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DECEMBER 1967



MEDICAL COST REPORTING AN ANALYSIS

by
J. L. Taylor

**NAVAL PERSONNEL PROGRAM SUPPORT ACTIVITY
PERSONNEL RESEARCH LABORATORY
WASHINGTON, D. C. 20390**

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MEDICAL COST REPORTING:
AN ANALYSIS

(PF0160101C01)

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J. L. TAYLOR

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PERSONNEL SYSTEMS RESEARCH DEPARTMENT
PERSONNEL RESEARCH LABORATORY
NAVAL PERSONNEL PROGRAM SUPPORT ACTIVITY
WASHINGTON, D. C. 20390

FOREWORD

Appreciation is expressed for the close cooperation and assistance received from C. T. Thomsen, LT, Civil Engineer Corps., USNR, Plans Section, Staff, Commander Naval Air Force, U. S. Atlantic Fleet.

This study was accomplished under Objective No. PF0160101C01.

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SUMMARY AND CONCLUSIONS

Problem

The problem which initiated research in the medical cost area was the need for a more detailed medical cost figure for use in the personnel cost studies.

Background and Requirements

This report has been completed in conjunction with the cost model studies being conducted by the Personnel Research Laboratory for the Chief of Naval Personnel, Pers-A31 (Personnel Research Division). Previous research in the cost model areas has identified expenses involved with the training of enlisted and officer personnel. Currently the budget used for computing a per man per year medical cost figure represents only a portion of the total Navy wide medical budget. Research in the area of distributed costs was conducted to determine the feasibility of compiling a more inclusive medical cost figure.

Approach

The approach to the problem consisted of:

1. The identification of elements contributing to medical costs;
2. The identification of offices where the costs of these elements are reported;
3. The establishment of a methodology for combining these elements to arrive at a complete medical cost; and
4. Alternative methods which might be employed if certain cost

data were not available.

Through the identification and detailed analysis of these elements, it was assumed that it would then be possible to combine the data and establish a valid naval medical cost.

Findings, Conclusions and Recommendations

The following findings of the research conducted in this area demonstrate the difficulty of establishing a per man per year medical cost:

1. No central accounting system exists for the computation of costs incurred by naval medical activities.
2. Management offices responsible for funding medical activities in addition to BUMED are CNO, NAVAIR, BUPERS, NAVORD, NAVSHIP, NAVSUP, NAVFAC, ONR, and the Marine Corps.
3. Many of the major management offices do not show a breakdown of funds expended for medical units under their cognizance since a majority of the medical units receive their funds from host activities which are funded directly by management offices; confirmed by the Office of the Comptroller, Department of the Navy.
4. An amortization program is not in effect which would allow for a systematic devaluation of buildings or major pieces of equipment in a nonrecurring procurement category.

Based on these findings it is concluded that the existing accounting systems do not provide the type of information required to determine a valid medical cost. If at some future date it is determined that a detailed cost analysis is essential, the economic feasibility of

changes which would have to be made to the existing accounting system would have to be weighed. Factors which should be considered are:

1. The establishment of an amortization program or a substitute cost utilization program, and
2. The completion of six individual training cost studies (HM, DT, Medical Corps, Dental Corps, Nurse Corps, and Medical Service Corps).

It should be noted that these changes and studies will have to be made to form the basis for the establishment of a valid medical cost.

It is recommended that medical cost research be held in abeyance pending an expanded need for such cost models now under development and that the figure currently provided by the Bureau of Medicine and Surgery be used.

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I. INTRODUCTION

A. Purpose

The purpose of this research is to identify and evaluate the problematic areas associated with the determination of medical costs as incurred by the Department of the Navy for its military personnel. Information derived from the study will be used in conjunction with the personnel cost studies being conducted by the Personnel Research Laboratory.

B. Problem

The problem which initiated research in the medical cost area was the need for a more detailed medical cost figure for use in the personnel cost studies.

C. Background

This report has been completed in conjunction with the cost model studies being conducted by the Personnel Research Laboratory for the Chief of Naval Personnel, Pers-A31 (Personnel Research Division). Previous research in the cost model area has identified expenses involved with the training of enlisted and officer personnel. Currently the budgeted figure used for computing a per man per year medical cost represents only a portion of the total Navy wide medical budget. Research in the area of distributed costs was conducted to determine the feasibility of compiling a more inclusive medical cost figure. For fiscal 1967 the Bureau of Medicine and Surgery computed a medical cost of \$108.77 per man per year. It is believed

that this is a minimal figure since it is derived from a single annual budget (BUMED) divided by 1,026,140 man years.¹ It does not take into account funds expended for hospital construction, training, etc., prior to 1966. Therefore, an attempt has been made to investigate those elements which have not previously been considered. Data collected in the investigation of these elements has been tabulated on pages 43 and 44 of this report with source and availability information.

¹See Appendix H

II. APPROACH

A. Methodology

The methodology utilized in the preparation of this report was that of the empirical method. The problem as stated was analyzed and methods of approach were defined. Cost elements which might affect medical costs were identified in terms of office of origin and degree of data availability. These cost elements were then analyzed as to applicability to personnel costs in general and to a standardized manpower/personnel cost analysis system in particular. Methods of combining the cost elements to arrive at a complete medical cost were developed in conjunction with alternative methods which might be utilized if certain cost data were not available.

B. Procedures

The procedures which were followed established liaison with the Bureau of Medicine and Surgery, Naval Facilities Engineering Command, and the Office of the Deputy Assistant Secretary of Defense (Health and Medical). Information concerning previous similar research was obtained and guidelines established to avoid problems which had been encountered by these offices.

C. Collection of Data

In consonance with the methodology adopted, broad areas were established where pertinent data might be located. The Naval Facilities Engineering Command was contacted to deal with the

problem of transportation and equipment costs; the Enlisted Personnel Distribution Offices were contacted and were able to provide information on enlisted personnel and medical/dental facilities; the Office of Civilian Manpower Management was able to provide information on the number of civilians employed at medical/dental activities; the Bureau of Naval Personnel was able to provide the totals by rank within designator for officers assigned to these facilities. It was predetermined that data collection at this level, rather than at the individual unit level, would be economically feasible.

III. DISCUSSION

The following sections will deal with individual elements which contribute directly or indirectly to the cost of medical services provided by the Department of the Navy for its military personnel.

A. Real Property (Class I and II) Costs

In an attempt to compute the annual cost of Real Property, Class I and II, (cost of land and buildings) respectively, the following documents were identified which listed property value:

1. Property Record Card Transmittal (NAVCOMPT Form 260)
2. Report U7150 BUMED Item List of Acquisition and Replacement

None of these documents provided data which could be separated to display original cost and yearly cost of improvements to existing property.

The problem of property values could be approached if data were available which displayed original cost, annual expenditures for structural alterations by year, and programmed life span. If data were available, amortization could be computed as follows:

Establish the original cost of the building (Class II Real Property) as numerator, and the programmed life span (in years) as denominator. The resultant figure would produce an annual amortization factor which would be deducted annually from the initial cost and subsequently the devaluated cost. Factors would be added to the amortized figure for the year in which the maintenance was performed to establish an annual cost of unit operation. (See Example I - Figure 1.) If

structural improvements were completed in such a way that the life expectancy of a building were extended, the cost would be added to the devaluated figure for the year in which improvements were made, the denominator adjusted accordingly (expanded) and a new yearly amortization factor computed. (See Example II - Figure I.) Buildings with a zero or negative amortization factor (unimproved units still in operation that have exceeded their original life expectancy) would establish cost of maintenance as their cost to the government.

Currently data of this type is not available since acquisition costs include initial investment and all other expenses involved with the structural improvement of the building.

Since this method cannot be used, the following approach might prove suitable. Information provided by the Naval Material Command Support Activity data processing group² displays total cost of unit structure (initial investment, improvements, and other costs) the original date of construction, current condition, type of construction, replacement costs, etc. To establish a meaningful cost factor, divide the total cost of the unit by the total number of years in existence. When this has been established, add the cost of logistic support (custodial maintenance) to the established building cost for that year. This would yield a figure which would display annual cost per unit structure to the government. (See Example III - Figure 1.)

²Report #U7150 BUMED: Item List of Acquisition and Replacement Costs

Should a system be devised which would provide original costs, the following method might be adopted for the determination of structural maintenance costs. Average structural maintenance costs can be obtained from the Naval Facilities Engineering Command³ by year if an accounting system is not developed which would provide unit structural costs for maintenance performed on individual buildings. The above mentioned report provides maintenance costs per measurement unit. Used in conjunction with the "Item List of Acquisition and Replacement Costs" report which provides unit measure (square footage, long feet, or square yardage by structure), one could determine the annual structural maintenance costs.

The fourth and possibly the most pragmatic approach to the problem of costs would be the use of a utilization cost. The General Services Administration (GSA) updates monthly the rental costs of commercially owned structures occupied by Federal agencies. The structures are subdivided under three main headings: Office Space, Storage Space, and Special Usage. Square and Cubic Footage costs are reported for rental units within the territorial limits of the Continental United States.

The utilization cost would be "an annual predetermined imputed cost (standard cost) developed on the basis of property categories, e.g., office space, classroom space, automobiles, office furniture, office equipment, training equipment, etc., for use in developing

³Report #9550-F Average Direct Real Property Maintenance Cost Per Measurement Unit in Continental United States.

the cost of utilizing such property in a manner which permits pro-
ration of such costs over the number of people for whose benefit
the costs were incurred, in specific periods of time, e.g., personnel
procured or recruited, personnel school trained, etc. By this
approach, the extremely complex cost problems associated with
amortization and/or depreciation of the many varieties of property
for the purpose of prorating amortization/depreciation values to
personnel utilizing such properties are avoided.

The sources of utilization cost values are to be those which
have developed such costs on the basis of the actual working ex-
perience. In this connection, it is anticipated that the bulk of
these cost data can be obtained from the General Services Admin-
istration, together with the actual property rental and/or utili-
zation experience of the Armed Services themselves."⁴

The expense involved with the construction of buildings is
substantial enough to distort the actual cost of medical services
per man per year if an amortization program is not in effect.
Since costs are not scaled over a period of years as they would
be with an amortization program, years in which construction was
at a peak would increase per year per man costs as opposed to
years in which construction was at a lull. A cost reporting
system should provide not only amortization figures, but an
annual budgeted figure which would represent replacement costs

⁴Department of Defense Military Manpower Cost Model. Washington:DOD
Manpower Cost Model Study Group. Draft Report as of 30 September 1967

AMORTIZATION FORMULAE

EXAMPLE I

BLDG #14
 $\frac{\$201,893}{25}$ (INITIAL COST) = \$8,076 (YEARLY AMORTIZATION) + \$5,352 (CUSTODIAL MAINTENANCE COST) = \$13,428 (ANNUAL COST)

EXAMPLE II

$\frac{\$201,893}{25}$ (INITIAL COST) = \$8,076 (YEARLY AMORTIZATION: \$113,064 (14 YEARS AMORTIZATION) : \$88,829 (REMAINING AMORTIZATION AFTER 14 YEARS EXISTENCE) + PROGRAMMED LIFE SPAN)

o $\frac{\$48,000}{20}$ (COST OF STRUCTURAL RENOVATION) = $\frac{\$136,829}{20}$ (LIFE SPAN EXTENDED BY NINE YEARS AFTER RENOVATION) = \$6,841 (ADJUSTED YEARLY AMORTIZATION) + \$5,000 (ANNUAL CUSTODIAL MAINTENANCE) = \$11,841 (ANNUAL COST)

EXAMPLE III

$\frac{\$252,000}{43}$ (TOTAL COST SINCE CONSTRUCTION) = \$5,860 (COST FOR CURRENT YEAR) + \$10,000 (CUSTODIAL MAINTENANCE) = \$15,860 (TOTAL COST FOR CURRENT YEAR)

FIGURE I

for buildings that will be outmoded at some future date. If an amortization program is developed, replacement cost data can be obtained from NAVFACENGCOCM which is capable of providing input from the Eastern and Western Building Cost Indexes as compiled by the Marshall and Stevens Company. (See Appendix B.) Use of this table enables NAVFACENGCOCM to compute replacement costs for Class II real property (buildings). This figure could then be added to the annual budget as the programmed future replacement cost.

B. Replacement Costs and the National Economy

In an attempt to evaluate the various approaches which might be taken in determining those elements which govern the computation of replacement costs, a multiple linear regression (MLR) program was written. A computer-oriented program, MLR analyzes elements contributing to a given end product; in this instance the end product was construction and building maintenance costs. Independent variables considered as determinants of the dependent variable (replacement costs) were:

1. Acquisition cost
2. Type of construction (permanent, semi-permanent, temporary)
3. Year of construction
4. Replacement cost
5. Square footage.

The MLR equation ranked square footage as the primary determinant for replacement costs, and year of construction as the secondary

determinant. Replacement costs as such are directly proportional to the square footage of unit construction. The length of time which has lapsed since the original date of construction determines in part the increase in the cost of square footage over the original cost. A direct relationship is apparent between construction costs and the effect of the National Economy on such costs. To date this area has been neglected in cost studies. The Office of the Comptroller, Department of the Navy, NAVCOMPT Instruction 7000.28, "Economic Analysis of Proposed Department of the Navy Investments", provides specific procedures for evaluation of proposed investment projects when the justification is primarily economic. This system might be utilized in determining an annual budgeted figure (based on the current value of the dollar) for future replacement costs. In conjunction with such a system, an average annual inflation factor could be computed and applied to personnel cost studies for easy updating.

C. Personnel Costs: Civilian and Military

A cost area where detailed, easily accessible, information exists is that of civilian employees at Naval Medical Activities located within the Continental United States. The Office of Civilian Manpower Management (Code 02213.1) provided figures displaying graded and ungraded employees by man hours, man years, earnings, and average per annum salary. The total cost to the Navy for civilian employee salaries at medical activities for

FY 1966 was \$41,450,949. (This figure does not include cost to the government for retirement funds, life insurance or health benefits.) The same information is available for overseas employees.

The Cost Panel Report on Economic Impact of Civilianization Actions⁵ quoted the following statistics for retirement, life insurance, and health benefits: Retirement expenditures equaled 6.5% of base pay (government contributions), Life Insurance expenditures equaled .35% of base pay (government contributions) and 21.67 per man year (all grades) for Health Benefits.⁶ Terminal leave benefits absorbed by the government equal .45% of base pay for Department of the Navy employees. O&M support costs pertaining to civilian personnel averaged out to be \$100 per man year. Unemployment compensation, not charged to or absorbed by Department of the Navy but financed by Department of Labor, averages out to be \$26 per man year.

Based on figures provided by NAVCOMPTNOTE 7041 of 24 May 1967, "Navy Standard Basic Military Rate Table Fiscal Year 1968", total military pay can be computed for all personnel serving on active duty at medical installations. Personnel totals may be obtained from NAVPERS 15658(A) Annual Report - Navy and Marine Corps Military Personnel Statistics. This publication gives personnel statistics

⁵This report was prepared by a Joint Committee for the Office of Assistant Secretary of Defense (Comptroller), September 1966.

⁶This report reflects Health Benefits at \$65.00 per man for all grades. The government contribution equals 1/3 of this amount.

on active duty officer and enlisted personnel by rank within designator and rate within rating respectively. The combined use of NAVPERS 15658(A) and NAVCOMINTNOTE 7041 facilitates the costing out of all personnel on active duty. In addition to Medical and Dental Corps personnel, costs would have to be computed for CEC personnel, Chaplain Corps, and Law Specialists serving medical and dental facilities.⁷

1. Military Training

An area which must be thoroughly investigated before a total cost figure can be tabulated is that of Hospital Corpsman/Dental Technician (HM/DT) professional training. A previous cost study in this field established a training cost (from procurement thru separation over a period of four years) of \$3,280.33 (mean figure) from HM personnel per year.⁸ The study revealed that it was not possible to separate figures for Class "B" and "C" school graduates, nor were cost per student week or Class "A" school costs available. An accounting system is not presently in effect which allows the extraction of such figures, however, such a system could be easily established using the training cost methods now used for BuPers controlled schools.

2. Personnel Transportation Costs

An element of total personnel costs which must be considered is

⁷See Appendices C and G.

⁸PRAW Report No. 63-22, "Supplement to Report on Enlisted Personnel Replacement Costs", August 1963.

that of transportation enroute to training facilities and duty stations. Currently a mean cost is provided by the Bureau of Naval Personnel, Office of the Comptroller.

Pers-Hb, (Comptroller Division) is designing a program which will produce transportation costs by pay grade (officer and enlisted); the pilot program is expected to be run by the NAVY REGIONAL FINANCE CENTER, Cleveland, Ohio after March 1968. The implications of the program are extensive for not only will it provide accurate cost information to BUPERS, but it will make easily accessible, accurate figures on personnel station changes by pay grade which the Personnel Research Laboratory can incorporate into its studies.

D. Transportation O&M and Equipment* Depreciation Costs

The Naval Facilities Engineering Command is capable of supplying, upon request, figures which show transportation O&M, and Equipment Depreciation Costs at Naval Medical Facilities. The Operation and Maintenance Costs reported in NAVCOMPT Form 2122, "Transportation Operations and Maintenance Cost Report" are set forth in Appendix D. Facilities not reporting transportation Operation and Maintenance costs are listed in Part II of Appendix D (these transportation costs are based on the NAVFAC recommended funding level for FY 1968). The annual O&M costs for ambulances shown in Part III of Appendix D were developed from NAVCOMPT Form 2122 and include all ambulances Navy-wide except those at the separate Naval Medical Facilities listed

*Power mowers, etc., utilized by hospital ground maintenance crews.

in Part I of Appendix D. The Equipment Depreciation costs included in Appendix D were computed based on the estimated replacement cost and life expectancy. It is not possible to provide a complete accounting of all vehicles at this level. Cost of primary support vehicles (pick-up trucks, etc.) utilized by smaller medical activities (those not reporting transportation O&M costs) must be obtained by contacting the individual activity.

E. Equipment: Recurring and Non-Recurring Procurement

Large pieces of hospital equipment (beds, sterilization units, X-Ray machines, etc.) are units which are classified as non-recurring procurement items. A formal amortization program at any level does not exist for these items nor is there one central department which offers a complete tabulation of all equipment located at medical activities. For example, to determine the cost of non-recurring procurement items and consumable supplies it is necessary to go to the unit level.

F. Medical Units Afloat and in a Transient Status

Determination of costs for hospital ships, dispensaries afloat, and the Fleet Marine Corps personnel and their associated equipment constitute non-combatant units with a singular specific purpose; their total cost (personnel, physical plant, logistic support, etc.) should be charged directly to the overall medical cost program. Inherent costing problems exist with hospital ships since all armed forces personnel use their services. A prorated costing system for

joint service usage would have to be taken into account when tabulating the net cost of the unit's operation. It is realized that this is currently done at the Bureau level, however, since it is a naval unit, the difference between costs absorbed by the other armed forces and the compound cost (ship, crew, training, etc.) must be absorbed by the Department of the Navy since it is the sponsoring service.

Sick bays aboard naval ships (512 Atlantic, 554 Pacific, 6 Continental United States)⁹ present a distinctly unique problem since only a portion of the ship's cubic footage is allocated to the medical department. The total cost of the ship (as amortized) must be ascertained in order to compute the cost of cubic footage occupied by the medical department. The traditional approach can then be taken in costing personnel, supplies, etc.

Data on the Fleet Marine Force medical and dental facilities staffed by naval officer and enlisted personnel, are virtually impossible to obtain on the unit level due to the mobile status of these facilities. Costing information has not been compiled on Fleet Marine Force operations as of this report.

⁹Information provided by the HM/DT assignment desks at the respective Enlisted Personnel Distribution Offices.

IV. FINDINGS AND CONCLUSIONS

The findings indicate the difficulty of establishing a systematic method of reporting a revised per man per year medical cost. The following areas were considered significant in the revision of the naval medical cost figure:

1. A central accounting system is not in use which displays costs incurred by individual naval medical activities. As such, when the Bureau of Medicine and Surgery computes an annual per man per year medical cost, only a portion of the total Navy-wide medical budget is utilized.

2. Although all medical activities are under the cognizance of the Bureau of Medicine and Surgery for technical directives and procedures, only 71 medical activities are funded directly by the Bureau. The per man per year cost computed for fiscal year 1967 was \$108.77.

3. Other management bureaus responsible for funding naval medical activities are CNO, NAVAIR, BUPERS, NAVORD, NAVSHIP, NAVFAC, ONR, and the Marine Corps. Many of the management bureaus do not show a breakdown of funds expended for medical units under their cognizance since a majority of the medical units receive their funds from host activities which are funded directly by management bureaus.

4. Detailed information is readily available in the area of military and civilian salaries and therefore is not considered a problem area.

5. There are no existing training cost studies for Medical

corps, Dental Corps, Nurse Corps, or Medical Service Corps personnel. The existing HM cost study was unable to define costs for Class "A" or "B" School personnel. The results of the aforementioned studies are essential to the computation of a revised per man per year medical cost.

6. An amortization/budgeted replacement cost program is not in effect which would stabilize the impact of construction costs during any given fiscal year.

There are no existing cost studies on dispensaries afloat or hospital ships.

V. RECOMMENDATIONS

In view of the foregoing conclusions and until such time that action is taken in these problem areas, it is recommended that medical cost research be held in abeyance pending an expanded need for such costs as a part of manpower cost models now under development and that the figure currently provided by the Bureau of Medicine and Surgery be used.

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APPENDIX A

SHORE (FIELD) ACTIVITIES UNDER
THE COMMAND OF THE CHIEF, BUREAU OF MEDICINE AND SURGERY

Naval Aerospace Medical Center, Pensacola, Fla.
Naval Aerospace Medical Institute, Pensacola, Fla.
Naval Hospital, Pensacola, Fla.
Naval Dental Clinic, Camp Pendleton, Calif.
U. S. Naval Dental Clinic, Guam, Mariana Islands
U. S. Naval Dental Clinic, Guantanamo Bay, Cuba
Naval Dental Clinic, Long Beach, Calif.
Naval Dental Clinic, Norfolk, Va.
U. S. Naval Dental Clinic, Pearl Harbor, Hawaii
Naval Dental Clinic, Philadelphia, Pa.
Naval Dental Clinic, Washington, D. C.
U. S. Naval Dental Clinic, Yokosuka, Japan
Naval Dental Research Institute, Great Lakes, Ill.
Navy Disease Vector Control Center, Alameda, Calif.
Navy Disease Vector Control Center, Jacksonville, Fla.
Naval Dispensary, Norfolk, Va.
Naval Dispensary, San Francisco, Calif.
Naval Dispensary, Seattle, Washington
Naval Dispensary, Washington, D. C.
Fld Branch BUMED, Philadelphia, Pa.
Naval Hospital, Annapolis, Md.

Naval Hospital, Beaufort, S. C.
Naval Hospital, Bremerton, Washington
Naval Hospital, Camp Lejeune, N. C.
Naval Hospital, Camp Pendleton, Calif.
Naval Hospital, Charleston, S. C.
Naval Hospital, Chelsea, Mass.
Naval Hospital, Corpus Christi, Tex.
Naval Hospital, Great Lakes, Ill.
U. S. Naval Hospital, Guam, Mariana Islands
U. S. Naval Hospital, Guantanamo Bay, Cuba
Naval Hospital, Jacksonville, Fla.
Naval Hospital, Key West, Fla.
Naval Hospital, Long Beach, Calif.
Naval Hospital, Memphis, Tenn.
Naval Hospital, Newport, R. I.
Naval Hospital, Oakland, Calif.
Naval Hospital, Philadelphia, Pa.
Naval Hospital, Portsmouth, N. H.
Naval Hospital, Portsmouth, Va.
Naval Hospital, Quantico, Va.
Naval Hospital, St. Albans, L. I., N. Y.
Naval Hospital, San Diego, Calif.
U. S. Naval Hospital, Subic Bay, Luzon, Republic of the Philippines
U. S. Naval Hospital, Yokosuka, Japan
Naval Medical Data Services Center, Bethesda, Md.

Naval Medical Field Research Laboratory, Camp Lejeune, N. C.
U. S. Naval Medical Administrative Unit, Oahu, Hawaii
National Naval Medical Center, Bethesda, Md.
Naval Hospital, Bethesda, Md.
Naval Medical Research Institute, Bethesda, Md.
Navy Toxicology Unit, Bethesda, Md.
Naval Dental School, Bethesda, Md.
Naval School of Hospital Administration, Bethesda, Md.
Naval Medical School, Bethesda, Md.
Naval Submarine Medical Center, Groton, Conn.
Naval Blood Research Laboratory, Chelsea, Mass.
Navy Medical Neuropsychiatric Research Unit, San Diego, Calif.
U. S. Naval Medical Research Unit No. 3, Cairo, United Arab Republic
Naval Medical Research Unit No. 1, Berkeley, Calif.
Naval Medical Research Unit No. 4, Great Lakes, Ill.
U. S. Naval Medical Research Unit No. 2, Taipei, Republic of China
Naval Ophthalmic Support Activity, Williamsburg, Va.
U. S. Navy Preventive Medicine Unit No. 7, Naples, Italy
Navy Preventive Medicine Unit No. 2, Norfolk, Va.
U. S. Navy Preventive Medicine Unit No. 6, Pearl Harbor, Hawaii
Navy Preventive Medicine Unit No. 5, San Diego, Calif.
Naval Unit, Fort Detrick, Frederick, Md.
Naval Dental Technicians School, San Diego, Calif.
Naval Hospital Corps School, Great Lakes, Ill.
Naval Hospital Corps School, San Diego, Calif.

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APPENDIX B

MULTIPLIERS FOR COMPUTING APRIL 1967
REPLACEMENT COST OF CLASS 2 REAL PROPERTY

<u>Year Built</u>	<u>Type of Construction</u>			11 May 1967
	<u>Perm</u>	<u>Semiperm</u>	<u>Temp</u>	
<u>1700-1900*</u>	8.113	8.496	8.113	
1901	7.107	8.496	8.113	
1902	7.009	8.186	8.054	
1903*	6.943	7.878	7.957	
1904	6.879	7.593	7.864	
1905*	6.738	7.179	7.491	
1906	6.603	6.809	7.152	
1907*	6.633	7.024	7.132	
1908	6.663	7.254	7.112	
1909*	6.627	7.169	7.027	
1910	6.591	7.086	6.945	
1911	6.623	6.970	7.165	
1912	6.563	6.894	6.858	
1913	6.385	6.784	6.803	
1914	6.450	6.864	6.852	
1915	6.348	6.754	6.797	
1916	5.593	6.420	6.470	
1917	4.809	5.347	5.328	
1918	4.308	4.679	4.463	
1919	3.722	3.995	3.926	
1920	3.123	3.161	3.213	
1921	3.782	3.819	3.977	
1922	4.039	4.111	4.147	
1923	3.668	3.767	3.876	
1924	3.678	3.772	3.991	
1925	3.786	3.835	3.874	
1926	3.820	3.823	3.833	
1927	3.811	3.838	3.900	
1928	3.807	3.869	3.954	
1929	3.707	3.915	3.880	
1930	3.948	4.100	3.882	
1931	4.343	4.458	4.274	
1932	4.796	4.873	4.975	
1933	4.526	4.839	4.715	
1934	4.287	4.402	4.489	
1935	4.244	4.312	4.447	
1936	4.094	4.153	4.208	
1937	3.805	3.835	3.835	
1938	3.776	3.817	3.809	

Type of Construction - Cont.

<u>Year Built</u>	<u>Perm</u>	<u>Semiperm</u>	<u>Temp</u>
1939	3.715	3.778	3.799
1940	3.733	3.699	3.670
1941	3.506	3.485	3.485
1942	3.254	3.209	3.240
1943	3.098	3.049	3.039
1944	2.932	2.887	2.865
1945	2.694	2.646	2.623
1946	2.317	2.291	2.259
1947	1.927	1.915	1.851
1948	1.777	1.764	1.713
1949	1.771	1.763	1.739
1950	1.702	1.687	1.661
1951	1.544	1.506	1.487
1952	1.522	1.488	1.470
1953	1.468	1.462	1.453
1954	1.416	1.425	1.417
1955	1.367	1.372	1.357
1956	1.306	1.303	1.293
1957	1.260	1.261	1.259
1958	1.230	1.239	1.239
1959	1.195	1.204	1.202
1960	1.172	1.176	1.180
1961	1.157	1.163	1.173
1962	1.134	1.140	1.149
1963	1.110	1.108	1.116
1964	1.087	1.081	1.093
1965	1.060	1.054	1.066
1966	1.025	1.021	1.025
1967	1.000	1.000	1.000

Source: Multipliers developed from Eastern and Western District Building Cost Indexes compiled by the Marshall and Stevens Company. The average of Class A and B buildings was used for permanent construction, Class C buildings for semipermanent construction, and Class D buildings for temporary construction.

*Indexes not provided by Marshall and Stevens Company. For years 1700 thru 1900, the 1901 Indexes for Building Classes C and D were used. For other years so marked, multipliers are averages of prior year and following year.

APPENDIX C

As of 28 Feb 1967

Medical Corps Officers by Designator

2104

01	02	03	04	05	06	08	09	10
-	2	2458	1141	347	356	11	2	2

2204

-	-	1048	287	227	333	2	2
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2304

253	211	401	310	199	74
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2904

517	487	381	811	102	4
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Source: NAVPERS 15658

As of 28 Feb 1967

Medical Specialty Types: Officers

210X Medical Corps	4,319
220X Dental Corps	1,899
230X Medical Service Corps	1,448
290X Nurse Corps	2,302
	<hr/>
Total	9,968

Source: NAVPERS 15658

Warrant Officers

817X Medical Service

CWO 4	55	(USN/USNT)
CWO 3	31	(USN/USNT)
CWO 2	2	(USN)
WO 1	-	-

818X Dental Service

CWO 4	9	(USN/USNT)
CWO 3	5	(USN/USNT)
CWO 2	-	-
WO 1	-	-

Source: NAVPERS 15658(A) 1966 - 30 Jan

CEC Billets at Naval Hospital Public Works Department

Naval Hospital, Chelsea, Mass.	LT/5100
Naval Hospital, St. Albans, N. Y.	LCDR/5100
Naval Hospital, Philadelphia, Pa.	LCDR/5100
National Naval Medical Center, Bethesda, Md.	CDR/5100 LT/5100
Naval Hospital, Beaufort, S. C.	LT/5100
Naval Hospital, San Diego, Calif.	LTJG/5100
Naval Hospital, Long Beach, Calif.	LT/5100
Naval Hospital, Oakland, Calif.	LCDR/5100
U. S. Medical Research Unit No. 3, Cairo, United Arab Republic	ENS/5100

Source: BUPERS CEC Officer Detail Desk

Law Specialists at Medical Facilities

Bethesda, Md.	1 LT/LCDR(1)
Philadelphia, Pa.	1 LT
St. Albans, N. Y.	1 LT
Portsmouth, N. H.	1 LT
San Diego, Calif.	1 LT
Oakland, Calif.	1 LT

Source: BUPERS Legal Specialist Officer Detail Desk

The following allowances and grades for Chaplains have been established by CNO:

<u>COMMAND</u>	<u>ALLOWANCE</u>	<u>GRADE</u>				
		<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>
NNMC Bethesda, Md.	6	1	1	1	2	
NH St. Albans, N. Y.	5	1		1	2	1
NH Philadelphia, Pa.	5	1	1	1	2	
NH Portsmouth, Va.	5	1	1	1	2	
NH Great Lakes, Ill.	5	1	1	1	1	1
NH San Diego, Cal.	7	1	1	1	2	2
*NH Oakland, Cal.	7	1	1	5	2	
NH Camp Pendleton, Cal.	3		1		2	
NH Camp Lejeune, N. C.	2			1	1	
NH Chelsea, Mass.	2		1	1		
NH Newport, R. I.	2			1	1	
NG Portsmouth, N. H.	1				1	
NH NAS Jacksonville, Fla.	1			1		
NH Pensacola, Fla.	1			1		
NH Charleston, S. C.	1				1	
NH Key West, Fla.	1			1		
NH Memphis, Tenn.	1			1		
NH Beaufort, S. C.	1					1
NH Corpus Christi, Tex.	1				1	
NH Long Beach, Calif.	1				1	
NH NB, Bremerton, Wash.	1				1	
NH Yokosuka, Japan	1			1		
NH Guam	2			1	1	

*1. U. S. Naval Hospital, Oakland, includes two (2) allowances in the grade of LCDR for Clinical Training.

2. Two (2) chaplains are assigned to USS REPOSE and two (2) are assigned to USS SANCTUARY. Allowances are as Ship's Chaplains and not to USS Hospital in the ships.

3. Naval Support Activity, Danang, uses two (2) of the allowances to attend U. S. Naval Hospital, Danang.

4. Third Marine Division uses two (2) of their 4100 allowances for duty in the Third Medical Battalion.

5. First Marine Division uses two (2) of their 4100 allowances for duty in the First Medical Battalion. The grade varies according to rotation plans.

DT Personnel on Active Duty as of 28 Feb 1967

DTCM	18	
DTCS	51	
DTC	194	
DT 1	464	
DT 2	573	
DT 3	783	
Total PO		2,083
DN	971	
DA	380	
DR	5	
Total		<u>1,356</u>
Grand Total		3,439

Source: NAVPERS 15658

HM Personnel on Active Duty as of 23 Feb 1967

HMCM	181	
HM CS	505	
HMC	2,297	
HM 1	3,740	
HM 2	4,036	
HM 3	5,647	
Total PO		16,406
HN	8,591	
HA	4,204	
HR	492	
Total		<u>13,287</u>
Grand Total		29,693

Source: NAVPERS 15658

APPENDIX D

SUMMARY OF TRANSPORTATION
O&M AND EQUIPMENT DEPRECIATION COSTS
AT NAVAL MEDICAL FACILITIES

PART 1

<u>ACTIVITY</u>	<u>FY 1966</u> <u>O&M COST</u>	<u>EQUIPMENT</u> <u>DEPR.</u>	<u>TOTAL</u> <u>ANNUAL COST</u>
NAVHOSP Annapolis, Md.	\$ 16,097	\$ 4,334	\$ 20,431
NAVHOSP Beaufort, N. C.	19,931	20,880	40,811
NATNAVMEDECEN Bethesda, Md.	164,219	84,509	248,728
NAVHOSP Bremerton, Wash.	23,668	6,741	30,409
NAVHOSP Camp Lejeune, N. C.	49,829	20,023	69,852
NAVDENCLINIC Camp Pendelton, Calif.	1,861	1,616	3,477
NAVHOSP Camp Pendelton, Calif.	89,532	28,234	117,766
NAVHOSP Charleston, S. C.	14,906	1,000	15,906
NAVHOSP Chelsea, Mass.	70,000	34,707	104,707
NAVHOSP Corpus Christi, Tex.	13,876	2,450	16,326
NAVHOSP Great Lakes, Ill.	10,500	4,200	14,700
NAVHOSP Guam, Mariana Islands	17,700	7,080	24,780
NAVHOSP Jacksonville, Fla.	26,700	10,680	37,380
NAVHOSP Memphis, Tenn.	27,147	6,457	33,604
NAVHOSP Newport, R. I.	23,600	3,125	26,725
NAVDENCLINIC Norfolk, Va.	3,774	767	4,541
NAVDISP Norfolk, Va.	19,153	5,750	24,903
NAVHOSP Oakland, Calif.	222,386	56,209	278,595
NAVHOSP Philadelphia, Pa.	58,186	26,583	84,769
NAVHOSP Portsmouth, N. H.	16,500	4,650	21,150
NAVHOSP Portsmouth, Va.	100,973	46,123	147,096
NAVHOSP Quantico, Va.	7,000	2,800	9,800
NAVHOSP St. Albans, N. Y.	142,125	45,969	188,094
NAVHOSP San Diego, Calif.	139,200	55,680	194,880
NAVDISP San Francisco, Calif.	32,562	1,750	34,312
	<hr/>	<hr/>	<hr/>
Total	<u>\$1,311,425</u>	<u>\$482,317</u>	<u>\$1,793,742</u>

SUMMARY OF MEDICAL FACILITIES
NOT REPORTING ANNUAL O&M AND DEPRECIATION COSTS
ON NAVCOMPT FORM 2122

PART 11

<u>ACTIVITY</u>	<u>FY 1968 APT</u>
NAVHOSP Yokosuka, Japan	32,200
NAVHOSP Longbeach, Calif	126,100
NAVAVMEDCEN Pensacola, Fla.	33,800
NAVDENCLINIC Guam	1,400
NAVHOSP Subic Bay	11,600

COST OF AMBULANCES
NOT INCLUDED IN ACTIVITIES
LISTED IN PART I

PART III

<u>O&M COSTS</u>	<u>DEPRECIATION</u>	<u>TOTAL COST</u>
\$196,433	\$510,726	\$707,159

APPENDIX E

SUMMARIAL ACCOUNTING: CLASS II REAL PROPERTY

The following is a percentile evaluation of Class II (Structures) Real Property utilized by U. S. Naval Medical activities, funded by CNO, NAVAIR, BUMED, BUPERS, NAVORD, NAVSHIPS, NAVSUP, NAVFAC, ONR and MARCORPS.

<u>Total Facilities:</u>	<u>Temporary</u> ¹	<u>Semipermanent</u> ²	<u>Permanent</u> ³
2706	234	1097	1375
<u>Oldest Construction:</u>	1907	1844	1835
<u>Newest Construction:</u>	1966	1967	1966
<u>% of Total in Each Category:</u>	8.7%	40.5%	50.8%
<u>% Exceeding Programmed Life Span:</u>	87.2%	88.7%	35.7%

T: 5 Yrs +
 *S: 13 Yrs +
 P: 25 Yrs +

1. Temporary construction: Includes all buildings suitable and appropriate to fill a need for a short period of time (5 yrs or less) without regard to the degree of maintenance and the designs and details of which provide minimum facilities with maximum initial economies.

2. Semipermanent construction: Includes all buildings suitable and appropriate to serve a specific purpose for a limited period of time (less than 25 yrs but more than 5 yrs) with a moderate to high degree of maintenance.

3. Permanent construction: Includes all buildings suitable and appropriate to serve a specific purpose for a maximum period of time (at least 25 yrs) and with a minimum of maintenance.

*Since the range is 5-25 years, 13 years was established as a means for computational purposes.

Source: #7150 BUMED Item List Acq Repl BUMED Fin of 8 May 1967.

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APPENDIX F

ACQUISITION COST BY MANAGEMENT BUREAU
FOR REAL PROPERTY CLASS I & II

CNO	\$ 8,339,258
NAVAIR	35,146,523
BUMED	221,643,811
BUPERS	7,894,411
NAVORD	1,799,215
NAVSHIP	3,351,287
NAVSUP	645,690
NAVFAC	999,270
ONR	4,500
MARCORPS	6,929,939
TOTAL COST	<u>\$286,753,904</u>

(Acquisition Cost includes total funds expended for structural improvements since original construction.)

Source: Report #U7150 BUMED Item List Acq Repl BUMED Fin of 8 May 1967.

APPENDIX G

DATA SOURCE AND AVAILABILITY SUMMARY

<u>Title</u>	<u>Availability</u>	<u>Source</u>
A: Shore (Field) Activities under the Command of the Chief, Bureau of Medicine and Surgery	Data Exists	BUMED Code 441
B: Multipliers for Computing April 1967 Replacement Cost of Class II Real Property	Data Exists	NAVFACENGCOM Code 01511
C: Medical Corps Officers by Designator	Data Exists	BUPERS Code A23 Published monthly NAVPERS 15658: Annual Summary NAVPERS 15658(A)
Medical Specialty Types Officers	Data Exists	Ibid
Warrant Officers (MEDICAL/DENTAL)	Data Exists	BUPERS Code A 23 Annual Summary NAVPERS 15658(A)
CEC Billets at NAVHOSP Public Works Department	Data must be Compiled	BUPERS Code B1112
Law Specialists at Medical Facilities	Data must be Compiled	BUPERS Code B1105
Chaplains at Medical Facilities	Data Exists	BUPERS Code B1105
DT Personnel on Active Duty	Data Exists	BUPERS Code A 23 NAVPERS 15658
HM Personnel on Active Duty	Data Exists	Ibid
D: Summary of Transportation O&M and Equipment Depreciation Costs at Naval Medical Facilities	Data must be Compiled	NAVFACENGCOM Code 1033

<u>Title</u>	<u>Availability</u>	<u>Source</u>
E: Summarial Accounting Class II Real Property (Abstraction)	Raw data exists: Summary must be Compiled	NAVFACENGCOM Code 0731: Master Report No. U7150
F: Acquisition Cost by Management Bureau for Real Property Class I/II	Data Exists Compiled	NAVFACENGCOM Code 0731

SOURCE INFORMATION NOT IN APPENDIX

1. Civilian employees' salaries at Medical Facilities within U.S.	Data must be Compiled	OCMM Code 02213
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APPENDIX H

FY 1967 COST PER MAN PER YEAR - MEDICAL CARE
BUMED SUPPORT ONLY

Budget Activity	Rate Per Man	Computation
1810A Medical Care in Naval Hospitals	\$ 38.51	7966 active duty patients x 365 = 2,907,590 days x rate per day \$16.99 = \$49,399,954 ÷ strength, 1,026,140 = \$48.11 x 80% = \$38.51
	6.88	1424 dependents (AcDu) x 365 = 519,760 days x rate per day \$16.99 = \$8,830,722 ÷ strength, 1,026,140 = \$8.60 x 80% = \$6.88
1810B Specialized Medi- cal Facilities	1.59	Total cost \$2,039,000 ÷ strength, 1,026,140 = \$1.99 x 80% = \$1.59
1830 Med Services, Supplies and Equipment at other Activities	11.89	\$15,252,000 (Operating Forces) ÷ strength, 1,026,140 = \$14.86 x 80% = \$11.89
1860 Med Care in Non-Naval Facilities	3.52	Active duty personnel at \$3,615,000 ÷ strength, 1,026,140 = \$3.52
	41.19	Dependents of AcDu personnel at \$42,262,000 ÷ strength, 1,026,140 = \$41.19
1870 Care of the Dead	5.19	Total cost, \$5,328,000 ÷ strength 1,026,140 = \$5.19
Total	\$108.77	

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13. ABSTRACT

The purpose of this Research Memorandum is to identify and evaluate the problem areas associated with the determination of medical costs as incurred by the Department of the Navy for its military personnel. To establish a valid medical cost, individual training cost studies should be completed for HM's, DT's, Medical Corps, Dental Corps, Nurse Corps, Medical Service Corps, and the Chaplain Corps. Currently ten management bureaus are involved with the distribution of funds for Naval Medical Activities. The Bureau of Medicine and Surgery funds a portion of the complete medical budget, and it is this figure which is used in the computation of a per man per year medical cost. A close examination of the current medical accounting system should be undertaken to determine the economic feasibility of establishing one central medical cost reporting agency. This would provide a complete cost of medical services which could then be combined with the training costs and prorated on a per man per year basis to arrive at a more valid annual cost. Until this has been accomplished, it is recommended that the medical cost as currently reported by the Bureau of Medicine and Surgery be utilized.

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