

UNCLASSIFIED

FY 2002 / 2003 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: June 2001

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604771N PROJECT NUMBER: M0933
 PROGRAM ELEMENT TITLE: Medical Development PROJECT TITLE: Medical / Dental
 (Engineering) Equipment Development

(U) COST: (Dollars in Thousands)

PROJECT NUMBER & TITLE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	FY 2002 ESTIMATE	FY 2003 ESTIMATE	FY 2004 ESTIMATE	FY 2005 ESTIMATE	FY 2006 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
Medical / Dental Equipment Development									
Total PE Cost	15,274	27,519	5,455						
M0933	4,028	27,519	5,455						
M2650	5,921								
M0933	4,931								
M2796	394								

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The purpose of this item is to develop biomedical equipment and related techniques to reduce morbidity, to enhance the logistic feasibility of modern medical care for combat casualties, to sustain casualties for evacuation to fixed medical facilities for definitive care, and to ensure that personnel are medically qualified for military duty. Each work unit undertaken in this project has a documented, authenticated military requirement. Efforts are justified based upon military payoff and cost benefit. There is a strong potential for dual use, technology transfer, and biotechnology firms / industry participation in the projects.

(U) PROGRAM ACCOMPLISHMENT AND PLANS:

1. (U) FY 2000 ACCOMPLISHMENTS:

- (U) (\$329) LASER THREAT ANALYSIS: Completed development of a mission planning tool to minimize the threat of man portable lasers to aircrew.
- (U) (\$600) FLIGHT OPERATIONS NOISE MITIGATION TEST-BED: Candidate noise mitigation materials have been selected and installed on an operational aircraft carrier. Testing of materials will be conducted during at-sea flight operations during the fourth quarter of FY 2000, with preliminary results due by the beginning of FY 2001.
- (U) (\$1,375) DNA VACCINE TECHNOLOGY: GMP manufacturing of a five gene liver stage malaria vaccine (MuStDO-5). Completion of eight safety and immunogenicity studies of this vaccine. Achieved approval of this vaccine as an investigational new drug by the FDA. The first clinical study of the vaccine, to determine the safety, immunogenicity and protective effects of the vaccine, will be started later in this fiscal year.

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- (U) (\$1,385) TACTILE SITUATION AWARENESS SYSTEM (TSAS): Redesigned pneumatic sensors to achieve smaller size and incorporated them into a vest with a breakaway umbilical, designed to allow emergency egress from aircraft. Completed design of hardware for the electronic support systems. Successfully integrated the system with the V-22 simulator in Fort Worth, TX.
- (U) (\$339) VANGUARD S&T INITIATIVES GAME: Planned and organized an S&T requirements wargame to be held during the last quarter of the fiscal year.

2. (U) FY 2001 PLAN:

- (U) (\$2,786) DNA VACCINE TECHNOLOGY: Continue clinical testing of five gene liver stage DNA vaccine for malaria. GMP manufacturing of a 15 gene vaccine (MuStDO-15).
- (U) (\$200) FLIGHT OPERATIONS NOISE MITIGATION TEST-BED: Complete tests with best noise mitigation materials on aircraft carriers during at-sea flight operations. Deliver technical report.
- (U) (\$1,118) TACTILE SITUATIONAL AWARENESS SYSTEM (TSAS): Continue evaluation of system installed on V-22 simulator. Purchase additional suits for operational testing.
- (U) (\$230) VIRTUAL FIT CHECK SYSTEM: Begin and complete testing and validation, at two locations, of a virtual system to accurately measure aviation candidates for anthropometric fit in a variety of Naval airframes.
- (U) (\$165) CERTIFICATION OF MEDICAL ANCILLARY EQUIPMENT FOR USE IN HYPERBARIC CHAMBERS: Begin evaluation of various types of medical equipment for use in Navy hyperbaric chambers for certification and addition to the ANU list.
- (U) (\$278) EVALUATION OF FIELD-BASED PROCEDURES FOR SCREENING DIVER'S AIR: Begin field testing of devices to test compressor generated diver's air at the compressor out-put valve for oxygen, carbon dioxide, carbon monoxide and hydrocarbon content.
- (U) (\$400) RESCUE OF MILITARY CASUALTIES FOLLOWING LETHAL BONE MARROW INJURY : Develop clinically applicable therapy to rescue Bone Marrow following exposure to nuclear, chemical or biological weapons.

3. (U) FY 2002 PLAN:

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- (U) (\$2,000) DNA VACCINE TECHNOLOGY: Continue clinical testing of five gene liver stage DNA vaccine for malaria. Begin clinical testing of the 15 gene vaccine (MuStDO-15).
- (U) (\$1,936) TACTILE SITUATIONAL AWARENESS SYSTEM (TSAS): Complete operational testing of suits. Modify suits for use in a variety of airframes. Deliver final product to NAVAIR.
- (U) (\$198) CERTIFICATION OF MEDICAL ANCILLARY EQUIPMENT FOR USE IN HYPERBARIC CHAMBERS: Complete evaluation of various types of medical equipment for use in Navy hyperbaric chambers. Submit technical report to Supervisor of Diving for addition of items to the ANU list.
- (U) (\$218) EVALUATION OF FIELD-BASED PROCEDURES FOR SCREENING DIVER'S AIR: Complete field testing of devices to test compressor generated diver's air at the compressor out-put valve for oxygen, carbon dioxide, carbon monoxide and hydrocarbon content.
- (U) (\$756) VESTIBULAR TEST BATTERY TO DETERMINE SUSCEPTIBILITY TO DISORIENTATION: Evaluate technology to determine a subject's susceptibility to spatial disorientation prior to entering the aviation training pipeline.
- (U) (\$347) BI-ANNUAL VANGUARD S&T GAME: Plan and organize the bi-annual wargame to establish and validate medical S&T requirements.

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B. (U) PROGRAM CHANGE SUMMARY:

	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>
(U) President's Budget:	4,044	5,273	5,416				
(U) Adjustments from FY 2000 PRESBUDG:	-16	22,246	-39				
(U) FY 2002 / 2003 President's Submission	4,028	27,519	5,455				

(U) CHANGE SUMMARY EXPLANATION:

(U) Funding:

(U) FY 2000: decrease of (-16) for Section 8055: Proportionate Reduction

(U) FY 2001: Decrease of (-194) for Section 8086: .7% Pro-Rate Reduction

Increase of (3,000) due to FY 2001 Congressional Add – Bone Marrow Transplant Technology
 Increase of (4,000) due to FY 2001 Congressional Add –Dental Research
 Increase of (2,000) due to FY 2001 Congressional Add –High Resolution Digital Mammography
 Increase of (1,500) due to FY 2001 Congressional Add –Mobile Intergrated Diagnostic
 Increase of (6,000) due to FY 2001 Congressional Add –Voice Interactive Device
 Increase of (1,000) due to FY 2001 Congressional Add –Smart Aortic Arch Catheter
 Increase of (5,000) due to FY 2001 Congressional Add –Coastal Cancer Control

Decrease of (-60) for Government-Wide Rescission

(U) FY 2002: increase of (39) for minor adjustments.

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(U) Schedule: Not applicable.

(U) Technical: Not applicable.

C. (U) OTHER PROGRAM FUNDING SUMMARY: Not applicable.

(U) RELATED RDT&E:

(U) Program Element 0603706N, Medical Development.

D. (U) SCHEDULE PROFILE: Not applicable.