Budget Activity 0130 / 2	R-1 Program Element (Number/Name) PE 0606105DHA / *Medical Program-Wide Activities*	Project (Number/Name) 376A / *GDF - Medical Program-Wide Activities*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
376A: *GDF - Medical Program-Wide Activities*	1.666	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 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 project 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.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Title: 376A: GDF – Medical Program-Wide Activities	0.000	-	-
Accomplishments/Planned Programs Subtotals	0.000	-	-

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

N/A

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Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Defense Health Agency	Date: February 2018
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 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
Total Program Element	69.885	14.953	13.438	15.714	-	15.714	16.819	17.215	17.619	17.971	Continuing	Continuing
377A: *GDF-Medical Products and Capabilities Enhancement Activities*	66.167	14.953	13.438	15.714	-	15.714	16.819	17.215	17.619	17.971	Continuing	Continuing
457A: *AF Advanced Technology Development – Rapid Technology Transition*	1.336	0.000	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
700A: *CSI - Congressional Special Interests*	2.382	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 and Capabilities Enhancement Activities: Funds will support (1) developmental upgrades to medical 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, (2) testing and evaluation supporting the enhancement of fielded or procured medical systems/products and medically-related information technology systems, (3) assessment of fielded medical products or medical practices in order to identify the need/opportunity for changes, and (4) analyses of clinical intervention outcomes to enhance and improve military unique Clinical Practice Guidelines. 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 (e.g., National Research Action Plan, Precision Medicine Initiative, Office of Management and Budget Combat Casualty Care Assessment, National Defense Authorization Acts, etc.), and others as appropriate.

B. Program Change Summary ($ in Millions)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Previous President's Budget	14.998	13.438	15.714	-	15.714
Current President's Budget	14.953	13.438	15.714	-	15.714
Total Adjustments	-0.045	0.000	0.000	-	0.000
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.045	-			

Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Defense Health Agency	Date: February 2018
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*

Congressional Add Details ($ in Millions, and Includes General Reductions)	FY 2017	FY 2018
Project: 700A: *CSI - Congressional Special Interests*		
Congressional Add: *467A – Program Increase: Restore Core Research Funding Reduction (GDF)*	0.000	-
Congressional Add Subtotals for Project: 700A	0.000	-
Congressional Add Totals for all Projects	0.000	-

Change Summary Explanation

FY 2016: Realignment from Defense Health Program, Research, Development, Test and Evaluation (DHP RDT&E), PE 0607100-Medical Products and Capabilities Enhancement Activities (-$1.304 million) to DHP RDT&E PE 0605502-Small Business Innovation Research (SBIR) / Small Business Technology Transfer (STTR) Program (+$1.304 million).

FY 2017: Realignment from Defense Health Program, Research, Development, Test and Evaluation (DHP RDT&E), Program Element (PE) PE 0607100-Medical Products and Capabilities Enhancement Activities (-$2.291 million) to DHP O&M Account, Budget Activity Group (BAG) 3 - Private Sector Caree (+$2.291 million).

FY 2017: Realignment from Defense Health Program, Research, Development, Test and Evaluation (DHP RDT&E), PE 0607100-Medical Products and Capabilities Enhancement Activities (-$0.358 million) to USU DHP RDT&E PE 0603115 Breast, GYN and Prostate Cancer Centers of Excellence (+$0.358 million).

FY 2018: Realignment from DHP RDTE PE 0607100-Medical Products and Capabilities Enhancement Activities, Project 377 GDF (-$1.500 million) to DHP RDTE PE 0603115-Medical Technology Development, Uniformed Services University, Project 478 Applied Proteogenomics Organization Learning and Outcomes (APOLLO) Consortium (+$1.500 million) to support the White House-directed Cancer Moonshot initiative.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Defense Health Agency			Date: February 2018
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 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
377A: *GDF-Medical Products and Capabilities Enhancement Activities*	66.167	14.953	13.438	15.714	-	15.714	16.819	17.215	17.619	17.971	Continuing	Continuing

A. Mission Description and Budget Item Justification

The goal of the Medical Products and Capabilities Enhancement Activity is to test, evaluate, and support enhancement of existing medical products and medically-related IT systems within the areas of medical simulation, infectious disease, tactical combat casualty care, military operational medicine, and clinical and rehabilitative medicine. Additionally, funding supports the investigation of clinical intervention outcomes to support, enhance, and improve militarily unique Clinical Practice Guidelines. Program Element 6.7 efforts are short-term, high-impact projects. It is an intramural research program focused on evaluating new commercial medical capabilities suitable for theater, testing fielded capabilities to determine if they can function in an expanded or altered operationally-relevant environment, and investigating the potential to incorporate emerging medical or non-medical technologies into fielded medical systems. The program structure provides a flexible and responsive mechanism to accomplish these objectives.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Title: 377A: GDF – Medical Products and Capabilities Enhancement Activities	14.953	13.438	15.714
Description: Provide 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.			
FY 2018 Plans: Solicit, review, and make awards for intramural proposals consistent with the intent of Program Element 6.7. For previously funded efforts: - Complete (a) adaptation of an existing (paper) pain management workbook into a mobile application software to assess accessibility and better patient engagement, (b) assessment of Service-specific platelet collection methods with the goal of recommending one universally accepted method , (c) evaluation of a commercial ultrasound system for military veterinary use, (d) evaluation of commercially available mosquito traps for their ability to collect disease transmitting mosquitoes, (e) evaluation of a new commercial mosquito tent trap for use in Southwest Asia - Continue (a) assessment of a commercially available mosquito traps for ability to collect disease transmitting mosquitoes, (b) assessment of return to duty standards related to experienced pilots and crew having a small vision decrement in one eye while maintaining overall 20/20 vision, (c) the use of chemoprevention versus current regimens to reduce dosing requirements for malaria prophylaxis drugs - Initiate evaluation of (a) four commercially available assays the detection of the agent causing Lyme disease in order to identify the best one suited for military field use, (b) existing airway management devices used by military medics with the goal of			

Exhibit R-2A, RDT&E Project Justification: PB 2019 Defense Health Agency		Date: February 2018
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 2017	FY 2018	FY 2019
producing evidence-based consensus recommendations to manage airway compromise, the second leading cause of potentially preventable death on the battlefield. ***FY 2019 Plans:*** Will continue to solicit, review, and make awards for intramural proposals consistent with the intent of Program Element 6.7. For previously funded efforts: – Complete (a) evaluation of the use of chemoprevention versus current regimens to reduce dosing requirements for malaria prophylaxis drugs, (b) evaluation of four commercially available assays the detection of the agent causing Lyme disease in order to identify the best one suited for military field use and present findings to the Armed Forces Pest Management Board – Continue multi-phase assessment of existing airway management devices used by military medics with the goal of producing evidence-based consensus recommendations to manage airway compromise, the second leading cause of potentially preventable death on the battlefield. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** N/A			
Accomplishments/Planned Programs Subtotals	14.953	13.438	15.714

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

The PE 6.7 Program Manager solicits proposals annually. Civilian and military intramural DoD laboratory investigators are eligible to apply. Awardees may collaborate with extramural (e.g., academia or industry) entities. Submitted proposals undergo a two-level review – one technical and one programmatic. A technical assessment of the proposals is solicited from the respective subject matter experts within the Joint Program Committees and the advanced development community. Following this, a programmatic review is performed by senior Service experts representing the science and technology base and advanced development. After the programmatic review, funding recommendations are forwarded to the Defense Health Agency – J9/Research and Development for final approval prior to award.

E. Performance Metrics

Principal Investigators will provide quarterly reports and a final report. Performance is measured based on the number of products for which testing either certifies use in a given environment (e.g., sufficiently ruggedized, airworthiness testing) and/or results in a recommendation of a specific product, and delivery of an enhanced product or knowledge product. The benchmark performance metric for research supported in this PE will be the enhancement of a maturity level that is typical of TRL 9.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Defense Health Agency			Date: February 2018
Appropriation/Budget Activity 0130 / 2	R-1 Program Element (Number/Name) PE 0607100DHA / *Medical Products and Capabilities Enhancement Activities*	Project (Number/Name) 457A / *AF Advanced Technology Development – Rapid Technology Transition*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
457A: *AF Advanced Technology Development – Rapid Technology Transition*	1.336	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

Air Force - Medical Products and Capabilities Enhancement Activities: Funds support a developmental upgrade to a medical product that has been fielded and for which procurement funding is anticipated subsequent fiscal years.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Title: AF Advanced Technology Development – Rapid Technology Transition	0.000	-	-
Description: Provide 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.			
Accomplishments/Planned Programs Subtotals	0.000	-	-

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

$1.1M FY15/17 Defense Health Program – Air Force Procurement funds

D. Acquisition Strategy

Cost-plus Fixed Fee contract award to performer via the Army-Natick Soldier Systems Research Development and Execution Center contracting activity.

E. Performance Metrics

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2019 Defense Health Agency			Date: February 2018
Appropriation/Budget Activity 0130 / 2	R-1 Program Element (Number/Name) PE 0607100DHA / *Medical Products and Capabilities Enhancement Activities*	Project (Number/Name) 700A / *CSI - Congressional Special Interests*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
700A: *CSI - Congressional Special Interests*	2.382	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

No FY 2017 DHP Congressional Special Interest (CSI) funding is directed toward core research initiatives in Program Element (PE) 0607100 - Medical Products and Capabilities Enhancement Activities.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018
Congressional Add: 467A – Program Increase: Restore Core Research Funding Reduction (GDF)	0.000	-
FY 2017 Accomplishments: [*** PLEASE ENTER CONGRESSIONAL ADD TEXT FOR PRIOR YEAR. ***]		
Congressional Adds Subtotals	0.000	-

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

N/A