

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

February 2002

BUDGET ACTIVITY

3 - Advanced technology development

PE NUMBER AND TITLE

0603001A - Warfighter Advanced Technology

PROJECT

J50

FY 2002 Planned Program (Continued)

- Define stakeholder needs and system level requirements; set technical parameters and system cost objectives. Develop functional architectures and allocate requirements. Assess DoD and commercial technology alternatives and formulate risk management strategy.

- Define and construct models and simulations of OFW concepts and warriors to optimize system and operational design.

- 2500 - FY 2002 Congressional plus-up to develop Micro Electrical Mechanical System/Inertial Navigation System/ Global Positioning System with application to ground troops.
- 1000 - FY 2002 Congressional plus-up to develop and demonstrate a portable apparel cooling system.

Total 36635

FY 2003 Planned Program

- 7772 - Mature and iterate design concepts for integrated, multifunctional combat suit and integrated headgear systems based on results and analysis of the FY02 lab/field experiments. Conduct technology demonstration with troops in an operational environment. Fully transition technologies, concepts, knowledge and critical information to the OFW contractor teams.
- 25141 - Continuing Phase I, each contractor team will: identify government and commercial technology alternatives to leverage and integrate; develop preliminary system hardware and software architectures; and design and produce two mock-up system prototypes.
 - Update OFW program exit criteria (weight, power, cost and performance).
 - Complete Phase I, Concept Development, of OFW; down-select to one lead system integrator to continue into Phase II.
 - Initiate Phase II, Design Development, of the OFW program. Update system level requirements and allocate to subsystems and components.
 - Begin design synthesis and early component breadboard prototyping of smaller components and conduct lab/field experiments.
 - Develop integration strategy with other military and civilian programs and continue close coordination with FCS and other Objective Force initiatives.
- 3000 - Demonstrate manportable power technologies for the warfighter including battery/battery hybrid systems and recharging systems with improved efficiency.

Total 35913

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)

February 2002

BUDGET ACTIVITY

PE NUMBER AND TITLE

3 - Advanced technology development

0603002A - MEDICAL ADVANCED TECHNOLOGY

COST (In Thousands)	FY 2001 Actual	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate
Total Program Element (PE) Cost	216951	174042	16590	19925	21583	22128	23336
800 TELEMEDICINE TESTBED	4188	1650	1988	2920	3393	3986	4474
804 PROSTATE CANCER RSCH	3845	0	0	0	0	0	0
810 IND BASE ID VACC&DRUG	7823	8588	9637	10125	10615	11157	11691
814 NEUROFIBROMATOSIS	16343	20845	0	0	0	0	0
815 NATIONAL MEDICAL TESTBED	14420	7643	0	0	0	0	0
818 ADVANCED CANCER DETECTION CTR	3364	0	0	0	0	0	0
819 FLD MED PROT/HUM PERF	1626	551	572	1475	1644	1687	1718
840 COMBAT INJURY MGMT	6174	5116	4393	5405	5931	5298	5453
893 TISSUE REPLACEMENT	961	0	0	0	0	0	0
934 VOLUME ANGIOCAT	5768	0	0	0	0	0	0
937 NERVOUS SYSTEMS STUDIES	5768	0	0	0	0	0	0
938 TISSUE ENGINEERING	2211	0	0	0	0	0	0
940 EPIDERMOLYSIS BULLOSA	2884	0	0	0	0	0	0
941 DIABETES RESEARCH	13460	9132	0	0	0	0	0
945 BREAST CANCER STAMP	2381	0	0	0	0	0	0
969 ALCOHOLISM RESEARCH	8172	5559	0	0	0	0	0
971 HIV RESEARCH	9613	0	0	0	0	0	0
972 LASER VISION CORRECTION	5287	2978	0	0	0	0	0
973 RECOMBINANT VACCINE RESEARCH	5768	0	0	0	0	0	0
974 SMART AORTIC RESEARCH	0	992	0	0	0	0	0
975 PROTECTION AGAINST EMERGING INFECTIOUS DISEASES	3821	3965	0	0	0	0	0
97A BIOSENSOR RESEARCH	2404	2481	0	0	0	0	0
97B BLOOD SAFETY	6729	6750	0	0	0	0	0
97C CANCER CENTER OF EXCELLENCE	961	2085	0	0	0	0	0
97D CENTER FOR AGING EYE	1923	0	0	0	0	0	0
97E CENTER FOR PROSTATE DISEASE RESEARCH AT WRAMC	7210	6353	0	0	0	0	0

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)

February 2002

BUDGET ACTIVITY	PE NUMBER AND TITLE							
3 - Advanced technology development	0603002A - MEDICAL ADVANCED TECHNOLOGY							
97F CHRONIC DISEASE MANAGEMENT	4326	0	0	0	0	0	0	0
97G CHRONIC FATIGUE	1442	0	0	0	0	0	0	0
97H CLINICAL ASSESSMENT RECORDING ENVIRONMENT	961	0	0	0	0	0	0	0
97I DREAMS	9132	7941	0	0	0	0	0	0
97J ECHOCARDIOGRAM	1923	0	0	0	0	0	0	0
97K FUNCTIONAL MAGNETIC RESONANCE IMAGING	480	0	0	0	0	0	0	0
97L INTEGRATIVE MEDICINE DISTANCE LEARNING PROGRAM	769	0	0	0	0	0	0	0
97M LIGAMENT HEALING	1442	0	0	0	0	0	0	0
97N LUNG CANCER DETECTION	2884	0	0	0	0	0	0	0
97O LUNG CANCER RESEARCH	4326	3474	0	0	0	0	0	0
97P REMOTE ACOUSTIC HEMOSTASSIS	3845	0	0	0	0	0	0	0
97Q MICRO POSITRON EMISSION TOMOGRAPHY AT UAB	961	0	0	0	0	0	0	0
97R MOLECULAR AND CELLULAR BIOENGINEERING RESEARCH	577	0	0	0	0	0	0	0
97S MOLECULAR GENETICS AND MUSCULOSKELETAL RESEARCH	7692	8933	0	0	0	0	0	0
97T NEUROTOXIN EXPOSURE TREATMENT	14420	16875	0	0	0	0	0	0
97U OCULAR FATIGUE MEASUREMENT	403	0	0	0	0	0	0	0
97V POLYNITROXILATED HEMOGLOBIN	961	993	0	0	0	0	0	0
97W SEATREAT CANCER TECHNOLOGY	1442	1687	0	0	0	0	0	0
97X SYNCHROTRON-BASED SCANNING RESEARCH	6729	8438	0	0	0	0	0	0
97Y VIRTUAL RETINAL DISPLAY TECHNOLOGY	3845	1488	0	0	0	0	0	0
97Z TAFENOQUINE ANTIMALARIAL AGENT	1923	0	0	0	0	0	0	0
98A ARTIFICIAL HIP VOLUMETRICALLY CONTROLLED MFG	3364	3475	0	0	0	0	0	0
MB1 ADV DIAGNOSTICS & THERAPEUTIC DIG TECH	0	1300	0	0	0	0	0	0

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)

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BUDGET ACTIVITY	PE NUMBER AND TITLE							
3 - Advanced technology development	0603002A - MEDICAL ADVANCED TECHNOLOGY							
MB2 BRAIN, BIOLOGY, AND MACHINE	0	1800	0	0	0	0	0	0
MB3 CENTER FOR INTEGRATION OF MEDICINE & INNOV TECH	0	8500	0	0	0	0	0	0
MB4 CENTER FOR UNTETHERED HEALTHCARE	0	1000	0	0	0	0	0	0
MB5 CONTINUOUS EXPERT CARE NETWORK TELEMEDICINE	0	1500	0	0	0	0	0	0
MB6 FRAGILE X SYNDROME	0	1000	0	0	0	0	0	0
MB7 HEMOGLOBIN BASED OXYGEN CARRIER	0	1000	0	0	0	0	0	0
MB8 HEPATITIS C	0	3400	0	0	0	0	0	0
MB9 JOINT US NORWEGIAN TELEMEDICINE	0	1400	0	0	0	0	0	0
MC1 MEMORIAL HERMANN TELEMED NETWORK	0	1000	0	0	0	0	0	0
MC2 MONOCLONAL ANTIBODIES, MASS BIO LAB	0	1000	0	0	0	0	0	0
MC3 SACCADIC FATIGUE MEASUREMENT	0	1000	0	0	0	0	0	0
MC4 SECURE TELEMEDICINE TECH PROGRAM	0	2000	0	0	0	0	0	0
MC5 SPINE RESEARCH AT WRAMC	0	2100	0	0	0	0	0	0
MC6 TRAUMA RESEARCH CENTER	0	2100	0	0	0	0	0	0
MC7 NATIONAL TISSUE ENGINEERING CENTER	0	2000	0	0	0	0	0	0
MC9 MEDICAL SIMULATION TRAINING INITIATIVE	0	750	0	0	0	0	0	0
MD1 EMERGENCY TELEMED RESPONSE & ADV TECH	0	1500	0	0	0	0	0	0
MD2 VETERANS COLLABORATIVE CARE MODEL PROGRAM	0	1700	0	0	0	0	0	0

A. Mission Description and Budget Item Justification: This program element supports focused research for healthy, medically protected soldiers, and funds research consistent with the "Medical" and "Survivability" technology areas of the Objective Force. The primary goal of this program is to provide, with minimum adverse effects, maximum soldier survivability and sustainability on the integrated battlefield as well as in military operations other than war. This program element funds advanced technology development for the Department of Defense (DoD) core Vaccine and

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)

February 2002

BUDGET ACTIVITY

PE NUMBER AND TITLE

3 - Advanced technology development

0603002A - MEDICAL ADVANCED TECHNOLOGY

Drug Program, field medical protective devices, and combat injury management. The DoD core Vaccine and Drug Program provides, in accordance with Food and Drug Administration (FDA) regulations, drugs and vaccines for development that are effective protectants, treatments, and antidotes against military disease threats. Pilot and standard lots of candidate pharmaceutical-grade drugs, antidotes, and vaccines are produced. The cited work is consistent with the Army Science and Technology Master Plan (ASTMP), the Army Modernization Plan, and Project Reliance. The program element contains no duplication with any effort within the Military Departments. This program element is managed by the U.S. Army Medical Research and Materiel Command. This program supports the Objective Force transition path of the Transformation Campaign Plan (TCP).

<u>B. Program Change Summary</u>	FY 2001	FY 2002	FY 2003
Previous President's Budget (FY2002 PB)	221085	17541	16046
Appropriated Value	223132	175091	0
Adjustments to Appropriated Value	0	0	0
a. Congressional General Reductions	0	-1049	0
b. SBIR / STTR	-6509	0	0
c. Omnibus or Other Above Threshold Adjustments	0	0	0
d. Below Threshold Reprogramming	0	0	0
e. Rescissions	0	0	0
Adjustments to Budget Years Since FY2002 PB	328	0	544
Current Budget Submit (FY 2003 PB)	216951	174042	16590

Program Change Summary Explanation

Significant Changes: FY02- Congressional Adds totalling \$157550K (as noted below) added to this PE.

FY02 – Congressional adds were made for the Adv Diagnostics and Therapeutic Digital Technologies, MB1, (\$1300); Artificial Hip (Volumetrically Controlled Manufacturing), 98A, (\$3500); Biology, Education, Screening, Chemoprevention and Treatment (BESCT) Lung Cancer Research Program, 97O, (\$3500); Biosensor Research, 97A, (\$2500); Blood Safety (continuation of current program), 97B, (\$6800); Brain Biology and Machine, MB2, (\$1800); Cancer

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)**February 2002**

BUDGET ACTIVITY

PE NUMBER AND TITLE

3 - Advanced technology development**0603002A - MEDICAL ADVANCED TECHNOLOGY**

Center of Excellence (Notre Dame), 97C, (\$2100); Center for Integration of Medicine and Innovative Tech- Computer Assisted Minimally Invasive Surgery, MB3, (\$8500); Center for Prostate Disease Research at WRAMC, 97E, (\$6400); Center for Untethered Healthcare at Worcester Poly Inst, MB4, (\$1000); Continuous Expert Care Network Telemedicine Program , MB5, (\$1500); Disaster Relief and Emergency Medical Services (DREAMS), 97I, (\$8000); Fragile X, MB6,(\$1000); Hemoglobin Based Oxygen Carrier, MB7, (\$1000); Hepatitis C, MB8, (\$3400); Joint Diabetes Program, 941, (\$5000); Joint U.S. - Norwegian Telemedicine, MB9, (\$1400); Joslin Diabetes Research - eye care, 941, (\$4200); Laser Eye Correction (WRAMC), 972, \$3000; Life Support for Trauma and Transport (LSTAT), 840, (\$2500); Medical Simulation Training Initiative, MC9, (\$750); Memorial Hermann Telemedicine Network, MC1, (\$1000); Molecular Genetics and Musculoskeletal Research Program (only to continue current ARMY program), 97S, (\$9000); Monoclonal Antibodies, Mass Bio Lab, MC2, (\$1000); Emergency Telemedicine Response and Adv Tech Program, MD1, (\$1500); National Medical Tested--For ongoing programs, 815, (\$3700); National Medical Tested--Emergency/Trauma Care Adv Tech Programs, 815, (\$4000); Neurofibromatosis Research Program (NF), 814, (\$21000); Neurology Gallo Center - alcoholism research, 969, (\$5600); Neurotoxin Exposure Treatment Research Program (NETRP) Parkinson's, 97T, (\$17000); Polynitroxylated Hemoglobin, 97V, (\$1000); Retinal Scanning Display Technology, 97Y, (\$1500); Saccadic Fatigue Measurement, MC3, (\$1000); SEAtreat cervical cancer visualization and treatment, 97W, (\$1700); Secure Telemedicine Technology Program (only for C suite), MC4, (\$2000); Smart Aortic Arch Catheter, 974, (\$1000); Spine Research at WRAMC, MC5,(\$2100); Synchrotron Based Scanning Research (continue current ARMY Synchrotron-based scanning program to begin protocol testing), 97X, (\$8500); Trauma Research Center, MC6, (\$2100); Ve terans Collaborative Care Model Program, 2BA, (\$1700); National Tissue Engineering Center, MC7,(\$2000).

Projects with FY2002 Congressional Adds and no R-2A not listed/defined due to space limitations.

Core project without R-2A Exhibit that contains less than \$1M in FY 2003 is described below:

Project 819, Field Medical Protection and Human Performance Enhancement Non-Systems – Advanced Development: This project supports laboratory validation studies and field demonstrations focused on soldier protection, sustainment, and enhancement associated with soldiers operating, wearing, and consuming materiel systems in all operational conditions. Specific support includes medical development of laser eye protection technologies and laser bioeffects treatment, environmental health-monitoring methods to link soldier physiological status with climatic and environmental conditions, methods to enhance sleep and alertness during continuous/sustained operational scenarios, nutritional strategies to enhance soldier mental and physiological performance, and medical protection from vibration and repeated shock hazards arising from the operation of combat vehicle and aircraft systems and rapid test kits for toxic industrial and agricultural chemicals.

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

February 2002

BUDGET ACTIVITY 3 - Advanced technology development	PE NUMBER AND TITLE 0603002A - MEDICAL ADVANCED TECHNOLOGY	PROJECT 800					
COST (In Thousands)	FY 2001 Actual	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate
800 TELEMEDICINE TESTBED	4188	1650	1988	2920	3393	3986	4474

A. Mission Description and Budget Item Justification: This project supports the "Medical" technology area of the Objective Force by developing and demonstrating future medical concepts of operations, operational architectures, and operational requirements to support forward echelon telemedicine presence, medical command and control, and collaborative planning tools for mission planning and rehearsal. It funds development, evaluation, and demonstration of prototype advanced technology concepts and materiel for provision of enhanced Force Health Protection. This program supports the Objective Force transition path of the Transformation Campaign Plan (TCP).

FY 2001 Accomplishments:

- 1697 - Evaluated modeling and simulation to provide commanders with capabilities to tailor deploying medical forces as part of Joint Medical Operations - Telemedicine Advanced Concept Technology Demonstration (ACTD).
- Demonstrated and selected the leave-behind capability package that will be evaluated by the U.S. Pacific Command during the transition phase of the ACTD and refine operational concepts.
- 2491 - This one year Congressional add demonstrates and completes a secure medical telecommunications capability. Proposal received and contract award pending.

Total 4188

FY 2002 Planned Program

- 1650 - Field a leave-behind capability and evaluate its robustness as a follow on of the Joint Medical Operations - Telemedicine ACTD. This will allow the users to further refine the operational and materiel concepts for employment of telemedicine in deployed joint military environments. Refine the logistical support concepts.

Total 1650

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)**February 2002**

BUDGET ACTIVITY

3 - Advanced technology development

PE NUMBER AND TITLE

**0603002A - MEDICAL ADVANCED
TECHNOLOGY**

PROJECT

800**FY 2003 Planned Program**

- 1988 - Complete evaluation of the leave-behind capability package and the assessment of robustness of the operational, materiel, and logistical support concepts in continuation of the Joint Medical Operations - Telemedicine ACTD. This will ensure that the optimum joint capability is retained.

- Complete the Military Utility Assessment and transition final operational, materiel, and logistical support recommendations to Commanders-in-Chief and Service Medical planners so that the lessons learned can be incorporated into joint battlefield medical operations.

Total 1988

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

February 2002

BUDGET ACTIVITY 3 - Advanced technology development	PE NUMBER AND TITLE 0603002A - MEDICAL ADVANCED TECHNOLOGY	PROJECT 810					
COST (In Thousands)	FY 2001 Actual	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate
810 IND BASE ID VACC&DRUG	7823	8588	9637	10125	10615	11157	11691

A. Mission Description and Budget Item Justification: This project supports the "Medical" technology area of the Objective Force by developing medical countermeasures for naturally occurring diseases that are militarily significant due to their potential impact on military operations. Medical countermeasures will protect the force from infection and sustain operations by preventing hospitalization and evacuations from the theater of operations. Intramural research under this project is conducted at the U.S. Army Medical Research and Materiel Command's Medical Research Institute of Infectious Diseases, the Walter Reed Army Institute of Research and its overseas laboratories, and the Naval Medical Research Center and its overseas laboratories. Major contractors are Promed Trading, SA, Panama; the Research Triangle Institute, Research Triangle Park, NC; the University of California, San Francisco CA; and SRI International, Menlo Park, CA. This program supports the Objective Force transition path of the Transformation Campaign Plan (TCP).

FY 2001 Accomplishments:

- 3959 -Conducted human trials of a malaria DNA vaccine followed by a v iral delivered malaria vaccine boost designed to increase vaccine protection.
 - Conducted monkey trials on vaccines for both falciparum and vivax malaria species to determine safety and immune response.
 - Evaluated in clinical trials promising combination malaria vaccine candidates including a DNA vaccine that contains five genes representing multiple stages in the life-cycle of the malaria parasite to assess ability to provide a broader range of immunity.
 - Conducted pre-clinical efficacy, dosing, and toxicology evaluations as required by the Food and Drug Administration (FDA) for artelinic acid, the leading candidate drug to treat multi-drug resistant and severe and complicated malaria.
- 2217 -Completed Phase 1 inpatient trial of candidate vaccines against Shigella flexneri and conducted Phase 1 clinical trials of candidate vaccine to protect against enterotoxigenic E. coli (ETEC) to assess safety and immunogenicity of these vaccines to protect against debilitating diarrhea.
 - Designed and tested in animal models, antidiarrheal vaccine candidates for Shigella and ETEC, including a vaccine expressing proteins from both of these bacteria, and a Campylobacter vaccine administered with and without an immune booster.

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

February 2002

BUDGET ACTIVITY 3 - Advanced technology development	PE NUMBER AND TITLE 0603002A - MEDICAL ADVANCED TECHNOLOGY	PROJECT 810
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FY 2001 Accomplishments: (Continued)

- 456 -Completed preparations and FDA coordination for a Phase 1 trial of a candidate Group B meningitis vaccine to identify the best vaccine design and formulation. Validated a rapid test for identifying Shigella in stool samples and a rapid field test to detect Plasmodium falciparum and P. vivax malaras in infected mosquitoes
- 1191 -Improved hantavirus DNA vaccines delivered by a “gene-gun” and tested in hamsters. Validated a rapid, high volume DNA-based test to measure effectiveness of dengue candidate vaccine. Conducted field evaluations of systems to kill dengue fever-transmitting mosquitoes, and to rapidly detect malaria-infected mosquitoes. Validated DNA-based tests for the identification of militarily important pathogens from Southeast Asia.

Total 7823

FY 2002 Planned Program

- 4560 -Conduct clinical Phase 1 testing of candidate vaccines to protect against vivax malaria and conduct animal studies to evaluate safety and immunogenicity of a candidate falciparum malaria vaccine. Select the best candidate drug for the treatment of severe and complicated malaria and conduct preclinical testing.
- 1680 -Complete preclinical testing of Shigella dysenteriae vaccine candidate; conduct animal safety and immunogenicity studies of enterotoxigenic E. coli (ETEC) and Campylobacter candidate antidiarrheal vaccines.
 -Complete Phase I testing and begin Phase II testing of a candidate vaccine to protect against diarrhea caused by ETEC and Conduct Phase 2 testing in Israel of a vaccine to prevent diarrhea caused by Shigella sonnei. Transition S. sonnei vaccine to advanced development.
- 1065 -Conduct pre-clinical studies on the leading candidate Group B meningitis and plague vaccines to define the best vaccine designs.
- 1283 -Conduct non-human primate trials of candidate dengue vaccines against three of the four dengue serotypes and conduct Phase 1 human trial of a single serotype dengue candidate vaccines to determine the appropriate component for an effective and safety vaccine against dengue fever virus.

Total 8588

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

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PE NUMBER AND TITLE

0603002A - MEDICAL ADVANCED TECHNOLOGY

PROJECT

810

FY 2003 Planned Program

- 4264 -Complete clinical safety and immunogenicity studies of multivalent DNA and multivalent protein candidate vaccines for falciparum malaria.

-Complete safety and immunogenicity testing of a candidate vaccine to protect against vivax malaria.
-Complete pre-clinical testing of leading antimalarial drug artemisinin analog candidate for treatment of severe and complicated malaria caused by multidrug resistant parasites and to initiate preparation of an Investigational New Drug application to the FDA. Conduct initial preclinical testing of biguanides, tryptanthrins and antifolates in animals as new prophylactic compounds and downselect the best candidates for further trials.
- 1913 -Conduct a Phase 1 trial of Shigella dysenteriae vaccine.
-Complete Phase 2 clinical testing of candidate vaccines against E. coli diarrhea and Shigella sonnei
- 1243 -Prepare a clinical lot of vaccine from the first of three multivalent vaccine strains for use in a broadly protective multivalent group B meningitis vaccine and conduct Phase 1 clinical trials.
- 2217 -Complete Phase 1 clinical trials of the Dengue serotype (strain) 1 DNA vaccine and complete preclinical testing of DNA vaccines against Dengue serotypes 3 and 4 and candidate tetravalent vaccines in nonhuman primates.
-Complete manufacturing and begin phase 1 clinical trials of a hantavirus DNA vaccine to prevent hemorrhagic fever with renal syndrome and complete animal studies to determine the ability of antibodies to treat or protect against hemorrhagic fever caused by Lassa virus.

Total 9637

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)

February 2002

BUDGET ACTIVITY 3 - Advanced technology development	PE NUMBER AND TITLE 0603002A - MEDICAL ADVANCED TECHNOLOGY	PROJECT 840
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COST (In Thousands)	FY 2001 Actual	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate
840 COMBAT INJURY MGMT	6174	5116	4393	5405	5931	5298	5453

A. Mission Description and Budget Item Justification: This project addresses investigation of the treatments for weapons-induced trauma and shock due to blood loss on the battlefield as outlined in the Objective Force Medical Technology Area. The project funds prototypes of nonsystem-specific medical materiel items for far-forward medical management of shock and trauma and for casualty resuscitation including preclinical testing of candidate drug and biologic compounds and equipment to obtain data necessary for Food and Drug Administration (FDA) approval for human use. Intramural research under this project is conducted at the U.S. Army Medical Research and Materiel Command's Institute of Surgical Research, and the Walter Reed Army Institute of Research and its overseas laboratories. Major contractors include Integrated Medical Systems, Signal Hill, California and the American Red Cross. This program supports the Objective Force transition path of the Transformation Campaign Plan (TCP).

FY 2001 Accomplishments:

- 1215 - Evaluated novel drugs for reducing blood loss and enhancing blood clotting in wounded warfighters under severe cold conditions and tested biologic agents to control massive internal bleeding. Examined methods to inactivate infectious agents in whole blood and red blood cells to enhance blood supply far forward.
- 973 - Completed the pre-clinical evaluation of an updated anesthesia device; performed field tests of a one-handed tourniquet.
- 3986 - FY 2001 congressional add to enhance and continue development of Life Support for Trauma and Transport (LSTAT).
 - Conducted Milestone B and procured additional prototypes for continued user evaluation.

Total 6174

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2A Exhibit)**February 2002**

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**0603002A - MEDICAL ADVANCED
TECHNOLOGY**

PROJECT

840**FY 2002 Planned Program**

- 3459 - Conduct advanced technology development to complete evaluation of drugs for reducing blood loss in cold casualties and complete study of methods for the delivery of biologic agents to control massive internal bleeding. Continue investigations to support the development of methods to inactivate infectious agents in whole blood to enhance blood supplies far forward.
- 1657 - Complete clinical trials of an integrated anesthesia device and the preclinical evaluation of a self-contained, 20-pound intensive care life support system.

- Complete technical testing of a personal oxygen generation system that will eliminate the need for oxygen cylinders on the battlefield.

- Demonstrate lightweight dental equipment sterilizer in field environment.

Total 5116

FY 2003 Planned Program

- 1600 - Conduct advanced technology development to inactivate infectious agents in whole blood and red blood cells. Investigate intravenously applied biologics that will promote formation/strengthening of clots and test a hemostatic foam preparation in clinical trials to reduce battlefield deaths from loss of blood.
- 1760 - Perform clinical evaluation of a microwave or acoustic device to indicate the presence and magnitude of internal bleeding or air in chest/abdominal cavities after blunt trauma to guide casualty treatment. Obtain FDA approval of an integrated anesthesia device and a personal oxygen generator.
- 1033 - Transition to clinical trials anticaries and antiplaque peptide to prevent dental disease in the field.

Total 4393