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

February 2003

BUDGET ACTIVITY
3 - Advanced technology development

PE NUMBER AND TITLE
0603002A - MEDICAL ADVANCED TECHNOLOGY

	COST (In Thousands)	FY 2002 Actual	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate
	Total Program Element (PE) Cost	169598	166406	35168	38686	47368	52063	59897	57469
800	TELEMEDICINE TESTBED	1596	1895	1985	2054	3908	4384	4490	4591
804	PROSTATE CANCER RSCH	0	1001	0	0	0	0	0	0
810	IND BASE ID VACC&DRUG	8410	8772	18156	19955	20301	21799	22312	22836
814	NEUROFIBROMATOSIS	20145	19063	0	0	0	0	0	0
815	NATIONAL MEDICAL TESTBED	7388	0	0	0	0	0	0	0
818	ADVANCED CANCER DETECTION CTR	0	4765	0	0	0	0	0	0
819	FLD MED PROT/HUM PERF	534	545	1450	1614	1654	1683	1724	1763
840	COMBAT INJURY MGMT	4949	5846	13577	15063	21505	24197	31371	28279
929	ARTIFICIAL LUNG TECHNOLOGY	0	953	0	0	0	0	0	0
941	DIABETES RESEARCH	8827	10532	0	0	0	0	0	0
945	BREAST CANCER STAMP	1541	0	0	0	0	0	0	0
969	ALCOHOLISM RESEARCH	5372	3336	0	0	0	0	0	0
972	LASER VISION CORRECTION	2878	0	0	0	0	0	0	0
973	RECOMBINANT VACCINE RESEARCH	0	1906	0	0	0	0	0	0
974	SMART AORTIC RESEARCH	958	0	0	0	0	0	0	0
975	PROTECTION AGAINST EMERGING INFECTIOUS DISEASES	3838	0	0	0	0	0	0	0
97A	BIOSENSOR RESEARCH	2398	1668	0	0	0	0	0	0
97B	BLOOD SAFETY	6522	7958	0	0	0	0	0	0
97C	CANCER CENTER OF EXCELLENCE	2015	0	0	0	0	0	0	0
97E	CENTER FOR PROSTATE DISEASE RESEARCH AT WRAMC	6139	5433	0	0	0	0	0	0
97I	DREAMS	7674	10484	0	0	0	0	0	0
97O	LUNG CANCER RESEARCH	3358	8578	0	0	0	0	0	0
97S	MOLECULAR GENETICS AND MUSCULOSKELETAL RESEARCH	8634	8102	0	0	0	0	0	0
97T	NEUROTOXIN EXPOSURE TREATMENT	16308	20253	0	0	0	0	0	0

97V	POLYNITROXILATED HEMOGLOBIN	958	953	0	0	0	0	0	0
97W	SEATREAT CANCER TECHNOLOGY	1630	0	0	0	0	0	0	0
97X	SYNCHROTRON-BASED SCANNING RESEARCH	8154	0	0	0	0	0	0	0
97Y	VIRTUAL RETINAL DISPLAY TECHNOLOGY	1439	1906	0	0	0	0	0	0
98A	ARTIFICIAL HIP VOLUMETRICALLY CONTROLLED MFG	3358	0	0	0	0	0	0	0
MB1	ADV DIAGNOSTICS & THERAPEUTIC DIG TECH	1246	0	0	0	0	0	0	0
MB2	BRAIN, BIOLOGY, AND MACHINE	1726	2859	0	0	0	0	0	0
MB3	CENTER FOR INTEGRATION OF MEDICINE & INNOV TECH	8154	6673	0	0	0	0	0	0
MB4	CENTER FOR UNTETHERED HEALTHCARE	958	953	0	0	0	0	0	0
MB5	CONTINUOUS EXPERT CARE NETWORK TELEMEDICINE	1439	0	0	0	0	0	0	0
MB6	FRAGILE X SYNDROME	958	0	0	0	0	0	0	0
MB7	HEMOGLOBIN BASED OXYGEN CARRIER	958	4289	0	0	0	0	0	0
MB8	HEPATITIS C	3263	0	0	0	0	0	0	0
MB9	JOINT US NORWEGIAN TELEMEDICINE	1343	2669	0	0	0	0	0	0
MC1	MEMORIAL HERMANN TELEMED NETWORK	958	0	0	0	0	0	0	0
MC2	MONOCLONAL ANTIBODIES, MASS BIO LAB	958	0	0	0	0	0	0	0
MC3	SACCADIC FATIGUE MEASUREMENT	958	953	0	0	0	0	0	0
MC4	SECURE TELEMEDICINE TECH PROGRAM	1919	1715	0	0	0	0	0	0
MC5	SPINE RESEARCH AT WRAMC	2015	0	0	0	0	0	0	0
MC6	TRAUMA RESEARCH CENTER	2015	0	0	0	0	0	0	0
MC7	NATIONAL TISSUE ENGINEERING CENTER	1919	0	0	0	0	0	0	0
MC9	MEDICAL SIMULATION TRAINING INITIATIVE	719	953	0	0	0	0	0	0
MD1	EMERGENCY TELEMED RESPONSE & ADV TECH	1439	1906	0	0	0	0	0	0

MD2	VETERANS COLLABORATIVE CARE MODEL PROGRAM	1630	0	0	0	0	0	0	0
ME1	CHILDREN'S HOSPICE PROGRAM	0	1431	0	0	0	0	0	0
ME2	CLINICAL INFORMATION SYSTEMS INITIATIVE	0	1142	0	0	0	0	0	0
ME3	INSTITUTE FOR RESEARCH AND EDUCATION	0	4001	0	0	0	0	0	0
ME4	LASER FUSION ELASTIN	0	4050	0	0	0	0	0	0
ME5	MEDICAL VANGUARD FOR DIABETES MANAGEMENT	0	2382	0	0	0	0	0	0
ME6	MOBILE INTEGRATED DIAGNOSTIC/DATA ANALYSIS SYSTEM	0	953	0	0	0	0	0	0
ME7	RURAL TELEMEDICINE DEMONSTRATION PROJECT	0	953	0	0	0	0	0	0
ME8	STABLE HEMOSTAT	0	1668	0	0	0	0	0	0
ME9	BEHAVIORAL/COMPARATIVE GENOMICS	0	2907	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 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. Funds new technologies and demonstrations in combat casualty care to reduce battlefield deaths and stabilize casualties for delayed evacuation in austere medical environments. Funds studies and demonstrations of biomedical products designed to protect, sustain, and enhance soldier performance under various environmental and physiological stressors and materiel hazards. 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. The U.S. Army Medical Research and Materiel Command manage this program element. This program supports the Objective Force transition path of the Transformation Campaign Plan.

There are no Defense Emergency Response Funds provided to this program.

B. Program Change Summary	FY 2002	FY 2003	FY 2004	FY 2005
Previous President's Budget (FY 2003)	174042	16590	19925	21583
Current Budget (FY 2004/2005 PB)	169598	166406	35168	38686
Total Adjustments	-4444	149816	15243	17103
Congressional program reductions				
Congressional rescissions		-2991		
Congressional increases		158450		
Reprogrammings	270	-951		
SBIR/STTR Transfer	-4714	-4692		
Adjustments to Budget Years			15243	17103

Program Change Summary Explanation: Funding - FY 2004/2005: Funds increased to support acceleration of medical mission package efforts to meet Objective Force timeliness. Funds realigned from PE 0602787A.

Change Summary Explanation: Funding: FY 2003 - Program responsibility for management and oversight of HIV R&D efforts was transferred to the National Institutes of Health (NIH). FY2004 – Program transferred back to the Army.

FY03 Congressional adds:

Project		
804	Prostate Cancer Research - Gallo Center	$1,050
814	Neurofibromatosis Research Program (NF)	$20,000
818	National Functional Genomics Project	$5,000
840	Life Support for Trauma and Transport (LSTAT)	$1,750
929	Intravenous Membrane Oxygenator	$1,000
941	Joint Diabetes Project	$4,250
941	Joslin Diabetes Project	$4,250
941	Juvenile Diabetes Research	

$2,550
969 Neurology Gallo Center-Alcoholism Research $3,500
973 Bioprocessing Initiative $2,000
97A Technologies for Metabolic Monitoring $1,750
97B Blood Safety $8,350
97E Center for Prostate Disease Research at WRAMC $5,700
97I Texas Training and Technology for Trauma and Terrorism (Dreams) $11,000
97O Biology, Education, Screening, Chemoprevention and Treatment (BESCT) Lung Cancer Research Program (MDACC) $9,000
97S Molecular Genetics and Musculoskeletal Research Program $8,500
97T Neurotoxin Exposure Treatment Research Program (NETRP) Parkinson's $21,250
97V Polynitroxylated Hemoglobin $1,000
97Y Retinal Scanning Display Technology $2,000
MB2 Brain Biology and Machine Initiative $3,000
MB3 Center for Integration of Medicine and Innovative Technology (CIMIT) $7,000
MB4 Center for Untethered Healthcare $1,000
MB7 Hemoglobin Based Oxygen Carrier $4,500
MB9 Joint U.S. - Norwegian Telemedicine $2,800
MC3 Saccadic Fatigue Measurement $1,000
MC4 Medvizer Secure Telemedicine Program $1,800
MC9 Medical Simulation Training Initiative (MSTI) $1,000
MD1 National Bioterrorism Civilian Medical Response Center (CIMERC) $2,000
ME1 Children's Hospice Program $1,500
ME2 Clinical Information Systems Initiative $1,200
ME3 Institute for Research and Education $4,200
ME4 Laser Fusion Elastin $4,250
ME5 Medical Vangard for Diabetes Management $2,500
ME6 Mobile Integrated Diagnostic and Data Analysis System (MIDDAS) $1,000
ME7 Rural Telemedicine Demonstration Project $1,000
ME8 Stable Hemostat $1,750
ME9 Comparative Functional Genomics Initiative $1,500
ME9 National Center for Behavioral Genomics $1,550

FY03 Congressional Add projects with no R-2As not listed/defined due to space limitations.

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

February 2003

BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT
3 - Advanced technology development	**0603002A - MEDICAL ADVANCED TECHNOLOGY**	**800**

COST (In Thousands)		FY 2002 Actual	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate
800	TELEMEDICINE TESTBED	1596	1895	1985	2054	3908	4384	4490	4591

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.
There are no Defense Emergency Response Funds provided to this project.

Accomplishments/Planned Program	FY 2002	FY 2003	FY 2004	FY 2005
FY02, completed the third and final major program demonstration of the Joint Medical Operations-Telemedicine Advanced Concept Technology Demonstration and fielded an equipment set providing telemedicine capability consisting of computers, data-capable radios, and satellite communications phones. Enabled medical command and control, telemedicine capability, and medical modeling and simulation to further refine operational and materiel concepts, in support of the Pacific Command operational mission. FY03, complete an assessment of operational utility and develop a detailed program report for the Office of the Secretary for Defense Advanced Systems and Concepts, USAMRMC, and the Combatant Commander sponsor. Transition products and operational concepts with identified utility and value to applicable programs of record or appropriate combat developers.	1596	1895	0	0
FY04, conduct field-tests to assess capabilities of remote neuropsychiatric evaluation technologies of soldiers suffering from stress syndromes. FY05, demonstrate high reliability technologies for remote diagnoses and prospect for recovery from specific classes of neuropsychiatric cases such as chronic multisymptom illnesses and impending stress casualties. Test capability to remotely identify and triage impending stress casualties across the battlefield to reduce potential medical evacuations due to combat stress.	0	0	1985	2054
Totals	1596	1895	1985	2054

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

February 2003

BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT
3 - Advanced technology development	**0603002A - MEDICAL ADVANCED TECHNOLOGY**	**810**

COST (In Thousands)		FY 2002 Actual	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate
810	IND BASE ID VACC&DRUG	8410	8772	18156	19955	20301	21799	22312	22836

A. Mission Description and Budget Item Justification: This project matures and demonstrates medical countermeasures to naturally occurring infectious diseases potentially affecting the Objective Force. Infectious diseases pose a significant threat to operational effectiveness and forces deployed outside the United States. Countermeasures will protect the force from infection and sustain operations by preventing hospitalizations and evacuations from the theater of operations. Of major imp ortance to the military are the parasitic disease malaria, the bacterial diseases responsible for diarrhea (i.e., caused by Shigella, enterotoxigenic Escherichia coli, and Campylobacter), and viral diseases (i.e., dengue fever and hantaviruses). The program also develops improved materiel for control of insect/arthropod disease vectors and addresses a variety of other threats to mobilizing forces, including meningitis, viral encephalitis, and hemorrhagic fevers. Improved diagnostic capabilities are also pursued that enable rapid battlefield identification and management of diseases and allow informed medical and tactical decisions. Goals include preclinical and clinical testing of protein and DNA vaccines; testing of new technologies to enhance effectiveness and duration of vaccines; compounding and testing multicomponent vaccines that can protect against multiple disease strains; and producing vaccines and antimalarial drugs under Food and Drug Administration (FDA) regulated current Good Manufacturing Practices and demonstrate their safety and efficacy. Intramural research under this project is conducted at the US Army Medical Research and Materiel Command's Walter Reed Army Institute of Research and its overseas laboratories, and the Naval Medical Research Center and its overseas laboratories and the Medical Research Institute of Infectious Diseases. This program supports the Objective Force transition path of the Transformation Campaign Plan.

There are no Defense Emergency Response Funds provided to this project.

Accomplishments/Planned Program	FY 2002	FY 2003	FY 2004	FY 2005
FY02, demonstrated in human trials limited-term protection against falciparum malaria with the RTS,S vaccine. Demonstrated safety and immune response in animals of candidate falciparum malaria vaccines and found the falciparum AMA-1 vaccine suitable for human trials. FY03, complete clinical testing of DNA-based malaria vaccines. Increase effectiveness of the RTS,S vaccine by combining with other falciparum protein and DNA vaccines together with other components to enhance effectiveness of the vaccine. Continue development of additional vivax candidate vaccines. FY04, conduct FDA Phase 1 and Phase 2 trials of several candidate malaria vaccines. FY05, test and select malaria blood stage vaccine components for integration into lead malaria vaccine candidate; continue clinical testing of malaria vaccine components.	2046	1384	3637	4195
FY02, performed preclinical studies of two Shigella vaccine candidates that support continued development. Conducted animal safety studies of candidate enterotoxigenic E. coli (ETEC) and Campylobacter vaccines. FY03, continue Phase 1/2 clinical testing of Shigella vaccines. Complete safety and effectiveness testing of a candidate vaccine against ETEC diarrhea and move toward clinical trials. Complete FDA Phase 1 clinical testing of a protein Campylobacter vaccine. FY04, complete FDA Phase 2 clinical testing of ETEC and Shigella vaccines. Conduct Phase 1/2 clinical studies of Campylobacter vaccines. FY05, test prototype hybrid multiagent, antidiarrheal vaccines; test subcomponents vaccine candidate in Phase 1 trials.	1990	1805	4025	4388
FY02, prepared for animal trials of candidate dengue DNA vaccines and initiated application for clinical trials of weakened live dengue virus vaccines; completed initial preclinical studies of group B meningitis vaccine candidates; and completed manufacturing of Hemorrhagic Fever with Renal Syndrome (HFRS) DNA vaccine. FY03, complete FDA Phase 1 clinical trials of dengue DNA and HFRS vaccines. FY04, conduct Phase 2 clinical trial of dengue and HFRS vaccines and conduct initial clinical studies of a group B Meningococcal vaccine. FY05, begin preclinical testing of new molecularly modified dengue virus vaccine candidate, continue Phase 2 testing of HFRS vaccine, and initiate IND for new group B meningococcal vaccine.	2513	2754	6470	7035

Accomplishments/Planned Program (continued)	FY 2002	FY 2003	FY 2004	FY 2005
FY02, conducted preclinical testing of leading intravenous candidate drugs to treat severe and complicated malaria and selected the Artesunate compound for continued development. FY03, complete preclinical testing of Artesunate antimalarial drug candidate. Conduct initial preclinical testing in animals of several candidate drugs that prevent malaria and select best for initial clinical testing. File an investigational new drug application with the FDA for Artesunate and conduct clinical trials. FY04, move candidate drugs to prevent malaria into Phase 1 trials and down-select best candidate for Phase 2 testing. FY05, complete Phase 2 testing of Artesunate for treatment of severe malaria and transition to advanced development. Continue to test drugs to p revent malaria in preclinical trials and select drugs to take to clinical trials.	1861	2829	4024	4337
Totals	8410	8772	18156	19955

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

February 2003

BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT
3 - Advanced technology development	**0603002A - MEDICAL ADVANCED TECHNOLOGY**	**819**

COST (In Thousands)		FY 2002 Actual	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate
819	FLD MED PROT/HUM PERF	534	545	1450	1614	1654	1683	1724	1763

A. Mission Description and Budget Item Justification: This project supports laboratory validation studies and field demonstrations of biomedical products designed to protect, sustain, and enhance soldier performance in the face of a myriad of environmental and physiological stressors and materiel hazards in training and operational environments. Specific support includes medical development of tools for assessing weapon system user health risks, diagnostic tools, and treatments to rapidly diagnose and treat laser eye injuries on the battlefield, injury prediction tools for assessing soldier survivability and designing effective individual protective equipment, drugs to sustain soldier performance during continuous operations, and tools for assessing health risks to soldiers in operational environments. This program supports the Objective Force transition path of the Transformation Campaign Plan.

There are no Defense Emergency Response Funds provided to this project.

Accomplishments/Planned Program	FY 2002	FY 2003	FY 2004	FY 2005
FY02, developed and tested concept demonstration biomonitoring systems to detect chemical contaminants in water and adopted a prototype test kit to identify chemical and microbial contaminants in field drinking water supplies. FY03, develop a refined concept demonstration biomonitoring system for detecting chemical contaminants in water for independent evaluation and establish a prototype reproductive toxicity test using preliminary results. FY04, develop a prototype portable aquatic biomonitor for monitoring chemical contamination in water in the field to identify potential health risks to soldiers and progress from laboratory to a prototype field test kit for rapid detection of chemical and microbial contaminants in food and drinking water and perform field testing. Establish prototype health risk assessment software and prepare final user documentation for a method to assess health risks for soldiers exposed to repeated jolts in ground vehicles and helicopters. FY05, conduct testing of a protective drug to decrease or eliminate laser retinal injury in soldiers, and develop prototype software and final user documentation for an inhalation injury prediction tool (Toxic Gas Analysis Software) to assist in the development of operator-safe weapon systems and operational doctrine that minimizes the potential for inhalation injury.	534	545	1450	1614
Totals	534	545	1450	1614

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

February 2003

BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT
3 - Advanced technology development	**0603002A - MEDICAL ADVANCED TECHNOLOGY**	**840**

COST (In Thousands)		FY 2002 Actual	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate
840	COMBAT INJURY MGMT	4949	5846	13577	15063	21505	24197	31371	28279

A. Mission Description and Budget Item Justification: In FY03 through FY07, this project matures and demonstrates new technologies in support of Medical Mission Package (FCS Blk II) with new candidate IV clotting drugs; an assisted critical care support system for far-forward management and transport of casualties; advanced technologies for treating extremity injuries to bone and flesh; freeze-dried plasma that lightens logistical load and provides treatment of hemorrhage; and effective means to enable the combat medic to effectively perform remote triage of battlefield casualties that are widely dispersed on the Objective Force battlefield and to thereby maximize field medic resources. In FY03 through FY09, this project matures and demonstrates a handheld device, the "Warrior Medic," that enables the combat medic to quickly link with and assess a range of casualty vital signs and other markers of injury and that provides casualty management guidelines for the medic; and an agent that enables field medical personnel to quickly and non-surgically control internal bleeding. In FY04 through FY09, this project matures and demonstrates new technologies in support of Medical Mission Package (FCS Blk IV) with new and advanced resuscitation fluids and strategies for combat medic administration that improve survival of casualties with severe blood loss (shock) on the battlefield; an automated critical care system for enhanced management, transport, and survival of stabilized casualties within and outside of the battle area; and a handheld system employing acoustic energy to control internal hemorrhage for forward use at the battalion aid station. The project funds prototypes of non-system-specific medical materiel items for far-forward medical management of trauma in combat casualties, including preclinical testing of candidate drugs and biologic compounds and devices/equipment to obtain data necessary for Food and Drug Administration (FDA) approval for human use. Focus areas include testing and demonstrations in drugs and devices to enhance the body's clotting function; strategies and products to optimize casualty resuscitation; novel blood products and medical devices to improve survival and reduce the logistics burden; compact dental technologies and systems for enhanced dental care in the combat zone; and neuroprotective drugs to minimize consequences of head injury. Internal research under this project is conducted at the US Army Medical Research and Materiel Command's US Army 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.
There are no Defense Emergency Response Funds provided to this project.

Accomplishments/Planned Program	FY 2002	FY 2003	FY 2004	FY 2005
Medical Mission Pkg (FCS Blk II): FY02, studied effectiveness of candidate hemorrhage control gels for control of severe internal bleeding without surgery in animals; performed animal studies of candidate intravenous drugs to enhance blood clotting; designed animal models for hemorrhage control studies; completed studies of antimicrobial pins for fracture repair and of antimicrobial bone filler material; conducted preclinical evaluation of a self-contained, 20-pound intensive care life support system to reduce logistics footprint and enhance battlefield casualty care. FY03, study effectiveness of potential hemorrhage control agents (foam, liquid) in controlling severe internal bleeding in animals; conduct animal studies of candidate drugs to enhance blood clotting. FY04, study effectiveness of candidate hemorrhage control agents (gel, foam, liquid) in controlling severe internal bleeding, evaluate wound-protectant device and improved tourniquet device in animals and submit investigational device exemption application to the FDA, conduct proof-of-concept studies of a small antimicrobial wound cleaning device, conduct proof-of-concept studies of light-weight materials and splints for fracture stabilization. FY05, demonstrate in animals the effectiveness of a handheld device that stops bleeding with sound waves, study in animals the effectiveness of candidate drugs to enhance blood clotting and drugs to restore blood clotting in the presence of abnormal clotting, conduct Phase 1 clinical tests of an improved tourniquet; conduct tests to select the best wound cleaning device; conduct animal tests of lightweight materials and splints.	3034	3692	8754	8953
Warrior Medic: FY02, completed clinical evaluation of range finding micro-impulse radar (MIR) for heart rate and respiratory rate measurement. FY03, conduct trials of MIR vital signs monitor to determine its resistance to external movement. FY04, format MIR into a wearable prototype for continuous soldier monitoring through clothing. FY05, transition handheld MIR vital signs monitor to advanced development.	199	189	711	1693
Medical Mission Pkg (FCS Blk IV): FY02, completed technical testing of a personal oxygen generation system to replace oxygen cylinders on the battlefield. FY03, conduct animal studies of commercially available candidate resuscitation fluids for best efficacy. FY04, conduct clinical studies to select the best commercially available resuscitation fluid(s). FY05, conduct studies in animals of a handheld device that stops bleeding with acoustic energy for use at the battalion aid station.	1318	1547	3418	3588

Accomplishments/Planned Program (continued)	FY 2002	FY 2003	FY 2004	FY 2005
FY02, completed preclinical studies necessary for transition of dental field treatment and operating system to the Army Medical Department Center and School Testing and Evaluation Board for eventual fielding and deployment; conducted studies of methods to inactivate infectious agents in whole blood to enhance blood safety; tested a new penetrating head injury (PHI) model on rodents. FY03, determine toxicity of the anti-cavity and anti-plaque additive for meals ready to eat (MREs); conduct studies to inactivate infectious agents in both whole blood and red blood cells; conduct preclinical studies of candidate freeze dried plasma lots. FY04, complete development of a new PHI model, conduct studies of candidate packaging systems for freeze-dried blood products that will enhance delivery and storage of blood products in the field, initiate development of formulation and application methodology of an anti-cavity/anti-plaque food additive to prevent dental disease. FY05, conduct clinical studies of freeze-dried plasma; complete development of formulation and application methodology of an anti-cavity/anti-plaque food additive to prevent dental disease; conduct neuroprotection drug studies in the PHI model to identify a drug to improve survival and residual brain function in casualties with brain injury.	398	418	694	829
Totals	4949	5846	13577	15063