Exhibit R-2, RDT&E Budget Item Justification: PB 2025 Army											Date: March 2024	
Appropriation/Budget Activity 2040: *Research, Development, Test & Evaluation, Army I* BA 2: *Applied Research*					R-1 Program Element (Number/Name) PE 0602787A *I Medical Technology*							
COST ($ in Millions)	**Prior Years**	**FY 2023**	**FY 2024**	**FY 2025 Base**	**FY 2025 OCO**	**FY 2025 Total**	**FY 2026**	**FY 2027**	**FY 2028**	**FY 2029**	**Cost To Complete**	**Total Cost**
Total Program Element	-	79.851	66.266	68.481	-	68.481	19.897	20.897	21.129	21.340	0.000	297.861
BS7: *Medical Technology (CA)*	-	46.680	-	-	-	-	-	-	-	-	0.000	46.680
MK4: *Warfigher Health Applied Rsch Technology*	-	31.166	64.326	67.250	-	67.250	17.492	18.196	18.399	18.583	0.000	235.412
MM4: *Cbt Casualty Care Applied Rsch Technology*	-	1.885	1.815	1.112	-	1.112	2.285	2.582	2.610	2.636	0.000	14.925
MM6: *Medical Technologies to Support Dispersed Ops Tech*	-	0.120	0.125	0.119	-	0.119	0.120	0.119	0.120	0.121	0.000	0.844

A. Mission Description and Budget Item Justification

This Program Element (PE) supports application of knowledge gained through basic research to refine drugs, vaccines, medical devices, diagnostics, medical practices/ procedures, and other preventive measures essential to the protection and sustainment of Warfighter health. Research is conducted in five principal areas: Combat Casualty Care, Military Operational Medicine, Military Relevant Infectious Diseases, Clinical and Rehabilitative Medicine, Medical Capabilities to Support Dispersed Operations, and Systems Biology/Network Sciences. Projects are coordinated with the Defense Health Agency.

The cited research is consistent with the Under Secretary of Defense for Research and Engineering science and technology focus areas and the Army Modernization Strategy.

All medical applied research is conducted in compliance with Food and Drug Administration (FDA) or Environmental Protection Agency (EPA) regulations. The FDA requires thorough testing in animals (preclinical testing) to ensure safety and, where possible, effectiveness prior to evaluation in controlled human clinical trials (upon transition to Advanced Technology Development). This PE focuses on research and refinement of technologies such as product formulation and purification and laboratory test refinement with the aim of identifying candidate solutions. This work often involves testing in animal models. The EPA also requires thorough testing of products, such as sterilants, disinfectants, repellents, and insecticides to ensure the environment is adequately protected before these products are licensed for use. Program refinement and execution is externally peer-reviewed and fully coordinated with all Services as well as other agencies through the Joint Technology Coordinating Groups of the Biomedical Community of Interest. The Biomedical Community of Interest, formed under the authority of the Assistant Secretary of Defense for Research and Engineering, serves to facilitate coordination and prevent unnecessary duplication of effort within the Department of Defenses (DoD) biomedical research community, as well as their associated enabling research areas.

Exhibit R-2, RDT&E Budget Item Justification: PB 2025 Army	Date: March 2024
Appropriation/Budget Activity 2040: *Research, Development, Test & Evaluation, Army I* BA 2: *Applied Research*	**R-1 Program Element (Number/Name)** PE 0602787A *I Medical Technology*

B. Program Change Summary ($ in Millions)	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total
Previous President's Budget	80.656	66.266	73.066	-	73.066
Current President's Budget	79.851	66.266	68.481	-	68.481
Total Adjustments	-0.805	0.000	-4.585	-	-4.585
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.805	-			
• Adjustments to Budget Years	-	-	-4.585	-	-4.585

Congressional Add Details ($ in Millions, and Includes General Reductions)	FY 2023	FY 2024
Project: BS7: *Medical Technology (CA)*		
Congressional Add: *Program Increase - Center for Excellence in Military Health and Performance Enhancement*	5.000	-
Congressional Add: *Program Increase - Holistic Health and Fitness*	5.680	-
Congressional Add: *Program Increase - RNA Therapeutics for Infectious Disease Threats*	8.000	-
Congressional Add: *Program Increase - BIOMATERIALS FOR COMBAT WOUND CARE*	3.000	-
Congressional Add: *Program Increase - ENGINEERED ANTIBODIES FOR SKIN AND SOFT-TISSUE INFECTIONS*	5.000	-
Congressional Add: *Program Increase - PHOTONIC INTEGRATED CIRCUIT PLATFORM*	5.000	-
Congressional Add: *Program Increase - SURGICAL INSTRUMENT STERILIZATION*	5.000	-
Congressional Add: *Program Increase - TRAUMA IMMUNOLOGY*	10.000	-
Congressional Add Subtotals for Project: BS7	46.680	-
Congressional Add Totals for all Projects	46.680	-

Change Summary Explanation

Funding decrease reflect planned lifecycle for this effort.

Exhibit R-2A, RDT&E Project Justification: PB 2025 Army											Date: March 2024	
Appropriation/Budget Activity 2040 / 2					R-1 Program Element (Number/Name) PE 0602787A / *Medical Technology*				Project (Number/Name) BS7 / *Medical Technology (CA)*			
COST ($ in Millions)	**Prior Years**	**FY 2023**	**FY 2024**	**FY 2025 Base**	**FY 2025 OCO**	**FY 2025 Total**	**FY 2026**	**FY 2027**	**FY 2028**	**FY 2029**	**Cost To Complete**	**Total Cost**
BS7: *Medical Technology (CA)*	-	46.680	-	-	-	-	-	-	-	-	0.000	46.680

Note

Congressional Interest Item funding provided for Medical Technology.

A. Mission Description and Budget Item Justification

Congressional Interest Item funding provided for Medical Technology.

The cited work is consistent with the Under Secretary of Defense for Research and Engineering priority focus areas and the Army Modernization Strategy.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2023	FY 2024
Congressional Add: Program Increase - Center for Excellence in Military Health and Performance Enhancement ***FY 2023 Accomplishments:*** Congressional Interest Item funding provided for Center for Excellence in Military Health and Performance Enhancement	5.000	-
Congressional Add: Program Increase - Holistic Health and Fitness ***FY 2023 Accomplishments:*** Congressional Interest Item funding provided for Holistic Health and Fitness	5.680	-
Congressional Add: Program Increase - RNA Therapeutics for Infectious Disease Threats ***FY 2023 Accomplishments:*** Congressional Interest Item funding provided for RNA Therapeutics for Infectious Disease Threats	8.000	-
Congressional Add: Program Increase - BIOMATERIALS FOR COMBAT WOUND CARE ***FY 2023 Accomplishments:*** Congressional Interest Item funding provided for BIOMATERIALS FOR COMBAT WOUND CARE	3.000	-
Congressional Add: Program Increase - ENGINEERED ANTIBODIES FOR SKIN AND SOFT-TISSUE INFECTIONS ***FY 2023 Accomplishments:*** Congressional Interest Item funding provided for ENGINEERED ANTIBODIES FOR SKIN AND SOFT-TISSUE INFECTIONS	5.000	-
Congressional Add: Program Increase - PHOTONIC INTEGRATED CIRCUIT PLATFORM	5.000	-

Exhibit R-2A, RDT&E Project Justification: PB 2025 Army		Date: March 2024
Appropriation/Budget Activity 2040 / 2	**R-1 Program Element (Number/Name)** PE 0602787A / *Medical Technology*	**Project (Number/Name)** BS7 / *Medical Technology (CA)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2023	FY 2024
FY 2023 Accomplishments: Congressional Interest Item funding provided for PHOTONIC INTEGRATED CIRCUIT PLATFORM		
Congressional Add: Program Increase - SURGICAL INSTRUMENT STERILIZATION ***FY 2023 Accomplishments:*** Congressional Interest Item funding provided for SURGICAL INSTRUMENT STERILIZATION	5.000	-
Congressional Add: Program Increase - TRAUMA IMMUNOLOGY ***FY 2023 Accomplishments:*** Congressional Interest Item funding provided for Trauma Immunology	10.000	-
Congressional Adds Subtotals	46.680	-

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2025 Army			Date: March 2024
Appropriation/Budget Activity 2040 / 2	R-1 Program Element (Number/Name) PE 0602787A / *Medical Technology*	Project (Number/Name) MK4 / *Warfigher Health Applied Rsch Technology*	

COST ($ in Millions)	Prior Years	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total	FY 2026	FY 2027	FY 2028	FY 2029	Cost To Complete	Total Cost
MK4: *Warfigher Health Applied Rsch Technology*	-	31.166	64.326	67.250	-	67.250	17.492	18.196	18.399	18.583	0.000	235.412

A. Mission Description and Budget Item Justification

This Project conducts research to prevent and protect Warfighters from training and operational injuries; refine mechanisms for detection of physiological (human physical and biochemical function) and psychological (mental) health problems; reduce the effects of trauma and promote rapid recovery from acute stress in far forward operational environments; evaluate hazards to head, neck, spine, eyes, and ears; set the standards for rapid return to duty; and determine new methods to sustain and enhance performance and readiness across the operational spectrum. This research provides medical information important to the design and operational use of military systems, and this work forms the basis for behavioral, training, and nutritional interventions.

The four main areas of study are:
(1) Physiological Health and Performance
(2) Environmental Health and Protection
(3) Injury Prevention and Reduction
(4) Psychological Health and Resilience

Research in this Project is coordinated with and complimentary to work done in Program Element (PE) 0602143A (Soldier Lethality Technology) and PE 0603118A (Soldier Lethality Advanced Technology).

The cited research is consistent with the Under Secretary of Defense for Research and Engineering priority focus areas and the Army Modernization Strategy.

Work in this Project is performed by the Army Research Laboratory (ARL).

B. Accomplishments/Planned Programs ($ in Millions)	FY 2023	FY 2024	FY 2025
Title: Operational Risk Planning Tools for Battlefield Environmental Threats	1.349	1.277	1.820
Description: This effort investigates and incorporates mechanisms for health risks of heat, cold, and altitude injuries to develop guidelines and advise countermeasure development for operations in extreme environments. Investigates health risks from industrial chemicals and pollutants found in dense urban and subterranean (SubT) environments in which Soldiers operate.			
FY 2024 Plans:			

Exhibit R-2A, RDT&E Project Justification: PB 2025 Army		Date: March 2024
Appropriation/Budget Activity 2040 / 2	**R-1 Program Element (Number/Name)** PE 0602787A / *Medical Technology*	**Project (Number/Name)** MK4 / *Warfigher Health Applied Rsch Technology*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2023	FY 2024	FY 2025
Will develop risk profiles for exposures in extreme environments including sub zero/artic conditions; will identify individual factors that make an individual more susceptible to environmental injury (including age, sex, etc); mature "smart" fabrics that detect temperature & moisture in real-time to prevent frostbite injury. ***FY 2025 Plans:*** Determine the influences of long-acting reversible contraceptives on physiological responses to extreme environments in women. Provide knowledge to optimize Soldier performance in Arctic Environments. Determine the influence of race and dietary supplementation on skin perfusion in the cold. ***FY 2024 to FY 2025 Increase/Decrease Statement:*** Funding increase change reflects planned lifecycle of this effort.			
Title: Prevention of Soldier Performance Degradation in Extreme Environments ***Description:*** This effort develops and matures non-invasive technologies, decision-aid tools, and other countermeasure to prevent and enhance Soldier performance in extreme environments of heat, cold, altitude, dense urban and SubT environments. This effort includes validation of approved pharmaceuticals as well as provides improved sensors and predictive algorithms models. ***FY 2024 Plans:*** Design physiological modes to predict the state of men and women during complex military scenarios; evaluate cold habituation as an intervention to augment peripheral blood flow in cold exposure; study the effects of vascular preconditioning to reduce cold-induced peripheral vasoconstriction and improve manual dexterity. Will develop risk profiles for exposures in extreme environments including sub zero/artic conditions; determine the influence of female sex hormones on physiological responses and adaptations during heat acclimation; Investigate and validate physiological mechanisms for design and development of rapid heat acclimation protocols; validate transcriptomic signatures to predict individual susceptibility to acute mountain sickness and acclimatization status prior to high altitude ascent ***FY 2025 Plans:*** Determine physiological and biochemical markers of exertional heat stroke (EHS) and non -EHS responses to high-risk events. Identify genomic and transcriptomic signature for predicting exertional heat stroke/illness. Determine sex differences in the physiological and metabolic response to strenuous military training in the cold. Develop an early warning hypoxia monitoring tool for use at high altitude. ***FY 2024 to FY 2025 Increase/Decrease Statement:*** Funding increase change reflects planned lifecycle of this effort.	4.005	3.331	3.413
Title: Leader Decision Aid to Manage Blast Head Injury in All Settings	0.853	1.135	1.162

Exhibit R-2A, RDT&E Project Justification: PB 2025 Army		Date: March 2024
Appropriation/Budget Activity 2040 / 2	**R-1 Program Element (Number/Name)** PE 0602787A / *Medical Technology*	**Project (Number/Name)** MK4 / *Warfigher Health Applied Rsch Technology*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2023	FY 2024	FY 2025
Description: Develop injury risk assessment/guidance/criteria that will inform the development of technologies (i.e., personal protection equipment, vehicles) and strategies (i.e., health hazard assessments) to protect the Soldier against current and emerging operational threats (i.e., blast, blunt, ballistic, and accelerative). Improve the prevention of and reduce the severity of spinal injuries experienced by military vehicle occupants and dismounted Warfighters during non-underbody blast operational exposures (aircrew crash, vibration, head-supported mass) through the development of improved, biomedically valid spinal injury criteria and health hazard assessments. ***FY 2024 Plans:*** Will continue to develop and refine cervical spine injury risk criteria for head supported technologies and protective equipment in multiple military operational environments (mounted and dismounted). ***FY 2025 Plans:*** Develop whole body health injury risk criteria for protecting Warfighters (male and female) in all military operational environments (e.g. SubT, underwater, open air) against emerging multi- threats. ***FY 2024 to FY 2025 Increase/Decrease Statement:*** Funding increase change reflects planned lifecycle of this effort.			
Title: Physical Fitness Standards to Prevent Musculoskeletal Injuries ***Description:*** Develops validated standards and strategies to optimize Soldier readiness and performance related to musculoskeletal injury (MSKI) in order to provide military leadership with strategies and standards to mitigate musculoskeletal injuries, facilitate quick return to combat effectiveness after MSKI, and decrease risk of re-injury once been cleared to return after injury to increase the probability of mission success. ***FY 2024 Plans:*** Will continue to support TRADOC CIMT and FORSCOM in development of accurate and reliable physical assessment strategies after musculoskeletal injury. ***FY 2025 Plans:*** Investigate biomechanical and sex-based differences during the ACFT deadlift; continue to determine risk factors for re-injury following a musculoskeletal injury to provide recommendations for preventing subsequent injuries. ***FY 2024 to FY 2025 Increase/Decrease Statement:*** Funding decrease reflect planned lifecycle for this effort.	0.869	1.258	0.954
Title: Leader Tools to Reduce Musculoskeletal Injury In All Settings	2.383	2.088	2.827

Exhibit R-2A, RDT&E Project Justification: PB 2025 Army		Date: March 2024
Appropriation/Budget Activity 2040 / 2	**R-1 Program Element (Number/Name)** PE 0602787A / *Medical Technology*	**Project (Number/Name)** MK4 / *Warfigher Health Applied Rsch Technology*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2023	FY 2024	FY 2025
Description: Enhances the Army's understanding of the physiological mechanisms underlying musculoskeletal injuries and identifies countermeasures to mitigate injury risk in order to reduce musculoskeletal injuries in new recruits, thereby directly impacting force readiness and improving lethality. ***FY 2024 Plans:*** Will complete model development of musculoskeletal injury (stress fracture risk) for validation. ***FY 2025 Plans:*** Quantify the role of physiological factors, such as fiber type and metabolic elements, contributing to the development of muscle fatigue and decreased performance and risk and mitigation interventions; continue to determine the extent to which sleep extension reduces musculoskeletal injury; continue to identify non-physical factors contributing to injury, and potential interventions to reduce those factors' influence. ***FY 2024 to FY 2025 Increase/Decrease Statement:*** Funding increase change reflects planned lifecycle of this effort.			
Title: Forward Neuro-Muscular Skeletal Injury Assessment ***Description:*** Focus on developing portable imaging technologies to identify soft tissue musculoskeletal injury severity in the field and generate capabilities to guide musculoskeletal injury management to inform appropriate evacuation vs. return to duty (RTD) decisions. ***FY 2024 Plans:*** Will develop recommendations for evidence-based guidance detailing the predictive metrics of those physical/ physiological, cognitive/psychological, and behavioral contributions that optimize Soldiers' MSKI tolerance and risk. ***FY 2024 to FY 2025 Increase/Decrease Statement:*** Funding decrease change reflects planned lifecycle of this effort.	0.311	0.297	-
Title: Biomedical Performance Enhancement ***Description:*** This effort evaluates strategies and technologies that enhance Soldier physical and mental performance in Multi-Domain operations. Additional efforts concentrate on characterization of physiological and genetic factors that contribute to physiological resilience to military stressors. ***FY 2024 Plans:***	4.725	5.013	5.990

Exhibit R-2A, RDT&E Project Justification: PB 2025 Army		Date: March 2024
Appropriation/Budget Activity 2040 / 2	**R-1 Program Element (Number/Name)** PE 0602787A / *Medical Technology*	**Project (Number/Name)** MK4 / *Warfigher Health Applied Rsch Technology*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2023	FY 2024	FY 2025
Will complete investigation of pharmacological strategies for improving Soldier vigilance & endurance; Will finalize identification of the physiological responses of elite female and male soldiers to continuous prolonged military operations. ***FY 2025 Plans:*** Will initiate investigation of machine learning and artificial intelligence analysis to predict individual Soldier and echelon-based medical readiness and impact on physical and mental military performance. ***FY 2024 to FY 2025 Increase/Decrease Statement:*** Funding increase change reflects planned lifecycle of this effort.			
Title: Expeditionary Force Nutrition to Improve Performance ***Description:*** Characterizes and refines field fueling and garrison practices to sustain Medical readiness, military performance and recovery from military operations. Evaluates combat ration components to sustain Medical Readiness and performance in deployed, disaggregated and dispersed operations. ***FY 2024 Plans:*** Will finalize experiments to; investigate the effects of protein source on muscle mass growth, strength and maintenance; evaluate nutritional requirements for maintenance of cognitive, physical and immune function during arduous military training. ***FY 2025 Plans:*** Inform the development of targeted nutritional countermeasures for mitigating MSKI-mediated atrophy and inform recovery. ***FY 2024 to FY 2025 Increase/Decrease Statement:*** Funding decrease change reflects planned lifecycle of this effort.	1.462	1.727	1.484
Title: Energy Field Biological Effects and Mechanisms ***Description:*** Investigate the area of emerging directed energy threat mechanisms and biological effects. Conduct research to support the Department of Defense and US Government's threat mitigation strategy. ***FY 2024 Plans:*** Will continue to develop and validate threat-relevant directed energy source technologies for laboratory investigation; investigate fundamental biophysical and physiological mechanisms; identify relevant biological mechanisms for accelerated study; mature cross-cutting / multi-disciplinary research processes to allow rapid advances; investigate component technologies necessary to complete laboratory research; complete infrastructure improvements for unclassified and classified laboratory space and equipment; investigate fundamental limitations on directed energy coupling, penetration, and absorption in surrogate structures and at relevant protocol levels; investigate low frequency electromagnetic bioeffects; validate the design of directed energy biological effect modeling and simulation tools; conduct experiments on previous investigation of biological effects of directed	15.209	48.200	49.600

Exhibit R-2A, RDT&E Project Justification: PB 2025 Army		Date: March 2024
Appropriation/Budget Activity 2040 / 2	**R-1 Program Element (Number/Name)** PE 0602787A / *Medical Technology*	**Project (Number/Name)** MK4 / *Warfigher Health Applied Rsch Technology*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2023	FY 2024	FY 2025
energy exposure; conduct research to compare biological effects theories and models against real world data; transition data on biological mechanisms and effects to DoD medical community to support research and development efforts for directed energy induced injury prevention and treatment. ***FY 2025 Plans:*** Will establish comprehensive understanding of biophysical mechanisms (cellular to system level) of adverse bioeffects discovered in prior years; perform characterization of toxicity for new threat mechanisms prioritized from modeling and simulation and intelligence community inputs; continue thorough biophysical theoretical and computational analyses on identified threat mechanisms (acoustic and electromagnetic); establish high-throughput biological effects assessment platforms to accelerate threat characterization; mature threat proxy energy field source technologies for laboratory testing including high frequencies; develop integrated multi-scale (molecular to organismal) modeling and simulation techniques for enhanced biophysical understanding; integrate the component technologies necessary to complete laboratory research identified in FY24; derive and start the validation of methods to optimize directed energy coupling, penetration, and absorption in surrogate structures and at relevant protocol levels; investigate electromagnetic bioeffects; validate directed energy biological effect modeling and simulation tools based on laboratory results; conduct research to compare biological effects theories, models and laboratory data against real world data; identify pre-clinical diagnostics methods (imaging, functional testing, biomarkers) for detecting exposure to pathological energy fields; transition information and parameters related to validated energy field threat sources to the DoD community for medical and materiel (sensors/detectors, shielding material) countermeasure development; continue to collaborate with the intelligence community to drive research objectives, support threat assessments, transition bioeffects data, and mitigate technological surprise; continue to transition data on biological mechanisms and effects to DoD community to support research and development efforts for directed energy detection and protection as well as induced injury prevention and treatment. ***FY 2024 to FY 2025 Increase/Decrease Statement:*** Funding increased to support additional research in the area of Energy Field Biological Effects and Mechanisms.			
Accomplishments/Planned Programs Subtotals	31.166	64.326	67.250

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2025 Army			Date: March 2024
Appropriation/Budget Activity 2040 / 2	R-1 Program Element (Number/Name) PE 0602787A / *Medical Technology*	Project (Number/Name) MM4 / *Cbt Casualty Care Applied Rsch Technology*	

COST ($ in Millions)	Prior Years	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total	FY 2026	FY 2027	FY 2028	FY 2029	Cost To Complete	Total Cost
MM4: *Cbt Casualty Care Applied Rsch Technology*	-	1.885	1.815	1.112	-	1.112	2.285	2.582	2.610	2.636	0.000	14.925

A. Mission Description and Budget Item Justification

This Project refines and assesses concepts, techniques, and materiel that improve survivability and treatment outcomes for Warfighters wounded during combat operations and treated under austere field conditions, including prolonged field care, and during medical evacuation, and maintains laboratory capability to perform these functions. Combat casualty care research addresses control of severe bleeding; resuscitation and stabilization; advanced automated life support systems suitable for use in forward areas, treatment of severe orthopedic injuries, treatment of severe burns, and combat-related brain injury.

Promising efforts identified in this Project are further matured under Program Element (PE) 0603002A (Medical Advanced Technology).

The cited research is consistent with the Under Secretary of Defense (Research and Engineering) science and technology focus areas and the Army Modernization Strategy.

Research in this Project is performed by the United States Army Medical Research and Development Command (USAMRDC), Fort Detrick, MD.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2023	FY 2024	FY 2025
Title: Future En Route Casualty Care Sustainment System Cap Set	1.885	1.815	1.112
Description: This effort performs applied research to support development of technologies that will increase capability and capacity to provide combat casualty care from point of injury to final point of care.			
FY 2024 Plans: Will evaluate use of patient-specific medical device alarms during multi-patient medical evacuation scenarios. Will determine effect of vehicle vibration and jolt on medical provider performance in a simulated en route care environment.			
FY 2025 Plans: Will evaluate new technologies designed to reduce the rate of acute or chronic injury experienced by litter bearers during extended litter transport. Will continue evaluation of patient-specific medical device alarms used during multi-patient medical evacuation scenarios. Will continue studies to determine effect of vehicle vibration and jolt on medical provider performance in simulated en route care environments.			
FY 2024 to FY 2025 Increase/Decrease Statement:			

Exhibit R-2A, RDT&E Project Justification: PB 2025 Army		Date: March 2024
Appropriation/Budget Activity 2040 / 2	**R-1 Program Element (Number/Name)** PE 0602787A / *Medical Technology*	**Project (Number/Name)** MM4 / *Cbt Casualty Care Applied Rsch Technology*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2023	FY 2024	FY 2025
Funding decrease reflects planned lifecycle of this effort.			
Accomplishments/Planned Programs Subtotals	1.885	1.815	1.112

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2025 Army			Date: March 2024
Appropriation/Budget Activity 2040 / 2	R-1 Program Element (Number/Name) PE 0602787A / *Medical Technology*	Project (Number/Name) MM6 / *Medical Technologies to Support Dispersed Ops Tech*	

COST ($ in Millions)	Prior Years	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total	FY 2026	FY 2027	FY 2028	FY 2029	Cost To Complete	Total Cost
MM6: *Medical Technologies to Support Dispersed Ops Tech*	-	0.120	0.125	0.119	-	0.119	0.120	0.119	0.120	0.121	0.000	0.844

A. Mission Description and Budget Item Justification

This Project supports applied research in two task areas: 1) Medical Robotic and Autonomous Systems (Med-RAS) - will a) leverage emerging technologies in biomedical engineering, robotics, autonomy, unmanned systems, and assured position navigation and timing, to improve capabilities and expand capacity to deliver prolonged care, perform evacuation, delivery emergency resupply of medical material supplies (Class VIII), such as blood products, by ground or air, in dispersed and Multi-Domain Operations and b) establish medical performance criteria to ensure Soldiers are able to effectively perform manned-unmanned teaming tasks; and, 2) Virtual Health - will leverage emerging technologies in information science, artificial intelligence, telecommunications network engineering, and cyber security to enable prolonged care, remote telemonitoring, automated decision support, and telementoring between providers in Role of Care 3 and 4 to patients in Role of Care 1 and 2. Promising work in this Project will be further matured in PE 0603002A (Medical Advanced Technology) / Project MM7 (Enabling Med Cap to Support Dispersed OPS Adv Tech).

The cited work is consistent with the Under Secretary of Defense for Research and Engineering priority focus areas and the Army Modernization Strategy. Work in this Project is performed by the United States Army Medical Research and Development Command (USAMRDC), Fort Detrick, MD.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2023	FY 2024	FY 2025
Title: Medical Robotic and Autonomous Systems	0.120	0.125	0.119
Description: Research, design, and validate autonomous and unmanned capabilities to deliver high quality combat casualty care in dispersed operations with limited or absent medical care personnel, and future medical robotic systems capable of providing autonomous combat casualty care while optimizing the medical logistic footprint in far-forward and dispersed geographic environments in support of the Army Multi-Domain Operations (MDO) concept and the Army Force 2025 and Beyond vision documents.			
FY 2024 Plans: Utilizing the identified candidate for emerging semi-autonomous en route care technologies for providing patient management during UAS missions, will validate designs for integrating autonomous critical casualty care and management systems with common user, multi-purpose, unmanned aerial system platforms. Will also advance the interoperable data systems.			
FY 2025 Plans: Utilizing selected en route care technologies to provide patient management during UAS (Unmanned Aerial Systems) missions, will continue design validation for integration of autonomous critical casualty care and management systems with unmanned aerial			

Exhibit R-2A, RDT&E Project Justification: PB 2025 Army		Date: March 2024
Appropriation/Budget Activity 2040 / 2	**R-1 Program Element (Number/Name)** PE 0602787A / *Medical Technology*	**Project (Number/Name)** MM6 / *Medical Technologies to Support Dispersed Ops Tech*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2023	FY 2024	FY 2025
system platforms. Will advance interoperable data systems and conduct ground-based and in-flight testing. Will integrate decision support to aid ground personnel preparing for UAS patient transport. ***FY 2024 to FY 2025 Increase/Decrease Statement:*** Funding decrease change reflects planned lifecycle of this effort.			
Accomplishments/Planned Programs Subtotals	0.120	0.125	0.119

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A