

Defense Health Program
Fiscal Year 2006/FY 2007 Budget Estimates
Exhibit R-2, DHP Budget Item Justification

Date: January 2005
R-1 Item Nomenclature: 5
Medical Development - 0603115HP

Appropriation/Budget Activity
Defense Health Program/BA-2

COST (\$ in Millions)	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
	<u>Actual</u>	<u>Estimate</u>						
Total PE 0603115HPCost	390.100	435.075	31.099	34.448	34.827	35.258	35.842	36.428
Ovarian Cancer Research	9.800							
Post-Polio Syndrome Research	2.500							
Peer-Review Breast Cancer Research	146.300							
Peer-Review Prostate Cancer Research	82.900							
Medical Research	48.900							
(Computational) Neuroscience Research	8.300							
Periscopic Surgery	2.100							
Medical Research (HIV in Africa)	4.100							
Comprehensive Breast Care Program (CBCP)								
Chronic Mylogenous Leukemia								
Coronary & Prostate Disease Reversal								
Palsy at Wright Patterson AFB								
Tuberous Sclerosis Complex (TSC) Research	2.900							
US Military Cancer Institute at USUHS	2.900							
Volume Angio CAT (VAC) Research	3.900							
Peer Reviewed Breast Cancer Imaging Research								
HIV Research Program								
Military Complementary & Alternative Medic	2.900							
Nursing Telehealth Research Program								
Muscular Dystrophy Research	4.100							
Medical Error Demonstration Project								
Veterans Collaborative Care Model								
Anti-Radiation Drug Development at AFRRRI	2.400							
Border Health and Environmental Threats Ir	1.000							
Comprehensive Reproductive System Care	13.400							
Computer Assisted Cancer Device	1.000							
Donor Card Blood Demonstration	1.000							
Genetic Cancer Research	1.900							
Gynecological Cancer Center	2.000							
Healthcare Informatics Testbed	1.700							
Integrated Healing Practices for Veterans	1.200							
Joint Replacement Program	1.000							
Laser Vision Correction	1.500							
Chronic Mylogenous Leukemia Research (CMLF	4.100							
Environmental Border Health Demonstration	1.000							

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COST (\$ in Millions)	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
	<u>Actual</u>	<u>Estimate</u>						
Manganese Health Research	1.400							
Medical Error Reduction Initiative	1.000							
Comprehensive Cardiac Care	5.800							
Molecular Medicine	1.000							
Muscle Research Consortium	1.000							
Myeloproliferative Disorders Research	4.100							
Genomics	1.000							
Ophthalmology Training and Education	1.000							
Relay Capability	1.500							
Prevent Medicine Research for Prostate Car	1.000							
Spinal Cord Injury Research	1.700							
Type 2 Diabetes Research	9.900							
Deployed Warfighter Protection	4.900	5.000	5.000	5.000	5.000	5.000	5.100	5.200
Medical Modernization Programs				1.400	3.000	6.000	6.000	6.000
Epidemic Outbreak Surveillance			8.000	6.600	5.000	2.000	2.000	2.000
Advanced Diagnostic Laboratory			2.000	2.000	2.000	2.000	2.000	2.000
Laboratory Support (DHP Navy)			16.099	19.448	19.827	20.258	20.742	21.228
Aircrew Laser Eye Protection		5.500						
Army Peer-Reviewed Breast Cancer Research Program		150.000						
Army Peer-Reviewed Prostrate Cancer Research Program		85.000						
Cancerous Brain Tumor Drug Research		1.000						
Military Complementary and Alternative Medicine		2.100						
Computer Assisted Medical Diagnosis		1.500						
DNA Anthrax Therapeutic		1.700						
Genetic Cancer Research in Women		1.500						
Gulf War Illness		3.750						
Hawaii Federal Healthcare Network (Repro \$1.5 M to O&M)		23.000						
Integration healing Practices for Veterans (Transfer from		1.400						
Leukemia Research (CMLPR)		4.250						
Manganese Health research		2.250						
Medical Error Reduction Initiative		1.000						
Metabolic Defense		2.200						
Muscular Dystrophy Research		2.500						
Muscle Research Consortium		3.500						
National Prion Research Program		1.500						
Ophthalmology Training and Education		1.500						
Ovarian Cancer Research Programs		10.000						

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Peer-Reviewed Medical Research Program		50.000						
Perioscopic Surgery		2.200						
Preventing Epilepsy after Traumatic Brain Injury		1.000						
Preventive Medicine Research for Prostate Cancer		1.400						
Prosthetics and Orthodontics Education Program		0.575						
Spinal Cord Injury Research		1.500						
Telerobotic and Minimally Invasive Surgery at WRAMC		4.100						
Tuberous Sclerosis Complex (TSC)		3.200						
Virtual Colonoscopy - WRAMC		1.300						
Virtual Medical Trainer		1.000						
Life Services Research Initiative		0.500						
Computer-Aided Detection & Diagnostics of Breast Cancer		1.100						
WRAMC Amputee Center and Clinical Applied Collaborative Re		10.000						
Global HIV/AIDS Prevention		7.500						
Neuroscience Research		4.250						
United States Military Cancer Institute		5.000						
AF Environmental and Occupational Factors in Women's Heal		1.300						
AF Integrated Medical Information Technology System (IMITS		2.600						
Assessment & Demo Center for USAF Surgeon General		3.400						
Direct Real-Time Secure Collaborative Application/Analysis		1.000						
National Diabetes Model Program (Type 2 Diabetes Research)		16.000						
Portable Remote Medical Collection and Relay Capability		1.000						
Rapid Identification and Treatment by AFSOC Forces		4.000						
Real Time Healthcare Management Integration Demo w USAF SC		1.000						

A. Mission Description and Budget Item Justification:

The majority of programs are Congressionally mandated requirements for medical research. Congressionally mandated medical requirements were appropriated as part of the Defense Health Program, beginning in Fiscal Year 1999 National Defense Appropriation Act, for specific medical RDT&E projects. These unique one-time projects were not programmed by the Department. Program emphasis has been on (1) building a national research infrastructure by funding large, multidisciplinary program projects focused on detection; (2) encouraging innovative approaches to research by funding new ideas and technology with or without supporting preliminary data; and (3) recruiting new, independent investigators for careers in research, as well as more senior investigators new to the research field. Congressionally directed research in FY 04 includes the following topics: Ovarian Cancer, Breast Cancer, Prostate Cancer, Peer Reviewed Medical Program, Donor Card Blood Demonstration, Computer Assisted Cancer Device, Genetic Cancer, Healthcare Informatics Test Bed, Joint Replacement, Laser Vision Correction, Chronic Myelogenous Leukemia, Manganese Health, Medical Error Reduction Initiative, Muscular Dystrophy, Myeloproliferative Disorders, Neurogenetic and Computational Genomics, Ophthalmology Training and Education, Periscopic Surgery Project, Portable Remote Medical Collection and Relay Capability, Preventive Medicine for Prostate Cancer, Spinal Cord Injury, Tuberous Sclerosis Complex, Type 2 Diabetes, Volume Angio CAT, Molecular Medicine, and Muscle Research.

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Deployed Warfighter Protection, managed by the Army Medical Service, is to develop protection for ground forces from disease-carrying insects.

Medical Modernization Program in the Air Force Medical Service was funded by a realignment of DHP Operation and Maintenance to DHP RDT&E appropriation beginning in Fiscal Year 2006 and out. The program supports the RDT&E efforts needed to address ongoing and planned Air Force Medical Service modernization initiatives, which are aimed to meet new or enhanced capabilities to include: Restore Health: Modernization projects aimed to improve recovery of individuals from illness and/or injury. Advanced medical technologies, including clinical and non-clinical applications, developed to meet requirements and provide capabilities to respond/treat/manage/return individuals to duty status. Enhance Human Performance: enhances human health and performance to maximize effectiveness and ability to operate; develops and demonstrates advanced biometric capabilities; and improves human ability (i.e. visual, auditory, cognitive) to operate under adverse environments to include CBRNE, directed energy, and high operational tempo. Fit and Healthy Force: Develops/assesses technologies and systems designed to maintain healthy force; provides advanced biotechnology platforms and bioinformatics to identify susceptibility to disease and injury; develops/improves the ability to monitor disease, apply preventive, prophylactic and therapeutic measures; and improve healthcare delivery. Prevent Casualties: demonstrates and assesses new efforts to enhance responsiveness to emerging threats under various environmental conditions; provides proven effective capabilities to deploy advanced technologies for environmental surveillance, delivery of patient health care, and hazard assessment and response; and conducts necessary advanced technology demonstration of custom laser refractive surgery as applicable to aerospace operations.

The Air Force Service has transferred funding to DHP RDT&E from DHP Operation and Maintenance appropriation beginning in Fiscal Year 2006 and out to the Epidemic Outbreak Surveillance (EOS) program. The program is an integrated system for informed decision management involving infectious diseases, diagnostics and bioinformatics. EOS provides a "dual use" functionality/capability for the AF and ultimately DoD because the technologies and information that result are seamlessly built into the medical care system. What will be introduced and operationalized with EOS is (1) real-time (2 hour) diagnostic capability for on target diagnosis and treatment; (2) rapid dissemination of decision quality information to all layers of medical care and command. The other value is that EOS brings a prototype biosurveillance (some say biodefense) capability to be looking continually for the zebra (unusual occurrence of disease) in the sea of day to day illness that presents just as most of the usual illnesses present (i.e. hundreds of respiratory illness present like the "flu" and they may in fact be flu or anthrax, etc.). Epidemic Outbreak Surveillance (EOS) is a systems of systems programmed to establish an operational prototype biodefense system and validate the performance of the system within real world outbreaks of infectious respiratory disease. Six technology domains must be integrated to assemble and operate the EOS system. Three of these domains represent deliverable capabilities from the EOS system. Advanced diagnostic platforms detect small numbers of pathogen genomes, simultaneously differentiates among diverse viral and bacterial pathogens, and operates in near real time. Complementary platforms address genetic fingerprints of pathogens and signature immune responses of exposed or infected individuals. Advanced epidemiology leverages gold standard methodologies and technologies (DoD Global Emergent Infections Surveillance, GEIS). The EOS real world testbed leverages recurrent outbreaks of Acute Respiratory Disease among basic military trainees at Lackland AFB. Integrated diagnostics and informatics capabilities of EOS are validated with respect to providing advanced situational awareness and decision quality information to stakeholders. The other three domains represent enabling capabilities of the EOS system. Network IT provides integration of advanced diagnostics and medical data sets for a coherent interface to the system end users. Bioinformatics is essential for design of advanced pathogen- and host-based diagnostics, and to transform large data sets to decision-quality information. The ethical, legal and social issues (ELSI) component of the EOS system proactively addresses issues that might otherwise compromise the capability to transition EOS product(s) to the warfighter community. The EOS program leverages government and commercial off-the-shelf technologies (GOTS and COTS) at every point of implementation, with R&D applications starting at TRL 4 to 5 (2002). The current level of integration and T&E experience to date raise EOS technologies TRL 5 to 7 (2004). Selection for a three year ACTD and Transition Year should end with all system components at TRL 7 to 9. EOS complements the much larger investments currently made in DoD biological defense systems and capabilities. EOS does *not* duplicate or replace other approaches that emphasize: arrays of biological point detectors and air/water/surface sampling strategies; syndromic surveillance of centralized medical data records; and unconventional surveillance measures (OTC sales, school absences, video cough counting, etc.). EOS focuses on the local command, leveraging data acquisition and analysis on site, and directing results as immediate advantages to the local Command. At the same time, analytical results (not large data arrays) from the local EOS installation are readily piped up into neighboring regional or national surveillance operations.

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The Advanced Diagnostic Laboratory (ADL) funding has been transferred to Defense Health Program (DHP) RDT&E from DHP Operation and Maintenance appropriation beginning in FY 2006 and out. The ADL and test bed/range sustainment, maintenance, and modernization needed to accomplish the various ongoing RDT&E efforts conducted at the San Antonio, Texas location. The ADL supports the Epidemic Outbreak Surveillance program to include cost of operations, maintenance, study and required analysis.

For the first time, this program element includes RDT&E, Navy funds for operating and miscellaneous support costs at RDT&E, Navy laboratories and other installations, facility and civilian personnel costs not directly chargeable to RDT&E, Navy projects. Also includes RDT&E, Navy funds for RDT&E, Navy laboratories and facilities for research, support, equipment, minor construction and other investment and materiel support costs not directly chargeable to RDT&E, Navy projects. Excludes military manpower and related costs, non-RDT&E, Navy base operating costs, and military construction costs which are included in other appropriate programs.

Program decreases FY04 to FY05 can be predominately attributed to the omission of Congressionally mandated programs.

Program increases between FY05 and FY06 are predominately associated with Epidemic Outbreak Surveillance, Advanced Diagnostic Laboratory programs and Laboratory Support for DHP Navy.

B. Program Change Summary:

COST (\$ in Millions)	FY 2004 <u>Actual</u>	FY 2005 <u>Estimate</u>	FY 2006 <u>Estimate</u>	FY 2007 <u>Estimate</u>
FY06 Budget Estimate Submission RDT&E	4.900	5.000	5.000	5.000
FY06 Budget Estimates RDT&E	390.100	435.075	31.099	34.448
Total Adjustments	385.200	430.075	26.099	29.448
Congressional Program actions				
Congressional rescissions				
Congressional increases	385.200	430.075		
Reprogrammings			16.099	19.448
SBIR/STTR Transfer - year of execution at				
Internal Transfer			10.000	10.000

C. Other Program Funding Summary:

	FY 2004 <u>Actual</u>	FY 2005 <u>Estimate</u>	FY 2006 <u>Estimate</u>	FY 2007 <u>Estimate</u>	FY 2008 <u>Estimate</u>	FY 2009 <u>Estimate</u>	FY 2010 <u>Estimate</u>	FY 2011 <u>Estimate</u>
DHP Operation & Maintenance								
BA-1, PE 0807714	3.000	3.500	4.500	4.500	4.500	4.500	4.500	6.500