

**Defense Health Program  
Fiscal Year (FY) 2008/2009 Budget Estimates  
Exhibit R-2, DHP RDT&E Budget Item Justification**

Appropriation/Budget Activity  
Defense Health Program/BA: 2

DATE: February 2007  
R1 Item Nomenclature: 5  
Medical Development  
0603115HP

COST: (Dollars in Thousands)

|  | FY 2006<br>Actuals | FY 2007<br>Estimate | FY 2008<br>Estimate | FY 2009<br>Estimate | FY 2010<br>Estimate | FY 2011<br>Estimate | FY 2012<br>Estimate | FY 2013<br>Estimate |
|--|--------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|
| <b>Total PE 0603115</b>  | 398.242            | 34.448              | 37.333              | 38.077              | 38.981              | 39.898              | 40.836              | 41.796              |
| <b>Deployed Warfighter<br/>Protection (Army)</b>                                     | 4.826              | 5.000               | 5.000               | 5.000               | 5.100               | 5.202               | 5.306               | 5.412               |
| <b>Medical Development<br/>(Lab Support) (Navy)</b>                                  | 15.540             | 19.448              | 19.827              | 20.258              | 20.742              | 21.228              | 21.725              | 22.234              |
| <b>Epidemic Outbreak<br/>Surveillance (Air<br/>Force)</b>                            | 5.790              | 6.000               | 7.006               | 5.619               | 5.728               | 5.854               | 5.977               | 6.107               |
| <b>Medical Modernization<br/>Programs (Air Force)</b>                                | 1.931              | 2.000               | 1.400               | 3.000               | 3.100               | 3.200               | 3.300               | 3.400               |
| <b>Advanced Diagnostic<br/>Laboratory (ADL), San<br/>Antonio, TX (Air<br/>Force)</b> | 1.931              | 2.000               | 2.100               | 2.150               | 2.210               | 2.260               | 2.320               | 2.380               |
| <b>Institute of<br/>Aerospace Medicine<br/>(IAM) (Air Force)</b>                     | 0.000              | 0.000               | 2.000               | 2.050               | 2.101               | 2.154               | 2.208               | 2.263               |
| <b>Amyotrophic Lateral<br/>Sclerosis (ALS)<br/>(Army)</b>                            | 2.510              | 0.000               | 0.000               | 0.000               | 0.000               | 0.000               | 0.000               | 0.000               |

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| <b>Armed Forces Medical<br/>and Food Research<br/>(Army)</b>                                 | 0.000              | 0.000               | 0.000               | 0.000               | 0.000               | 0.000               | 0.000               | 0.000               |
| <b>Bethesda Hospital's<br/>Emergency<br/>Preparedness<br/>Partnership (Navy)</b>             | 1.115              | 0.000               | 0.000               | 0.000               | 0.000               | 0.000               | 0.000               | 0.000               |
| <b>Bio-Molecular<br/>Material Composites<br/>Research Program<br/>(Army)</b>                 | 0.965              | 0.000               | 0.000               | 0.000               | 0.000               | 0.000               | 0.000               | 0.000               |
| <b>Blast Injury<br/>Prevention,<br/>Mitigation &amp;<br/>Treatment Initiative<br/>(Army)</b> | 5.405              | 0.000               | 0.000               | 0.000               | 0.000               | 0.000               | 0.000               | 0.000               |
| <b>Chronic Epilepsy in<br/>Severe Head Injuries<br/>(Army)</b>                               | 0.965              | 0.000               | 0.000               | 0.000               | 0.000               | 0.000               | 0.000               | 0.000               |
| <b>Chronic Mylogenous<br/>Leukemia Research<br/>Program (CMLRP)<br/>(Army)</b>               | 4.151              | 0.000               | 0.000               | 0.000               | 0.000               | 0.000               | 0.000               | 0.000               |

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| <b>Computer Assisted<br/>Medical Diagnostics<br/>(Army)</b>                    | 0.000              | 0.000               | 0.000               | 0.000               | 0.000               | 0.000               | 0.000               | 0.000               |
| <b>Copper Antimicrobial<br/>Research Program<br/>(Army)</b>                    | 1.931              | 0.000               | 0.000               | 0.000               | 0.000               | 0.000               | 0.000               | 0.000               |
| <b>Defense Graduate<br/>Psychology Education<br/>Program (USUHS)</b>           | 3.315              | 0.000               | 0.000               | 0.000               | 0.000               | 0.000               | 0.000               | 0.000               |
| <b>Downed Pilot Forward<br/>Osmosis Water<br/>Filtration System<br/>(Navy)</b> | 2.027              | 0.000               | 0.000               | 0.000               | 0.000               | 0.000               | 0.000               | 0.000               |
| <b>Early Diagnosis,<br/>Treatment &amp; Care of<br/>Cancer Patients</b>        | 2.413              | 0.000               | 0.000               | 0.000               | 0.000               | 0.000               | 0.000               | 0.000               |
| <b>Ex-Rad Radiation<br/>Protection Program<br/>(USUHS)</b>                     | 0.975              | 0.000               | 0.000               | 0.000               | 0.000               | 0.000               | 0.000               | 0.000               |
| <b>Global HIV/AIDS<br/>Prevention (Navy)</b>                                   | 5.116              | 0.000               | 0.000               | 0.000               | 0.000               | 0.000               | 0.000               | 0.000               |

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| <b>Hawaii Federal<br/>Healthcare Network<br/>(Army)</b>                        | 19.116             | 0.000               | 0.000               | 0.000               | 0.000               | 0.000               | 0.000               | 0.000               |
| <b>Manganese Health<br/>Research (Army)</b>                                    | 1.351              | 0.000               | 0.000               | 0.000               | 0.000               | 0.000               | 0.000               | 0.000               |
| <b>Medical Vanguard<br/>Diabetes Management<br/>Project (Army)</b>             | 0.869              | 0.000               | 0.000               | 0.000               | 0.000               | 0.000               | 0.000               | 0.000               |
| <b>Medical Surveillance<br/>Technology - Clinical<br/>Looking Glass (Army)</b> | 2.027              | 0.000               | 0.000               | 0.000               | 0.000               | 0.000               | 0.000               | 0.000               |
| <b>Metabolic Defense<br/>(Army)</b>  | 2.124              | 0.000               | 0.000               | 0.000               | 0.000               | 0.000               | 0.000               | 0.000               |
| <b>Microencapsulation &amp;<br/>Vaccine Delivery<br/>Research (Army)</b>       | 2.510              | 0.000               | 0.000               | 0.000               | 0.000               | 0.000               | 0.000               | 0.000               |
| <b>Military Burn Victim<br/>Treatment and Care<br/>(Army)</b>                  | 0.965              | 0.000               | 0.000               | 0.000               | 0.000               | 0.000               | 0.000               | 0.000               |
| <b>Muscle Research<br/>Consortium (Army)</b>                                   | 2.317              | 0.000               | 0.000               | 0.000               | 0.000               | 0.000               | 0.000               | 0.000               |

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| <b>New National Diabetes<br/>Model Program (Air<br/>Force)</b>                     | 16.339             | 0.000               | 0.000               | 0.000               | 0.000               | 0.000               | 0.000               | 0.000               |
| <b>Noninvasive Hydration<br/>&amp; Homodynamics<br/>Monitoring (Air<br/>Force)</b> | 0.965              | 0.000               | 0.000               | 0.000               | 0.000               | 0.000               | 0.000               | 0.000               |
| <b>Noninvasive<br/>Nanodiagnosics of<br/>Cancer (Army)</b>                         | 1.931              | 0.000               | 0.000               | 0.000               | 0.000               | 0.000               | 0.000               | 0.000               |
| <b>Ovarian Cancer<br/>Research (Army)</b>  | 9.652              | 0.000               | 0.000               | 0.000               | 0.000               | 0.000               | 0.000               | 0.000               |
| <b>Peer Reviewed Breast<br/>Cancer Research<br/>(Army)</b>                         | 123.069            | 0.000               | 0.000               | 0.000               | 0.000               | 0.000               | 0.000               | 0.000               |
| <b>Real-Time Healthcare<br/>Management</b>   | 1.345              | 0.000               | 0.000               | 0.000               | 0.000               | 0.000               | 0.000               | 0.000               |
| <b>Peer Reviewed<br/>Prostate Cancer<br/>Research (Army)</b>                       | 77.220             | 0.000               | 0.000               | 0.000               | 0.000               | 0.000               | 0.000               | 0.000               |
| <b>Peer Reviewed Medical<br/>Research Program<br/>(Army)</b>                       | 48.262             | 0.000               | 0.000               | 0.000               | 0.000               | 0.000               | 0.000               | 0.000               |

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| <b>USAF<br/>Environmental/Occupational Factors in<br/>Women's Health</b>         | 1.158              | 0.000               | 0.000               | 0.000               | 0.000               | 0.000               | 0.000               | 0.000               |
| <b>Periscopic Surgery<br/>For the Spine (Army)</b>                               | 1.448              | 0.000               | 0.000               | 0.000               | 0.000               | 0.000               | 0.000               | 0.000               |
| <b>Pharmacological<br/>Countermeasures to<br/>Ionizing Radiation<br/>(USUHS)</b> | 1.219              | 0.000               | 0.000               | 0.000               | 0.000               | 0.000               | 0.000               | 0.000               |
| <b>Platelet Transfusion<br/>Therapy (Army)</b>                                   | 0.965              | 0.000               | 0.000               | 0.000               | 0.000               | 0.000               | 0.000               | 0.000               |
| <b>Prevention Medicine<br/>Research for Prostate<br/>Cancer (USUHS)</b>          | 1.641              | 0.000               | 0.000               | 0.000               | 0.000               | 0.000               | 0.000               | 0.000               |
| <b>Regenerative Medicine<br/>Research (Army)</b>                                 | 0.965              | 0.000               | 0.000               | 0.000               | 0.000               | 0.000               | 0.000               | 0.000               |
| <b>Special Operations<br/>Injury Prevention<br/>Program (Army)</b>               | 1.062              | 0.000               | 0.000               | 0.000               | 0.000               | 0.000               | 0.000               | 0.000               |
| <b>Stress Disorders<br/>Research Initiative<br/>at Fort Hood (Army)</b>          | 2.896              | 0.000               | 0.000               | 0.000               | 0.000               | 0.000               | 0.000               | 0.000               |

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|---|--------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|
| <b>Telerobotic and Minimally Invasive Surgery at WRAMC (Army)</b> | 2.124              | 0.000               | 0.000               | 0.000               | 0.000               | 0.000               | 0.000               | 0.000               |
| <b>Tuberous Sclerosis Complex (TSC) Research (Army)</b>           | 4.151              | 0.000               | 0.000               | 0.000               | 0.000               | 0.000               | 0.000               | 0.000               |
| <b>US Military Cancer Institute (USUHS)</b>                       | 2.896              | 0.000               | 0.000               | 0.000               | 0.000               | 0.000               | 0.000               | 0.000               |
| <b>Virtual Medical Trainer (Air Force)</b>                        | 1.634              | 0.000               | 0.000               | 0.000               | 0.000               | 0.000               | 0.000               | 0.000               |
| <b>Water-Related Viral Disease Countermeasures (Air Force)</b>    | 1.737              | 0.000               | 0.000               | 0.000               | 0.000               | 0.000               | 0.000               | 0.000               |
| <b>Supervision Using Electro-Active Optics</b>                    | 3.378              | 0.000               | 0.000               | 0.000               | 0.000               | 0.000               | 0.000               | 0.000               |

Reflects FY 2007 President's Budget Request. Current Continuing Resolution funding for RDT&E is \$379,603 thousand.

**A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:** For the Air Force Medical Service elements, the program supports the Research, Development, Test and Evaluation 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

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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. 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. 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. 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. Conduct necessary advanced technology demonstration of custom laser refractive surgery as applicable to aerospace operations. Epidemic Outbreak Surveillance (EOS) 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; and (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 program 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.

The Army Medical Command programs for the Deployed Warfighter Protection project that provides for the development of protection of ground forces from disease-carrying insects.

The Navy Bureau of Medicine and Surgery (BUMED), manages Medical Development (Laboratory Support) funds for operating and miscellaneous support costs at RDT&E, DHP laboratories and other installations, facility and

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civilian personnel costs not directly chargeable to RDT&E, DHP projects. Also includes RDT&E, DHP funds for RDT&E, DHP laboratories and facilities for research, support, equipment and other investment and materiel support costs not directly chargeable to RDT&E, DHP projects. Excludes military manpower and related costs, non-RDT&E, N base operating costs, and military construction costs which are included in other appropriate programs. There is no outyear funding for these programs.

For the Army Medical Command, Navy BUMED, Air Force Medical Service and the Uniformed Services University of the Health Sciences (USUHS), the goals of the FY 06 Congressionally directed research identified above are to stimulate innovative research through a competitive, peer-reviewed research program. The majority of our effort is 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; and (3) recruiting a sufficient number of new, independent investigators. There is no outyear funding for these programs.

**B. PROGRAM CHANGE SUMMARY:**

|                              | <u>FY 2006</u> | <u>FY 2007</u> | <u>FY 2008</u> |
|------------------------------|----------------|----------------|----------------|
| FY08 Budget Estimate RDT&E   | 400.804        | 29.448         | 32.333         |
| Reprogram                    | -4.492         | 0.000          | 0.000          |
| Transfer                     | 1.930          | 0.000          | 0.000          |
| FY08 Budget Submission RDT&E | 398.242        | 29.448         | 32.333         |

**PROGRAM CHANGE SUMMARY EXPLANATION:**

Congressional Add for Armed Forces Medical and Food Research was reprogrammed from DHP, RDT&E (-\$1.386M) to RDT&E, Defense-Wide (+\$1.386M) for proper execution.

Congressional Add for Hawaii Federal Health Care Network was reprogrammed from DHP, RDT&E (-\$0.948M) to DHP, O&M (+\$0.948M) for proper execution.

Congressional Add for Bethesda Hospital's Emergency Preparedness Partnership was reprogrammed from DHP, RDT&E (-\$2.158M) to DHP, O&M (+\$1.060M) and DHP, Procurement (+\$1.098M) for proper execution.

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Congressional Add for Supervision Using Electro-Active Optics was transferred from DHP, RDT&E PEC 0605013HP-IT Development (\$-3.378M) to DHP, RDT&E PEC 0603115HP-Medical Development (\$+3.378M) to match 08PB controls.

Congressional Add for Computer Assisted Medical Diagnostics (CAMD) was transferred from DHP, RDT&E PEC 0603115HP-Medical Development (\$-1.448M) to DHP, RDT&E PEC 0605013HP-IT Development (\$+1.448M) to match 08PB controls.

**C. OTHER PROGRAM FUNDING SUMMARY:**

|                             | <u>FY 2006</u><br><u>Actuals</u> | <u>FY 2007</u><br><u>Estimate</u> | <u>FY 2008</u><br><u>Estimate</u> | <u>FY 2009</u><br><u>Estimate</u> | <u>FY 2010</u><br><u>Estimate</u> | <u>FY 2011</u><br><u>Estimate</u> | <u>FY 2012</u><br><u>Estimate</u> | <u>FY 2013</u><br><u>Estimate</u> |
|-----------------------------|----------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|
| DHP Operation & Maintenance |                                  |                                   |                                   |                                   |                                   |                                   |                                   |                                   |
| BA-1, PE 0807714            | 3.000                            | 4.000                             | 4.000                             | 4.000                             | 4.000                             | 4.000                             | 5.000                             | 5.500                             |

**D. ACQUISITION STRATEGY:** Not required

**E. PERFORMANCE METRICS:** Not required