

UNCLASSIFIED

FY 2000 / 2001 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: February 2000

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604771N
 PROGRAM ELEMENT TITLE: Medical Development
 (Engineering)

PROJECT NUMBER: M0933
 PROJECT TITLE: Medical / Dental
 Equipment Development

(U) COST: (Dollars in Thousands)

PROJECT NUMBER & TITLE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	FY 2002 ESTIMATE	FY 2003 ESTIMATE	FY 2004 ESTIMATE	FY 2005 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
M0933 Medical / Dental Equipment Development	4,070	4,211	5,273	5,616	6,744	6,835	7,028		

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 1999 ACCOMPLISHMENTS:

- (U) (\$308) ENHANCED HEARING PROTECTION: Continued transition and testing of developed passive hearing protection material to Navy / Marine Corps application. Continued refinement of development items.
- (U) (\$1,518) ADVANCED FROZEN RED CELL WASHER / CLOSED LOOP BLOOD PROCESSOR: Continued advanced development and testing of automated red cell washer to deglycerolize (remove cryoprotectant) the thawed blood and resuspend the red cells for transfusion. Finalized prototype based on testing and updated FDA requirements for approval of the prototype system.
- (U) (\$402) SPATIAL DISORIENTATION / VESTIBULAR VEST: Two devices for novel vestibular tests have been designed and either built or contracted out for development.
- (U) (\$469) TELEMEDICINE: Continued development of clinical testing of aviator spatial disorientation. Began demonstration to the operational forces and initial implementation into standard testing procedures with any necessary protocol and equipment refinement.

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- (U) (\$256) ACTIVE NOISE CANCELLATION STETHOSCOPE: Continued development of medical stethoscope device for cardiac monitoring in high noise shipboard and combat environments.
 - (U) (\$274) POTABLE WATER TESTING: Initiated development of simple, portable device for testing potable water quality for use in combat environments.
 - (U) (\$384) UNDERWATER SOUND PROTECTION: Began protection from bioeffects for divers exposed to intense underwater sound. There is no means to monitor Low Frequency Acoustic Active Sonar exposure on submerged divers.
 - (U) (\$419) LASER THREAT ANALYSIS: Began development of mission planning tools needed to minimize the emerging threat of man portable lasers to aircrews.
 - (U) (\$40) CARBON DIOXIDE SENSOR: Began development of carbon dioxide sensor for Fleet divers.
2. (U) FY 2000 PLAN:
- (U) (\$329) LASER THREAT ANALYSIS: Continue development of mission planning tools needed to minimize the emerging threat of man portable lasers to aircrews.
 - (U) (\$600) FLIGHT OPERATIONS NOISE MITIGATION TEST-BED: Conduct at-sea measurements to obtain information on the design, selection and installation of acoustic treatments to mitigate flight operations noise in berthing and other areas on CVNs.
 - (U) (\$1,465) DNA VACCINE TECHNOLOGY: DNA vaccine for malaria will be transitioned from Advanced Technology Demonstration Project for Clinical Testing.
 - (U) (\$1,478) TACTILE SITUATION AWARENESS SYSTEM (TSAS): Development of an advanced display system that uses the under-utilized sensory channel of touch to provide spatial orientation and situation awareness information to pilots and others subject to spatial disorientation.
 - (U) (\$339) VANGUARD S&T INITIATIVES GAME: Plan, organize and conduct a S&T initiatives game to identify and prioritize Biomedical S&T requirements. Analysis of the game and its results will be used to identify promising emerging technologies in which to train Navy biomedical researchers to be responsive to future warfighting requirements.
3. (U) FY 2001 PLAN:
- (U) (\$2,851) DNA VACCINE TECHNOLOGY: Continue development of DNA vaccine for malaria.

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- (U) (\$332) POTABLE WATER TESTING: Continue development of simple, portable device for testing potable water quality for use in combat environments. Begin transition to fleet test and evaluation.
- (U) (\$564) CARBON DIOXIDE SENSOR: Complete development of a sensor / alarm system to warn of hazardous CO₂ levels in the closed-circuit rebreathers worn by divers on SPECWAR, EOD and mine countermeasure missions.
- (U) (\$664) LASER THREAT ANALYSIS: Continue development of mission planning tools needed to minimize the emerging threat of man portable lasers to aircrews.
- (U) (\$398) OPERATOR PERFORMANCE TACTICAL MISSION AID: Initiate development of integrated computer based tactical mission aid for aviators based on functional and capability requirements of warfighters to provide all parameters for mission knowledge base and performance assessment.
- (U) (\$464) THERMAL PROTECTIVE GARMENT: Develop adequate hand, head, and foot thermal protective garments to be used during operations in extreme cold environments.

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B. (U) PROGRAM CHANGE SUMMARY:

	<u>FY 1999</u>	<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) President's Budget:	4,321	4,285	4,400	4,509	4,626	4,727	4,830
(U) Adjustments from FY 1999 PRESBUDG:	-251	-74	873	1,107	2,118	2,108	2,198
(U) FY 2000 / 2001 President's Submission	4,070	4,211	5,273	5,616	6,744	6,835	7,028

(U) CHANGE SUMMARY EXPLANATION:

(U) Funding:

- (U) FY 1999: decrease of (-10) for Sec. 8108 Revised Economic Assumption; decrease of (-1) for Civilian Personnel Underexecution; decrease of (-2000) for Congressional Add: Earmark; increase of (2000) for Congressional Earmark: Filtration Mat; decrease of (-20) for Inflation; decrease of (-220) for BSO 1002 Actual Update.
- (U) FY 2000: decrease of (-74) for Across-the-Board reduction.
- (U) FY 2001: increase of (948) for R&D Program 6.4 FHP Programs; decrease of (-27) for NWCF Rates - NRL; increase of (1) for NWCF Rates - PWC (East Coast); increase of (1) for ICC 0630 (NRL); decrease of (-36) for Nonpay Pur Inflation; decrease of (-14) for Active Navy Ops.
- (U) FY 2002: increase of (1,149) for R&D Program 6.4 FHP Programs; increase of (24) for NWCF Rates - NRL; decrease of (-1) for NWCF Rates - PWC (East Coast); decrease of (-1) for NWCF Rates - Nav Computer; decrease of (-3) for SSP-NRL Direct Contracts; decrease of (-47) for Nonpay Pur Inflation; decrease of (-14) for Active Navy Ops.
- (U) FY 2003: increase of (2,161) for R&D Program 6.4 FHP Programs; increase of (35) for NWCF Rates - NRL; decrease of (-3) for NWCF Rates - PWC (East Coast); decrease of (-1) for NWCF Rates - Nav Computer; decrease of (-3) for SSP-NRL Direct Contracts; decrease of (-55) for Nonpay Pur Inflation; decrease of (-16) for Active Navy Ops.
- (U) FY 2004: increase of (2,153) for R&D Program 6.4 FHP Programs; increase of (40) for NWCF Rates - NRL; decrease of (-5) for NWCF Rates - PWC (East Coast); decrease of (-3) for SSP-NRL Direct Contracts; decrease of (-60) for Nonpay Pur Inflation; decrease of (-17) for Active Navy Ops.

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(U) FY 2005: increase of (2,244) for R&D Program 6.4 FHP Programs; increase of (47) for NWCF Rates - NRL; decrease of (-7) for NWCF Rates - PWC (East Coast); decrease of (-3) for SSP-NRL Direct Contracts; decrease of (-65) for Nonpay Pur Inflation; decrease of (-18) for Active Navy Ops.

(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.

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DATE: February 2000

BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604771N
 PROGRAM ELEMENT TITLE: Medical Development
 (Engineering)

PROJECT NUMBER: M2650
 PROJECT TITLE: Voice Instructional
 Devices (VID)

(U) COST: (Dollars in Thousands)

PROJECT NUMBER & TITLE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	FY 2002 ESTIMATE	FY 2003 ESTIMATE	FY 2004 ESTIMATE	FY 2005 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
M2650 Voice Instructional Devices (VID)	1,473	5,967	0	0	0	0	0	0	7,440

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 1999 ACCOMPLISHMENTS:

- (U) (\$1,473) VOICE INSTRUCTIONAL DEVICES (VID): An operational State of the Art Review (SOAR) has been created and is on line. This Web-hosted database will contain the latest information about the various pertinent technology categories that are being investigated for the VID. (This Congressional plus-up was not released until October 1999.)

2. (U) FY 2000 PLAN:

- (U) (\$5,967) VOICE INSTRUCTIONAL DEVICES (VID): The funds will be used to advance the use of Voice Interactive Device (VID) technology in Navy industrial hygiene and clinical applications. The VID capability will be extended to allow data to be captured for selected Shipboard Automated Medical System (SAMS) modules and entered into a Web-based repository as a method to improve preventative medicine through enhanced medical monitoring and trend analysis. This advanced capability will be evaluated for various hardware configurations. The VID technology will also be used to provide computer based training on the operations of various SAMS modules and to provide periodic refresher training.

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BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604771N
PROGRAM ELEMENT TITLE: Medical Development
(Engineering)

PROJECT NUMBER: M2650
PROJECT TITLE: Voice Instructional
Devices (VID)

B. (U) PROGRAM CHANGE SUMMARY:

	<u>FY 1999</u>	<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) President's Budget:	0	0	0	0	0	0	0
(U) Adjustments from FY 1999 PRESBUDG:	1,473	5,967	0	0	0	0	0
(U) FY 2000 / 2001 President's Submission	1,473	5,967	0	0	0	0	0

(U) CHANGE SUMMARY EXPLANATION:

(U) Funding:

(U) FY 1999: increase of (1,500) due to FY1999 Congressional Add - Voice Instructional Devices (VID); decrease of (-3) due to Revised Economic Assumptions; decrease of (-37) due to SBIR/STTR Transfer; decrease of (-7) due to Inflation; increase of (20) due to BSO 1002 Actual Update.

(U) FY 2000: Increase of (6,000) due to FY2000 Congressional Add - VID; decrease of (-33) due to Across-the-Board reduction.

(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.

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BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604771N
 PROGRAM ELEMENT TITLE: Medical Development
 (Engineering)

PROJECT NUMBER: M2795
 PROJECT TITLE: Coastal Cancer
 Control (MUSC)

(U) COST: (Dollars in Thousands)

PROJECT NUMBER & TITLE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	FY 2002 ESTIMATE	FY 2003 ESTIMATE	FY 2004 ESTIMATE	FY 2005 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
M2795 Coastal Cancer Control (MUSC)	0	4,973	0	0	0	0	0	0	4,973

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 1999 ACCOMPLISHMENTS:

- (U) (\$0) COASTAL CANCER CONTROL (MUSC): There was no funding for this Congressional plus-up in FY 1999.

2. (U) FY 2000 PLAN:

- (U) (\$4,973) COASTAL CANCER CONTROL (MUSC): The funds will be used to continue and extend the Coastal Cancer Control activities, in particular: primary and secondary cancer prevention, with a focus on underserved populations and military beneficiaries in South Carolina. The research and control program will include remote diagnosis, outreach telemedicine, and epidemiology and risk factor identification related to cancer control. Efforts will include control of breast, prostate, cervical, colon, gastric, pancreatic, brain and other cancers in military beneficiaries and underserved families. Special consideration will be given to the biology and etiology of brain tumors.

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BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604771N
PROGRAM ELEMENT TITLE: Medical Development
(Engineering)

PROJECT NUMBER: M2795
PROJECT TITLE: Coastal Cancer
Control (MUSC)

B. (U) PROGRAM CHANGE SUMMARY:

	<u>FY 1999</u>	<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) President's Budget:	0	0	0	0	0	0	0
(U) Adjustments from FY 1999 PRESBUDG:	0	4,973	0	0	0	0	0
(U) FY 2000 / 2001 President's Submission	0	4,973	0	0	0	0	0

(U) CHANGE SUMMARY EXPLANATION:

(U) Funding:

(U) FY 2000: increase of (5,000) due to FY00 Congressional Add - Coastal Cancer Control (MUSC); decrease of (-27) due to Across-the-Board reduction.

(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.

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BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604771N
PROGRAM ELEMENT TITLE: Medical Development
(Engineering)

PROJECT NUMBER: M2796
PROJECT TITLE: Retinal Pigment
Laser Damage

(U) COST: (Dollars in Thousands)

PROJECT NUMBER & TITLE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	FY 2002 ESTIMATE	FY 2003 ESTIMATE	FY 2004 ESTIMATE	FY 2005 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
M2796 Retinal Pigment Laser Damage	0	199	0	0	0	0	0	0	199

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 1999 ACCOMPLISHMENTS:

- (U) (\$0) RETINAL PIGMENT LASER DAMAGE: There was no funding for this Congressional plus-up in FY 1999.

2. (U) FY 2000 PLAN:

- (U) (\$199) RETINAL PIGMENT LASER DAMAGE: The intent of congress regarding this program is unknown at this time. It is anticipated that the Naval Health Research Center Detachment located at Brooks AFB, Texas will manage this effort as the Navy's experts in laser bioeffects.

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BUDGET ACTIVITY: 5 PROGRAM ELEMENT: 0604771N
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PROJECT NUMBER: M2796
PROJECT TITLE: Retinal Pigment
Laser Damage

B. (U) PROGRAM CHANGE SUMMARY:

	<u>FY 1999</u>	<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) President's Budget:	0	0	0	0	0	0	0
(U) Adjustments from FY 1999 PRESBUDG:	0	199	0	0	0	0	0
(U) FY 2000 / 2001 President's Submission	0	199	0	0	0	0	0

(U) CHANGE SUMMARY EXPLANATION:

(U) Funding:

(U) FY 2000: increase of (200) due to FY00 Congressional Add - Retinal Pigment Laser Damage; decrease of (-1) due to Across-the-Board reduction.

(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.