

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

Date: January 2006  
R-1 Item Nomenclature: 5  
Medical Development - 0603115HP

Appropriation/Budget Activity  
Defense Health Program/BA-2

COST (\$ in Millions)	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>
Total PE 0603115HPCost	403.897	389.614	34.448	34.827	35.258	35.842	36.430
Deployed Warfighter Protection	4.871	4.950	5.000	5.000	5.000	5.100	5.202
Epidemic Outbreak Surveillance		5.940	8.000	6.600	5.000	2.000	2.000
Medical Modernization Programs		1.980	0.000	1.400	3.000	6.000	6.000
Advanced Diagnostic Laboratory (ADL), San Laboratory Support (DHP Navy)		1.980 15.938	2.000 19.448	2.000 19.827	2.000 20.258	2.000 20.742	2.000 21.228
AF Environmental and Occupational Factors in Women's Health Program	1.266						
Aircrew Laser Eye Protection	5.358						
Cancerous Brain Tumor Drug Research	0.974						
Chronic Mylogenous Leukemia Research (CMLF)	4.141	4.257					
Computational Neuroscience Research	4.141						
DNI Anthrax Therapeutic	1.656						
Demonstration Site Projects	0.482						
Genetic Cancer Research in Women	1.462						
Global HIV/AIDS Prevention	7.306						
Gulf War Illness	3.653						
Integration Healing Practices for Veterans	1.364						
Life Sciences Research Initiative	0.488						
Manganese Health research	2.192	1.386					
Medical Error Reduction Initiative	0.974						
Medical Research	48.712	49.500					
Metabolic Defense	2.143	2.178					
Muscle Research Consortium	3.409	2.376					
Muscular Dystrophy Research	2.435						
National Diabetes Model Program (Type 2 Diabetes Research)	15.588						
National Prion Research Program	1.462						
Ophthalmology Training and Education	1.462						
Ovarian Cancer Research	9.742	9.900					
Peer-Review Breast Cancer Research	146.135	126.225					
Peer-Review Prostate Cancer Research	82.810	79.200					
Periscopic Surgery	2.143	1.485					
Portable Remote Medical Collection and Rel	0.974						
Preventing Epilepsy after Traumatic Brain	0.974	0.990					
Preventive Medicine Research for Prostate	1.364	1.683					
Prosthetics and Orthodontics Education Prc	0.561						
Rapid Identification and Treatment by AFSC	3.897						

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Real Time Healthcare Management Integration Demonstration w/USAF SG	0.974	
Smart Shelf Chain of Custody and Control of Medical Records	4.290	
Spinal Cord Injury Research	1.462	
Telerobotic and Minimally Invasive Surgery	3.995	2.178
Tripler Cancer Care	8.287	
Tuberous Sclerosis Complex (TSC) Research	3.118	4.257
U.S. Military Cancer Institute	4.871	
U.S. Military Complementary and Alternativ	2.045	
Virtual Medical Trainer	0.974	
WRAMC Amputee Center and Clinical Applied	9.742	
Amyotrophic Lateral Sclerosis (ALS)		2.574
Armed Forces Medical and Food Research		1.386
Bethesda Hospitals Emergency Preparedness Partnership		4.257
Bio-Molecular Material Composites Research Program		0.990
Blast Injury Prevention, Mitigation and Treatment Initiati		5.544
Computer Assisted Medical Diagnosis		1.485
Copper Antimicrobial Research Program		1.980
Downed Pilot Forward Osmosis Water Filtration System		2.079
Early Diagnosis, Treatment and Care of Cancer Patients		2.475
Global HIV/AIDS Prevention Program		5.247
Hawaii Federal Health Care Network		21.434
Medical Surveillance Technology - Clinical Looking Glass		2.079
Medical Vanguard Diabetes Management Project		0.891
Micro encapsulation and Vaccine Delivery Research		2.574
Noninvasive Hydration and Homodynamic Monitoring		0.990
Noninvasive Nanodiagnosics of Cancer		1.980
Platelet Transfusion Therapy		0.990
Regenerative Medicine Research		0.990
Special Operations Injury Prevention Program		1.089
Stress Disorders Research Initiative at Fort Hood		2.970
Supervision Using Electro-Active Optics		3.465
U.S. Military Cancer Care Institute at WRAMC		2.970
Military Burn Victim Treatment and Care		0.990
Water-Related Viral Disease Countermeasures for the AF		1.782

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**Appropriation/Budget Activity  
Defense Health Program/BA-2**

**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. The goals of these programs are to stimulate innovative research through a competitive, peer-reviewed research program. For the larger, ongoing programs, such as Breast, Prostate and Ovarian Cancer Research, 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 a sufficient number of new, independent investigators. Congressionally directed research in FY 06 includes the following topics: Amyotrophic Lateral Sclerosis (ALS); Armed Forces Medical and Food Research; Bethesda Hospitals Emergency Preparedness Partnership; Bio-Molecular Material Composites Research Program; Blast Injury Prevention, Mitigation and Treatment Initiative; Chronic Epilepsy in Severe Head Injuries; Copper Antimicrobial Research Program; Downed Pilot Forward Osmosis Water Filtration System; Early Diagnosis, Treatment and Care of Cancer Patients; Global HIV/AIDS Prevention Program; Chronic Myelogenous Leukemia Research Program (CMLRP); Manganese Health Research Program; Medical Surveillance Technology - Clinical Looking Glass; Medical Vanguard Diabetes Management Project; Metabolic Defense Research Program; Micro encapsulation and Vaccine Delivery Research; Military Burn Victim Treatment and Care; Muscle Research Consortium; Noninvasive Hydration and Homodynamic Monitoring; Noninvasive Nan diagnostics of Cancer; Peer Reviewed Medical Research Program; Peer Reviewed Ovarian Cancer Program; Peer Reviewed Prostate Cancer Program; Peer Reviewed Breast Cancer Research Program; Periscopic Surgery Research; Platelet Transfusion Therapy; Preventive Medicine Research for Prostate Cancer; Regenerative Medicine Research; Special Operations Injury Prevention Program; Stress Disorders Research Initiative at Fort Hood; Supervision Using Electro-Active Optics; Telerobotics and Advanced Minimally Invasive Surgery; Tuberous Sclerosis Complex (TSC); U.S. Military Cancer Care Institute at WRAMC; USAF Environmental and Occupational Factors in Women's Health Program; and Water-Related Viral Disease Countermeasures for the AF.

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: Enhance human health and performance to maximize effectiveness and ability to operate; develop and demonstrate advanced biometric capabilities; and improve 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; provide advanced biotechnology platforms and bioinformatics to identify susceptibility to disease and injury; develop/improve the ability to monitor disease, apply preventive, prophylactic and therapeutic measures; and improve healthcare delivery. Prevent Casualties: Demonstrate and assess new efforts to enhance responsiveness to emerging threats under various environmental conditions; provide proven effective capabilities to deploy advanced technologies for environmental surveillance, delivery of patient health care, and hazard assessment and response; and conduct necessary advanced technology demonstration of custom laser refractive surgery as applicable to aerospace operations.

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The Air Force Medical 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 differentiate among diverse viral and bacterial pathogens, and operate 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 test bed 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: (1) Network IT provides integration of advanced diagnostics and medical data sets for a coherent interface to the system end users. (2) Bioinformatics is essential for design of advanced pathogen- and host-based diagnostics, and to transform large data sets to decision-quality information. (3) 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; nor 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.

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.

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 FY05 to FY06 can be predominately attributed to the omission of Congressionally mandated programs.

Program increases between FY06 and FY07 are predominately associated with Epidemic Outbreak Surveillance, Advanced Diagnostic Laboratory programs and Laboratory Support for DHP Navy.

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

**B. Program Change Summary:**

COST (\$ in Millions)	FY 2005 <u>Actual</u>	FY 2006 <u>Estimate</u>	FY 2007 <u>Estimate</u>
FY07 Budget Estimates Submission RDT&E	438.258	31.099	34.448
FY07 President's Budget Submission RDT&E	403.897	389.614	34.448
Total Adjustments	-34.361	358.515	0.000
Congressional Program actions			
Congressional rescissions	-0.389	-3.935	
Congressional increases		362.450	
Reprogrammings	12.217		
SBIR/STTR Transfer - year of execution at	-10.381		
Internal Transfer	-35.808		

**C. Other Program Funding Summary:**

	FY 2005 <u>Actual</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 (Air Force)	3.000	3.500	4.500	4.500	4.500	4.500	4.500

**D. Acquisition Strategy:** Not applicable.