(* = Poster Board is available upon request)

Force Protection and Medical

2020

360 Degree Vision Enhancement Wearable System for Soldiers in Battle Zones To minimize damage and improve the effectiveness of our soldiers in an adversarial environment, the proposed technology will allow the soldiers to have 360-degree vision even at night and eavesdrop to locals using the real-time translation of local language discreetly. The user will be in constant contact with his peers and the Command Center electronically for improved safety. Originally, the system was developed for Blinds and Persons with Visual Impairment. Now it is proposed to extend it to the battle zone.

Universal Thermal Dressings Improve; Force Readiness, Resilience, and $aves 911Medical Devices (911MD) has patented on-demand thermal dressings to fill major capability gaps in acute trauma care to protect the Warfighter and improve U.S. Armed Forces greatest threat, which is injury. ODTD are field dressings with a thermal component to rapidly, safely treat a variety of primary traumas (musculoskeletal, hemorrhage, burns) and secondary injuries (infection, cerebral hypoxia), at the point of acute trauma. We combined Johnson & Johnson's first commercial product, sterile dressings and reinvention of the 65-year-old instant cold pack to produce 911MD first and novel thermal dressing for a wide array of traumas.

OCS" (Operator Communication System)
OCS is covertly and conveniently designed to look like a wedding band type ring. Its purpose is to serve as an intuitive smartphone/SATCOM interface and information gathering device especially when paired with our in-ear device which is similar to a hearing aid in appearance. OCS is a covert system which allows silent communication, positive user identification, and continual automatic gathering of user information, including health, wellness, mission readiness, and real-time mission activity. Intuitively controlled & little instruction needed, OCS also enables the soldier to command their cell/satellite combination phone at distance, permitting communication from a defensible position which may not support service due to overhead structure. Support personnel will be able to update Warriors with real time intel while knowing exactly the Warrior's Health & wellness status anywhere in the world. To our knowledge, OCS can replace today's mission communication system (Integrated Tactical Network-ITN) at a fraction of the cost, weight, and power requirements.

Eye Drops Simplified: Improving Outcomes, Improving Safety
Dropless Dropaids has developed a versatile applicator that enables the warfighters to effectively instill eye drops seamlessly, on-the-go regardless of body position, manual dexterity, or visual acuity. Dropaids are patented and precise, applying eye drops independent of gravity,

away from line of sight, while improving and reducing waste. Because they are disposable, they
reduce the risk of inadvertent eye dropper contamination which could lead to viral outbreaks and hamper unit readiness. Durable and compact, portability is not a concern as these featherweight, pocket-sized flat-packs can fit anywhere, making them mission-ready for every setting from clinical to rapid deployment situations.

Concussion Mitigation Helmet Liner System

The Concussion Mitigation Helmet Liner System increases the effectiveness of existing helmets and gives the "Warfighter" a much better chance of survival from Concussion level impacts and Traumatic Brain Injury. The electronic liner system has an embedded microprocessor which monitors physical conditions and determines if a concussion event has taken place. The Active Mitigation System is patented, lightweight, expandable and works to prevent serious injury. This makes it possible to keep a Warfighter in the battlefield longer and reduces the need for Medical treatment.

The ATS Device

The ATS Device trains Spatial Disorientation brought on by Degraded Visual Environments, in-aircraft, to effectively train pilots to deal with the visual and vestibular illusions encountered in flight. Current methods fail to produce both visual and vestibular (inner ear) illusions leading to inadequate training. Simulators lack the ability to induce vestibular illusions which are critical to effective training of Spatial Disorientation.

IRIS-L: An Intelligent Retinal Imaging System for Laser Eye Injury

Laser-induced ocular injuries are becoming more common on the modern battlefield. IRIS-L is a handheld medical decision support tool that assess these injuries. The system uses artificial intelligence to detect if retinal damage has occurred, determine if that damage was caused by a directed energy device, and predict the long-term effects to the patient. The diagnostic exam is battery powered, works offline, and can be administered by any combat medic, allowing service personnel to be diagnosed and treated closer to the point of injury.

Universal Self-Retaining Surgical Retractor System

Bleeding is responsible for over 90% of preventable deaths on the battlefield, and over 7,000 damage control surgical procedures to control bleeding in the abdomen were performed during recent U.S. combat operations. To facilitate rapid bleeding control, surgeons use a variety of self- retaining metal retractors for improved exposure of bleeding sources, but unfortunately these retractors were designed for use in civilian operating rooms and the unique deployed environment severely restricts the retractor options available to military surgeons. This presents challenges when performing damage control surgery in austere settings, since suboptimal exposure places injured Warfighters at increased risk of death from delayed control of bleeding.

Specifically designed for the deployed environment and providing increased speed and functionality compared to current retractor options, our dual-use and universally adaptable technology delivers a portable, non-table-fixed, self-retaining retractor system resulting in superior hands-free surgical visualization and exposure. By improving a military surgeon's ability to quickly retract, expose, and control sources of bleeding, damage control surgical procedures in the deployed environment will result in improved Warfighter survival.

Rapid SARS-CoV-2 live virus testing for medical + environmental detection + in-vitro diagnostics

CodeClear Ventures Inc., is creating the next generation of rapid diagnostic tests ideal for living safely in a world of infectious diseases, STDs, food borne illness and COVID-19. The company developed a platform of non-toxic color-changing nanoparticles visible to the naked eye and requiring no lab equipment to enable rapid detection. CodeClear has partnered with leading tech design/engineering firms to create a single sample multiplex diagnostics tool capable of detecting multiple threats from infectious disease and environmental contamination. The veteran-led company recently was awarded a NIH RADx grant for COVID-19 rapid testing using patented quantum dots and has secured a cooperative research and development agreement (CRADA) with the U.S. Army Combat Capabilities Development Command (CCDC) Chemical Biological Center.

Nasoesophageal obstructer

The Nasoesophageal obstructer (NEO) is an airway device designed to protect and maintain a casualties' airway during medical care. It is designed to prevent airway obstruction from the tongue and prevent aspiration of gastric contents into the lungs. Airway obstruction is the 2nd most common cause of preventable combat deaths and aspiration of gastric contents remains the leading cause of airway management related deaths. This patented technology resists dislodgement, even with extreme patient movement. It is lightweight, easy to use, and extremely versatile. These features allow the NEO to improve warfighter survival making it easier for providers to address injury and lethality closer to the point of injury.

OXY-FIT DISPOSABLE EAR PULSE OXIMETER SENSOR HOLDER

The goal of maintaining the survival, health and performance of warfighters during times of war, special operations and routine operations require many levels of support. OXY-FIT ear oxygen saturation sensor holder device, adjustable, durable, made of conforming 'memory material' fits every person child to large adult. It secures the oxygen sensor and wire to the earlobe providing a vital level of support. Whether the warfighter has sustained a traumatic injury that needs immediate assessment and treatment or requires transport to a treatable location, it is crucial to have that ability. Stress caused by a family member that is hospitalized at home can interfere with the readiness of the warfighter. OXY-FIT is there to bring immediate and accurate information to those providing care for warfighters and their families.

(* = Poster Board is available upon request)

FBB BioMed Precision Inflammatory Detection of Disease

This blood test technology precisely measures inflammatory responses that enable early identification of existing disease processes and exposure to known and novel pathogens or new biological agents. The power of RNA detection technology allows for medical staff to determine if personnel have been exposed to infectious agents regardless of the identity of the pathogen. Medical staff will be able to identify, isolate and treat those individuals at risk for ensuing health threats. The technology was tested in a proof-of-concept study of blinded samples from Dengue Fever patients and controls. All the samples were correctly identified with respect to their status of healthy, uncomplicated or severe Dengue Fever. This technology could play a critical role in keeping an active military healthy and productive.

Biotek Shield by Aero Biotek (PWI)

The pandemic has adversely affected the sense of safety people feel when in enclosed environments. Currently there is no way to stop airborne viruses like COVID-19 from freely circulating in the air. Aero Biotek is developing a device called Biotek Shield which will neutralize 99.9999% of airborne pathogens. Biotek Shield can be designed to be installed in the air conditioning system of any environment and uses UVC (ultraviolet) light technology to neutralize pathogens like bacteria and viruses-including SARS and COVID-19. Biotek Shield's relevance to the combatant command is as force protection and medical.

Rapid Response & Tracking Software

TresCare Software speeds up recognition of a Warfighter's deteriorating conditions (i.e. sepsis, covid, lower respiratory tract infections, pneumonia, etc.) in any Military Health System (hospitals, medical centers, clinics, rehabs) that Warfighters depend on for their health care to improve the rate of survival. The heart of TresCare Software is our Track & Trigger feature that revolves around tracking and monitoring 7 vital signs. Vital signs are the Warfighters story of his/her health; before physical symptoms appear, it is the vitals that first change. By addressing even subtle changes in the Warfighter's vitals, healthcare staff can provide better patient outcomes to our Warfighters before worse medical events occur due to delays in recognition of infections and slow initiation of treatments.

TresCare Rapid Response Software and SWOT Analysis

TresCare Software is an advanced monitoring system that enables rapid identification of lower respiratory tract infections, in their incubation periods, such as COVID-19 and Pneumonia as well as dehydration, fever and heart failure. Our software gives our warfighter and their team an advantage by identifying COVID-19 in the incubation period, before physical symptoms appear, which can result in minimizing to eliminating the spread of COVID-19 to other warfighters. TresCare does this by monitoring 6 vital signs: respiratory rate, blood pressure, heart rate, blood sugar, oxygen saturation and body temperature. The warfighter is immediately notified with a medical alert when the software detects a slight change in any of these vital

signs which might signal or lead to a serious condition. Vital signs are indicators that require special attention; addressing abnormal vitals immediately helps reduce the risk of unnecessary harm associated with unintentionally missed vitals and provide an exceptional level of healthcare by providing quality care and better patient outcomes.

Remote Wound Care Prevention and Monitoring System

The Wound Care Prevention and Monitoring System (RWCPMS) is a patented weight-scale like platform uniquely designed for diabetic feet by properly blow dry between toes and soles of feet deterring bacterial growth. It has a built-in camera to capture images to facilitate proper foot inspection. The images are transmitted to a web platform for ongoing footcare prevention, deliver ongoing wound care and evaluate post-surgical care. RWCPMS replaces the ineffective antiquated way of observing diabetic feet and provides for an earlier medical intervention. The web platform can be shared with loved ones forming a team approach to that person's care by allowing supervision of proper diabetic foot care thus managing our Veterans from the comfort of their home ultimately maximizing their quality of life and independence.

Krampade

Krampade is a high-potassium sports drink that helps prevent and stop cramp formation. It also increases performance and speeds recovery. Because it supports more efficient sweating, its use helps combat heat stress. In short, Krampade is a revolutionary, novel approach to a sports drink offering a complete human performance optimization solution.

Safe Portal Tech / Active Shooter Sanctuary

Safe Portal provides security in an active shooter situation. Safe Portal can be installed in any existing building or location with minimal effort. Safe Portal provides 720-degree protection. Safe Portal can take on the appearance of any existing wall or structure so as not to be detectable to an active shooter.

Narwhal Skin

CSM will provide divers the ability to conduct operations in extreme weather conditions while still being safe and effective, boosting their morale and commander's confidence.

RUMI: 30-Second Bio surveillance Antigen Detection Test

The RUMI is a diagnostic photonic system for bio surveillance, chemical and biological warfare during infectious spread, epidemics, and pandemics. The rapid test is a field detection unit for warfighter disease status in real-time, anywhere – without the use of a lab, on-base of off-base. The system incorporates real-time data sharing capabilities of test results for preparedness and protection. Currently, we are developing an engineered molecular enzyme for detecting COVID-19 in the RUMI, a cell-phone sized device, in 30 seconds. Notes: remove rate of detection, The device can also be used for a rapid response against biological and chemical

warfare, field detection unit diagnostic system. The device uses photonics to amplify a pathogen signal within 30 seconds.

Blood test for measuring and predicting disease severity

Our blood test for disease severity is a breakthrough for helping clinicians make critical medical decisions on which individuals are at risk of developing severe symptoms, rendering them potentially unable to perform their duties. Because we look at the immune response to pathogens, this blood test should have wide applicability for acute diseases we know and those diseases that come from novel pathogens. We have run proof-of-concept studies for five distinct diseases, all of them successful, providing hard evidence of our technology's utility. Our first product will be a novel Disease Severity Test for COVID-19.

Electronic Security Strap

Safely securing firearms in open carry, concealed carry environments, and gun storage is challenging. Invented with protection for children, homeowners, and first responders in mind, the Electronic Security Strap (ESS) with a snap-type locking device provides maximum protection requiring unique user fingerprint combinations with an accelerometer trigger to release the locking mechanism. The ESS is designed to secure firearms but adaptable to a wide range of asset security applications. This patented strap technology is a TRL 2 under current efforts of advancement.

Universal Self-Retaining Surgical Retractor System

Uncontrolled bleeding after injury is a major cause of death in both military and civilian patients, and surgical retractors are tools used by surgeons to facilitate bleeding control and prevent death as a result. Designed for both civilian and military operating rooms including austere and forward-deployed settings, our patented surgical retractor technology delivers a portable, non-table-fixed, self-retaining system resulting in superior hands-free exposure of the surgical field. Providing a unique combination of speed and functionality, our technology improves the ability of surgeons to rapidly control life-threatening bleeding in all operating environments, thereby saving lives of Warfighters and civilians alike.

2019

Telemental Healthcare

Encounter Telehealth provides behavioral and mental healthcare for distant communities and patients over a HIPAA-compliant video platform. Patients are treated for depression, anxiety, PTSD, substance abuse and severe mental illnesses (schizophrenia, bi-polar disorder, major depression). New patient evaluations, follow-up medication management, talk therapy and staff training are conducted by Encounter providers. Providers are all licensed and board-certified Psychiatry Mental Health Nurse Practitioners, Certified Social Workers and Licensed Mental

(* = Poster Board is available upon request)

Health Professionals.

Warfighter Performance Ankle Support Systems
ARYSE is an orthopedic and performance bracing provider. We create and implement functional stability technology based on biomechanics and the needs of warfighters and other end users. We build this unique, patent-pending technology into both our off-the-shelf and customizable products to mimic natural joint movement and give pre- or post-injury protection at the joint's end range of motion without inhibiting warfighter performance; as a result, diminishing the number of warfighters on restricted duty or medical discharge.

LIFELINK+ for Substance Use Disorder and Behavioral Health Treatments Lifelink+ is a HIPPA compliant patient management platform that leverages people, process, and technology to help in the recovery of those suffering from addiction. Lifelink+ is designed to increase efficiencies, improve patient outcomes, and enhance patient access and engagement utilizing today's digital technology. With features specifically developed to treat substance use disorders, our artificial intelligence platform utilizes real-time data to optimize the efficiency of treatment. Lifelink+ collects data and compares it against the patient profile to identify and predict anomalies that require intervention while engaging patients and providing motivation and guidance.

Universal Testing and Identification Platform
Our technology allows for the testing of samples - anywhere, anytime - to provide health and identification information quickly and painlessly. It can be used for diagnosing disease and/or personal/forensic identification from the middle of the desert to the inner-city, and give remote real-time data about that person, unit, or division. The data can be used to access many aspects of health and identification – everything from who a person is, what illness someone may have, or where possible disease hotspots.

HeartToHeart CareApp
HeartToHeart's platform connects with patients across lifetime health journeys. HeartToHeart's disruptive approach integrates AI, cloud technologies, and remote collection of data from medical devices to engage clinicians, patients, and their families in 'shared care'. Our technology addresses challenges from supporting patients with neurological conditions to reducing mortality related to pediatric cardiac surgeries from 20 percent to zero. The latter resulted in the 2017 Microsoft Health Innovation Award. Our vision is to reduce the cost of patient management and improve quality of life by optimizing the timely recognition of potential complications and declines in function, allowing cost-effective quality interventions.

CanaryBox® – Smart Music for the OR
CanaryBox® improves focus and communication in medical operating rooms during life-saving situations. By integrating an OR's existing audio system and vital signs from the patient

monitor
it automatically reduces music volume if the patient condition deteriorates. CanaryBox assures that normal vital signs are a precondition for music to be played in any surgical operating room.

Fruitful Yoni™: Plant-based Feminine Care
Fruitful Yoni™ Feminine Care Products are uniquely designed for women who are seeking to be proactive in their vaginal health, menstrual health, sexual health, and reproductive health. Unlike others, our sanitary pads are 100% natural and safe, using sustainable resources such as organic industrial hemp for enhanced comfort and maximum absorption - reusable for affordability or disposable for convenience. By eliminating chemical burns, reducing painful cramping, lowering risk of yeast and bacterial infections and preventing cervical cancer, we empower women to be mindful of how we care for our body, to promote wellness and longevity. Made in Oklahoma.

Cellular Monitored Automated Medication Dispenser for use in Opioid Addiction Treatment
PillReady® PRN is a cellular monitored automated medication dispenser designed for use in Medication Assisted Treatment (MAT) for Opioid Use Disorder (OUD) patients. It provides medication on an “as needed” basis to encourage behavioral modification and collects data for statistical individualized patient analysis resulting in better patient outcomes.

Cloud-Based Secure and Affordable Platform for Storing Health Records and Tele-Medicine
Our secure digital platform helps to collect and store health information in one place for 24/7 access. Clients can easily upload, view and share their health information with their physicians using our secure portal. Our telemedicine service enables patient engagement with board-certified physicians from anywhere through our platform. Also, Clients can benefit from our affordable pricing for blood tests, imaging, medications and doctor visits.

Watch Over My Rx™ Pharmacogenetic Matching of Drugs to Genetics
Each day 350 people die and 7,400 people are hospitalized from a medication prescribed by their doctor. This is because your response to a medication is in your DNA. Watch Over My Rx™ is a software tool that matches your DNA with the right medication and allows you and your doctor to watch over your medications as new medications are prescribed or as new information becomes known about your existing medications.

KneeStim – Enabling Accelerated, Mobile Physical Rehabilitation for Active Individuals
Articulate Labs’ wearable medical devices accelerate joint rehabilitation by augmenting a patient’s everyday muscle usage with electrical muscle stimulation. By leveraging everyday activity to actively combat muscle atrophy and inhibition related to injury, chronic conditions, or surgery, our devices make physical rehabilitation more accessible, convenient, and effective. The first application of this technology, KneeStim, will intelligently target and stimulate quadriceps

(thigh) musculature during gait to accelerate muscle strengthening and re-education. A goal for KneeStim usage is to help post-arthroplasty patients return to full mission-ready status faster and with less oversight.

Ergonomic Surgical Loupe Strap
I make an ergonomic strap to attach to surgical eyeglasses for surgeons. The strap helps minimize muscular skeletal disorder to surgeons and keeps their glasses secure during surgical practices. I also make glasses for people with no ears or who have craniofacial disfigurement. Microtia is the condition given to children born without ears. I help them. It can also be used for burn victims or victims with major head trauma.

Shark OFF Shark Repellent Jewelry
Shark OFF as taken technology, developed and patented by industry scientists, and created a shark repellent product that will prevent dangerous shark/human interactions.

RISC-V System-on-Chip (SoC) Computer Hardware Accelerators for Biomedical Big Data DNA and RNA sequencing sensors and instruments produce lots of data, but we can't analyze this data cheaply enough or quickly enough, especially in limited-resource settings. Rapid analyses of such data enable timely, effective responses to infectious disease outbreaks and bio-terrorism threats. SeqStream, SiFive, Inc. and other partners will co-design System-on-Chip (SoC) computer hardware accelerators that combine CPUs implementing the RISC-V computer instruction set architecture (ISA) and specialized data analysis logic on the same computer chip. These semiconductor devices and associated computer platforms will enable the fastest possible analyses of DNA and RNA sequence data at any point-of-need.

An Innovative Software Solution to Optimize Medication Prior Authorization An increasing number of medications are now requiring prior authorization (PA) by physicians, who spend 10-20 hours weekly completing them. 92% of physicians report that the PA process delays care. 64% of patients wait up to three days to access medication, and over a third of medications requiring PA are abandoned. By 2020, 90% of top-selling medications are projected to require PA. Breezmed automates the medication selection and prior authorization process, increasing provider revenue, decreasing provider burnout and improving patient outcomes. **Allevia™: AI-powered Clinical Intake**
Allevia™ is an AI-powered mobile health solution that automates clinical intake for healthcare providers. As soon as a patient requests an appointment, the patient works with our application to fill out a “Preappointment Questionnaire” before their visit. Allevia™ uses smart algorithms, research data, and the patient’s history and symptoms to identify the most important clinical questions their doctor needs to know. Allevia™ then takes the information provided by the patient and converts it into a clinical note that can be directly sent to the health record, giving their care provider the “best door note” possible – all before ever seeing them.

(* = Poster Board is available upon request)

Real Time PCR (qPCR) for Rapidly Detecting Infectious Disease Pathogens
Volente Diagnostics helps healthcare providers accurately diagnose diseases within 24 hours. Volente is a biotech company that uses DNA molecular technologies to perform infectious disease diagnostic testing using Real Time PCR (qPCR). We are providing solutions to the growing problem of antibiotic resistant infections and overuse of antibiotics. Our customers include physician offices, hospital systems, and long-term care facilities. We can license our technology and can even consult to build a high complexity CAP and CLIA lab.

AI Application to Improve Patient Experiences and Clinical Outcomes
PatientsVoices identifies specific changes within a health care organization that will improve patient experiences and clinical outcomes. The technology accurately converts patient ideas from survey comments and social media into improvement priorities. The resulting road map for change is displayed in dashboards and answers the tough questions facing health care leaders today, e.g. what do we work on next?' This solution takes the guess work out of identifying and resolving problems that frustrate patients. The result: loyal patients, better outcomes and efficient operations.

SURVIVOR Portable Ruggedized Telemedicine Technology with Low Bandwidth Operating Capabilities
The SURVIVOR development program is a telementoring and telemedicine capability that can be deployed to far-forward environments and would directly benefit the forward deployed warfighter by allowing for a higher standard of care without the logistical challenges and tradeoffs that accompany evacuating personnel. The SURVIVOR is the only product today that can deliver a physician anywhere in the world in their life-size 3-D form, with direct eye contact while using minimal bandwidth, reducing risk of complications in transit, improving the likelihood of return to duty, and increasing the likelihood of long-term quality of life for injured warfighters.

Pluripotent Stem Cells from Peripheral Nerves for Cell Autograft Therapies A population of quiescent pluripotent stem cells reside within peripheral nerves. The cells are easily propagated from a non-essential nerve into uniform cultures using restrictive media. The cells can be induced to differentiate into cells of all 3 embryonic layers. Until, this discovery, we have lacked a reliable source of pluripotent stem cells for clinical application, because non-self cells will be rejected without immunosuppression of the recipient patient. Pluripotent cells, iPCs, can be created by viral introduction of primitive genes, but these cells can undergo malignant transformation and other unwanted epigenetic changes. This new approach should allow a simple and safe method for self -to-self stem cell autograft cell therapies with minimal expected morbidity.

(* = Poster Board is available upon request)

VivO2, Saving Babies with Biotech, First Non-invasive in Utero Diagnostics Prenatal Hope has developed a diagnostic tool, the VivO2, that will tell doctors in real time when a baby is in distress due to lack of oxygen during birth. This will eliminate guessing or interpretations of data that aren't currently measuring for this biometric. The VivO2 provides quantitative data that will save lives, reduce doctor liability and unnecessary procedures. We will help recover the US as a safer, cheaper place of birth and get our military women back to active duty faster. Our IP has international patent filing and we've secured Letter of Intents for global distribution to 136 countries.

MIRA, Minimally Invasive Miniature Surgical Robot
Virtual Incision Corporation (VIC) has developed a new Minimally Invasive Robot Assistant (MIRA) to assist in surgical procedures in the abdomen. MIRA has been developed with multiple Department of Defense and NASA grants. Large capital costs and limited mobility are the main barriers to wider adoption of surgical robots in military hospitals. The MIRA is much smaller, lighter, and less expensive than the widely used daVinci surgical robot, which has been used in more than 5 million surgeries. MIRA has the same or enhanced capabilities in a wide variety of abdominal procedures and is portable. MIRA is at TRL-7 with two first in human surgeries outside of the U.S. and is currently filing an IDE with the FDA. MIRA can be used by surgeons for remote surgery. VIC is seeking funding to assist with clinical trials and/or guidance to deploy its robot into the military medical ecosystem and to develop remote cooperative surgical capability.

Healium by StoryUP
Healium kits are drug-less, portable solutions that use VR and AR to reduce brain stress in as little as four minutes while allowing the user to control virtual assets with their biometrics. The data-driven platform is the world's first VR | AR channel powered by a brain-computer interface and other wearables. In peer-reviewed journals, Healium has been shown to reduce self-reported anxiety and increase feelings of positivity.

PathTrac Software and Laboratory-based Bacterial Transmission Surveillance System RDB Bioinformatics collects, identifies and reports on Antimicrobial Resistant bacteria threats to the Warfighter. Civilian, Military, and Government (CMG) personnel who are deployed to areas of the world where antibiotic-resistant bacteria are widespread are at risk for dangerous bacterial infections. Why is this important? They come home/base/office carrying drug-resistant or difficult to treat infections…and those potential threats to the health of our personnel must be identified and treated. 1) Decolonize personnel prior to, and return from, close-quarter deployments 2) Develop rapid diagnostic kit's (RDK) based on those tests 3) Deploy border detention surveillance with a similar approach

Wounded Warrior Comfort Kit, Therapeutic Garments Provide Comfort in Any Care, Anywhere

(* = Poster Board is available upon request)

Apparel. Supportive Throughout the Recovery Journey
Warfighters suffering traumatic injuries undergo a series of life-saving treatments and grueling rehabilitative efforts. Audrey Spirit's Wounded Warrior Comfort Kit is specialized apparel providing comfort during any care, anywhere: hospital, clinic, rehab, home, or upon return to desk duty. Looking like a regular shirt but unlike typical clothing or hospital gowns, ergonomic fasteners are positioned to promote independence and self-care. This assistive technology finally equips warriors throughout their healing mission. As resilient as the warfighter, this apparel allows full accessibility throughout medical treatment, rehabilitation and recovery, maintains mental health, accommodates prosthetics, and eases clinical and family caregivers' tasks.

Acosta Medical Group - UroGard
Acosta Medical Group provides high quality incontinence products to improve the quality of care received, reduce community effort to support long-term care needs, and improve the quality of life of our customers.

Interoperable & Secure Medical Data Transfer Network Supporting Rapid Deployment Rapidly deploy an interoperable medical data transfer network supporting collaboration across medical organizations and Telemedicine. Transfer DICOM® (Digital Imaging and Communication in Medicine) studies, medical images, and DICOM'ized medical records / data between organizations with disparate IT systems, IT policies, Picture Archiving and Communication Systems (PACS), Vendor Neutral Archives (VNA), and clouds. Transfer medical data in the DICOM® format via Secure File Transfer Protocol (SFTP) packets that are managed, encrypted, and compressed and that are resilient to intermittent internet connections. Transfer medical data without a Virtual Private Network (VPN) and without overloading an organization's existing network.

Assisted Tactical Combat Casualty Care (A-TCC)
Remote medical assistance via the augmented reality device is revolutionizing healthcare and poised to enhance survivability in fast-paced, austere environments, reducing human error by delivery of tailored patient vitals direct to the medic's Field of View. A practitioner of the operational arts requires a dependable, light-weight, adaptable Augmented-Reality (AR) device thoughtfully integrated with the operator's existing wearable architecture. The Department of Defense has already realized the value of AR through an Integrated Visual Augmentation (IVAS) Program agreement with Microsoft. However, the engagement of an industry juggernaut without competition endangers the value of equipment to an end-user, the operator.

Directional Microwave Ablation Applicator for Precise Thermal Ablation Microwave ablation (MWA) offers a low cost, non-toxic, outpatient, minimally invasive cancer treatment. Needle-like applicators embedded with microwave antennas are inserted into tumors to heat

and kill them. However current MWA systems can only create a spherical treatment zone, which cannot treat tumors with irregular shapes or those located near critical sensitive anatomy. We developed a directional MWA applicator that can heat targets from the "outside-in," protecting nearby sensitive tissues. This approach is faster, safer, and more effective and could also be adapted for an expanded range of medical conditions beyond cancer
(such as nerve ablation to alleviate chronic pain).

Tactical Autonomous Treatment - Inflating Retractor (T.A.T.-I.R.)

The T.A.T.-I.R. is a simple, "pen-shaped", injectable device that will allow a caregiver to fully pack and compress a penetrating junctional wound in a matter of seconds. The T.A.T.-I.R. will be a preassembled device that when deployed; self-conforms to any wound cavity/shape, provides complete wound encapsulation, and applies static autonomous pressure directly to surrounding tissues with enough force to stop hemorrhage. Additionally, the T.A.T.-I.R. will be a user-friendly device to allow non-clinical (civilian) bystanders the ability to rapidly control hemorrhage and stabilize gunshot victims until help has arrived.

Automatic Injury Detection (AID) Sensor

Automatic Injury Detection (AID) is a smart, body worn, sensor which automatically sends an emergency alert when penetrated. AID Sensor can be easily inserted into body armor and thus can help detect injury of officers or soldiers. It uses LoRa technology to communicate to the cloud and system operators over a long range. AID Sensor's function is to send a call for help immediately after an attack happens. By sending help faster it can help save lives of soldiers and officers.

2018

911HEAD®

911 Medical Devices has developed an emergency first aid, on-demand hypothermia helmet, to treat and protect the brain from injuries including; TBI or blood loss shock (Hypovolemia). 911HEAD is functional in battlefield medicine including, tactical areas, transport, and medical treatment facilities. Benefits include; 56% better survival, and 170% long term improvement. Current TRL is 6 and can achieve operational status in 9 months.

Far UV Countermeasures for Infectious Wounds

Military wounds are often devastating, complex and heavily contaminated and account for 84% of the highest Injury Severity Score (ISS) for Warfighters reaching definitive care. Far UltraViolet (UV) disinfection tools can provide more effective, noninvasive, easier to use and less painful medical countermeasures to infectious wounds. In addition, they can provide far more effective

countermeasures for disease, decontamination of any bacteria, virus or fungi, waterless sanitation at forward operating bases, mold remediation in the supply chain and food disinfection and shelf life extension.

Therapeutic Garments

We make life better for warfighters enduring frequent medical treatment? by providing Therapeutic Garments specially designed for medical treatment and rehabilitation. Our assistive
technology has the appearance of regular clothing, but with hidden openings throughout the garment reduce pain dressing and improve accessibility, comfort and dignity. Platform technology enabling radical medical breakthroughs.

Platform technology enabling radical medical breakthroughs

Clara Diagnostics Platform technology enables rapid medical breakthroughs in diagnostics AND therapeutics for cancer, traumatic brain injury, spine injury, and many others. Clara does this by solving the MAJOR factor currently limiting rapid adoption of these special particles in the body (exosomes). These particles are extremely challenging to remove from body fluids like plasma, urine, cerebrospinal fluid, and saliva. Clara's platform is orders of magnitude better than the gold standard. Our investment is multiplied because our platform allows the entire industry to flourish.

Zitches™, Taking the pain out of skin closure

Zitches™ is a patented (US 2015/0313593) skin closure device that allows rapid precise skin closure without traumatizing the skin and is completely reversible. The device is FDA class I, which means it is very low risk and has the least regulatory controls. Unlike the primary competitor, stitches, there is no puncturing of the skin nor risk of needle sticks, which allows for safer and faster closure in the field. Unlike staples and glues, Zitches™ does not trade off precision of closure for speed. In short, Zitches™ is skin closure faster, better, and cheaper.

Oumen+- Advanced Physiological Monitoring for Performance Optimization & Bodily States

Devali's Oumen+ is an advanced physiological monitoring system that uses our proprietary sensors and algorithms to monitor cardiovascular, respiratory and nervous system function along with core body temperature, hydration, stress, sleep quality and human adaptability from the comfort of your socks. Partnered with Thorlo, the only clinically proven socks to reduce foot fatigue, pressure, and wick moisture, we are creating the most comfortable and comprehensive medical grade monitoring solution on the market. With multiple customizable user interfaces, the data can be used for anything from performance optimization to medical monitoring recognizing everything from nervous system adaptability changes (PTSD) to Arrhythmia.

Englover Glove and Garment Donning and Contaminant Anaylsis

(* = Poster Board is available upon request)

Englover is a patented system that automatically dons medical and protective garments (gloves, foot coverings, hoods). We have patents pending for safe and automatic removal of those garments and their testing for pathogens, toxins and contaminant evidence. Data from our system will map contaminants of interest for both epidemiology and forensics purposes. We offer garments with greater protection from biological, chemical and radiological sources.

Osteoinductive Orthopedic Implants Using Smart Materials

Bone healing can be challenging when there are large gaps between broken bones or if the patients are tobacco users or diabetic. Evoke Medical has developed a platform technology that
improves quality and speeds up bone healing for all patients using motion-activated DC electrical stimulation embedded directly into the orthopedic implant designs. While any orthopedic implant could benefit from use of this technology, Evoke Medical is targeting spinal fusion implants and intramedullary rods for long bone fracture fixation for their first product lines. Soldiers who suffer lower back ejection trauma and IED explosion injuries to lower extremities could benefit greatly.

Personal emergency alert notification system triggered by biometric sensors. A.I. sensor-based cloud platform that warns and notifies personnel when there is an existing response-time vulnerability should an emergency situation occur involving an individual, group, or facility. Provide immediate situational awareness to support team. Can be configured to be an early warning system that can notify central command and troops they are no longer within range of safe response-time capability based on threat levels.

Automatic Identification System for Warfighters (Smart Dog Tag)

This innovative technology relates generally to wireless communication devices and more specifically, integrating automatic identification technology with one of the most recognizable articles of military equipment: The United States Dog Tag. The current Dog Tag is antiquated as an identifier; providing only identification of the Warfighter's blood group and type. The primary purpose of the tag now is not to save lives but to identify bodies in the event of death or the inability to communicate. The i-TagL.ink modernizes the Dog Tag by allowing access to vital medical information in multiple military situations by potentially avoiding and reducing casualties during triage and the crucial Golden Hour of treatment.

14 Bit Monochrome Display – Full medical bit-depth

Immersion 3D Plus Company aspires to be at the forefront of display technology, bridging the gap between current technologies and the limits set forth by human vision. Our 14 bit monochrome display is designed to provide precision and quality viewing experience of medical images at full bit depth. The display uses digital light processing technology and custom software. Unlike competing displays, our provisional patented process shows more image

information than other displays can. This display is ideal for displaying smooth grayscale images that can show the entirety of what medical imaging devices can capture.

Electronic detection of pathogenic samples in humans

Many War Fighters develop pathogenic infections that can be life threatening, sometimes leading to septic shock. If the appropriate antibiotics are administered quickly, the patients have a greatly improved survival rate. ImpeDx Diagnostics has developed technologies to speed the analysis of pathogenic infections to allow physicians to apply the appropriate drugs in a significantly faster manner.

BREATHER ONE

Pocket size device that monitors the effect of individual exposure to inhaled toxic and irritant materials on lung function during and after deployment, medical care team can access this information in real time via portal. A customized database and portal can be created to allow tracking of health outcomes from deployment to civilian veteran status. Having this information along with local environmental conditions in the geographic combat area would help to create a system that links location to individual exposure. In addition, information on individual's lung function can could be sent the Electronic Health Records via API

MindMilitary

MindMilitary improves the performance of its commanding officers and soldiers through the use of mindfulness and meditation practices. We will be copying the format of our already existing and scalable technology MindSport. Benefits for soldiers and commanding officers both include improved reflexes and performance, improved memory and concentration, ability to retain information longer, reduced stress, increased emotional quotient (EQ), among many other benefits.

Drug Delivery Using Oral Dissolving Strips (ODS)

Our proprietary drug delivery technology, Oral Dissolvable Strips (ODS) provides access to lifesaving, high-quality pharmaceuticals and nutritional supplements. ODS are very thin, stampsized films in which we embed pharmaceuticals. They dissolve easily in the mouth, don't need to be swallowed with water or other liquids, they are fast acting and they are more palatable because of flavor masking. In addition, they are rugged, easy to transport, and difficult to counterfeit. ODS can be used in combat, training, disaster and health care settings.

UL7 One-Way Ballistic Wall Insert

This patent-pending technology is a one-way ballistic assembly that enables a defender to shoot an assailant through the ballistic assembly with deadly force or disabling effects, while it simultaneously stops the assailant's bullets from passing through to the defender's side of the same assembly. This ballistic assembly is a modular design and can be configured for various

sizes and applications. This technology is TRL 8 and addresses the DoD needs for counterterrorism and UFC/ISC security of DoD facilities. Proactive Ballistic Systems, LLC is seeking a fully-operational demonstration of the UL7 Ballistic Insert (ballistic assembly) using its complete field-test simulation structure at a location determined by the DoD, which will demonstrate TRL 9.

Host-Directed Immunotherapy for Zoonotic and Emerging Diseases and Food Safety
Prommune Inc. develops self-adjuvating vaccines and immunomodulators focused human, animal and food safety pathogens. Our short peptide analogue biologics are fully synthetic and can be used prophylactically or therapeutically alone or conjugated to an antigen of choice. When used alone our peptides elicit an innate immune response. When conjugated to antigens the immune response is specific and TH1-biased. Our biologics are fully dissolved in water or saline and are stable at room temperature. Several efficacy proof of concept studies have been conducted on our lead products (HISP-P and HeptaVac) in mice and pigs with a variety of viral, bacterial and parasitic pathogens with no observed adverse events in any of the species tested.

Qsensus - Ultrasound for better outcomes
We have developed a technology to replace the sensors used in conventional ultrasound instruments, significantly improving performance. These sensors will allow for improved spatial resolution while simultaneously allowing for greater depth of penetration. This will result in better clinical outcomes when ultrasound is used.

Med-A-Gel Care Systems
Concept: Gel infused/enclosed in various types of body fittings or body contouring devices. This systems allows any area of the body that may need ice or heat. It is contoured or specifically shaped for an arm, leg, elbow, neck, hand, etc. This system was developed to replace the "old" standard ice packs and "stand alone" gel packs.

T-Blocks: A Platform for Storing and Regenerating a Patient's Own Tissues Tissue Blocks (T-Blocks) enable rapid expansion of stem cells isolated from military personnel for treating battlefield injuries. T-Blocks have been used to stimulate neuron growth in small spinal cord injuries, and T-Blocks have been used to rapidly form new skin. This technology produces 30X the yield of primary stem cells compared against conventional cell culture technologies while only using 0.1% of the space and at 1% of the cost. T-Blocks can preserve stem cells from military personnel and be activated when needed to treat battlefield injuries such as paralysis, burns, or wounds.

iNFOVest™ Advanced Canine BioTelemetry Tactical Vest System for Working Dogs The iNFOVestTM Advanced Canine BioTelemetry Tactical Vest System for Working Dogs is disruptive technology that leverages advanced biotelemetry capabilities, sensor technology,

interoperability and AI to measure and monitor working dog safety and performance. Data capture of laboratory quality critical vital signs including heart rate; pulse; respiration; blood pressure; hydration; body temperature; and canine activity, as well as GPS location and other environmental factors is accomplished with a maximum-functionality tactical vest and nextgeneration embedded sensor fabric to maximize skin contact and signal quality, durability, comfort and performance. Our advanced smartphone APP uses advanced encryption, cloud functionality, and alarm and notification systems.

Heal-ium: VR | AR Data Driven Brain Stress Reducers

Heal-ium kits are portable solutions that use VR and AR to reduce brain stress in as little as four minutes. The data-driven platform is the world's first VR | AR channel powered by a braincomputer interface. In peer-reviewed journals, Healium has been shown to reduce selfreported anxiety and increase gamma asymmetry which is associated with feelings of positivity.

Microbial Blockade – Occlusive Wound Dressing

Microbial Blockade is a novel occlusive wound dressing designed to protect surgical or traumatic wounds from bacterial contamination. The patented release method allows use of a cyanoacrylate polymer (i.e. SuperGlue•) to bond the dressing to the skin and allow the dressing's subsequent removal without skin injury. Use of this bonding polymer not only provides an incomparable bacterial barrier to prevent bacterial wound contamination but also eliminates dressing 'roll-up' and creasing on uneven surfaces. Use of such a dressing could decrease incidence of trauma and surgical wound infections, including infections of underlying orthopedic hardware and implantable devices.

VertiPro: Vestibular Rehabilitation Therapy Mobile Platform

VertiPro is an augmented reality mobile application that streamlines vestibular rehabilitation therapy. VertiPro individualizes each end-user experience to help clinicians and patients better manage vestibular disorders. By remotely guiding and mapping the patients developing skill over time VertiPro provides a higher level of portability, accountability, and an increased patient compliance to vestibular rehabilitation therapy.

JP Secure

JP Secure is a post-surgical application device. It has been designed to specifically correct the numerous issues involving Jackson Pratt Drains. By securing the bulbs and tubing, JP secure decreases the risk of surgical site infections and Healthcare Associated Infections that stem from early drain removal, subsequent surgeries, suture site tearing and decreased mobility. In addition, JP secure labels the bulbs promoting proper measurement of fluids from multiple bulb sites. This gives surgeons a better understanding of how the surgical site is healing. JP Secure addresses other vital issues such as patient safety and comfort.

(* = Poster Board is available upon request)

Positive and Innovative Faith-Based Sexual Assault Material for the Military When a sexual assault occurs or a survivor is dealing with flashbacks of the past pain, the individual needs help now. The Overcoming Sexual Abuse (OSA) Book Series delivers proactive measures with an assessment, counseling advice, interactive writing therapy opportunities, positive self-esteem building, and character strengthen so the inner healing journey can begin. Most importantly, this material works together to address the important fact which is It was never their fault. Military personnel can access OSA books via eBooks, print books and a proposed interactive application with an educational website for direct contact with chaplains and author, Dr. Tina Medina.

Smart Phone Application to Enhance Injury Monitoring, Reporting, Decision Making We all assume that when we drop off our children at sports practice that there is someone present who knows what to do if they get hurt. What if that is not the case? The TeamSafe™ data collection and communication system provides coaches and parents immediate access to the lifesaving information necessary in those first 5 – 7 minutes. The roster of your team is on your phone with emergency contact/ emergency medical information, a team specific emergency action plan, concussion remove/return reports, and emergency care instructions at your fingertips.

Energy Absorbing Seat
In the case of emergency landings or roadside explosions, a large vertical force is applied to passengers of the aircraft or ground vehicle, especially around their lower vertebrae. The presented technology is a seat to protect passengers from such a force. The seat includes a shear member and an energy absorbing member. The seat is initially mounted on the shear member. The shear member breaks inelastically from a large vertical force, leaving the seat suspended on the energy absorbing member, thereby protecting the passenger from the vertical force.

PathTrac software and laboratory-based bacterial transmission surveillance system RDB Bioinformatics PathTrac tracks ESKAPE bacterial spread. RDB provides easy to use collection kits that measure seven areas in the operating room. You send the collected specimens back to RDB for processing using the kits. RDB performs all microbiological and statistical analysis required to provide you with reporting identifying gaps, actionable items, and improvement strategies. The RDB team works to optimize policies, focusing your attention to patient safety and CDC directives to reduce surgical site infections, prevent the spread of bacteria, and improve antibiotic stewardship. We offer monitoring in the OR, patient decolonization prior to surgery, and patient recovery ward.

Spinal Muscular Atrophy Therapeutic

(* = Poster Board is available upon request)

Shift Pharmaceuticals has developed a novel drug for the leading genetic cause of infantile death, spinal muscular atrophy. Recently, the first SMA-specific drug – Spinraza – was approved by the FDA in December, 2016, however, the severity, complexity, and diversity of SMA and the SMA patient population demands new drugs. Competition in the market place is essential for SMA families as more options will provide compelling financial and clinical alternatives. Our compound, called E1v1.11, is an antisense oligonucleotide with a Morpholino backbone and targets a distinct genetic target from that of the Biogen compound, Spinraza. The E1v1.11 Morpholino ASO modifies pre-mRNA splicing similarly to Spinraza, but Morpholinos are particularly well suited to this task due to a high degree of stability and low off-target characteristics. Morpholino molecules have been in the clinic for over 20 years and have an extremely favorable toxicology profile. E1v1.11 is an excellent candidate as a stand-alone therapy, but also potentially in combination with Spinraza or other SMA drugs.

An Innovative Software Solution to Optimize Medication Selection and Authorization An increasing number of medications are now requiring prior authorization (PA) by physicians, who spend 10-20 hours weekly completing them. 92% of physicians report that the PA process delays care. 64% of patients wait up to three days to access medication, and over a third of medications requiring PA are abandoned. By 2020, 90% of top-selling medications are projected to require PA. Breezmed automates the medication selection and prior authorization process, increasing provider revenue, decreasing provider burnout and improving patient outcomes.

Ocuvera Automated Video Monitoring for Fall Risk Reduction

Ocuvera makes an automated video monitoring system for use by hospitals to automatically monitor patients, predict when a patient's risk of falling will increase, and alert nurses to be able to intervene before the patient falls. The system uses machine-learned algorithms and 3D cameras. Alerts are sent to nurses as live video feeds of the room, and are sent to mobile phones, smart watches, or the nurse's station.

Shoulder Injury Simulation Model

This model can recreate shoulder dislocation and it can be used to practice reduction skill as many as you want. Since not way to know when it will happen, it takes time to learn the skill, but our product is the solution for that issue.

Operations & Mission Support

2017

ESP-DLux - Automated UVC Biosecurity System

The patented ESP-DLux(tm) provides automated disinfection to buildings by pairing UVC light with filters, fans, rotating shutter, sensors for the detection of occupancy and a wireless computerized controller. When a room is occupied, the light shutter is closed and sanitized air is circulated. When the room is empty, the shutter opens and surfaces and air are disinfected,

reducing disease transmission.

KneeStim

Articulate Labs' mobile rehabilitation technology, which is at a high technology readiness level (TRL 6), will help improve rehabilitative outcomes in any post-injury scenario where muscle strengthening or re-education is required, but time and/or equipment is limited. This goal is achieved with light, wearable medical devices that electrically stimulate muscle in sync with voluntary muscle contractions during regular movements in order to turn regular movements into muscle building repetitions. The first application of this technology is in accelerating knee joint rehabilitation after injury or surgery by assisting with quadriceps strengthening and re-education during gait. This technology may help restore function and mobility for Warfighters and Veterans who are disproportionately affected by knee dysfunction. Initial studies indicate that the working prototype operates as intended.

Humane water treatment system

The system is designed for treating and removing pathogens, arsenic, iron, manganese and other organic and inorganic compounds in contaminated Water and supply potable water for drinking, cooking, showering, and lawn and gardening purposes. Natural and man-made environmental disasters continually threaten the world's fresh water resources, ecosystem and environment. Surface water is tainted by industrial and agricultural pollution and human and animal waste. Vulnerable populations across the world consume pathogens and contaminated water on a daily basis. Over-pumping of groundwater and harvesting of river water for agricultural irrigation and industrial use has caused groundwater arsenic poisoning in many underdeveloped nations.

A True 3D Display System for Medical Imaging/ 3D Visualization

T3D display system is a lifesaving tool in applications. It helps medical personnel diagnose the medical condition efficiently, accurately, and faster than that requires analyzing slices from a 3D imaging data. The system projects 3D information over a volumetric space rather than over a planar screen enabling visualization of intricate details of human organs over a volume, as it exits inside a human body. This technology enables glasses-free 3D volumetric displays that can more accurately represent the data available. Thus, from early detection of medical conditions to preparing for a complex surgery will be the important lifesaving activities where the proposed device could contribute effectively. Furthermore, the device could easily find applications over a broad range of applications ranging from visualizing 3D scientific data to video gaming. T3D technology is at a Technology Readiness Level 4 and addresses the DoD requirements need in Medical and Biotech. I3DP recently acquired a new evaluation light processing board from DLi to enhance brightness and quality of the image. A local county is willing to offer land once I3DP is ready for operations.

xamtee® Therapeutic Garments Save Wounded Warrior Lives!

Eliminate trauma's deadly risk of sepsis Save nurses time, reduce medical error Less

complications accelerate warfighter's readiness timeline 1. Eliminate painful repositioning to dress, 2. Support independence/self-care during disability, 3. Ease family caregiving tasks, patient-centered approach. Hidden throughout the garment, ergonomic fasteners open up to allow dignified and comfortable exit of lines and tubes garment without tugging on the skin/body during acute and rehabilitative care. xamtee® (pronounced exam-tee) garments functionally provide: targeted access to anatomy for care, eased dressing without painfully repositioning the body, and clothing changes without interference of orthopedic/prosthetic needs or manipulation of medical lines. "…there is no higher priority for this Department than caring for those who have sacrificed so much," Department of Defense Secretary Mattis.

Wireless Transceiver Identification System

There is a need for methods and equipment to facilitate more rapid, effective identification and triage of wounded Warfighters. By integrating the current antiquated United States Dog Tag with automatic identification technology, the most recognized piece of military equipment can become a vital source of encrypted and secure medical communication and could potentially assist in saving lives. This technology relates generally to wireless communication devices and more specifically to an automatic Dog Tag, method and system to identify Warfighters visually and electronically: Provides information to assist with lifesaving treatments during the 'Golden Hour' for triage; Technology can withstand high melting point temperatures beyond that of human cremation; Identify a Warfighter's body in the event it is unrecognizable; Immediate access to pre-existing medical conditions; Automatically uplink medical status information for transport.