

APPENDIX C: VETERANS ADMINISTRATION LIFECYCLE COST ESTIMATES FOR DHCP

In response to an information request from OTA, the VA's Department of Medicine and Surgery provided the Decentralized Hospital Computer Program (DHCP) budget information for fiscal years 1983 through 1996 shown in appendix tables C-1, C-2, and C-3.¹ These **budget estimates are** categorized by costs for Initial and Full Core and for Enhanced DHCP. Table C-1 shows VA budget estimates for the six Initial and Full Core modules.² Table c-2 shows VA budget estimates for the eight Enhanced DHCP modules³, and table C-3 shows the totals for Initial and Full Core and Enhanced DHCP (referred to herein as Core plus 8),

According to VA, the historical (sunk) costs for DHCP are reported as actual obligations for fiscal years 1983-86. The fiscal year 1987 data are the VA% most recent estimates of obligations to be incurred. The figures for fiscal year 1988 are based upon the Office of Management and Budget passback of fiscal year 1987 funds, and the figures for fiscal years 1989-96 are based upon VA% best estimates of obligations to be incurred.

The DHCP Core Plus 8 budget estimates provided to OTA (see table C-3) indicate 10-year lifecycle costs of some \$884 million for the period fiscal years 1987-96. In comparing this figure with the two sets of lifecycle cost estimates provided to the General Accounting Office (GAO)⁴, OTA determined that these new figures were roughly

1. Letter to OTA from David A. Cox, Associate Deputy Administrator for Management (enclosure A), Aug. 28, 1987.
2. The "Initial Core" modules are Registration, Admission/Discharge/Transfer, Clinic Scheduling, and Outpatient Pharmacy; the "Full Core" modules add Clinical Laboratory and Outpatient Pharmacy. The six "Initial and Full Core" modules are referred to simply as "Core" in this document.
3. [In June 1987, the VA announced a reduction in scope of DHCP, to include only the 6 Core modules and 8 (of the original 22) Enhanced modules. The eight modules currently included in Enhanced DHCP are: Radiology, Dietetics, Medical Records tracking, IFCAP, DMMS, Surgery, Mental Health, and Nursing (see app. B).
4. See U.S. General Accounting Office, Hospital ADP Systems: VA Needs to Better Manage Its Decentralized System Before Expansion, GAO/IMTEC-87-28, July 1987.

VA provided GAO with two revised lifecycle cost estimates for DHCP Core Plus 8. The first is given in enclosure 2 of a letter from the VA Administrator to GAO (p. 93 of the GAO report). These estimates were developed using a fringe benefit rate of 16 per cent for fiscal year 1987 and 20 per cent for subsequent years; these are the rates the VA uses in its internal budgeting. The total estimated cost for fiscal years 1987 — 96 was about \$878 million.

A second revised lifecycle cost estimate was also developed using a fringe benefit rate of 34.35 per cent, to reflect the Government% full share of retirement costs, not just VA costs, per OMB Transmittal Bulletin 87-2. The total estimated cost for fiscal years 1987 – 96 was about \$925 million, or about \$46.7 million

(continued)

comparable ⁵ to the earlier lifecycle cost estimate prepared using VA's internal fringe benefit rate of 16 percent for fiscal year 1987 and 20 percent for subsequent years. (VA Central Office personnel costs for an average of 20 full-time equivalent employees were not included in the DHCP cost data provided to OTA; these are less than 1 per cent of total estimated costs.)

Actual costs to the government would reflect the total government fringe benefit rate, determined by OMB Transmittal Bulletin 87-2 to be 34.35 percent annually. Comparing the two VA cost estimates (16 and 20 percent fringe benefit rates versus a 34.35 percent rate) shows a difference in 10-year lifecycle costs of about \$46.7 million.

Therefore, for the purposes of this report, OTA uses lifecycle costs of some \$930 million for the 10-year period, fiscal years 1987-96, to reflect total costs to the government. ⁶

VA's cost estimates for additional and replacement computer equipment to support the Core amount to some \$67 million over the 10-year period, fiscal years 1987-96 (see table C-1). VA estimates that additional and replacement equipment to support the eight Enhanced modules over the same 10-year interval will amount to some \$89 million, with procurements during the period fiscal years 1988-96 (see table C-2). Thus, total computer equipment costs for Core Plus 8 are estimated by VA to be some \$156 million (see table C-3).⁷

The request for proposals (RFP) currently at issue (VA RFP #101-5-87, March 9, 1987) provides for a 'mandatory' stage of hardware procurement for the largest VA

higher due to the inclusion of additional fringe benefit costs (p. 104 of the GAO report).

5. The two sets of cost estimates showed relatively small differences in maintenance costs, miscellaneous contracts, telecommunications and utilities costs, etc.

6. Calculated by adding \$46.7 million to the \$883.7 million total shown in table C-3 for fiscal years 1987 - 96, yielding \$930.4 million.

Taking the total fringe benefit cost to the government into account, OTA also concludes that the actual cumulative cost to the government for Core Plus 8 over the period fiscal years 1983 — 96 is likely to be at least \$50 million larger than the \$1.068 billion indicated in table C-3, or about \$1.1 billion.

7. Total cumulative computer equipment costs, including sunk costs, over the period are some \$239 million, according to VA (\$150 million to support the Core and \$89 million to support the 8 Enhanced modules).

Medical Centers (VAMCs) and the Information Systems Centers (ISCs), plus options for increased quantity and four additional stages of procurement, and other options to extend the contract for up to a ten-year period and for additional features and technology upgrades (see section I-3 and Appendices I and II of the RFP).

According to the Medical Information Resources Management Office (MIRMO), completing Stage 111 of the procurement would provide enough computer hardware to run Core Plus 8 in the 169 VAMCs using DHCP. The cost of procuring additional hardware to run Core Plus 8 in the 169 VAMCs corresponds to the \$84.3 million over fiscal years 1988-90 indicated in table C-2.⁸ However, OTA notes that if **all** options in the RFP were to be exercised, then VA'S procurements (for Stages IV and V, or for additional features and upgrades) would exceed VA'S current budget estimate of \$84.3 million.

Based on the RFP's system requirements information (see app. table D-1), OTA calculates that procurements sufficient to run Core Plus 8 in the 169 VAMCs using DHCP (i.e. procurements through Stage III) would correspond to between 60 and 65 percent of the computing capacity and facilities of the potential full (five-stage) procurement with all quantity options exercised. Based on the \$84.3 million additional-equipment cost estimated by VA for a three-stage procurement (see app. table C-2), Stage IV and V procurements might amount to an additional \$50 million. [f Stage IV and V procurements were made, total DHCP lifecycle costs would increase by more than \$50 million, because there is a multiplier effect from additional computer hardware costs: additional hardware maintenance costs, ISC personnel costs for development of additional software beyond Core Plus 8 to take advantage of the Stage IV and V capacity, additional VAMC staff and application coordinator personnel costs to utilize additional software, etc. would also be important. For example, the VA'S DHCP budget estimates for Core Plus 8 (see app. table C-3) show that additional and replacement equipment costs over the period fiscal years 1983-96 amount to about 22 percent of total cumulative costs.

8. Letter to OTA from David A. Cox (enclosure B), Aug. 28, 1987.

APPENDIX TABLE C-1

D H C P BUDGET COS ESTIMATES - INITIAL AND FULL CORE (000)

AUGUST 14, 1987

DESCRIPTION	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	TOTAL
VANC FTEE	(33)	(68)	(163)	(395)	(323)	(395)	(429)	(491)	(553)	(649)	(689)	(689)	(689)	(689)	(689)
VANC PAY & BENEFITS	870	1,794	4,300	9,304	7,836	9,583	10,408	12,093	13,777	16,386	17,473	17,473	17,473	17,473	156,242
VANC FRINGE BENEFITS	109	224	538	1,163	980	1,198	2,082	2,419	2,755	3,277	3,495	3,495	3,495	3,495	28,722
ISC FTEE	(95)	(127)	(127)	(182)	(201)	(210)	(210)	(210)	(210)	(210)	(210)	(210)	(210)	(210)	(210)
ISC PAY & BENEFITS	3,003	4,014	4,016	5,139	5,846	6,108	6,108	6,108	6,108	6,108	6,108	6,108	6,108	6,108	76,987
ISC FRINGE BENEFITS	375	502	502	642	731	763	1,222	1,222	1,222	1,222	1,222	1,222	1,222	1,222	13,208
SIUG FTEE					(3)	(3)	(3)	(3)	(3)	(3)	(3)	(3)	(3)	(3)	(3)
SIUG PAY & BENEFITS					98	98	98	98	98	98	98	98	98	98	977
SIUG FRINGE BENEFITS					12	12	20	20	20	20	20	20	20	20	181
APPLICATION COORDINATORS FTE					(203)	(76)	(51)	(51)	(51)	(51)	(51)	(51)	(51)	(51)	(51)
APPL CORD PAY & BENEFITS					5,510	2,066	1,378	1,378	1,378	1,378	1,378	1,378	1,378	1,378	18,598
APPL CORD FRINGE BENEFITS					689	258	276	276	276	276	276	276	276	276	3,151
PROGRAM TRAVEL	665	1,280	1,188	874	786	908	959	1,052	1,145	1,289	1,349	1,349	1,349	1,349	15,538
TRAINING TRAVEL					49	11	41	41	41	41	41	41	41	41	416
SIUG TRAVEL					8	8	8	8	8	8	8	8	8	8	75
SYS ANAL & PROG	182			114											296
SOFTWARE MAINTENANCE			528	378	1,090	1,090	1,090	1,090	1,090	1,090	1,006	983	1,032	1,068	11,535
HARDWARE MAINTENANCE			5,779	8,837	8,529	9,836	9,836	9,836	9,836	9,836	9,074	8,110	7,581	7,377	104,466
MISC CONTRACTS	90	90	213	1,127	1,093	1,344	1,344	1,344	1,344	1,344	1,344	1,344	1,344	1,344	14,706
TRAINING - FED		622	1,113		122	102	102	102	102	102	102	102	102	102	2,775
TRAINING - COM				61	168	168	168	168	168	168	168	168	168	168	1,741
RECORDING MEDIA		0	2,004	1,997	372	213	213	213	213	213	213	213	213	213	6,291
OPERATING SUPPLIES		2,413	3,098	1,970	3,115	3,115	3,115	3,115	3,115	3,115	3,115	3,115	3,115	3,115	38,628
TELECOMMUNICATIONS					1,650	1,650	1,451	062	697	697	697	697	697	697	9,285
UTILITIES					2,460	2,460	2,164	1,285	1,040	1,040	1,040	1,040	1,040	1,040	13,848
ADDITIONAL EQUIPMENT	25,396	32,146	17,626	6,798							9,047	14,110	13,220	5,098	143,441
REPLACEMENT EQUIPMENT		178	403	526	528	578	578	574	574	574	529	518	543	562	6,664
SITE PREPARATION	1,440	23,557	5,259												30,256
TOTAL	32,130	66,822	46,567	38,930	41,671	41,103	41,880	43,299	45,003	48,218	67,798	71,862	60,517	52,247	698,107
CUMULATIVE	32,130	98,952	145,519	184,449	226,121	267,223	309,104	352,403	397,406	445,683	513,481	585,344	645,860	698,107	

SOURCE: Veterans' Administration. Letter to OTA from David Cox, Associate Deputy Administrator for Management (Enclosure A), Aug. 28, 1987.

APPENDIX TABLE C-2

D H C P BUDGET COST ESTIMATES - ENHANCED (000)

AUGUST 14, 1987

	1989	1990	1991	1992	1993	1994	1992	1996	TOTAL
VANC FTEE	(72)	(72)	(120)	(144)	(163)	(163)	(163)	(163)	(163)
VANC PAY & BENEFITS	1,747	1,747	3,051	3,703	4,219	4,219	4,219	4,219	32,565
VANC FRINGE BENEFITS	210	218	610	741	844	844	844	844	6,851
ISC FTEE	(35)	(51)	(51)	(51)	(51)	(50)	(50)	(49)	(49)
ISC PAY & BENEFITS	1,140	1,661	(1,661)	1,661	1,661	1,628	1,628	1,596	15,893
ISC FRINGE BENEFITS	142	208	332	332	332	326	326	319	3 1 9
SIUG FTEE	(7)	(7)	(7)	(7)	(7)	(7)	(7)	(7)	(7)
SIUG PAY & BENEFITS	22a	22a	228	22a	22a	22a	22a	22a	2,280
SIUG FRINGE BENEFITS	2	8	46	46	46	46	46	46	422
APPLICATION COORDINATORS FTEE		(128)	(240)	(229)	(174)	(127)	(127)	(127)	(127)
APPL CORD PAY & BENEFITS		3,478	6,521	6,222	4,72a	3,641	3,451	3,431	38,394
APPL CORD FRINGE BENEFITS	0	435	1,304	1,244	946	72a	690	690	7,410
PROGRAM TRAVEL	161	185	257	287	315	313	313	312	2,767
TRAINING TRAVEL		124	37	62	50	42	27	27	424
SIUG TRAVEL	18	18	18	18	18	18	18	18	175
SYS ANAL & PROG									0
SOFTWARE MAINTENANCE		294	601	988	1,121	1,121	1,121	1,121	8,607
HARDWARE MAINTENANCE		1,487	5,423	8,911	10,111	10,111	10,111	10,111	76,488
MISC CONTRACTS	1,500	365	365	365	365	365	358	358	351 4,746
TRAINING - FED		310	92	155	126	106	68	68	68 1,061
TRAINING - CON		100	100	100	100	100	100	100	100 900
RECORDING MEDIA		268	1,175	873	453	219	219	219	219 3,865
OPERATING SUPPLIES		859	1,717	2,822	3,202	3,202	3,202	3,202	3,202 24,609
TELECOMMUNICATIONS		199	510	78a	953	953	953	953	953 7,215
UTILITIES		296	761	1,175	1,420	1,420	1,420	1,420	1,420 10,752
ADDITIONAL EQUIPMENT		45,195	29,064	10,000					84,259
REPLACEMENT EQUIPMENT			316	520	590	590	590	590	590 4,373
SITE PREPARATION		15,000	15,000						30,000
TOTAL	0	0	0	0	20,182	72,702	54,190	41,240	31,827 30,261 29,931 29,931 29,884 29,884 370,031
CUMULATIVE	0	0	0	0	20,182	92,884	147,074	188,314	220,141 250,401 280,333 310,264 340,14a 370,031

SOURCE: Veterans' Administration. Letter to OTA from David Cox, Associate Deputy Administrator for Management (Enclosure A), Aug 28, 1987.

APPENDIX TABLE C-3

D M C P BUDGET COST ESTIMATES - INITIAL/FULL CORE AND ENHANCED (000)

AUGUST 14, 1987

DESCRIPTION	1983	1984	1985	1986	1987	1988	1989	two	1991	1992	1993	1994	1995	1996	TOTAL
VAMC FTEE	(33)	(68)	(163)	(395)	(395)	(467)	(549)	(635)	(716)	(812)	(852)	(852)	(852)	(852)	(852)
VAMC PAY & BENEFITS	870	1,794	4,300	9,304	9,583	11,330	13,459	15,796	17,996	20,605	21,692	21,692	21,692	21,692	191,805
VAMC FRINGE BENEFITS	109	224	538	1,163	1,198	1,416	2,692	3,160	3,599	4,121	4,339	4,339	4,339	4,339	35,576
ISC FTEE	(95)	(127)	(127)	(182)	(236)	(261)	(261)	(261)	(261)	(261)	(260)	(260)	(259)	(259)	(259)
ISC PAY & BENEFITS	3,003	4,016	4,016	5,139	6,986	7,769	7,769	7,769	7,769	7,769	7,736	7,736	7,704	7,704	92,885
ISC FRINGE BENEFITS	375	502	502	642	873	971	1,554	1,554	1,554	1,554	1,548	1,548	1,541	1,541	16,259
SIUE FTEE					(10)	(10)	(10)	(10)	(10)	(10)	(10)	(10)	(10)	(10)	(10)
SIUE PAY & BENEFITS					326	326	326	326	326	326	326	326	326	326	3,260
SIUE FRINGE BENEFITS					40	40	66	66	66	66	66	66	66	66	608
APPLICATION COORDINATORS FTEE					(203)	(204)	(291)	(280)	(225)	(185)	(178)	(178)	(178)	(178)	(178)
APPL CORD PAY & BENEFITS					5,510	5,544	7,899	7,600	6,106	5,019	4,829	4,829	4,829	4,829	56,994
APPL CORD FRINGE BENEFITS					689	693	1,580	1,520	1,222	1,004	966	966	966	966	10,572
PROGRAM TRAVEL	665	1,280	1,188	874	947	1,093	1,216	1,339	1,460	1,604	1,662	1,662	1,661	1,661	18,312
TRAINING TRAVEL					49	165	78	103	91	83	68	68	68	68	841
SIUE TRAVEL					26	26	26	26	26	26	26	26	26	26	260
SYS ANAL & PROG	182			114											296
SOFTWARE MAINTENANCE			528	378	1,090	1,384	1,691	2,078	2,211	2,211	2,127	2,104	2,153	2,189	20,144
HARDWARE MAINTENANCE			5,779	8,837	8,529	11,523	15,259	18,747	19,947	19,947	19,185	18,221	17,692	17,488	180,954
MISC CONTRACTS	90	90	213	1,127	2,593	1,709	1,709	1,709	1,709	1,709	1,702	1,702	1,695	1,695	19,452
TRAINING - FED		622	1,113		122	412	194	257	228	208	170	170	170	170	3,836
TRAINING - CON				61	168	269	269	269	269	269	269	269	269	269	2,650
RECORDING MEDIA			2,004	1,997	372	481	1,388	1,086	666	432	432	432	432	432	10,154
OPERATING SUPPLIES		2,413	3,098	1,970	3,115	3,974	4,832	5,937	6,317	6,317	6,317	6,317	6,317	6,317	63,241
TELECOMMUNICATIONS					1,650	1,650	1,650	1,650	1,650	1,650	1,650	1,650	1,650	1,650	16,500
UTILITIES					2,460	2,460	2,460	2,460	2,460	2,460	2,460	2,460	2,460	2,460	24,600
ADDITIONAL EQUIPMENT	25,396	32,146	17,626	6,798		45,195	29,064	10,000			19,047	24,110	13,220	5,098	227,700
REPLACEMENT EQUIPMENT		178	403	526	528	578	894	1,094	1,164	1,164	1,119	1,108	1,133	1,152	11,041
SITE PREPARATION	1,440	23,557	5,259		15,000	15,000									60,256
TOTAL	32,130	66,822	46,567	38,930	61,854	113,808	96,075	84,546	76,836	78,544	97,736	101,801	90,409	82,138	1,068,196
CUMULATIVE	32,130	98,952	145,519	184,449	246,303	360,111	456,186	540,732	617,568	696,112	793,848	895,649	986,058	1,068,196	

SOURCE: Veterans' Administration. Letter to OTA from David Cox, Associate Deputy Administrator for Management (Enclosure A), Aug. 28, 1987.