OFFICE OF THE UNDER SECRETARY OF DEFENSE
4000 DEFENSE PENTAGON
WASHINGTON, D.C. 20301-4000

PERSONNEL AND
READINESS

The Honorable Richard C. Shelby
Chairman
Subcommittee on Defense
Committee on Appropriations
United States Senate
Washington, DC 20510

FEB - 1 2016

Dear Mr. Chairman:

The enclosed report is in response to House Report 114–577, page 275, to accompany H.R. 5293, and Senate Report 114–263, page 194, to accompany S. 3000, the Department of Defense (DoD) Appropriations Bill, 2017, concerning the Joint Warfighter Medical Research Program (JWMRP). These committee reports request a report on JWMRP, including the funding amount awarded, a thorough description of each project's research, and the benefit the research will provide to the DoD.

The report provides a summary of the projects funded by the fiscal year (FY) 2017 JWMRP. The FY 2017 JWMRP funded projects across five Defense Health Program core research areas, to include medical simulation and information sciences, military infectious diseases, military operational medicine, combat casualty care, and clinical and rehabilitative medicine.

Thank you for your interest in the health and well-being of our Service members, veterans, and their families. A similar letter is being sent to the other congressional defense committees.

Sincerely,

James N. Stewart
Assistant Secretary of Defense for Manpower and Reserve Affairs, Performing the Duties of the Under Secretary of Defense for Personnel and Readiness

Enclosure:
As stated

cc:
The Honorable Richard J. Durbin
Vice Chairman

OFFICE OF THE UNDER SECRETARY OF DEFENSE
4000 DEFENSE PENTAGON
WASHINGTON, D.C. 20301-4000

PERSONNEL AND
READINESS

FEB - 1 20[illegible]

The Honorable Adam Smith
Chairman
Committee on Armed Services
U.S. House of Representatives
Washington, DC 20515

Dear Mr. Chairman:

The enclosed report is in response to House Report 114–577, page 275, to accompany H.R. 5293, and Senate Report 114–263, page 194, to accompany S. 3000, the Department of Defense (DoD) Appropriations Bill, 2017, concerning the Joint Warfighter Medical Research Program (JWMRP). These committee reports request a report on JWMRP, including the funding amount awarded, a thorough description of each project's research, and the benefit the research will provide to the DoD.

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Sincerely,

James N. Stewart
Assistant Secretary of Defense for Manpower and Reserve Affairs, Performing the Duties of the Under Secretary of Defense for Personnel and Readiness

Enclosure:
As stated

cc:
The Honorable William M. "Mac" Thornberry
Ranking Member

OFFICE OF THE UNDER SECRETARY OF DEFENSE
4000 DEFENSE PENTAGON
WASHINGTON, D.C. 20301-4000

PERSONNEL AND
READINESS

FEB - 1 2017

The Honorable James M. Inhofe
Chairman
Committee on Armed Services
United States Senate
Washington, DC 20510

Dear Mr. Chairman:

The enclosed report is in response to House Report 114–577, page 275, to accompany H.R. 5293, and Senate Report 114–263, page 194, to accompany S. 3000, the Department of Defense (DoD) Appropriations Bill, 2017, concerning the Joint Warfighter Medical Research Program (JWMRP). These committee reports request a report on JWMRP, including the funding amount awarded, a thorough description of each project's research, and the benefit the research will provide to the DoD.

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Sincerely,

James N. Stewart
Assistant Secretary of Defense for Manpower and Reserve Affairs, Performing the Duties of the Under Secretary of Defense for Personnel and Readiness

Enclosure:
As stated

cc:
The Honorable Jack Reed
Ranking Member

OFFICE OF THE UNDER SECRETARY OF DEFENSE
4000 DEFENSE PENTAGON
WASHINGTON, D.C. 20301-4000

PERSONNEL AND
READINESS

The Honorable Peter J. Visclosky
Chairman
Subcommittee on Defense
Committee on Appropriations
U.S. House of Representatives
Washington, DC 20515

FEB - 1 2019

Dear Mr. Chairman:

The enclosed report is in response to House Report 114–577, page 275, to accompany H.R. 5293, and Senate Report 114–263, page 194, to accompany S. 3000, the Department of Defense (DoD) Appropriations Bill, 2017, concerning the Joint Warfighter Medical Research Program (JWMRP). These committee reports request a report on JWMRP, including the funding amount awarded, a thorough description of each project's research, and the benefit the research will provide to the DoD.

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Sincerely,

James N. Stewart
Assistant Secretary of Defense for Manpower and Reserve Affairs, Performing the Duties of the Under Secretary of Defense for Personnel and Readiness

Enclosure:
As stated

cc:
The Honorable Ken Calvert
Ranking Member

# REPORT TO THE CONGRESSIONAL DEFENSE COMMITTEES

**House Report 114–577, Page 275, to Accompany H.R. 5293 and Senate Report 114–63, Page 194, to Accompany S. 3000, the Department of Defense Appropriations Bill, 2017 on the Joint Warfighter Medical Research Program**

**January 2019**

The estimated cost of this report or study for the Department of Defense (DoD) is approximately $2,700 in Fiscal Years 2017-2018. This includes $2,300 in expenses and $400 in DoD labor.

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## BACKGROUND AND PURPOSE

This report is in response to House Report 114–577, page 275, accompanying H.R. 5293, and Senate Report 114–263, page 194, accompanying S. 3000, the Department of Defense (DoD) Appropriations Bill 2017, requesting the Assistant Secretary of Defense for Health Affairs (ASD(HA)) provide a report to the congressional defense committees on the status of the Joint Warfighter Medical Research Program (JWMRP) no later than 180 days after enactment. Specifically, the committees request in the ASD(HA) report: the list of projects that receive funding, the amount of funding awarded to each project, a thorough description of each project's research, and the benefit this research will provide to the DoD.

Through the ASD(HA), the Defense Health Agency (DHA), established under the authority, direction, and control of the Under Secretary of Defense for Personnel and Readiness, supports policy execution, exercises management responsibility, and provides shared services to consolidate common functions and further integrate operational missions and capabilities in the Military Health System (MHS). The DHA manages MHS operations in medical research and development and oversees the execution of the Defense Health Program (DHP) Research, Development, Test, and Evaluation (RDT&E) appropriation.

The U.S. Army Medical Research and Materiel Command (USAMRMC), a major subordinate command of the U.S. Army Medical Command, manages the execution of several Congressional Special Interest (CSI) medical research and development appropriations for projects that span a wide range of diseases and injuries applicable to the general population and the military. The USAMRMC Congressionally Directed Medical Research Programs manages the JWMRP, a DHP RDT&E CSI appropriation, in support of the ASD(HA) and DHA. In fiscal year (FY) 2017, Congress appropriated $50 million for the JWMRP that "shall be used to augment and accelerate high priority Department of Defense and Service medical requirements and to continue prior year initiatives that are close to achieving their objectives and yielding a benefit to military medicine. The funds shall not be used for new projects or for basic research."

During FY 2017, JWMRP funded projects in five DHP core research areas: (1) medical simulation and information sciences; (2) military infectious diseases; (3) military operational medicine; (4) combat casualty care; and (5) clinical and rehabilitative medicine. The 26 projects include 16 science and technology efforts ($26,669,092.00) and 10 advanced development efforts ($18,951,815.00). Total JWMRP funding during FY 2017 for research or product development efforts was $45,620,907.00. The remaining funds of $4,379,093.00 covered DoD withholds for Small Business Innovative Research and Small Business Technology Transfer ($1,741,000) and execution management costs related to the JWMRP ($2,638,093.00). Primary selection criteria used to determine which projects to fund included whether a project: (1) was close to achieving its objectives; and (2) clearly benefitted military medicine. All selected projects have discrete deliverables that will advance anticipated research outcomes or products to their next development phase, result in the initiation of a clinical trial, or contribute to meeting requirements to facilitate U.S. Food and Drug Administration (FDA) approval. These projects reflect research priorities for the DoD. As stated above, these funds have not been used for new, or basic research projects.

## CONCLUSION

Table 1 provides a summary of the projects funded by the FY 2017 JWMRP, including award recipients, project descriptions and their potential military benefit, and the funding allocated to each project. The Department remains committed to investing in research to benefit its Service members and their families.

**Table 1 – FY 2017 JWMRP Research Projects**

| NO. | PROJECT TITLE | AWARDEE | DESCRIPTION OF RESEARCH OR PRODUCT DEVELOPMENT EFFORT | FY 2017 JWMRP AWARDED AMOUNT |
|---|---|---|---|---|
| 1. | An Interoperable Platform for Real-Time In-Theater Caregiver Decision Support | Massachusetts General Hospital<br><br>Boston, MA | This research focuses on the development of a software system that will integrate data from different medical devices used in critically injured patient care to enhance real-time clinical decision-making. This effort will produce several prototype applications, including clinical applications with potential to increase clinical assessment efficiency and help the medical provider more easily maintain patient situational awareness during the critical care treatment paradigm. This research will build on efforts to increase medical device interoperability, which is a vital component in the critical care environment. If successful, this initiative could improve care efficiency and enhance survivability of injured Warfighters. | $1,467,430.00 |

| NO. | PROJECT TITLE | AWARDEE | DESCRIPTION OF RESEARCH OR PRODUCT DEVELOPMENT EFFORT | FY 2017 JWMRP AWARDED AMOUNT |
|---|---|---|---|---|
| 2. | Integrating Clinical Technology for Military Health: Automating Physiologic Controllers in an Animal Intensive Care Unit as a Platform to Achieve Autonomous Support During Evacuation | DocBox, Inc.<br><br>Newton, MA | The DocBox platform is a standards-based, secure, point-of-care integrated clinical environment (ICE) that interconnects disparate information technology systems and devices via a shared communications structure. In this product development effort, the developer will work directly with a DoD medical research facility to create applications that are hosted and run on the ICE platform, and that extend the platform's functionality to meet performance, safety, and security requirements to optimize its use in the military environment. The effort will focus on remote monitoring and remote control of the platform during medical evacuation. The applications will be tested to determine whether the use of the ICE platform resulted in improved safety and efficiency. | $3,891,408.00<br><br>$100,075.00 sent to the U.S. Army Institute of Surgical Research in support of this effort |
| 3. | Preclinical and Clinical Development of the Next Generation Anti-Malaria Prophylactic Agent | Henry M. Jackson Foundation for the Advancement of Military Medicine, Inc.<br><br>Bethesda, MD | This effort focuses on the development of a safe and effective malaria prevention drug that can be taken weekly. This program is advancing a new class of anti-malarial medicine called triazines, which are protective against *Plasmodium falciparum*. Animal studies will be conducted to determine which triazine compound is absorbed, distributed, and metabolized most quickly and with the least toxicity at various dose levels. The best product will then be manufactured for use in further animal toxicity studies required by the FDA. Results will support an Investigational New Drug (IND) application submission to the FDA for a Phase I clinical trial. This effort could directly impact operational readiness through a more effective preventive measure against malaria. Malaria remains the number one infectious disease threat to deployed U.S. forces. Current medications to protect against malaria must be taken daily, may cause stomach upset or sun sensitivity, and may lead to drug resistance. | $397,893.00 sent to Walter Reed Army Institute of Research in support of this effort |

| NO. | PROJECT TITLE | AWARDEE | DESCRIPTION OF RESEARCH OR PRODUCT DEVELOPMENT EFFORT | FY 2017 JWMRP AWARDED AMOUNT |
|---|---|---|---|---|
| 4. | Phase II Clinical Development of the PfSPZ Vaccine to Protect the Warfighter from Malaria | Sanaria, Inc.<br><br>Rockville, MD | This effort fulfills a critical DoD requirement for a malaria prevention vaccine. In initial clinical trials, the *Plasmodium falciparum* sporozoite (PfSPZ) malaria vaccine has been demonstrated to be safe and well-tolerated. This effort is focused on improving the manufacturing process for the PfSPZ vaccine in preparation for licensure and commercialization. Further, knowledge gained from six ongoing trials with this product will be used to design and conduct a critical Phase II study. This will provide the foundation for Phase III studies and eventual licensure of the PfSPZ vaccine. | $1,999,998.00 |
| 5. | Optimization of Pyrimidinylguanidines as Malaria Prophylaxis Drugs | The Geneva Foundation<br><br>Tacoma, WA | This research seeks to identify a safe and effective drug to prevent and/or treat malaria. Many of the drugs used today will become ineffective as malaria strains become resistant to current therapeutic interventions. The focus of this effort is to discover a drug candidate from a molecular class of compounds that does not show cross-resistance with known anti-malarials. This compound class, known as pyrimidinylguanidines, was tested in four human clinical trials during the mid-1940s, resulting in relief of malaria symptoms with no serious side effects. This initiative will target improving the potency of this class of compounds that has been shown safe in human clinical trials but has not been used extensively in people. The desired outcome is the development of a drug that is safe, not resistant to current malaria strains, and effective in preventing and treating malaria. This is an important research effort in the race to develop and improve current malaria treatment and prevention regimens. | $914,907.00 sent to the Walter Reed Army Institute of Research in support of this effort |

| NO. | PROJECT TITLE | AWARDEE | DESCRIPTION OF RESEARCH OR PRODUCT DEVELOPMENT EFFORT | FY 2017 JWMRP AWARDED AMOUNT |
|---|---|---|---|---|
| 6. | Development and Validation of the DRAG Humanized Mouse Model for Dengue Virus Infection and Vaccine Evaluation | Henry M. Jackson Foundation for the Advancement of Military Medicine, Inc.<br><br>Bethesda, MD | Dengue virus infections rank second among infectious diseases incurred by deployed Service members and, if untreated, can lead to the lethal Dengue Hemorrhagic Fever. The objective of this study is to further understand the complex human immune response to dengue viral infections and the type of immune response that would protect an individual from this infection. The research will be conducted in a small animal model with a human immune response system. Research results will provide a novel animal model that can be used for pre-clinical assessments of dengue vaccine candidates. Knowledge gained from this research will contribute to dengue vaccine development by laying the foundation for testing future dengue vaccine candidates. This effort is critical to the DoD in developing a vaccine that can protect our forces worldwide. | $1,100,484.00<br><br>$131,518.00 sent to the Walter Reed Army Institute of Research in support of this effort<br><br>$64,000.00 sent to the Naval Medical Research Center in support of this effort |
| 7. | Effects of Military Noise Exposure on Auditory Function in Service Members and Recently Discharged Veterans | Oregon Health and Science University<br><br>Portland, OR | The primary objective of this research effort is to examine the prevalence, incidence, etiology, and short- and long- term effects of tinnitus and hearing loss among Service members. The study will provide data revealing estimates of the: (1) prevalence of tinnitus and hearing loss among Service members and recently discharged veterans; (2) effects of military noise exposure versus the potential causes of early-onset tinnitus and hearing loss; (3) perceived functional limitations associated with these conditions; (4) common mental and physical comorbidities; (5) disability and clinical care burden to the DoD and the Department of Veterans Affairs; and (6) factors affecting the severity of these conditions. The algorithms developed by the study will help predict the risk for acquiring tinnitus and/or hearing loss among military populations. | $3,696,766.00 |

| NO. | PROJECT TITLE | AWARDEE | DESCRIPTION OF RESEARCH OR PRODUCT DEVELOPMENT EFFORT | FY 2017 JWMRP AWARDED AMOUNT |
|---|---|---|---|---|
| 8. | Pre-, Peri-, and Post-deployment Trajectories and Mechanisms of Psychopathology, Psychological Health and Resilience over Nine Years of Follow-up in the Reserves | University Hospitals, Case Medical Center<br><br>Cleveland, OH | This is an unprecedented study in DoD Reserve Component personnel that will provide data to shape future policy and programs to support this population. Over the past 5 years, the Ohio Army National Guard Mental Health Initiative has evaluated relationships between resilience and risk factors before, during, and after deployment. This effort will extend the research to a nine-year effort, the first longitudinal study of its kind. This study will assess the development of mental health problems, including post-traumatic stress (PTS), depression, suicidality, military sexual trauma, anxiety, and hazardous use of alcohol, among other risk-taking behavior. It will measure resilience, social adjustment, military culture and support, coping factors, and health issues including traumatic brain injury (TBI). Finally, it will evaluate the biological underpinnings of mental health problems and resilience by conducting genetic and brain imaging studies in this population. | $1,578,549.00 |
| 9. | Improving Access to Care for Warfighters: Virtual Worlds Technology to Enhance Primary Care Training in Posttraumatic Stress and Motivational Interviewing | Northern California Institute for Research and Education<br><br>San Francisco, CA | In previous research, a pilot web-based PTS training program for primary care providers (PCPs) was evaluated and found to improve PTS-related knowledge and clinical skills. This follow-on effort will use Virtual World technology to create a training that is more interactive, engaging, and effective, and will incorporate gold standard evaluation methods, including provider and patient outcomes. This Virtual World training will be compared to the traditional web-based training to evaluate the effectiveness of educational outcomes. If shown that it significantly improves educational outcomes, Virtual World technology could be a valuable training tool for PCPs in caring for patients with PTS, improving access to quality care, and potentially improving patient outcomes. | $80,035.00 |

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| 10. | Collaborative Research to Optimize Warrior Nutrition III | Pennington Biomedical Research Center<br><br>Baton Rouge, LA | This effort continues a partnership of 28 years with the DoD to extend and build on research discoveries in nutrition, metabolism, and human physiology. The objective of this research is to discover nutritional interventions, field feeding programs, and food products that promote Warfighter resilience and improve combat readiness and performance. The specific aims are to: (1) determine the role of testosterone in the loss of lean mass during energy deficit; (2) evaluate whether added dietary protein can sustain lean body mass when underfed and operating at high altitude; (3) determine the interaction of gender and physiological strain on inflammation; (4) quantify the effectiveness of the military dining facility intervention "Go For Green" on Soldier food choices; and (5) develop a valid and militarily appropriate survey tool for assessment of Warfighter eating behaviors. Data derived from this effort may result in better models to predict dietary requirements that will enhance operational readiness. | $4,512,034.00 |
| 11. | Refinement and Validation of a Military Emotional Intelligence Training Program | University of Arizona<br><br>Tucson, AZ | This research effort focuses on further development of a web-based training program designed to bolster emotional resilience skills through the enhancement of emotional intelligence (EI). It will focus on identifying the key training components that lead to the greatest improvements, ascertaining the neural mechanisms underlying the changes in EI abilities, and determining the effectiveness of the EI training program for enhancing military performance and sustaining psychological health during stressful military operations, activities, and deployments. Research in this area has the potential to impact the overall psychological health of Service members and their families. | $1,600,857.00 |

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| 12. | Effectiveness of Trauma Management Therapy and Prolonged Exposure Therapy for the Treatment of Post-Traumatic Stress Disorder (PTSD) in an Active Duty Sample: A Comparison Study | University of Central Florida<br><br>Orlando, FL | The purpose of this study is to identify an effective exposure psychotherapy paradigm for the treatment of PTSD among active duty and veteran populations by comparing different exposure psychotherapy modalities. Current treatments for PTSD include Prolonged Exposure Therapy (PET) and Trauma Management Therapy (TMT). This study seeks to determine if a faster recovery period can be achieved by comparing compressed versions of PET (2 weeks) and TMT (3 weeks) with the gold standard (12 weeks of PET). The impact of PET and TMT on social, familial, and occupational impairments will also be assessed. If the compressed treatment versions indicate comparable results to the gold standard treatment, it will serve as a force multiplier for Service members and could ultimately reduce the economic burden for all who experience PTSD. | $2,952,162.00 |
| 13. | Large Extremity Peripheral Nerve Repair in Nonhuman Primate Models | Massachusetts General Hospital<br><br>Boston, MA | The goal of this research is to further develop a novel technology to improve recovery for wounded Warfighters who suffer from severe arm nerve damage. This effort will evaluate peripheral nerve repair in a nonhuman primate model using a light-activated dye and biocompatible nerve wrap to effectively seal the nerve graft in place without sutures. In preliminary studies with small animals, this approach resulted in significant improvement in nerve regeneration when compared to standard suture repair. If successful, the patented technology would next be tested in humans and could significantly improve functional outcomes for wounded Warfighters that suffer devastating nerve injury. | $645,715.00 |

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| 14. | Treatment of Adult Severe Traumatic Brain Injury Using Autologous Bone Marrow Mononuclear Cells | Center for Brain Health, The University of Texas at Dallas<br><br>Dallas, TX | Currently there are no effective reparative/restorative treatments for TBI. Cellular therapy may provide the first restorative/reparative treatment for TBI. Preclinical studies in animals have shown that bone marrow-derived cells might improve memory and cognitive function. This study will determine if cells harvested and isolated from a patient's own bone marrow can be infused to control the brain swelling after TBI. Functional outcomes will be measured using cognitive and skills testing at early (initial week of injury) and later (6 months post injury) time points. Success will be measured by clear improvements in structural biomarkers in the brain. If successful, this effort will be the foundation for a Phase III multi-center clinical trial. | $1,366,001.00 |
| 15. | Development and Dissemination of Clinical Practice Guidelines and Appropriate Use Criteria for Treatment of Major Extremity Trauma | Johns Hopkins University<br><br>Baltimore, MD | The purpose of this research is to develop Clinical Practice Guidelines (CPGs) and Appropriate Use Criteria (AUCs) relevant to the treatment of severe extremity trauma. The CPGs and AUCs will focus on six areas of extremity trauma, including: diagnosis and treatment of acute compartment syndrome, decision-making to pursue limb salvage or early limb amputation following lower limb trauma, early screening for psychosocial risks and protective factors that influence long-term outcomes, use of multimodal pharmacologic pain management in the perioperative period to reduce long-term pain and disability, determining the best techniques for performing a below-the-knee amputation in a young active patient, and prevention and treatment of surgical site infections following major extremity trauma. Development of these CPGs and AUCs will immediately impact the care of patients with severe limb trauma and patients undergoing extremity trauma reconstruction. | $2,162,932.00 |

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| 16. | Light-Activated Sealing to Improve Outcomes Following Penetrating Bowel Trauma | Massachusetts General Hospital<br><br>Boston, MA | This study will investigate if a light-activated sealing technology, photochemical tissue bonding (PTB), can provide more secure wound closure and reduce complications, leading to improved outcomes for penetrating bowel trauma. Specifically, the effort will utilize animal models of penetrating bowel trauma to identify lead PTB colon patch/wound closure materials based on seal strength and resistance to biodegradation, and to compare the efficacy of using an optimized PTB approach versus standard repair in preventing infections. If successful, the PTB product could be deployed in resource-limited military medical treatment facilities for use by non-specialist surgeons to enhance survivability from penetrating bowel trauma. Additionally, it would increase the potential for return to duty, reduce long-term rehabilitation costs, and improve quality of life for wounded Warfighters. | $725,180.00 |
| 17. | Joint Warfighter: "The Shelter of the Future" | ROM Development Corporation<br><br>Bristol, RI | This development effort is focused on creation of a new composite carbon/fiberglass shelter system to meet the requirements of future medical operations. The new shelter will be faster to set up than existing soft-wall shelters, have lower operating energy and maintenance costs, and increased interior space. This effort will directly support far forward care on the battlefield or humanitarian efforts in resource-limited environments. | $844,846.00 |

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|---|---|---|---|---|
| 18. | Ultrawide-Band, Wearable Ultrasound Probe for Battlefield Use | Sonivate Medical<br><br>Portland, OR | Ultrasound is a standard of care technology used for the early diagnosis of hemorrhage and other injuries in trauma situations. Previously, Sonivate Medical developed a finger-worn ultrasound probe. This effort will further develop the technology and transition from a laptop display to a wearable wireless ultrawide-band smart phone display. The first phase focuses on the development of the probe and associated electronics to support a smart phone display. In addition, combat medics will be used to test device utility and assist in the development of training procedures. In the second phase, the device will be programmed and wirelessly connected to a smart phone to display real-time ultrasound images. The data captured on the device during this development effort will be used to support 510(k) clearance from the FDA. | $1,381,041.00 |
| 19. | Predicting Blood Transfusion Using Automated Analysis of Vital Sign Input from All Available Sources | University of Maryland, Baltimore<br><br>Baltimore, MD | This project builds on a 5-year effort that delivered a hospital/center-based real-time vital signs data collection system. The current effort will augment that system and build a decision support tool with the ability to differentiate casualties who need blood immediately upon arrival to a hospital. Wireless technology will transmit vital signs data during patient transport, and will be embedded in patient care monitors, which are already used widely on the battlefield and in civilian care. This initiative directly impacts clinical practices related to the use of blood in trauma patients. | $1,050,810.00<br><br>$105,423.00 sent to the U.S. Army Telemedicine and Advanced Technology Research Center in support of this effort<br><br>$187,000.00 sent to the U.S. Army Institute of Surgical Research in support of this effort |

| NO. | PROJECT TITLE | AWARDEE | DESCRIPTION OF RESEARCH OR PRODUCT DEVELOPMENT EFFORT | FY 2017 JWMRP AWARDED AMOUNT |
|---|---|---|---|---|
| 20. | NIRS to Reduce the Prophylactic Fasciotomies for and Missed Cases of Acute Compartment Syndrome in Solders Injured in OEF/OIF: Interventional Study | The Geneva Foundation<br><br>Tacoma, WA | Severely injured limbs can develop acute compartment syndrome (ACS), which occurs when increased swelling due to injury causes poor blood flow to the muscle and tissue in the injured extremity. Untreated ACS leads to permanent muscle and nerve damage and potentially the loss of limb function. Currently, there is no objective and reliable means to diagnose ACS. Near Infrared Spectroscopy (NIRS) is a noninvasive, objective way to monitor blood flow in extremities, and previous work established guidelines for the use of NIRS in monitoring extremity blood flow. The goal of this study is to examine the sensitivity and specificity of these guidelines in monitoring injured extremity blood flow in a multi-center clinical trial. It is hypothesized that NIRS values will be highly correlated to perfusion pressures and more sensitive and specific than a clinical exam. If this is correct, NIRS would revolutionize ACS diagnostic capabilities and enhance the treatment and care of patients with extremity trauma. | $3,639,963.00 |
| 21. | Adaptive Orthopedic Biologics for Highly Targeted Regeneration | The Geneva Foundation<br><br>Tacoma, WA | This project will conduct preclinical evaluation of a tricalcium phosphate-binding variant of a bone morphogenic protein-2 (tBMP-2) in models of long-bone segmental defect and spinal fusion to support IND filings for these indications. The effort will also establish a scalable recombinant production method for tBMP-2 and conduct various animal studies to evaluate the product. This product may improve outcomes for patients with traumatic bone injuries or spinal disc degeneration, the two most common injuries in Service members. | $957,264.00 |

| NO. | PROJECT TITLE | AWARDEE | DESCRIPTION OF RESEARCH OR PRODUCT DEVELOPMENT EFFORT | FY 2017 JWMRP AWARDED AMOUNT |
|---|---|---|---|---|
| 22. | Improving Cognitive and Functional Deficits after TBI Using Virtual Technology | Center for Brain Health, The University of Texas at Dallas<br><br>Dallas, TX | Chronic TBI symptoms may include persistent difficulties with memory, inhibitory control, and the ability to plan, which may impact employment and personal relationships. This research will test and evaluate a virtual reality-based intervention using active condition challenging memory and inhibitory control and planning against a context-matched control condition lacking these challenges. The potential to remediate deficits in memory, attention, and planning can be a key step toward improving the lives of veterans who frequently suffer long after the initial TBI. If successful, this effort could benefit many Service members, Veterans, and families impacted by the residual effects of TBI. This is a vital area of research in the DoD. | $797,816.00 |
| 23. | Automated Control of Volume Management Systems for People with Limb Loss | University of Washington<br><br>Seattle, WA | This effort has the potential to improve the quality of life for both the active duty and retired amputee military populations. Individuals using prostheses often experience socket fit problems that result from changes in the volume of their residual limb. Poor fitting sockets reduce performance and lead to injury. This effort will develop and test an automatic adjusting prosthetic socket system utilizing a wireless controller that can decrease or increase socket size in response to changes in residual limb volume. | $1,352,350.00 |

| NO. | PROJECT TITLE | AWARDEE | DESCRIPTION OF RESEARCH OR PRODUCT DEVELOPMENT EFFORT | FY 2017 JWMRP AWARDED AMOUNT |
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| 24. | Lyophilized Injectable for Point-of-Care Therapeutic for Post-Traumatic Osteoarthritis | Massachusetts General Hospital<br><br>Boston, MA | Among the military population, acute knee injuries comprise five percent of reported injuries, and post-traumatic osteoarthritis (OA) is a primary source of disability. J-PRO is an injectable extracellular matrix that is mixed with the patient's blood and injected into an injured joint to minimize the development of arthritis. While testing has been completed in an animal model, it has not been conducted in humans. The aim of this project is to complete all preclinical testing required to obtain an Investigational Device Exemption from the FDA and conduct a first-in-human clinical study. The investigators will complete preclinical studies for a Pre-Market Approval application and design a pivotal randomized clinical trial of J-PRO. Successful implementation of an injectable therapeutic to restore articular cartilage after joint injury and preventing the development of OA have the potential to maximize joint function, enhance the opportunity to return to duty and improve injured Service members' quality of life. | $1,643,372.00 |
| 25. | Development of an Implantable Pudendal Nerve Stimulator to Restore Bladder Function in Humans After Spinal Cord Injury | University of Pittsburgh<br><br>Pittsburgh, PA | Currently, there is no medication that can treat both incontinence and the ability of the bladder to empty completely after spinal cord injury (SCI). It is believed that bladder functions can be normalized by electrical stimulation and/or blockade of pudendal nerves after chronic SCI using an implantable neuroprosthetic device. This research effort will design and develop an implantable pudendal nerve stimulation system for FDA Investigational Device Exemption approval. The safety and efficacy of the implantable stimulator will be tested in a chronic SCI animal model. This is an extremely high priority research effort because of the potential high payoff and the possibility to allow SCI patients to function without daily catheterization. | $4,192,340.00 |

| NO. | PROJECT TITLE | AWARDEE | DESCRIPTION OF RESEARCH OR PRODUCT DEVELOPMENT EFFORT | FY 2017 JWMRP AWARDED AMOUNT |
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| 26. | Development of Moisture Management Liner and Active Cooling System for Improving Residual Limb Skin Care | Vivonics, Inc.<br><br>Sudbury, MA | Heat/perspiration-related discomfort inside a prosthesis socket can significantly impact the comfort and effective use of the prosthetic device. The objective of this effort is to continue development of an Intrasocket Cooling Element (ICE) for lower limb prosthetic sockets. The developers will evaluate the effectiveness of ICE in 16 lower limb amputees in a laboratory and real-world setting. If ICE can remove enough heat to reduce sweating inside the socket the cooler and dryer environment will improve user comfort, socket fit, and the overall quality of life for the amputee. | $80,738.00 |