



## THE ASSISTANT SECRETARY OF DEFENSE

1200 DEFENSE PENTAGON  
WASHINGTON, DC 20301-1200

### HEALTH AFFAIRS

JAN 31 2002

Honorable Bob Stump  
Chairman, Committee on Armed Services  
House of Representatives  
Washington, DC 20515-6035

Dear Mr. Chairman:

I am pleased to provide you with the Department of Defense enclosed *Evaluation of the TRICARE Program for Fiscal Year 1999 Report to Congress*. This report responds to the annual requirement outlined in Section 717 of the National Defense Authorization Act for Fiscal Year 1996, Public Law 104-106, which requires the Assistant Secretary of Defense to conduct an independent, ongoing evaluation of the effectiveness of TRICARE in meeting the goals of improving access and quality of healthcare for our beneficiaries, while controlling costs for them and for the government. The enclosed report represents the results of the Department's effort to meet these objectives as outlined in the public law.

This evaluation was conducted by independent agencies not associated with the Department of Defense. We have continued to use the combined expertise of two Federally Funded Research and Development Centers, the Institute for Defense Analyses and the Center for Naval Analyses, to maximize the quality of the study effort. The two agencies conjointly prepared this year's report that reflects their work to date. I trust the Committee will find the *Evaluation of the TRICARE Program for Fiscal Year 1999 Report to Congress* helpful in understanding our progress thus far. This year's effort, the FY 2001 study, evaluated the impact of TRICARE in all eleven Health Service Regions operating under TRICARE during FY 1999.

I thank you for your continued support of the Department's efforts to implement the TRICARE Program.

Sincerely,

  
William Winkenwerder, Jr., MD

Enclosure:  
As Stated

cc:  
Honorable Ike Skelton  
Ranking Democrat

# **Evaluation of the TRICARE Program for FY 1999**

FY 2001 Report to Congress

Peter H. Stoloff, *CNA Corporation*

Philip M. Lurie, *Institute for Defense Analyses*

Lawrence Goldberg, *Institute for Defense Analyses*

Michele Almendarez, *CNA Corporation*

## PREFACE

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The *FY 2001 Evaluation of the TRICARE Program* was performed jointly by the CNA Corporation and the Institute for Defense Analyses (IDA) for the Office of the Assistant Secretary of Defense (Health Affairs). The objectives of the evaluation were to assess: (1) the effectiveness of the TRICARE program in improving beneficiaries' access to health care, (2) the impact of TRICARE on the quality of health care received by Military Health System (MHS) beneficiaries, and (3) the effect of TRICARE on health care costs to both the government and MHS beneficiaries.

The evaluation of access and quality was performed by the CNA Corporation; the evaluation of government and beneficiary costs was performed by IDA. Comments and questions should be directed to:

Dr. Peter Stoloff  
CNA Corporation  
4825 Mark Center Drive  
Alexandria, VA 22311  
tel.: (703) 824-2244  
e-mail: stoloffp@cna.org

or

Dr. Philip Lurie  
Institute for Defense Analyses  
1801 N. Beauregard Street  
Alexandria, VA 22311  
tel.: (703) 845-2118  
e-mail: plurie@ida.org

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# Contents

EXECUTIVE SUMMARY .....	ES-1
1. INTRODUCTION .....	1-1
2. BACKGROUND .....	2-1
2.1 The Three TRICARE Options.....	2-2
2.1.1 Standard.....	2-2
2.1.2 Extra.....	2-3
2.1.3 Prime.....	2-6
2.1.4 Overseas Programs .....	2-7
2.2 Benefit Enhancements .....	2-7
2.2.1 TRICARE for Life.....	2-7
2.2.2 Elimination of Active-Duty Family Member Copayments .....	2-8
2.3 Supplemental Programs.....	2-8
2.3.1 Medicare Subvention Demonstration .....	2-8
2.3.2 TRICARE Senior Supplement Demonstration.....	2-10
2.3.3 TRICARE Dental Program.....	2-10
2.3.4 National Mail Order Pharmacy Program.....	2-11
2.3.5 Federal Employees Health Benefits Program Demonstration .....	2-12
2.3.6 TRICARE Prime Remote .....	2-13
3. ACCESS TO AND QUALITY OF HEALTH CARE UNDER TRICARE .....	3-1
3.1 Methods and Data Sources .....	3-1
3.1.1 General Method .....	3-1
3.1.2 Data Sources (DoD Surveys).....	3-2
3.1.3 CAHPS Scoring Methodology .....	3-4
3.1.4 Aspects of the Survey Data .....	3-5
3.1.5 Subpopulations .....	3-6
3.1.6 Evaluation of Trends .....	3-9
3.1.7 Presentation Scheme.....	3-9
3.2 Subpopulation Characteristics .....	3-10
3.3 Changes in Access.....	3-11
3.3.1 Realized Access.....	3-12
3.3.2 Availability of Care .....	3-14
3.3.3 Process of Obtaining Care .....	3-16
3.3.4 Effects of Provider Type on Perceptions of Prime Enrollees .....	3-18
3.4 Changes in Quality of Care.....	3-21
3.4.1 Meeting Standards Under TRICARE .....	3-21
3.4.2 Perceptual Measures of Quality of Care.....	3-23
3.5 Comparisons of MHS Beneficiaries With the General Population .....	3-26
3.6 Satisfaction With Filing Medical Claims Under TRICARE .....	3-26
3.7 Retirees .....	3-28
3.8 Effects of Region Maturity .....	3-30
3.8.1 Region 11 Changes.....	3-32
3.8.2 Region Maturity.....	3-33
3.9 Satisfaction with Health Plan .....	3-36
3.9.1 Predictors of Satisfaction With Health Plan .....	3-36

3.10 Areas of Possible Concern.....	3-38
3.10.1 Satisfaction With Military versus Civilian Care.....	3-39
3.10.2 Shortfalls in Meeting Quality-of-Care Goals.....	3-40
3.10.3 Claims Processing.....	3-41
3.11 What Went Right.....	3-41
4. COST TO THE GOVERNMENT .....	4-1
4.1 Methods and Data Sources .....	4-1
4.1.1 Data Sources.....	4-1
4.1.2 Purchased Care Data.....	4-2
4.1.3 Direct Care Data.....	4-3
4.1.4 Utilization and Cost Models.....	4-4
4.1.5 Summary of Findings .....	4-6
4.2 Cost to the Government.....	4-20
4.2.1 Direct-Care Costs .....	4-22
4.2.2 Purchased-Care Costs.....	4-25
4.2.3 Other DHP Costs .....	4-28
4.2.4 Total DoD Cost per User.....	4-29
4.2.5 Summary.....	4-29
5. COST TO COVERED BENEFICIARIES.....	5-1
5.1 Analytical Approach.....	5-1
5.1.1 Analysis of TRICARE-Eligible Families.....	5-2
5.1.2 Analysis of Medicare-Eligible Families.....	5-4
5.2 Cost to TRICARE-Eligible Beneficiaries.....	5-5
5.2.1 Deductibles, Copayments, and Fees Under TRICARE.....	5-5
5.2.2 TRICARE Supplemental Insurance.....	5-6
5.2.3 Employer-Sponsored Health Insurance.....	5-6
5.2.4 Effect of TRICARE on Insurance Coverage Decisions .....	5-7
5.2.5 Effect of TRICARE on Family Utilization Rates.....	5-9
5.2.6 Computation of Expected Deductibles and Copayments in FY 1999 .....	5-9
5.2.7 Effect of TRICARE on Out-of-Pocket Expenses of TRICARE-Eligible Families.....	5-10
5.3 Cost to Medicare-Eligible Beneficiaries.....	5-13
5.3.1 Deductibles and Copayments Under Medicare .....	5-13
5.3.2 Medicare Supplemental Insurance.....	5-13
5.3.3 Other Private Health Insurance for Medicare Eligibles.....	5-17
5.3.4 TRICARE's Effect on the Insurance Coverage of Medicare Eligibles...	5-20
5.3.5 Factors Affecting Medicare Expenses per Eligible .....	5-21
5.3.6 Computation of Total Out-of-Pocket Expenses.....	5-22
5.3.7 Effect of TRICARE On Out-of-Pocket Expenses of Medicare-Eligible Families.....	5-24
5.4 Summary.....	5-25
APPENDIX A: APPROACH TO ANALYZING TRENDS IN SATISFACTION WITH TRICARE.....	A-1
APPENDIX B: DISTRIBUTION OF SUBPOPULATIONS IN THE 1994 AND 1999 SAMPLES .....	B-1

APPENDIX C: REGIONAL CHANGES FROM 1994 TO 1999 IN ACCESS AND SATISFACTION WITH CARE INDICATORS .....	C-1
APPENDIX D: EFFECT OF PCM TYPE ON ACCESS AND QUALITY OF CARE OF PRIME ENROLLEES BY REGION .....	D-1
APPENDIX E: REGIONAL QUALITY-OF-CARE INDICATORS .....	E-1
APPENDIX F: REGIONAL DIFFERENCES IN SATISFACTION WITH CLAIMS PROCESSING .....	F-1
APPENDIX G. RETIREE ACCESS AND QUALITY OF CARE MEASURES.....	G-1
APPENDIX H: CHANGES IN ACCESS AND QUALITY-OF-CARE OUTCOMES IN REGION 11: 1994–1999 .....	H-1
APPENDIX I. TRENDS IN ACCESS AND QUALITY OF CARE UNDER TRICARE .....	I-1
APPENDIX J: SAMPLE SELECTION PROCEDURES.....	J-1
APPENDIX K: BENEFICIARY ACCESS MEASURES FOR PREDICTING UTILIZATION .....	K-1
APPENDIX L: REGIONAL ANALYSIS OF UTILIZATION AND GOVERNMENT COSTS .....	L-1
APPENDIX M: EFFECT OF TRICARE ON OTHER INSURANCE COVERAGE....	M-1
APPENDIX N: SELECTED DHP PROGRAM ELEMENT DEFINITIONS .....	N-1
ABBREVIATIONS .....	O-1

## Tables

2-1. TRICARE Enrollment Status (June 2001) .....	2-2
2-2. TRICARE Cost-Sharing Features in FY 2001 .....	2-4
2-3. TRICARE Senior Prime Status (April 2001) .....	2-9
3-1. Effect of Time Enrolled in Prime During FY 1999 on Selected Outcomes .....	3-6
3-2. Distribution of Subpopulations Estimated from the 1994 and 1999 Samples .....	3-8
3-3. Data-Year and Region-Groups for Trend Analyses .....	3-9
3-4. Comparison of Control Variables Between the 1994 and 1999 Populations .....	3-10
3-5. Control Variable Means in the 1999 Population .....	3-11
3-6. Changes in Proportion of Beneficiaries With an Outpatient Visit From 1994 to 1999 .....	3-13
3-7. Changes in Proportion of Beneficiaries Using the ER (1994–1999) .....	3-13
3-8. Changes in Realized Care Indicators (1994–1999) .....	3-14
3-9. Proportion Satisfied With Getting Care When Needed .....	3-15
3-10. Availability Measures of Access—All Evaluated Regions Combined .....	3-16
3-11. Wait for a Medical Appointment (1994 vs. 1999) .....	3-17
3-12. Process Measures of Access—All Evaluated Regions Combined .....	3-18
3-13. Effect of Having Own Provider .....	3-19
3-14. PCM Type and Prime Enrollee Differences in Various Access Measures .....	3-20
3-15. Preventive Care Received in 1999 from Civilian and Military PCMs .....	3-20
3-16. Waiting Time for an Appointment for Civilian and Military PCMs .....	3-21
3-17. <i>Healthy People 2000</i> Goal Achievement by Military Status and Source of Care .....	3-23
3-18. Regional Changes in Perceived Overall Quality of Care .....	3-25
3-19. Measures of Perceived Quality of Care .....	3-25
3-20. Comparison of TRICARE With the General Population .....	3-27
3-21. Claims Processing Problems in 1999 .....	3-28
3-22. Retirees and Changes in Source of Care .....	3-29
3-23. Changes in Satisfaction Measures of Access and Quality for Retirees .....	3-29
3-24. Trends in Satisfaction with Health Care .....	3-34
3-25. Health Plan Ratings .....	3-37
3-26. Predictors of Satisfaction with Health Plan Rating in FY 1999 .....	3-39

4-1. Distribution of Beneficiary Population in Regions 1 Through 12 .....	4-7
4-2. MTF Outpatient Utilization and Costs .....	4-17
4-3. Comparison of Baseline with TRICARE Costs in Evaluated Regions .....	4-21
4-4. MEPRS F Subaccounts Affected by TRICARE in Evaluated Regions .....	4-23
5-1. Distribution of Sample Weights and Eligibles per Family in FY 1999 .....	5-3
5-2. Average Cost of TRICARE Supplemental Policies in FY 1999 .....	5-6
5-3. Insurance Coverage in FY 1999 and the Effect of TRICARE on Coverage.....	5-8
5-4. Average Family Purchased-Care Utilization Rates in FY 1994 and FY 1999 .....	5-9
5-5. Effect of TRICARE on Expected Out-of-Pocket Expenses per Family.....	5-11
5-6. Changes in Family Out-of-Pocket Expenses Due to TRICARE .....	5-12
5-7. Benefits for Standard Medicare Supplemental Insurance Policies.....	5-14
5-8. Distribution of Medicare Supplemental Insurance Policies and Average Premiums in 1999 .....	5-15
5-9. Distribution of Standard Medigap Policies in 1999 .....	5-16
5-10. Annual Premiums in 1999 for Medigap Policies and Medicare HMOs.....	5-17
5-11. Average Cost of Employer-Sponsored Health Insurance for Active and Retired Medicare-Eligible Employees in 1999 .....	5-19
5-12. Insurance Coverage in FY 1999 for Medicare Eligibles and the Effect of TRICARE on Coverage .....	5-20
5-13. Estimates of Insurance Choices by Medicare-Eligible Military Retirees in 1999 .....	5-20
5-14. Total Medicare Expenditures per MHS Medicare Eligible in FY 1998 by TRICARE Region .....	5-21
5-15. Total Medicare Expenditures per Medicare Eligible by Age, Sex, and Catchment Area Status in 1999 .....	5-21
5-16. Regression Model for Estimating Medicare Cost-Sharing Liability in TRICARE Regions 1, 2 and 5.....	5-23
5-17. Weighted Average Deductibles and Copayments per Medicare-Eligible Family.....	5-23
5-18. Weighted Average Premiums per Medicare-Eligible Family in FY 1999 .....	5-23
5-19. Assumed Net Deductibles and Copayments for Medicare-Eligible Families by Insurance Choice in FY 1999 .....	5-24
5-20. Effect of TRICARE on Out-of-Pocket Costs of Medicare-Eligible Families.....	5-24



## Figures

2-1. TRICARE Health Service Regions, Lead Agents, and Contractors .....	2-1
3-1. Getting Care When Needed (CAHPS Composite).....	3-15
3-2. Ease of Making Appointments (Fewer than Three Phone Calls).....	3-16
3-3. Getting Appointment Without Long Waits .....	3-17
3-4. Achievement of <i>Healthy People 2000</i> Goals in 1999 .....	3-23
3-5. Change in Satisfaction With Overall Quality of Care.....	3-24
3-6. Satisfaction With Access to Care When Needed: Military Retirees versus General Population .....	3-30
3-7. Military Retiree versus General Civilian Population Rating of Health Care .....	3-31
3-8. Military Retiree versus General Civilian Population Rating of Health Plan.....	3-31
3-9. Trends in Satisfaction with Access to Care When Needed in Region 11 .....	3-32
3-10. Trends in Satisfaction Getting an Appointment in Region 11 .....	3-33
3-11. Trends In Satisfaction With Overall Quality of Care In Region 11 .....	3-34
3-12. Trends in Satisfaction with Access to Care When Needed .....	3-35
3-13. Trends in Satisfaction with Overall Quality of Care.....	3-36
3-14. Trends in Satisfaction With Health Plan .....	3-37
4-1. Sources of Data Used for Evaluation of TRICARE Costs .....	4-2
4-2. Average Annual Purchased-Care Outpatient Utilization per Beneficiary.....	4-9
4-3. Average Purchased-Care Outpatient Cost per Beneficiary .....	4-11
4-4. Average Annual Purchased-Care Inpatient Utilization per Beneficiary .....	4-12
4-5. Average Purchased-Care Inpatient Cost per Beneficiary .....	4-13
4-6. Average Annual Purchased-Care Prescription Utilization per Beneficiary .....	4-14
4-7. Average Purchased-Care Prescription Cost per Beneficiary .....	4-16
4-8. Average Annual MTF Inpatient Utilization per Beneficiary .....	4-18
4-9. Average MTF Inpatient Cost per Beneficiary .....	4-19
4-10. MCS Administrative Costs as Percentage of Total Contract Value.....	4-28
5-1. Total Family Out-of-Pocket Expenses .....	5-11
5-2. Total Family Out-of-Pocket Expenses (Including Retirees $\geq$ 65).....	5-25

## EXECUTIVE SUMMARY

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The 104th Congress, through enactment of the National Defense Authorization Act for fiscal year (FY) 1996, Section 717, directed the Secretary of Defense to arrange for an ongoing, independent evaluation of the TRICARE program. The legislation requires that the evaluation assess the effectiveness of the TRICARE program in meeting the following objectives:

- improve the access to and quality of health care received by eligible beneficiaries,
- keep both government and beneficiary costs at levels the same as or lower than before TRICARE was implemented, and
- identify noncatchment areas in which the health maintenance organization (HMO) option of the program (i.e., TRICARE Prime) is available or proposed to become available.

Because the FY 1998 Report to Congress extensively addressed the issue of extending the Prime option to noncatchment areas, we did not re-evaluate that issue this year.

This year's evaluation covers all 11 Health Service Regions operating under TRICARE in the continental United States and Hawaii during FY 1999. These regions are 1 (Northeast), 2 (Mid-Atlantic), 3 (Southeast), 4 (Gulf South), 5 (Heartland), 6 (Southwest), 7/8 (Central), 9 (Southern California), 10 (Golden Gate), 11 (Northwest), and 12 (Hawaii). By the end of FY 1999, all 11 regions had been operational under TRICARE for at least one full year.

This report evaluates Region 11 for the fourth time; Regions 3, 4, 6, and 9–12 for the third time; Region 7/8 for the second time; and Regions 1, 2, and 5 for the first time. Our general evaluation approach is to compare actual access, quality, and costs under TRICARE in FY 1999 with estimates of what those attributes would have been had TRICARE not been implemented. We derive the latter estimates by adjusting observed measures of access, quality, and costs under the traditional military health care benefit in FY 1994 (the last complete fiscal year before TRICARE was implemented) for changes known to have occurred between then and FY 1999. Such changes include but are not limited to inflation, Base Realignment and Closure, force size reductions, and the beneficiary demographic mix (for example, there was a higher concentration of retirees in the FY 1999 population than in the FY 1994 population).

Ideally, we would like to have a control group from which to isolate the effects of TRICARE from extraneous influences on access, quality, and costs. A control group would consist of beneficiaries with characteristics similar to those using TRICARE, but using the traditional military health care benefit instead. Additionally, the health care environment under which they were receiving care would have to be similar in all respects to the current environment, with the exception of TRICARE. For example, they would have to receive care from military hospitals with similar capacities and mix of services as those operating in the evaluation regions before the implementation of

TRICARE. The civilian health care alternatives would have to be similar as well, including the level of private insurance coverage and provider density.

After considering the criteria for forming a control group, we determined that no satisfactory control group could be constructed. We therefore concluded that it was best to compare the same regions pre- and post-TRICARE and to adjust the pre-TRICARE results for known changes over time to determine how access, quality, and costs would have progressed in the absence of TRICARE. However, because some changes, such as improvements in medical technology and business practices, cannot easily be measured, it is not possible to completely isolate the effect of TRICARE from changes that might have occurred anyway. When considering the results to follow, bear in mind that the changes displayed should be interpreted as occurring *under* TRICARE, not necessarily *because* of TRICARE.

## **Access to Care**

The evaluation of changes in access and quality of care used data from the 1994, 1996, 1997, 1998, and 1999 Health Care Surveys of DoD Beneficiaries. These surveys sampled representative cross sections of all beneficiaries in each respective year. To isolate the effects of the TRICARE program, we controlled for beneficiary population changes that could affect access, such as health status and various demographic characteristics. We controlled for these effects using statistical regression analysis.

In the regions studied, access to health care generally improved under TRICARE. Table ES-1 summarizes the changes in access between 1994 and 1999 for all DoD beneficiaries in the regions studied. Enrollees in TRICARE Prime (the HMO option) tended to be satisfied with their level of access. Those enrolled with a military Primary Care Manager (PCM)<sup>1</sup> tended to report greater levels of satisfaction with access than those enrolled with a civilian PCM. We used three kinds of access measures to reach these conclusions: realized access, availability, and the process of obtaining care.

TRICARE has emphasized well-care and preventive medicine. Table ES-1 shows a general increase in the receipt of preventive care from 1994 to 1999 for the beneficiary population as a whole. Gynecological procedures, including Pap tests, and prenatal care are exceptions to this trend.

There has also been a perception of increased availability of and ease of obtaining care. A greater proportion of the population reported that they were able to get care when they felt they needed it. Waiting time for appointments has also declined.

Also, as shown in Table ES-1, the greatest increases in perceived access are among those who enrolled in Prime. Note, however, that the level of perceived access to care when needed, in general, is higher for those receiving care outside the military system (about 72 percent satisfied, with a 6-percentage-point increase over time). Thus, while

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<sup>1</sup> Throughout this report, the term “military PCM” refers to a provider at a military facility, regardless of whether the provider is in the uniformed services or a civilian. Similarly, the term “civilian PCM” refers to a provider at a network facility.

TRICARE seems to result in an impression of improved access to care, it still has room for improvement.

**Table ES-1. Summary of Changes in Perceived Access to Care  
(Proportion of Subpopulation)**

Measure	All Evaluated Regions and Sources of Care Combined		For Prime Enrollees <sup>a</sup> (All Evaluated Regions Combined)	
	Before TRICARE (FY 1994)	After TRICARE (FY 1999)	Before TRICARE (FY 1994)	After TRICARE (FY 1999)
<b>Realized Access</b>				
Use of preventive care				
Blood pressure check	0.81	0.90*	0.80	0.90*
Flu shot past year (all ages)	0.46	0.54*	0.55	0.57*
Flu shot past year (65+)	0.67	0.78*	0.69	0.76*
Mammogram past year (40+)	0.65	0.67*	0.64	0.66
Mammogram past year (50+)	0.70	0.72	0.68	0.73*
Pap test past year	0.69	0.67*	0.75	0.72*
Prenatal care (first trimester)	0.94	0.86*	0.96	0.89*
Having an outpatient medical visit	0.70	0.87*	0.67	0.87*
Use of the emergency room	0.43	0.24*	0.47	0.26*
<b>Availability</b>				
Access to care when needed (CAHPS <sup>b</sup> )	0.73	0.80*	0.67	0.70*
Getting care quickly (CAHPS)	0.74	0.79*	0.67	0.73*
<b>Obtaining Care</b>				
Appointment by phone (< 3 phone calls)	0.64	0.89*	0.56	0.83*
Waited to see provider < 30 minutes	0.77	0.80*	0.73	0.78*

<sup>a</sup> Results include active-duty personnel, retirees, and their families.

<sup>b</sup> Consumer Assessment of Health Plans Survey.

\*Indicates statistically significant change ( $p < 0.05$ ).

## Quality of Care

This evaluation considered two major aspects of quality: meeting national standards, and quality of care as perceived by DoD beneficiaries. DoD has adopted as its standard the national health-promotion and disease-prevention objectives specified by the U.S. Department of Health and Human Services in *Healthy People 2000*.<sup>2</sup> We compared care levels under TRICARE with these national standards. As Table ES-2 shows, most of the goals are being met or are nearly being met under TRICARE. Shortfalls are in the areas of use of and counseling for smoking, and prenatal care. The DoD health care system had failed to meet its goal in the area of tobacco use in previous evaluations.<sup>3,4,5</sup>

<sup>2</sup> Department of Health and Human Services, Office of Disease Prevention and Health Promotion, *Healthy People 2000: National Health Promotion and Disease Prevention Objectives*, 1991.

<sup>3</sup> Peter H. Stoloff, Philip M. Lurie, Matthew S. Goldberg, Richard D Miller, and Ravi Sharma, *Evaluation of the TRICARE Program: FY 1998 Report to Congress*, 18 September 1998.

**Table ES-2. Meeting Quality-of-Care Goals in FY 1999  
(All Sources of Care and All Evaluated Regions Combined)**

Measure	DoD Goal	MHS Beneficiaries
<b>Met or Exceeded Goal</b>		
Mammogram past 2 years (age 50+)	0.60	0.88*
Breast exam past year (age 40+)	0.60	0.72*
Cholesterol test past 5 years	0.75	0.83*
Pap smear past 3 years	0.85	0.89*
Know results of blood pressure check	0.90	0.94*
Flu shot (age 65+)	0.60	0.79*
<b>Shortfalls</b>		
Smoking (ages 18-24)	0.80	0.75*
Smoking (pregnant women)	0.90	0.86*
Smoking counseling	0.75	0.59*
First trimester care	0.90	0.85*

\* Indicates statistically significant difference between goal and level of beneficiary care (p < 0.05).

We also examined beneficiaries' perceptions of the quality of their health care under TRICARE. As Table ES-3 shows, the general pattern of results suggests that beneficiaries were mostly satisfied with the quality of their care. The changes in perceived quality between 1994 and 1999 were statistically significant and in the positive direction.

**Table ES-3. Measures of Perceived Quality of Care—All Evaluated Regions Combined  
(Proportion of Population Receiving Favorable Ratings)**

Satisfaction Measure	FY 1994	FY 1999
Overall health care rating	0.58	0.65
Primary care manager rating	0.69	0.74
Specialty care rating	0.68	0.73

Notes: All differences between 1994 and 1999 perceived satisfaction levels were statistically significant (p < 0.05). Rating measures are proportions of populations receiving ratings of 8 or better, on a 10-point scale.

## **Satisfaction With Filing Medical Claims**

The rate of claim filing for MHS beneficiaries (51 percent in FY 1999) was lower than that observed under similar plans serving the general population (57 percent in FY 1999). At the same time, MHS beneficiaries tend to experience more problems per claim filed than the general population (37 percent versus 26 percent), although this has improved over last year. Having a problem with a claim is a major cause of dissatisfaction with one's health plan. Those who experienced problems with claims

<sup>4</sup> Peter H. Stoloff, Philip M. Lurie, Lawrence Goldberg, and Matthew S. Goldberg, *Evaluation of the TRICARE Program: FY 1999 Report to Congress*, 31 October 1999.

<sup>5</sup> Peter H. Stoloff, Philip M. Lurie, Lawrence Goldberg, and Michele Almendarez, *Evaluation of the TRICARE Program: FY 2000 Report to Congress*, 31 October 2000.

processing were almost twice as likely to rate their health plan lower than those who did not have problems with claims (31 percent versus 56 percent satisfied with their plan).

## Effects of Region Maturity

As TRICARE has matured, satisfaction has increased with the plan itself, and with access to, and the quality of care—particularly among Prime enrollees, as Table ES-4 shows.

**Table ES-4. Proportion of Prime Enrollees Satisfied with Indicator**

Indicator	Region Maturity (Years Into TRICARE)				
	Pre-TRICARE	+1	+2	+3	+4
Health care	0.50	0.52*	0.55*	0.56	0.54
Health plan	0.35	0.35	0.40*	0.43*	0.45
Getting needed care	0.68	0.72*	0.73*	0.74	0.77*

Note: Prime enrollees include active-duty members, retirees, and family members.

\* Statistically significant change from preceding year ( $p < 0.05$ ).

## Cost to the Government

Absent a control group, we constructed an FY 1994 baseline by adjusting actual FY 1994 costs for inflation, “rightsizing” Military Treatment Facilities (MTFs), and the changing size and composition of the beneficiary population. The FY 1994 baseline represents an estimate of what government costs would have been in FY 1999 had the traditional military health care benefit been continued. We then compared estimated FY 1994 baseline costs with actual FY 1999 costs under TRICARE. Table ES-5 summarizes the findings with regard to government costs for the TRICARE regions covered by this evaluation.

**Table ES-5. Effect of TRICARE on Government Costs  
(Millions of FY 1999 Dollars)**

Source	FY 1994 Baseline	FY 1999 TRICARE	Difference
Direct Care	\$8,629	\$8,430	–\$199
Purchased Care	2,743	3,567	825
Other Government Costs	1,390	1,575	185
Total Government Cost	\$12,761	\$13,571	\$810

Notes: Excludes Alaska and overseas. Numbers do not always total exactly because of round-off error.

We attempted to provide as complete an accounting of MHS costs as possible. However, it was not possible to develop a complete reconciliation between DoD information systems and the Defense Health Program (DHP), partly because DHP obligations translate into outlays over a multi-year time frame. In addition, there is no standard crosswalk between DoD information systems and any particular subset of program elements that make up the DHP. Consequently, the costs identified do not align

completely with the FY 1999 DHP, which was \$16.15 billion. The total worldwide costs identified from DoD information systems were \$15.85 billion. Thus, we were able to reconstruct the DHP to within \$300 million.

Direct care costs include the cost of providing health care services at MTFs as well as administrative and overhead costs. We considered all health care services, whether or not they were affected by TRICARE (e.g., dental care costs were included). TRICARE had its biggest impact on inpatient costs, which declined by 25 percent under TRICARE. Not only did the hospitalization rate go down, but the average length of stay declined as well. On the other hand, outpatient utilization and costs increased under TRICARE. Under managed care, inpatient utilization tends to decline because Peer Review Organizations must determine that an admission is medically necessary, and outpatient utilization tends to increase because access has improved (especially for enrolled retirees). A shift from inpatient to outpatient utilization could result from the application of utilization management, changing standards of practice, or reduced MTF inpatient capacity and corresponds with what typically occurs in commercial managed-care settings. On balance, direct-care costs under TRICARE were \$199 million lower than those in the FY 1994 baseline.

Civilian-sector care under TRICARE is arranged by Managed Care Support (MCS) contractors, who supplement the care provided at MTFs. FY 1999 MCS and other purchased-care costs under TRICARE were \$825 million higher than CHAMPUS costs in the FY 1994 baseline. Purchased-care inpatient costs declined under TRICARE, but were offset by an increase in outpatient costs. The major contributors to the overall increase in purchased-care costs were prescriptions (up \$229 million), global settlements (\$184 million), and administrative costs (up \$470 million). Contractor administrative costs, however, include functions in support of managed care at military as well as civilian facilities.

The one health service for which utilization and costs have consistently increased under TRICARE is prescriptions. Prescription costs increased by over \$600 million throughout the evaluated TRICARE regions. These increases include prescriptions filled at MTF pharmacies in connection with MTF visits (up \$198 million), prescriptions written by civilian physicians but filled at MTF pharmacies (up \$210 million), and prescriptions filled at MCS network pharmacies (up \$178 million). In addition, the National Mail Order Pharmacy benefit increased costs by another \$51 million. The pattern of escalating prescription costs is not unique to TRICARE, however. Prescription costs have been spiraling ever higher in the civilian sector as well, in part from the growing use of newer, expensive prescription drugs that do not have generic equivalents.

Driven by increased health care and administrative expenses in the MCS contracts, total government costs under TRICARE were \$810 million higher than those in the FY 1994 baseline. This is a break from the pattern of the past few years, which showed a trend towards reduced costs under TRICARE. What happened in FY 1999 that could have caused such a significant shift? First, this year's evaluation included Regions 1, 2, and 5 for the first time. These regions account for approximately one third of total health care costs in the continental United States and Hawaii. The large increase in costs (\$314 million) exhibited for Regions 1 and 2 in particular accounts for some of the cost shift.

Further, benefit enhancements in FY 1999, such as TRICARE Prime Remote, undoubtedly contributed to some of the cost increase.

Another major contributor was a large increase in prescription costs. Prescription costs from all sources increased by almost \$400 million between FY 1998 and FY 1999, far more than can be accounted for by the addition of Regions 1, 2, and 5 to the evaluation. There was also a large increase in outpatient costs between FY 1998 and FY 1999, both in the direct-care and purchased-care settings. Some of the increase may be attributed to an increase (about 15 percent) in the number of Prime enrollees between FY 1998 and FY 1999. Attendant declines in inpatient costs were insufficient to offset the increase in outpatient costs. Finally, the cost of global settlements that TMA has recently negotiated with each of the MCS contractors appears for the first time in this year's evaluation, contributing an additional \$184 million to government costs under TRICARE. Although the data were unavailable at the time of last year's evaluation, we now know that the value of the global settlements in FY 1998 would have been an additional \$135 million.

## **Cost to Covered Beneficiaries**

To evaluate costs to both TRICARE-eligible and Medicare-eligible beneficiaries, we used the beneficiary family as the unit of analysis. This is because insurance decisions are made on a family basis, and because deductibles are capped for families. TRICARE can affect beneficiaries' out-of-pocket costs by

- eliminating deductibles and lowering copayments for Prime enrollees,
- increasing the utilization of health care services by Prime enrollees as a result of lower per-visit costs,
- forcing nonenrollees to seek more costly care under TRICARE Standard or from the private sector by reducing space-available care at MTFs,
- inducing enrollees to drop and nonenrollees to add supplemental or other private health insurance coverage, and
- assessing an enrollment fee on retirees and their family members.

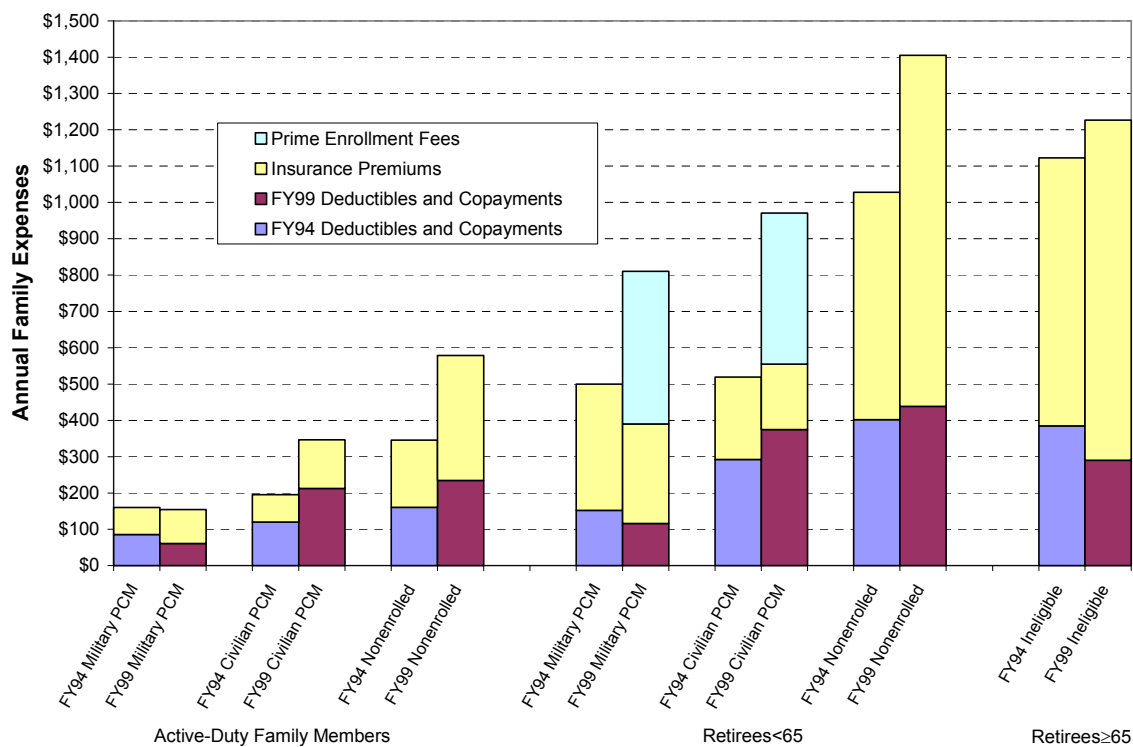
Consequently, out-of-pocket costs for TRICARE-eligible beneficiaries include deductibles and copayments for purchased care, TRICARE Prime enrollment fees, and premiums for supplemental and other private health insurance. Note that non-active-duty members with a military PCM still incur copayments under TRICARE when they are referred to the civilian network for care. For Medicare-eligibles, who are ineligible to enroll in Prime or to use purchased care, costs affected by TRICARE include Medicare deductibles and copayments and insurance expenses.

Figure ES-1 shows the effect of TRICARE on beneficiaries' out-of-pocket expenses by sponsor type and enrollment status. For active-duty families, annual expenses declined slightly for those with a military PCM and increased significantly for those with a civilian PCM. For active-duty families with a civilian PCM (only 10 percent of active-duty families are in this category), expenses increased primarily because they used more health care services. For active-duty families who did not enroll in Prime, out-of-pocket



expenses increased by \$234. The increase in expenses for nonenrolled active-duty families was due primarily to higher insurance costs.

For retiree families enrolled with a military PCM, out-of-pocket costs increased by \$310 under TRICARE. Higher enrollment fees more than offset the decline in deductibles, copayments, and insurance expenses for those families. Without the enrollment fee, costs under TRICARE were only slightly higher for retiree families enrolled with a civilian PCM. The reason for this seemingly anomalous result is that families with a civilian PCM have much higher utilization under TRICARE, thereby increasing their expenses. With the addition of the enrollment fee, out-of-pocket costs for families with a civilian PCM increased by \$452. Out-of-pocket expenses increased by \$377 for nonenrolled retiree families, \$340 of which is because of increased insurance expenses.



**Figure ES-1. Effect of TRICARE on Family Out-of-Pocket Expenses**

Medicare-eligible families experienced an increase of \$104 in their out-of-pocket costs under TRICARE. The reason TRICARE had only a modest effect (in terms of out-of-pocket costs) on this group of beneficiaries is that most of them were heavily insured even before TRICARE. Over 80 percent had some form of insurance coverage, including Medigap policies, Medicare risk HMOs, and current or former employer-provided insurance. The Medicare-eligibles who are most likely to be affected by TRICARE are those with only basic Medicare coverage. From the 1999 Health Care Survey of DoD Beneficiaries, the latter group also has the lowest family incomes.

## **Overall Conclusion**

During FY 1999, both the access to and quality of health care for DoD beneficiaries improved under TRICARE. However, government costs under TRICARE were higher than the estimated costs had the traditional health care benefit been extended through FY 1999. Beneficiary out-of-pocket costs were lower for most active-duty families, but were higher for TRICARE-eligible retiree families. Out-of-pocket costs for Medicare-eligible families were only marginally higher under TRICARE because most of these families continue to carry supplemental forms of private insurance. In addition, the availability of Medicare risk HMOs in some regions provides a low-cost alternative to TRICARE.

## **Future Evaluations**

This has been our fourth evaluation of the effects of TRICARE on beneficiary satisfaction with access to and quality of care and on government and beneficiary costs. The evaluations have given us a look at the system as a whole, but not an understanding of the reasons behind regional and local differences. We have identified several problems, but the reasons why TRICARE may not have met particular goals, or why satisfaction with some attribute of the MHS has not improved (e.g., claims processing), are not clear. We believe that future evaluations should take a micro-analytical approach to answering these questions, rather than the macro-analytical approach taken to date.

The current methodology of comparing TRICARE with 1994 baseline measures has served its purpose for answering the questions posed by Congress back in 1996. Future looks at TRICARE performance need not depend on a methodology that compares the present with the past, but rather on an evaluation of how TRICARE performance can be improved. Because the current evaluation is dependent on surveys and data systems that are out of date by the time they are available for processing and analysis, we have been constrained to looking at TRICARE as it was 2 years ago. We suggest that future evaluations look at TRICARE as it is today, focusing on a few distinct issues with the greatest potential for lowering government costs and improving beneficiaries' interaction with the military health care system.

# 1. INTRODUCTION

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The 104th Congress, through enactment of the National Defense Authorization Act for fiscal year (FY) 1996, Section 717, directed the Secretary of Defense to arrange for an ongoing, independent evaluation of the TRICARE program. The legislation requires that the evaluation assess the effectiveness of the TRICARE program in meeting the following objectives:

- improve the access to and quality of health care received by eligible beneficiaries,
- keep both government and beneficiary costs at levels the same as or lower than before TRICARE was implemented, and
- identify noncatchment areas in which the health maintenance organization (HMO) option of the program (i.e., TRICARE Prime) is available or proposed to become available.

Because the FY 1998 Report to Congress and others extensively addressed the issue of extending the Prime option to noncatchment areas,<sup>1</sup> we did not re-evaluate that issue this year.

The legislation further states that the Secretary may use a Federally Funded Research and Development Center to conduct the evaluation. The Office of the Assistant Secretary of Defense for Health Affairs [OASD(HA)] selected the CNA Corporation and the Institute for Defense Analyses (IDA) to conduct the evaluation.

This year's report extends the evaluation of the TRICARE program to all eleven Health Service Regions (HSRs)—1 (Northeast), 2 (Mid-Atlantic), 3 (Southeast), 4 (Gulf South), 5 (Heartland), 6 (Southwest), 7/8 (TRICARE Central), 9 (Southern California), 10 (Golden Gate), 11 (Northwest), and 12 (Hawaii). We developed a common framework for the analysis of access and quality of care and the analysis of utilization and cost. We compared measures of access, quality, and costs under TRICARE in FY 1999 with estimates of those attributes under the traditional military benefit of direct care and the Civilian Health and Medical Program of the Uniformed Services (CHAMPUS) that prevailed in FY 1994. The latter estimates are adjusted for known changes in the military beneficiary population composition and size. The FY 1994 cost estimates are also adjusted for inflation, changes in Military Treatment Facility (MTF) accounting, and Base Realignment and Closure (BRAC) and other Service "rightsizing" initiatives.

Regions 1, 2, and 5 experienced their first full years under TRICARE in FY 1999, and we evaluate them for the first time in this report. This report also evaluates TRICARE Central for the second time and the remaining regions for the third time (other than Region 11, which we evaluate for the fourth time).

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<sup>1</sup> A catchment area is an approximately 40-mile-radius region around a military hospital, allowing for natural geographic boundaries and transportation accessibility. Noncatchment areas lie outside catchment area boundaries.

As with previous evaluations, there is no control group from which direct inferences can be made on how access, quality, utilization, and cost would have progressed in the absence of TRICARE. For this evaluation, a control group would consist of regions with similar MTF services and capacities, serving similar beneficiary populations in terms of size, composition, health, and private insurance coverage. Furthermore, the control regions would have to conduct business in a manner uninfluenced by TRICARE. We believe that such control regions did not exist in the past, and certainly do not exist now that we are evaluating all HSRs.

Some of the growth in health care costs observed in the civilian sector is a result of increased intensity of services and improvements in medical technologies. It is highly likely that some of the impact of intensity and technology would have been realized in the military sector as well, even had TRICARE not been implemented. The difficulty, however, is that we cannot observe how intensity and technology would have effected health care costs in the absence of TRICARE because there is no control group, i.e., there is no way we can determine how much of the growth in health care costs observed between FY 1994 and FY 1999 was a result of increased intensity of services and improvements in technologies and how much was a result of changes wrought by TRICARE. Throughout this study, we use existing measures of pure price inflation to inflate FY 1994 baseline CHAMPUS costs. Because these measures do not include the effects of changing intensity and technology, we may be understating what baseline costs would have been had TRICARE not been implemented. Because there is no control group, we are forced to assign all changes in cost over and above pure inflation to TRICARE.

Many of the changes in utilization patterns and their costs observed under TRICARE may also be due to changing standards of medical and business practices (e.g., reducing inpatient utilization and negotiating discounted provider reimbursement rates) that would have occurred anyway. Because the companies who stimulated much of the growth of managed care in the civilian sector are the main participants in the TRICARE contracts as well, the MHS may have been able to benefit from some of the changes introduced by commercial insurers even without TRICARE. Again, without a control group, we cannot determine the impact of changing medical and business practices on what health care costs would have been without TRICARE.

In the absence of a control group, we made all our comparisons of TRICARE with the traditional approach to military health care delivery adjusting, where possible, for known *measurable* changes that would likely have occurred even in the absence of TRICARE. We adjusted FY 1994 costs for inflation, changes in beneficiary demographics, and the effects of BRAC and other Service rightsizing initiatives; all other changes (for better or for worse) are attributed to TRICARE. Therefore, when considering the results to follow, bear in mind that the changes displayed should be interpreted as occurring *under* TRICARE, not necessarily *because* of TRICARE.

Because most of the expected cost savings and improvements in access and quality are purportedly due to features of the Prime option, we broke out estimates of cost, access, and quality, whenever possible, by beneficiaries' enrollment status [i.e., enrolled with a military Primary Care Manager (PCM), enrolled with a civilian PCM, or not enrolled].

Whenever possible, we attempted to discern the reasons for any differences between the traditional and TRICARE systems. For example, the efficacy of the Prime option could be affected by favorable selection in the early stages of the TRICARE program. That is, beneficiaries who select the Prime option may be younger or healthier than the general Department of Defense (DoD) beneficiary population and, consequently, use fewer medical services (affecting cost), and have better treatment outcomes (affecting quality). Conversely, improved benefits under TRICARE may have attracted “ghost” beneficiaries back into the system, thereby increasing total costs. We investigated these and other effects in an effort to understand the cost differences between the traditional system and TRICARE.

This report continues in the next chapter with some background information about the TRICARE program. That section is followed by the findings regarding the impact of TRICARE on beneficiary access to health care and on the quality of health care. Then come the findings regarding government and beneficiary costs, respectively. The main text presents the evaluation results for all TRICARE regions combined; the appendices present additional details by region.

## 2. BACKGROUND

TRICARE is the DoD's regional managed-care program for delivering health care to members of the Armed Services and their families, survivors, and retired members and their families. Congress has mandated that the program be modeled on HMO plans offered in the private sector and other similar government health-insurance programs. In addition, beneficiaries enrolled in the HMO option are to have reduced out-of-pocket costs and a uniform benefit structure. Congress further directed that the TRICARE program be administered so that the costs incurred by the DoD are no greater than the costs that would otherwise have been incurred under the traditional benefit of direct care and CHAMPUS.

The program offers three choices. CHAMPUS-eligible beneficiaries can:

- receive care from civilian providers under "TRICARE Standard" (same as standard CHAMPUS),
- use a network of civilian preferred providers on a case-by-case basis under "TRICARE Extra," or
- enroll in an HMO-like program called "TRICARE Prime."

TRICARE is administered on a regional basis. The country is divided into 11 geographical regions, as shown in Figure 2-1, and a Military Treatment Facility (MTF) commander in each region is designated as Lead Agent. The Lead Agents are responsible for coordinating care within their regions. They ensure the appropriate referral of patients between the direct-care system and civilian providers and have oversight responsibility for delivering care to both active-duty and non-active-duty beneficiaries.

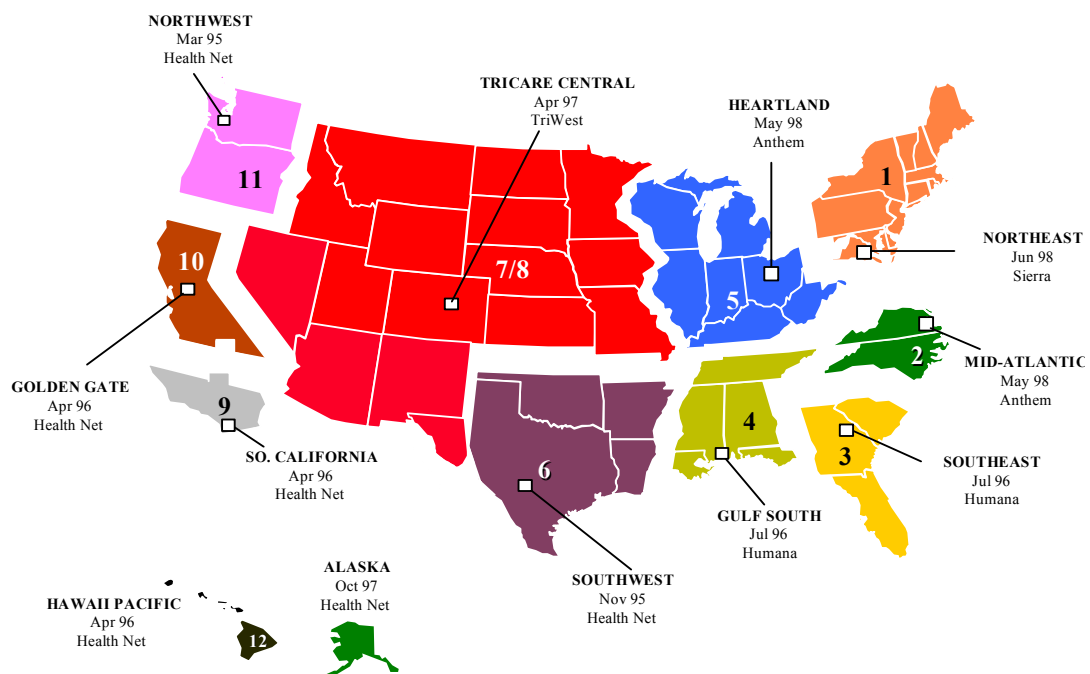


Figure 2-1. TRICARE Health Service Regions, Lead Agents, and Contractors

Because of the size and complexity of the program, the DoD phased in the implementation of TRICARE region-by-region over approximately a 3-year period. Health care is arranged under a Managed Care Support (MCS) contract that supplements the care provided in MTFs. Table 2-1 shows the start dates for delivery of MCS health care and the number of beneficiaries enrolled under active contracts, by region, as of June 2001.

**Table 2-1. TRICARE Enrollment Status (June 2001)**

TRICARE Region	Prime Start Date	Beneficiary Population	Enrollment		
			Active Duty	Active-duty Family Members	Retirees and Family Members
1. Northeast	Jun 98	1,040,751	139,327	180,493	139,535
2. Mid-Atlantic	May 98	839,303	131,684	224,441	81,815
3. Southeast	Jul 96	1,068,371	111,044	188,948	157,800
4. Gulf South	Jul 96	597,998	54,068	101,990	88,322
5. Heartland	May 98	663,883	61,556	108,485	66,339
6. Southwest	Nov 95	974,270	120,864	207,806	177,397
7/8. Central	Apr 97	1,099,165	134,211	207,851	149,580
9. Southern California	Apr 96	619,464	121,436	147,116	77,317
10. Golden Gate	Apr 96	274,340	19,702	38,257	38,836
11. Northwest	Mar 95	376,413	41,641	80,240	72,001
12. Pacific (HI/AK)	Apr 96 <sup>a</sup>	213,426	47,995	80,150	19,353
13. Europe	Oct 96	299,426	108,098	125,223	593
14. Western Pacific	Oct 96	174,335	93,408	56,937	283
15. Latin America	Oct 96	38,032	5,466	10,941	98
Worldwide		8,279,177	1,190,500	1,758,878	1,069,269

Note: Eligible beneficiary population as of fourth quarter FY1999 from the All Region Server (ARS) Bridge: the Defense Enrollment Eligibility Reporting System (DEERS) population summary file. Enrollment figures as of June 2001 from TRICARE Operation Center Enrollment Report: ARS Bridge-EBC DEERS summary and detail files.

<sup>a</sup> Prime start date for Alaska was October 1997.

## 2.1 The Three TRICARE Options

TRICARE offers beneficiaries three options—Standard, Extra, and Prime. The following subsections provide descriptions of each option. Table 2-2 shows the cost-sharing features of the three options.

### 2.1.1 Standard

TRICARE Standard is the new name for the health care option formerly known as CHAMPUS (a DoD-administered indemnity plan). All persons eligible for military health care, except active-duty members and most Medicare-eligible beneficiaries, can use TRICARE Standard. No enrollment is required. Under this option, eligible beneficiaries can choose any civilian physician they want for health care, and the government will pay a percentage of the cost.

For active-duty families, TRICARE Standard pays 80 percent of the CHAMPUS Maximum Allowable Charge (CMAC) for outpatient health care after the annual deductible has been met. For retirees and their families, TRICARE Standard pays 75 percent of the CMAC.

Active-duty family members pay \$11.45 per day at civilian hospitals. Retiree families pay considerably more: \$401 per day or 25 percent of the charges, whichever is less. Also, retiree families must pay 25 percent of the cost for any separately billed physician and professional fees, which can amount to several hundred dollars more per day.

Beneficiaries can seek care from a military hospital or clinic before receiving care from civilian sources (beneficiaries residing in a catchment area must first seek care from a military hospital for inpatient care and for selected outpatient procedures). Beneficiaries receiving health care services, including pharmacy benefits at the MTF, incur little or no costs. However, TRICARE Prime enrollees receive first priority for care in MTFs.

### **2.1.2 Extra**

Military health care beneficiaries, except those on active duty and most of those eligible for Medicare, can use a network of preferred providers under TRICARE Extra. Like TRICARE Standard, no enrollment is required for TRICARE Extra. Beneficiaries simply use the network providers, who have agreed to charge a discounted rate for medical treatment and procedures. The rates are discounted from the CMACs, as agreed upon with the MCS contractor.

As with TRICARE Standard, the government shares the cost of health care. In exchange for using a network of preferred providers, the government pays an additional 5 percent of outpatient costs incurred. This saving applies equally to active-duty families and retirees, raising the government's cost shares to 85 percent and 80 percent, respectively. Health-care providers participating in the Extra network also agree to use the allowable rate schedule (based on a discount from the CMAC rates), so the beneficiaries do not incur any additional charges.

Another advantage of TRICARE Extra is that participating providers file claims for the patient. With TRICARE Standard, some eligible beneficiaries may occasionally have to pay for their health care first and then apply for reimbursement. With TRICARE Extra, the participating provider is paid directly by the MCS contractor, requiring the patient to pay only the cost share amount at time of treatment.

Beneficiaries can also use a combination of health care professionals—some who are part of the Extra network and others who are not. Because there is no formal enrollment in either TRICARE Standard or TRICARE Extra, beneficiaries are free to switch back and forth among providers as they prefer. Beneficiaries can continue to seek care from a military hospital or clinic on a space-available basis. They can also seek care from civilian sources subject to the same restrictions for beneficiaries residing in catchment areas.



**Table 2-2. TRICARE Cost-Sharing Features in FY 2001**

	TRICARE Prime <sup>a</sup>	TRICARE Extra	TRICARE Standard
<b>Choice of civilian doctors, hospitals, clinics</b>	Must choose from government-approved network	Can choose from government-approved network for lower cost	Unlimited
<b>Annual enrollment fees</b>			
All active duty <sup>b</sup>	None	None	None
Retirees	Individual: \$230 Family: \$460	None	None
<b>Annual outpatient deductibles</b>			
E-4 and below <sup>b</sup>	None	Individual: \$50 Family: \$100	Individual: \$50 Family: \$100
All other active duty <sup>b</sup>	None	Individual: \$150 Family: \$300	Individual: \$150 Family: \$300
Retirees	None	Individual: \$150 Family: \$300	Individual: \$150 Family: \$300
<b>Catastrophic cap</b>			
All active duty <sup>b</sup>	\$1,000	\$1,000	\$1,000
Retirees	\$3,000	\$7,500	\$7,500
<b>Copayments for visit to civilian doctor</b>			
E-4 and below <sup>b</sup>	\$0	15 percent <sup>c</sup>	20 percent <sup>d</sup>
All other active duty <sup>b</sup>	\$0	15 percent <sup>c</sup>	20 percent <sup>d</sup>
Retirees	\$12	20 percent <sup>c</sup>	25 percent <sup>d</sup>
<b>Prescription drugs (retail network)<sup>e</sup></b>			
Generic	\$3 for up to a 30-day supply	\$3 for up to a 30-day supply <sup>a</sup>	\$3 for up to a 30-day supply <sup>a</sup>
Brand name	\$9 for up to a 30-day supply	\$9 for up to a 30-day supply <sup>a</sup>	\$9 for up to a 30-day supply <sup>a</sup>
<b>Mail order pharmacy</b>			
Generic	\$3 for up to a 90-day supply	\$3 for up to a 90-day supply <sup>a</sup>	\$3 for up to a 90-day supply <sup>a</sup>
Brand name	\$9 for up to a 90-day supply	\$9 for up to a 90-day supply <sup>a</sup>	\$9 for up to a 90-day supply <sup>a</sup>

*Continued on next page*

**Table 2-2—Continued**

	TRICARE Prime <sup>a</sup>	TRICARE Extra	TRICARE Standard
<b>Copayments at civilian hospitals for inpatient care</b>			
All active duty <sup>b</sup>	\$0	\$11.45 per day; for mental health, the greater of \$11.45 per day or \$25 minimum per stay.	\$11.45 per day; for mental health, greater of \$11.45 per day or \$25 minimum per stay
Retirees	\$11 per day (\$25 minimum per stay); \$40 per day for mental health	Lesser of \$250 per day or 25 percent of hospital charges, plus 20 percent of professional fees; for mental health, 20 percent of all charges <sup>c</sup>	Lesser of \$401 per day or 25 percent of hospital charges, plus 25 percent of professional fees; for mental health, lesser of \$149 per day or 25 percent of all charges <sup>d</sup>
<b>Ambulance service</b>			
E-4 and below <sup>b</sup>	\$0	15 percent <sup>c</sup>	20 percent <sup>d</sup>
All other active duty <sup>b</sup>	\$0	15 percent <sup>c</sup>	20 percent <sup>d</sup>
Retirees	\$20	20 percent <sup>c</sup>	25 percent <sup>d</sup>
<b>Outpatient surgery</b>			
All active duty <sup>b</sup>	\$0	\$25	\$25
Retirees	\$0	20 percent <sup>c</sup>	25 percent <sup>d</sup>
<b>Medical equipment patient takes home</b>			
E-4 and below <sup>b</sup>	\$0	15 percent <sup>c</sup>	20 percent <sup>d</sup>
All other active duty <sup>b</sup>	\$0	15 percent <sup>c</sup>	20 percent <sup>d</sup>
Retirees	20 percent <sup>d</sup>	20 percent <sup>c</sup>	25 percent <sup>d</sup>

Source: Adapted from *TRICARE Special: A User's Guide*, Special Section in *Army Times*, *Navy Times*, *Air Force Times*, March 5, 2001 and Summary of TRICARE Prime Cost Sharing effective April 1, 2001 @[www.tricare.osd.mil/ndaa/sum.htm](http://www.tricare.osd.mil/ndaa/sum.htm).

<sup>a</sup> Effective April 1, 2001.

<sup>b</sup> Figures in the table apply to active-duty family members only.

<sup>c</sup> Percentages are applied to the negotiated amount, which is less than the CMAC.

<sup>d</sup> Percentages are applied to the CMAC. In addition, for non-participating providers, beneficiaries pay the excess above the CMAC; however, providers are forbidden by law from charging more than 115 percent of the CMAC.

<sup>e</sup> Non-network pharmacy cost sharing is the greater of \$9 or 20 percent of the total cost (see note d above). Existing deductibles and point-of-service penalties apply.

### **2.1.3 Prime**

All active-duty military personnel are automatically enrolled in TRICARE Prime at their nearest MTF. All other persons eligible for military health care, except Medicare-eligibles, can enroll in TRICARE Prime. Enrollment is open at all times and is not restricted to any “open season.” There are also no restrictions on enrollment based on pre-existing medical conditions.

Medicare-eligible retirees are not ordinarily eligible to enroll in Prime. However, this rule is being relaxed at six sites under the TRICARE Senior Project. Under this program, Medicare-eligible retirees will be able to enroll at selected MTFs, and the DoD will receive reimbursement from the Department of Health and Human Services (DHHS). Medicare rates are approximately equal to the CMAC rates and are typically higher than the discounted rates offered by network providers. This demonstration project ends December 31, 2001.

Each enrollee chooses or is assigned a Primary Care Manager (PCM). The PCM is a health-care professional or medical team that patients see first for their health-care needs. PCMs are supported by military and civilian medical specialists to whom patients are referred if they need specialty care. Referrals are facilitated by a Health Care Finder (HCF), a contractor employee who coordinates with the PCM to help beneficiaries find specialty care in the civilian community when the needs of the patient cannot be met by the MTF (HCF services are available to all beneficiaries, not just those enrolled in Prime). Depending on beneficiary status, locale, and availability of medical professionals, enrollees can either select a PCM at a nearby military hospital or clinic or request a civilian professional who is a member of the contracted Prime network in a nearby community. In some cases, the Lead Agent may either direct patients to a military PCM at an MTF if there is unused capacity or assign them a civilian PCM if MTF capacity is exceeded.<sup>2</sup>

All beneficiaries enrolled in TRICARE Prime are guaranteed access to care according to strict time standards. Emergency services are available within the Prime service area 24 hours per day, 7 days per week. Primary care should be available within a 30-minute drive from the beneficiary’s home. The maximum waiting times for primary-care appointments are 1 day for acute care; 1 week for routine, non-urgent care; and 4 weeks for health maintenance and preventive care. Specialty care should be available within a 1-hour drive from home, and the maximum waiting time for specialty-care appointments is 4 weeks.

Retirees and their family members pay a fee of \$230 per year to enroll in Prime, with a \$460 family cap. Enrolled active-duty family members make no copayments while retirees and their families make nominal copayments. Prime enrollees are not required to meet a deductible. TRICARE Prime covers a variety of preventive and wellness services. Examples of such services include eye examinations, immunizations, hearing tests,

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<sup>2</sup> Throughout this report, the term “military PCM” refers to a provider at a military facility, regardless of whether the provider is in the uniformed services or a civilian. Similarly, the term “civilian PCM” refers to a provider at a network facility.

mammograms, Pap smears, prostate examinations, and other cancer-prevention and early-diagnosis examinations. All clinical preventive services are free under Prime, whether performed at an MTF or at a network facility.

Non-active-duty Prime enrollees can seek care from non-network providers through a point-of-service (POS) option, but they must pay a substantial penalty in the form of an even higher cost share than under TRICARE Standard.

#### **2.1.4 Overseas Programs**

TRICARE overseas programs have been implemented in Europe, the Western Pacific, Alaska, and Latin America under agreements with individual providers rather than through at-risk contractors. On October 1, 1999, the TRICARE Prime option was extended to Puerto Rico as well. TRICARE overseas offers two options: Prime and Standard. The Prime option is currently open to all active-duty personnel and family members who choose to enroll. The Prime benefit is the same as in the United States, except that the copayment is waived (except in Alaska) for family members who must obtain care from host-nation sources.

## **2.2 Benefit Enhancements**

With the passage of the FY 2001 National Defense Authorization Act (NDAA), Congress created several significant enhancements to the TRICARE benefit. The major enhancements are:

- pharmacy benefits for Medicare-eligible beneficiaries,
- TRICARE becomes secondary payer for Medicare-eligible beneficiaries, and
- active-duty family members enrolled in TRICARE Prime no longer have to make copayments for care from a civilian provider after April 1, 2001.

Brief descriptions of these enhancements follow.

### **2.2.1 TRICARE for Life**

The FY 2001 NDAA provides for two dramatic improvements in the health care benefit for Medicare-eligible uniformed services retirees, their spouses, and survivors who are age 65 and over. These enhanced benefits are intended to replace the Medicare subvention demonstration (also known as TRICARE Senior Prime) and the TRICARE Senior Supplement demonstration. The enhanced benefits will be available to eligible beneficiaries nationwide.

Medicare-eligible beneficiaries have long enjoyed access to MTF pharmacies. On April 1, 2001, eligible beneficiaries began receiving additional pharmacy benefits including access to the National Mail Order Pharmacy (NMOP) program and retail pharmacies. Consequently, TRICARE beneficiaries age 65 and over now receive the same pharmacy benefits as retirees under age 65. This program extends pharmacy benefits to over 1.5 million Medicare eligible beneficiaries. During the first 4 weeks of the program, 450,000 prescriptions were filled totaling over \$25 million at TRICARE retail and NMOP pharmacies.

Beginning October 1, 2001, TRICARE became second payer for eligible beneficiaries who continue to receive care from their current Medicare providers. This means that TRICARE pays out-of-pocket costs for services covered under Medicare. In addition, these beneficiaries are eligible for TRICARE benefits not covered by Medicare. No enrollment (other than in DEERS) or annual fee is required for this benefit.

Beneficiaries who were age 65 or older by April 1, 2001 are eligible to use the pharmacy benefit without being enrolled in Medicare Part B. Those who turned 65 on or after April 1, 2001, will need to be enrolled in Medicare Part B to use the pharmacy benefit. To participate in the health program, beneficiaries must be eligible for Medicare Part A (Hospital Insurance) and enrolled in Medicare Part B (Supplemental Medical Insurance).

### ***2.2.2 Elimination of Active-Duty Family Member Copayments***

The FY 2001 NDAA also contains a provision for the elimination of copayments for active-duty family members enrolled in TRICARE Prime. As of April 1, 2001, active-duty family members enrolled in TRICARE Prime no longer have to make copayments for the care they receive from civilian network providers. Prior to that date, family members of active-duty members in paygrades E-1 to E-4 and paygrades E-5 and above paid \$6 and \$12, respectively, for such visits. In addition, family members no longer have to pay the \$11 per day civilian inpatient charge or the \$11.45 per day MTF inpatient charge.

Active-duty family members still have to make pharmacy copayments for the NMOP program and at network pharmacies, but these charges are nominal. To obtain the elimination of copayments for care received from civilian network providers, Prime enrollees must obtain authorization from their PCM before seeking care from civilian providers. While they retain the right to seek civilian care without authorization from their PCM, Prime enrollees must pay POS charges.

## **2.3 Supplemental Programs**

Beginning in FY 1998, the DoD introduced several new programs that could potentially affect subsequent evaluations of the TRICARE program. The new programs are:

- TRICARE Senior (Medicare subvention) demonstration,
- TRICARE Senior Supplement demonstration,
- TRICARE Dental Program,
- National Mail Order Pharmacy program,
- Federal Employees Health Benefits Program demonstration, and
- TRICARE Prime Remote

Brief descriptions of each program follow.

### ***2.3.1 Medicare Subvention Demonstration***

In February 1998, the DHHS, the Health Care Financing Administration (HCFA), the DoD, and the OASD(HA) completed a Memorandum of Agreement to conduct a

demonstration, or test project, under which the DHHS would reimburse the DoD from the Medicare Trust Fund for certain health care services provided to Medicare-eligible military (dual-eligible) beneficiaries at MTFs or through contracts. The program, called TRICARE Senior Prime (TSP), was authorized by Section 1896 of the Social Security Act, amended by Section 4015 of the Balanced Budget Act of 1997 (Public Law 105-33) and by the Balanced Budget Refinement Act of 1999. The demonstration was ultimately designed to test the feasibility of establishing Medicare managed care plans within the DoD TRICARE program for dual-eligible beneficiaries. These TSP plans are intended to expand access to military health care services, enhance the quality of health care delivery, and maintain budget neutrality. The statute authorized the DoD and the DHHS to conduct a 3-year Medicare Subvention Demonstration. The demonstration concludes December 31, 2001. The benefit enhancements authorized in the FY 2001 NDAA for Medicare-eligible uniformed service retirees, their spouses, and survivors age 65 and over are designed to replace TSP.

Under Medicare subvention, the DoD, for the first time, is able to enroll its Medicare-eligible retirees into the TRICARE Prime program (as a TRICARE Senior Prime beneficiary), and receive Medicare reimbursement. The Secretary of Defense and the Secretary of Health and Human Services selected six demonstration sites to test this TRICARE initiative in 1998. Table 2-3 shows the health care delivery start dates, the number of eligible beneficiaries enrolled by open enrollment and “aging-in” to the program, and MTF capacity for this program by region.

**Table 2-3. TRICARE Senior Prime Status (April 2001)**

Region/ Demonstration Site	Eligible Population <sup>a</sup>	Start Date	Enrollment			
			Open	Open and Age-in	TSP Capacity at Facility	Open as Percentage of Capacity <sup>b</sup>
2. Dover AFB	3,905	1/1/99	1,001	1,141	1,500	66.7%
4. Keesler AFB	7,361	12/1/98	2,870	3,684	3,100	92.6
6. Brooke Army Medical Center/ Wilford Hall Medical Center	34,148	10/1/98	9,955	12,976	10,000	99.6
Texoma (Sheppard AFB/Fort Sill)	7,067	12/1/98	2,197	2,709	2,700	81.4
8. Ft. Carson/Air Force Academy/Peterson AFB	13,689	1/1/99	3,191	4,348	3,200	99.7
9. Naval Medical Center, San Diego	35,619	11/1/98	3,979	4,985	4,000	99.5
11. Madigan Army Medical Center	21,709	9/1/98	3,311	4,928	3,300	100.3

<sup>a</sup> Beneficiary counts reflect total number of open eligibles as of second quarter, FY 1998.

<sup>b</sup> The number of enrolled TSP members may exceed TSP capacity, as “age-in” does not count towards TSP capacity.

The MTFs participating in the demonstration were required to apply and be approved as Medicare+Choice organizations. Military retirees enrolling in the demonstration must have received some care from military providers in the past or have become Medicare-eligible after December 31, 1997. TRICARE Senior Prime enrollees must be age 65 or

older, live within the geographic service area, and be eligible for direct care as well as Medicare on the basis of age. Also, enrollees must have Medicare Part A and B coverage, continue to pay monthly Medicare Part B premiums, and agree to have all their care provided by or coordinated through their PCM. Beneficiaries in TRICARE Senior Prime do not pay the annual TRICARE Prime enrollment fee.

Health care delivery under TRICARE Senior began on September 1, 1998 at Madigan Army Medical Center. All six demonstration sites had begun health care delivery as of January 1, 1999. Because this program is available at only a few sites with small enrollment, its impact on this year's evaluation is minimal.

### **2.3.2 TRICARE Senior Supplement Demonstration**

The DoD implemented the TRICARE Senior Supplement Demonstration Program to facilitate DoD payments on behalf of Military Health System (MHS) beneficiaries receiving Medicare benefits while enrolled in the TRICARE Program as a supplement to Medicare. The Supplement Demonstration, which offers enrolled members benefits similar to TRICARE Extra and Standard, serves as a secondary payer for Medicare coverage, reducing or eliminating most out of pocket expenses, and providing reimbursement for some services not covered by the Medicare program. Benefits of enrollment include access to the National Mail Order Pharmacy, use of TRICARE civilian network pharmacies, coverage for certain diagnostic and preventive services, extended mental health coverage, and coverage for health care services delivered outside the continental United States.

While enrolled in the demonstration, enrollees may not receive health care, including pharmacy services, in military hospitals or clinics. Each eligible beneficiary who enrolls in the TRICARE Program under the TRICARE Senior Supplement Demonstration Program will pay an annual enrollment fee of \$576. The demonstration program will run from April 1, 2000 to December 31, 2002. The benefit enhancements authorized in the FY 2001 NDAA for Medicare-eligible uniformed service retirees, their spouses, and survivors who are age 65 and over are designed to replace this demonstration.

To be eligible for the program, an enrollee must be a retired member of the Uniformed Services, a family member of a retired member of the Uniformed Services, or a survivor of a member of the Uniformed Services who died while on active duty for a period of more than 30 days. The enrollee must also be age 65 or older, eligible for Medicare Part A, enrolled in Medicare Part B, and reside in one of the demonstration sites. The selected demonstration program areas are Santa Clara, California, and Cherokee, Texas. Enrollment continues to increase slowly, reaching approximately 350 in the first quarter of FY 2001.

### **2.3.3 TRICARE Dental Program**

The TRICARE Dental Program (TDP), awarded to United Concordia Companies, Inc. in April 2000, was implemented on February 1, 2001. The TDP is a "third generation" dental contract that incorporates the TRICARE Family Member Dental Plan (TFMDP) and the TRICARE Selected Reserve Dental Program (TSRDP). The TDP offers improved dental coverage for 3.1 million active-duty family members, Selected Reservists, Individual Ready Reservists, and their family members.

The 5-year TDP contract contains many enhancements to the TFMDP. The lock-in period for enrollment has decreased to 12 months and incorporates a contingency lock-in waiver for Reservists called up to active duty with less than 12 months remaining. It increases the annual maximum benefit coverage to \$1,200 and the lifetime maximum for orthodontic care to \$1,500. It also decreases cost shares for some procedures for junior enlisted personnel (paygrades E-1 to E-4). Enrollment in the TDP is voluntary and portable worldwide. The contractor handles all enrollments and directly bills enrollees for premiums in the absence of a payroll account.

The TDP is a comprehensive benefit package that builds on the TFMDP benefit package. Some of the additions to the TDP benefit package include general anesthesia, intravenous sedation, occlusal guards, athletic mouthpieces, an additional oral evaluation per year, pulp vitality tests, sealants to age 19, and orthodontic coverage for children to age 21 (23 if enrolled in college). The TDP offers sponsors the opportunity to enroll children at age 1 and strongly encourages diagnostic and preventive dental care for children prior to the mandatory enrollment age of 4 years old.

Through positive contract incentives, the TDP emphasizes diagnostic and preventive care, the advancement of pediatric and adolescent oral health and increased utilization by beneficiaries. The TDP contains many of the features of the former TFMDP, but it also integrates the principal themes of increasing both enrollment and utilization while encouraging early preventive dental care for the good of the beneficiaries' overall health.

#### **2.3.4 National Mail Order Pharmacy Program**

In October 1997, the DoD contracted with Merck-Medco Managed Care to operate a National Mail Order Pharmacy (NMOP) program. The mail-order services provided by the individual Managed Care Support Contractors were consolidated, region by region, with the NMOP to simplify ordering maintenance prescriptions by mail and to reduce costs. Beneficiaries can still use the walk-in services of MTF or contractor pharmacies as long as there is no overlap or conflict with prescriptions ordered through the NMOP (the DoD maintains a computerized patient profile to avoid conflicts). The following beneficiaries are eligible to participate in the NMOP:

- all active-duty service members worldwide,
- TRICARE-eligible beneficiaries under age 65 (this category includes active-duty family members, as well as retirees under age 65 and their family members),
- Uniformed Services Family Health Plan participants,
- TRICARE Senior Prime participants,
- TRICARE Senior Supplement Demonstration Program participants, and
- TRICARE Senior Pharmacy Program Medicare-eligible beneficiaries (the TRICARE Senior Pharmacy Program replaced the TRICARE Pharmacy Redesign Pilot Program and the BRAC program on April 1, 2001).

Beneficiaries can receive up to a 90-day supply of non-narcotic medications and up to a 30-day supply of narcotic medications. Prescription drugs purchased through NMOP are only \$3 for up to a 90-day supply of generic medications, or \$9 for up to a 90-day



supply of brand-name medications. The service is free for active-duty service members. There are no deductibles for prescriptions filled through the NMOP.

### **2.3.5 Federal Employees Health Benefits Program Demonstration**

The DoD and the Office of Personnel Management, in accordance with the FY 1999 NDAA, developed a demonstration program that allows some MHS beneficiaries to enroll with the Federal Employees Health Benefits Program (FEHBP) for their health care. The demonstration, which provides medical care for up to 69,000 retirees and their family members, gives the DoD an opportunity to collect valuable information about the cost and feasibility of alternative approaches to improving the access to health care for those beneficiaries.

The DoD initially selected eight sites for the FEHBP demonstration:

- Dover Air Force Base, Delaware;
- Commonwealth of Puerto Rico;
- Fort Knox, Kentucky;
- Greensboro/Winston-Salem/High Point, North Carolina;
- Dallas, Texas;
- Humboldt County, California area;
- Naval Hospital, Camp Pendleton, California; and
- New Orleans, Louisiana.

Under the demonstration, eligible beneficiaries can join the FEHBP during the enrollment open season in November of each year. Eligible beneficiaries include retirees over the age of 65 who are Medicare-eligible and their family members, former spouses of military members who have not remarried, and family members of deceased members or former members. Medicare eligibility is not required for the family members of retirees and the latter two groups. Benefit coverage began in January 2000 and ends in December 2002.

Beneficiaries who enroll in an FEHBP plan must pay any applicable premiums to receive benefits. During the demonstration, enrollees cannot use MTFs for any services. Premiums will be based on a separate risk pool for MHS beneficiaries. The government's contribution is computed the same as it is currently done under the FEHBP.

In May 2000, the DoD announced it was expanding the FEHBP demonstration program to areas surrounding Coffee County, Georgia, and Adair County, Iowa. The new sites in the South include parts of Georgia, Florida, and South Carolina. The Midwest locations include the entire state of Iowa (except within the Offutt Air Force Base catchment area), parts of Minnesota, South Dakota, Nebraska, Kansas, and Missouri. The expanded demonstration will target about 50,000 eligible beneficiaries. Benefit coverage for new participants began in January 2001. Approximately 130,000 beneficiaries are eligible to participate in this demonstration. Enrollment in the FEHBP demonstration has been proceeding at a slow pace, with only about 7,600 beneficiaries enrolled as of this writing.

### **2.3.6 TRICARE Prime Remote**

Section 731 of the FY 1998 NDAA directs the DoD to provide TRICARE Prime-like benefits to active-duty service members nationwide who work and live more than a one hour's drive from a military hospital or clinic.

In 1998, DoD issued a policy that members who meet the distance criteria above are immediately eligible for TRICARE benefits (with no deductible or cost-shares). Concurrently, DoD initiated contract modifications with every TRICARE MCS contractor to introduce a standardized benefit for active-duty service members nationwide. This contract modification, known as the "TRICARE Prime Remote" program, began October 1, 1999. As of April 2001, out of 46,987 eligible, 44,790 active-duty service members enrolled in the program (97 percent). The 2001 NDAA expanded eligibility for the program to all Uniformed Services, hence allowing active-duty members in the U.S. Public Health Service and the National Oceanographic and Atmospheric Administration to enroll. The implementation date for the latter was August 1, 2001.

The TRICARE Prime Remote (TPR) program provides active-duty service members with a TRICARE Prime-like benefit when stationed away from traditional sources of military health care. Where civilian network Prime service areas exist, active-duty members are enrolled to a civilian PCM. Where there are no Prime networks, active-duty members may use any TRICARE authorized provider in the local community. No pre-authorization is required for primary care. A joint service office, known as the Military Medical Support Office (MMSO), provides the medical readiness reviews and fitness for duty oversight for specialty health care delivered by civilian providers. MMSO, based at Great Lakes Naval Station, Illinois, provides coverage 24 hours per day, 7 day per week. The MCS contractors provide enrollment services, Health Care Finder support, and claims processing functions for service personnel enrolled in TPR. Active-duty service members bear no costs for obtaining health care from civilian sources.

The 1998 law did not require (and the current contract modification does not include) the extension of TRICARE Prime-like benefits to the family members who accompany their active-duty sponsors to remote duty locations. A separate provision of the law (Section 712) required the DoD to study alternatives to extending the Prime-like benefit to such family members. In August, 1999, the ASD(HA) submitted a report to Congress outlining TPR's actions to date and providing the cost estimate for extending TRICARE Prime copayments to family members in remote locations. A provision to extend TPR coverage to active-duty family members was included in the 2001 NDAA (Section 722) and is scheduled for implementation on April 1, 2002. Eligibility is restricted to active-duty family members residing with their TPR-eligible active-duty sponsors. In the interim, active-duty families remain eligible for TRICARE Standard with a provision of the law providing authority to waive TRICARE deductibles, cost shares, and copayments for TPR-eligible family members.

### **3. ACCESS TO AND QUALITY OF HEALTH CARE UNDER TRICARE**

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The FY 1998, 1999, and 2000 evaluations measured changes in the TRICARE regions for which a full year of data under TRICARE was available. In summary, the results of the evaluations showed that under TRICARE:

- access improved and
- most quality-of-care goals were met or nearly met.

The current FY 2001 evaluation looks at changes in 11 regions (encompassing the continental United States and Hawaii) that have now been online for at least 1 year and have sufficient data for analysis. In addition, trends from 1994 to 1999 in access and quality of care in these regions are examined. We also compare satisfaction with the DoD system of health care to that with civilian health plans.

#### **3.1 Methods and Data Sources**

##### **3.1.1 General Method**

This year's evaluation of TRICARE's effects on the access to and quality of health care continues the methodology that we used in previous years. In addition to measuring change from a pre-TRICARE base year to the current year, we also examine trends that include the intervening years. Additionally, we compare the DoD population with the general United States population using health care system performance metrics from the National CAHPS<sup>3</sup> Benchmarking Database (NCBD).

The evaluation uses data on access and quality of care collected before TRICARE was implemented in any region (FY 1994) and after TRICARE had been enrolling people in Prime for about 1 year. Because the date of TRICARE enrollment differed across regions, the time between the baseline period and the follow-up also varied. The choice of the baseline period was, to a great extent, determined by the data available for the evaluation.

To isolate the effects of the TRICARE program, we controlled for possible changes in the beneficiary population over time that could also affect access. We controlled for these effects using statistical regression analysis. The control variables included measures of health status of the population and various demographic characteristics. The summary data reported here are estimated from regression models, which hold health status and demographics constant at the FY 1999 population means. This allows an estimation of how the current (FY 1999) population would have perceived access and quality factors in FY 1994, in the absence of TRICARE.

The initial intention was to construct a quasi-control group from which inferences could be made on how access and quality would have been experienced under *status quo*

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<sup>3</sup> Consumer Assessment of Health Plans Survey.

conditions—had TRICARE not been implemented. The aim in constructing a quasi-control group is to find a subpopulation of beneficiaries who were unaffected by TRICARE.

The use of a control group would allow us to separate out the effects of changes that would have occurred in the absence of TRICARE. For example, suppose there were advances in telephone appointment technology that would have been implemented even if the current TRICARE system did not exist. Further, suppose that this system would remove barriers to making medical appointments, which would, in turn, reduce waiting time for an appointment by 1 day. At the same time, suppose that measures of the number of days people wait for an appointment shows an improvement of 2 days after TRICARE implementation. The reduction in days waiting for a medical appointment *attributable to* TRICARE would actually be only 1 day after the exogenous effect is removed.

After statistical investigation, however, we could not identify any group that was unaffected by the TRICARE program in FY 1999. Therefore, we had to use a before-and-after design for the current evaluation in lieu of one with a control group. This methodology compares measures of access and quality-of-care outcomes in FY 1999 with historical outcomes measured in FY 1994, before TRICARE was implemented anywhere. A disadvantage of a before-and-after design is the possible confounding of TRICARE effects with other influences.

Despite this shortcoming, we used the before-and-after procedure as the method of analysis, and all changes in outcome measures are being attributed to TRICARE. We are unable to determine what would have happened in the absence of TRICARE.

### **3.1.2 Data Sources (DoD Surveys)**

The data come from two sources: the 1994, 1996, 1997, 1998, and 1999 administrations of the Health Care Survey of DoD Beneficiaries, and the NCBD, version 2. The focus of the DoD surveys was the perceived access to and quality of health care. The surveys sampled representative cross sections of all beneficiaries—regardless of whether they had used the health care system. This permits the possible identification of lack of access as the reason for not using the military health care system.

The FY 2000 TRICARE evaluation analyzed trends in satisfaction with various aspects of access to and quality of care with the Military Health System (MHS). The data source for the analysis has been the Annual Health Care Survey of Department of Defense Beneficiaries. From 1995 to 1998, the questions relating to satisfaction with their health care have used a consistent format. Survey respondents were asked to rate an attribute of their health care, health plan or facility using scales anchored with “poor” on one end and “excellent” on the other.

The DoD surveys had respondents rate 19 aspects of health care. These aspects are grouped into 3 domains, or composites. The composites represent:

- ease of making appointments,
- access to system resources, and
- quality of care.

In 1998, the DoD decided to adopt alternative measures of satisfaction from the CAHPS. This was an effort to allow the comparison of the DoD population with civilians enrolled in civilian health care plans. The CAHPS is a standardized survey questionnaire used by civilian plans to monitor various aspects of access to and satisfaction with health care. It was developed by a consortium of the Harvard Medical School, RAND, and the Research Triangle Institute and sponsored by the Agency for Health Care Policy and Research. It has been tested in the field and evaluated for validity and reliability. The questions and reporting formats were tested to ensure that the answers can be compared across plans and demographic groups.

### **3.1.2.1 What CAHPS is Designed to Do**

The philosophy behind CAHPS is to provide a tool to inform health care consumers about what other people think about their health plans. Such information would be useful for those choosing a health plan. CAHPS is structured to:

- focus on information that consumers want when choosing a plan and present this information in easily understood formats.
- address consumers' need for more detailed information by covering specific plan features, such as access to care and quality of patient/physician interaction.
- include questions that are targeted to persons with chronic conditions or disabilities, children, and Medicaid and Medicare beneficiaries.
- provide standardized questionnaires for assessing experience across different populations and care delivery systems.
- improve the utility and value of the survey questions through a combination of cognitive and psychometric testing that enhances the reliability and thus the comparability of results across different plans and population groups.

The CAHPS survey goes beyond statements of overall satisfaction by measuring and reporting on consumer experience with specific aspects of their own health plans that are the basis of satisfaction. CAHPS survey questions are used to form six composites:

- getting needed care,
- getting care quickly,
- how well doctors communicate,
- courteous and helpful office staff,
- customer service, and
- claims processing.

Each composite contains 2 to 5 questions relating to experiences with receiving health care. Additionally, CAHPS asks respondents to use an 11-point scale, anchored with “worst” and “best,” to rate their:

- personal physician,
- specialty care,
- health plan, and
- health care.

So, while CAHPS has some advantages over the traditional DoD satisfaction questions, the differences make measuring trends, from one set of scales to the other, difficult.

During the transition year (1998) to the CAHPS format, the DoD survey included both the CAHPS and traditional satisfaction questions. This provides a data source for equating the metrics used in the different scales. Appendix A describes the methodology we used to convert the DoD satisfaction measures used prior to 1999 to the CAHPS composites and rating scales that have now been adopted by DoD. We use many of the CAHPS metrics to measure trends in satisfaction with access, quality of care, and with the TRICARE health plan overall.

### **3.1.3 CAHPS Scoring Methodology**

CAHPS items used to form composites typically describe a situation, such as being able to make an appointment with fewer than three telephone calls. The response scale for such items includes the following alternatives: “never, sometime, most of the time, all of the time.” Responses of “most of the time, all of the time” are scored as a “1,” while other responses are scored as “0.”

Composites can then be formed in two ways from the dichotomously scored items:

1. As an individual’s composite score, which is the proportion of items with a score of “1.”
2. As a population’s composite score, which is the average of the item averages.

When each person responds to all items in a composite, the two composite values will be identical.<sup>4</sup> However, as is often the case with survey data, responses are frequently missing.

Respondents were asked to rate various aspects of their health care on a scale from 0 to 10, where 0 equated to “worst health care” and 10 to “best health care.” The most straightforward summary of a person’s ratings is the mean rating. While it is possible to test for the statistical significance of the difference in mean ratings for the populations, it is difficult to interpret the meaning of the difference in terms of the scale metric. For example, on average DoD beneficiaries rated their health care 7.8, while the average rating in the general population was 8.6. Though this difference is statistically significant, it has little practical meaning. As an aid for interpretation, we used the distribution of ratings in the two populations. That is, we determined the proportion of people in a given population assigning a rating of 0, 1, 2, . . . , 10. We then compared these proportions across populations. Because the distribution of ratings was skewed toward the favorable end of the scale, most of the ratings were in the range of 5 to 10. The population with the greater mean rating also had a greater proportion of responses associated with ratings of 8, 9, and 10. This gives rise to an alternate metric—the proportion of a particular subpopulation with ratings of 8 or greater. Estimates based on this metric are labeled “ratings 8+.” Ratings of 8+ are considered to be “favorable ratings.” Although this too is

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<sup>4</sup> Weighting each person’s composite score by the number of items answered produces the same composite means.

an arbitrary metric, it is also used by the TRICARE Management Activity (TMA), and in the private sector, as a benchmark to compare survey results.

### **3.1.4 Aspects of the Survey Data**

The current DoD survey (1999) has incorporated the core CAHPS items as measures of health care system performance. The wording of the CAHPS questions overcomes many of the shortcomings described below of the earlier DoD surveys.

The DoD surveys were not specifically designed to measure changes over time. This is evident from the different phrasing of questions and the different response scales used in the surveys. Other limitations of using the surveys to measure changes are related to the context in which perceptions about interactions with the health care system were elicited. Respondents were asked to evaluate access on the basis of experiences of the past 12 months. This becomes somewhat problematical when trying to isolate experiences since enrolling in Prime—which may have occurred within the past 12 months. For example, a response to the question, “Did you have trouble gaining access to health care during the past 12 months?” could be describing access before *or* after enrolling in Prime or both before *and* after enrolling.

While we could not determine whether those enrolled in Prime for fewer than 12 months were responding to encounters with the medical system before or after enrollment, we were able to compare responses of these enrollees with those who were enrolled for 7 or more months (81 percent of Prime enrollees had been enrolled 7 or more months before being surveyed). We found significant differences for 54 percent of the 41 measures examined. However, in all instances, those who had been enrolled for the longer period had more favorable responses, as shown in Table 3-1.<sup>5</sup>

Based on the response patterns of these two groups of Prime enrollees, the responses of Prime enrollees who had been in the plan less than 3 months will tend to underestimate the magnitude of the long-term effect of being in Prime. Nevertheless, we used the data for these “new” enrollees along with those who had been enrolled for the entire period to ensure both a broad coverage of Prime enrollees and a sufficient sample size for statistical analysis.<sup>6</sup>

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<sup>5</sup> We performed regression analyses to test the significance of the coefficient of an indicator variable whose value was set to 0 if an individual had been enrolled less than 7 months when responding to the survey, or to 1 if the individual had been enrolled for the entire time. The full set of demographic control variables was also included.

<sup>6</sup> It was not possible to use a variable, such as time enrolled in Prime, to control for bias associated with the ambiguity. The analysis compares future Prime enrollees in 1994 (those who will subsequently enroll) with Prime enrollees in 1999. A time-enrolled variable does not apply to those in the 1994 survey group; i.e., there would be zero variance for this group.

**Table 3-1. Effect of Time Enrolled in Prime During FY 1999 on Selected Outcomes  
(Proportion of enrollee group)**

Outcome Measure <sup>a</sup>	Months Enrolled	
	< 7	≥ 7
Got appointment for urgent visit in prescribed time	0.63	0.69
Mammogram (HP 2000 standard)	0.85	0.90
Health plan rated favorably	0.36	0.42
Smoking counseling	0.53	0.59
Claims processing	0.67	0.73
Smoking counseling (12 months)	0.54	0.59
Health care rated favorably	0.50	0.55
Had outpatient visit (12 months)	0.91	0.95
Getting needed care	0.67	0.71
Pap smear (12 months)	0.68	0.72
Specialty care rated favorably	0.60	0.65
Getting care quickly	0.70	0.74
Ever had mammogram (40+)	0.91	0.94
Pap smear (HP 2000 standard)	0.90	0.93
Used ER	0.24	0.26
Doctor communication	0.82	0.85
Blood pressure check (12 months)	0.88	0.91
Customer service	0.43	0.46
Cholesterol test	0.76	0.78
Cholesterol test (5 years)	0.76	0.78
Cholesterol (12 months)	0.43	0.45
Courteous staff	0.85	0.86

<sup>a</sup> Significant difference on outcome for those enrolled less than 12 months ( $p < 0.05$ ).

<sup>b</sup> *Healthy People 2000*.

Most items in the 1994 survey had counterparts in the later surveys. Where the response alternatives differed for similar questions in the two surveys, we rescaled the responses for comparability. In some cases, this resulted in a loss of information. For example, in 1994, respondents were asked how long they had to wait between making a “generic” appointment and seeing their provider. In 1996, the question was refined to elicit wait-times for urgent and routine appointments and care for chronic problems and minor illnesses. When measuring change, we had to collapse (or average) wait-times for the four different kinds of appointments in 1996 to compare them to what was asked in 1994. In addition to reporting differences from 1994 to 1999 in the rescaled wait-time, the 1999 data are reported at the greater level of detail.

### **3.1.5 Subpopulations**

We placed health care beneficiaries into four mutually exclusive and exhaustive *subpopulation* groups based on their active-duty status and source of health care:

- *Active duty*. Composed of survey respondents who were on active duty (AD) when they completed a survey.



- *Prime*. Composed of 1994 non-AD [active-duty family members (ADFM) and retirees] survey respondents who subsequently enrolled<sup>7</sup> in Prime when the option became available (future enrollees), plus 1996–1999 non-AD survey respondents who enrolled in Prime before responding to the survey.<sup>8</sup> Comparisons of those in the 1994 and 1999 “Prime” groups allows us to infer how those with a predisposition toward enrollment in Prime would behave when Prime enrollment becomes available. We consider the difference in their behavior and experiences to be the *TRICARE Prime effect*.
- *All civilian care*. Composed of nonenrolled respondents who reported never having used an MTF, but did receive health care from a non-DoD source during the survey recall period.
- *Other nonenrolled*. Composed of nonenrolled respondents who received some of their care at MTFs as space-available care during the survey recall period and who may have received some of their care at civilian facilities, through the TRICARE Extra network.

Additional breakouts of the beneficiary population are provided based on whether the beneficiary was *retired* from the service and, for Prime enrollees, whether their PCM was military or civilian. Membership in the retiree group is independent of the source of care (i.e., retirees are also included in one of the non-AD subpopulations).

Table 3-2 shows the distribution of subpopulations in the 11 regions represented in the survey samples (see Appendix B for a detailed breakdown). The values shown in parentheses represent the proportion of non-AD beneficiaries in the population, and sum to one (100 percent) within a fiscal year. These data suggest that there has been a shift over time from those using MTF space-available (MTF/SA) to TRICARE Prime and civilian care as their source of health care. On average, 20 percent fewer (0.12–0.32) non-AD, nonenrolled people used MTF/SA as their source of care. This was paralleled by a 9- and 11-percent shift into the civilian-care-only (0.53–0.44) and TRICARE Prime categories (0.35–0.24), respectively, for non-AD beneficiaries. The 16-percent enrollment rate for those in the 1994 baseline sample is relatively low. This is partly because some active-duty personnel subsequently leave the service prior to retirement and they and their family members are not eligible to join Prime.

The shift from space-available MTF care is a result of the introduction of managed care into the military environment. For the MTF to provide the health care benefits under the TRICARE Prime program, it was necessary to decrease space-available care based on limited resources.

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<sup>7</sup> Subsequent enrollment in Prime by those in the 1994 sample was determined by searching the TRICARE Prime enrollment database maintained by the DoD.

<sup>8</sup> Includes those in the samples who may have also disenrolled before responding to the survey.

**Table 3-2. Distribution of Subpopulations Estimated from the 1994 and 1999 Samples—All Evaluated Regions Combined**

Military Status (Source of Care)	Proportion of Population			
	FY 1994		FY 1999	
	P(total)	P(non-AD)	P(total)	P(non-AD)
<i>Active Duty</i>				
All care	0.27	–	0.24	–
<i>Non-Active-Duty</i>				
Prime care	0.18 <sup>a</sup>	(0.24) <sup>a</sup>	0.26 <sup>b</sup>	(0.35) <sup>b</sup>
Civilian-only care	0.32	(0.44)	0.40	(0.53)
Other not enrolled/MFT-SA	0.24	(0.32)	0.10	(0.12)
Total	0.73	(1.00)	0.76	(1.00)

<sup>a</sup> Proportion of non-AD who subsequently enrolled when Prime became available.

<sup>b</sup> Prime available in all regions sampled.

We used regression analysis<sup>9</sup> to determine the statistical significance of the changes of the outcome variables over time and as the basis for estimating average values within subpopulations (as determined by military status and source of care) for a given year. We accomplished this by using interaction terms between the year-of-survey variable and indicator variables for the various subpopulations. We estimated separate regression equations for each region and an overall regression equation aggregating over all regions.

We structured the regression models to isolate the effects of certain sources of variation in the access measures. The sources of variation accounted for include:

- health status (SF-12 summary scales),
- demographics (age, gender, ethnicity, marital status, and education),
- travel time to nearest MTF,
- in-catchment indicator, and
- medical insurance coverage.

These controls, combined with indicator variables for “time” and subpopulation group (source of care and active-duty status of military sponsor), composed the explanatory variables used in the regression analyses.

We weighted the survey data to adjust the sample composition to reflect the actual composition of the population more closely. The weight assigned to each respondent is related to the inverse probability of being in the sample. Using weighted data in regression analysis will often result in incorrect estimates of the standard errors and, hence, the significance levels of the coefficients. Although the weights have the desired effect of changing the means of the variables, they have the undesirable effect of underestimating the standard errors. To correct the standard errors for design effects and

<sup>9</sup> Logistic regression was used for dichotomous outcome measures, and ordinary least squares linear regression was used for continuous measures, such as “number of days waited for appointment.”

possible lack of independence of errors produced by weighting and sample stratification, we used the procedure suggested by Huber<sup>10</sup> and White.<sup>11,12</sup>

We evaluated changes in outcomes from two perspectives. Following the procedures used in earlier reports, we compared current year outcomes to those of the 1994, pre-TRICARE baseline. Because more regions have been under TRICARE than in previous years, there are now sufficient data to evaluate trends.

### 3.1.6 Evaluation of Trends

We examined changes in outcomes from pre-TRICARE,<sup>13</sup> from 1 to 4 years after a region has begun enrolling people in Prime. Because the year of TRICARE startup varies across regions, the survey data used to represent an outcome for a person residing in a region under TRICARE for a particular amount of time will involve a different mix of regions and years. Table 3-3 shows which regions and survey year made up the “region maturity” groupings used in the analysis.

**Table 3-3. Data-Year and Region-Groups for Trend Analyses**

Years into TRICARE	Region										
	1	2	3	4	5	6	7/8	9	10	11	12
Baseline (1994)	1994	1994	1994	1994	1994	1994	1994	1994	1994	1994	1994
+1	1999	1999	1998	1998	1999	1997	1998	1997	1997	1996	1997
+2			1999	1999		1998	1999	1998	1998	1997	1998
+3						1999		1999	1999	1998	1999
+4										1999	

### 3.1.7 Presentation Scheme

Over the course of the evaluation, we attempted to identify TRICARE effects that were common to the regions examined. The results shown in this section are aggregate results that combine the data across regions. Appendices B through I show the results of parallel analyses performed at the regional level. However, significant departures from the aggregate results are identified.

Tables showing breakouts by subpopulation summarize results by beneficiary active-duty status and source of care. Although active-duty personnel are Prime enrollees, they

<sup>10</sup> Peter J. Huber, “The behavior of maximum likelihood estimates under non-standard conditions.” In *Proceedings of the Fifth Berkeley Symposium in Mathematical Statistics and Probability*. Berkeley, California: University of California Press, 1, 221–233, 1976.

<sup>11</sup> Halbert White, “A heteroskedasticity-consistent covariance matrix estimator and a direct test for heteroskedasticity.” *Econometrica* 48: 817–838, 1980.

<sup>12</sup> Halbert White, “Maximum likelihood estimation of misspecified models.” *Econometrica* 50: 1–25, 1982.

<sup>13</sup> Ideally, the pre-TRICARE measurement should be made in the same time interval for all regions, just before the region goes online. However, to identify those in the pre-TRICARE era who will eventually enroll in Prime requires data available only in 1994, so that year was used as the baseline.

are broken out separately. The column labeled *total* represents an estimate for the entire beneficiary population, regardless of source of care or military status.

### 3.2 Subpopulation Characteristics

Population demographics and health status can moderate people's perceptions about health care and are related to the need for services. For example, analysis of the changes in ratings of one's health care (all 11 regions combined) indicates a 13-percentage-point rise from 1994 to 1999. The age of the beneficiary is related to the rating of health care—each year of age contributes 0.68 percentage points to the satisfaction level. The difference in the average ages of the 1994 and 1999 populations is 6 years, which accounts for 4 percentage points of the increase in satisfaction. Therefore, the TRICARE effect is actually a 9-percentage-point gain, after adjusting for age differences in the 1994 and 1999 populations.

Tables 3-4 and 3-5 show the changes in demographics over the evaluation period. In particular, beneficiaries in 1999 were:

- older (and a greater fraction of the population have Medicare Part B),
- better educated,
- more likely to be Caucasian,
- less likely to live in catchment,
- more likely to be married,
- physically healthier (self-reported), and
- traveling farther to get to an MTF.

We identified the increased travel time to an MTF and the higher likelihood of having private insurance in last year's evaluation. These trends continue for a broader scope of the population (i.e., 11 regions). We statistically controlled for these and the other changes in this analysis.

**Table 3-4. Comparison of Control Variables Between the 1994 and 1999 Populations—All Evaluated Regions and Groups Combined (Proportion of Population)**

Measure	FY94	FY99
MTF less than 30 minute travel time	0.87	0.81*
In catchment	0.71	0.60*
SF-12 physical	45	47*
SF-12 mental	52	52
Caucasian	0.83	0.85*
African American	0.09	0.10*
High school education (only)	0.72	0.67*
College graduate	0.23	0.29*
Male	0.52	0.55*
Hispanic	0.06	0.05*
Medicare Part-B	0.16	0.19*
Private insurance	0.35	0.36
Other insurance	0.47	0.50
Married	0.75	0.88*
Age	45	51*

**Table 3-5. Control Variable Means in the 1999 Population—  
All Evaluated Regions Combined<sup>1</sup>**

Measure	Military Status/Source of Care			
	Active Duty	Non-Active Duty		
		Prime	Civilian Only	Other Nonenrolled
MTF < 30 min.	0.84	0.76	0.83	0.74
In catchment	0.90	0.77	0.36	0.57
SF-12 physical	52	48	45	44
SF-12 mental	52	52	53	52
Caucasian	0.79	0.80	0.91	0.82
African American	0.16	0.12	0.05	0.11
High school education (only)	0.65	0.68	0.65	0.68
College graduate	0.34	0.26	0.29	0.25
Male	0.84	0.35	0.50	0.56
Hispanic	0.09	0.07	0.03	0.05
Medicare Part B	0.00	0.05	0.35	0.35
Private insurance	0.08	0.17	0.59	0.45
Other insurance	0.09	0.21	0.85	0.71
Married	0.64	0.96	0.96	0.94
Age	33	47	61	59

<sup>1</sup> Decimal numbers are proportions.

### 3.3 Changes in Access

Access to health care continues to improve under TRICARE. Enrollees in TRICARE Prime are generally satisfied with their level of access to the military health care system. Those enrolled with a military PCM tended to report greater levels of satisfaction with access than those enrolled with a civilian PCM.

We examined three categories of access to reach this conclusion:

- realized access, based on use of preventive care,
- availability and ease of obtaining care, and
- efficiency of the process of receiving care.

We developed a set of measures for each of these categories.

**Realized access.** One class of measures related to both the *use* of care and *quality* of care has been termed *realized access*. These measures are used to indicate the ability of people to gain entry to the health care system, and for the system to maintain the health of the population. Medical visits for preventive care (well-care), as well as visits for illness and injury, fall into the access category.

For preventive-care measures, we estimated the proportion of beneficiaries who, in a 12-month period, reported having a:

- physical examination,
- blood pressure reading,

- cholesterol screening,
- gynecological examination (women only),
- mammogram (women only), and
- prostate exam (men only).

**Availability.** Availability addresses the issue of whether people are able to get care when they feel they need it. Measures of availability that we examined include:

- being able to get care,
- being able to see a particular doctor, and
- access to one's provider by telephone.

Having a usual source of care should improve one's ability to obtain care, and it is often the first step in gaining access to the system. Under the Prime option, all enrollees are assigned a PCM and, therefore, do have a usual source of care [other than the emergency room (ER)].

Another measure of the availability of care is being able to visit the facility of choice. As mentioned earlier, with the inception of the Prime option came a priority system for appointments at the MTF. Active-duty personnel and those enrolled in Prime get first priority for appointments. This could potentially squeeze out others depending on space-available appointments.

We also used the following additional measures of health care availability:

- access to health care when needed,
- access to specialists,
- access to preventive care, and
- availability of advice over the telephone.

**Process.** Another class of access measures is related to the process of gaining entry into the health care system. These process measures focus on administrative aspects of access, including making an appointment and waiting time to see a provider after arriving for the appointment. We examined the following process measures of access:

- time waiting to see a provider (time between making an appointment and when the visit took place, and time waiting in office),
- ease of making an appointment by telephone, and
- travel time to facility.

### **3.3.1 Realized Access**

We evaluated two aspects of realized access: general use of the health-care system (medical visits) and use for preventive care.

Table 3-6 shows that access, as measured by the use of medical care (outpatient visits), rose dramatically in all regions during the period of analysis as TRICARE evolved. Virtually all (99 percent) Prime enrollees had an outpatient visit in 1999. The estimate for those in the "civilian care" group is based on those reporting a visit to a non-

network, civilian-based provider. Therefore, by definition, all beneficiaries in this group had a doctor's visit. (Other regional measures of access are shown in Appendix C.)

**Table 3-6. Changes in Proportion of Beneficiaries With an Outpatient Visit From 1994 to 1999**

Region	Military Status/Source of Care									
	Active Duty		Non-Active Duty						Total	
					Other		Civilian Care			
	All		Prime		Nonenrolled				All	
	FY94	FY99	FY94	FY99	FY94	FY99	FY94	FY99	FY94	FY99
1	0.63	0.81*	0.72	0.92*	0.88	0.98*	0.88	0.98*	0.69	0.87*
2	0.57	0.82*	0.71	0.91*	0.88	0.97*	0.88	0.97*	0.66	0.86*
3	0.62	0.83*	0.69	0.90*	0.91	0.97*	0.91	0.97*	0.70	0.87*
4	0.67	0.83*	0.74	0.91*	0.91	0.96	0.91	0.96	0.72	0.88*
5	0.64	0.79*	0.70	0.88*	0.86	0.97*	0.86	0.97*	0.71	0.85*
6	0.62	0.85*	0.70	0.90*	0.88	0.97*	0.88	0.97*	0.68	0.88*
7/8	0.63	0.84*	0.71	0.89*	0.89	0.98*	0.89	0.98*	0.69	0.86*
9	0.58	0.83*	0.78	0.90*	0.93	0.97	0.93	0.97	0.72	0.86*
10	0.65	0.83*	0.75	0.88*	0.93	1.00*	0.93	1.00*	0.77	0.88*
11	0.70	0.83*	0.68	0.91*	0.88	0.94	0.88	0.94	0.71	0.88*
12	0.56	0.88*	0.73	0.92*	0.89	0.97	0.89	0.97	0.65	0.88*
Total	0.62	0.83*	0.72	0.90*	0.89	0.97*	0.89	0.97*	0.70	0.87*

\* Indicates significant change ( $p < 0.05$ ).

Emergency room use is another indicator of access. Lacking access to a “regular” source of care could result in the use of the ER for this purpose. Table 3-7 shows a dramatic drop in the use of ER visits.

**Table 3-7. Changes in Proportion of Beneficiaries Using the ER (1994–1999)**

Region	Military Status/Source of Care									
	Active Duty		Non-Active Duty						Total	
					Other		Civilian Care			
	All		Prime		Nonenrolled				All	
	FY94	FY99	FY94	FY99	FY94	FY99	FY94	FY99	FY94	FY99
1	0.37	0.25*	0.43	0.23*	0.37	0.21*	0.47	0.29*	0.40	0.23*
2	0.51	0.23*	0.47	0.30*	0.37	0.18*	0.45	0.35*	0.44	0.24*
3	0.48	0.24*	0.49	0.26*	0.33	0.18*	0.52	0.33*	0.44	0.22*
4	0.46	0.22*	0.46	0.27*	0.32	0.20*	0.48	0.33*	0.42	0.23*
5	0.50	0.28*	0.51	0.31*	0.39	0.23*	0.41	0.34	0.45	0.27*
6	0.51	0.25*	0.45	0.28*	0.31	0.21*	0.50	0.34*	0.41	0.25*
7/8	0.54	0.25*	0.49	0.27*	0.34	0.23*	0.55	0.28*	0.46	0.25*
9	0.44	0.26*	0.43	0.25*	0.35	0.24*	0.41	0.28*	0.40	0.25*
10	0.39	0.17*	0.32	0.22*	0.39	0.22*	0.50	0.27*	0.39	0.23*
11	0.43	0.24*	0.50	0.28*	0.37	0.21*	0.60	0.36*	0.45	0.25*
12	0.51	0.28*	0.51	0.25*	0.28	0.20	0.53	0.25*	0.49	0.25*
Total	0.47	0.24*	0.46	0.27*	0.35	0.21*	0.49	0.31*	0.43	0.24*

\* Indicates statistically significant change ( $p < 0.05$ ).

TRICARE has emphasized well-care and preventive medicine. Table 3-8 shows a general increase in the receipt of preventive care from 1994 to 1999 for the beneficiary population as a whole. Gynecological procedures, including Pap tests and prenatal care, are an exception to this trend.

**Table 3-8. Changes in Realized Care Indicators (1994–1999)**

Indicator	Military Status/Source of Care									
	Active Duty		Non-Active Duty						Total	
	All		Prime		Civilian Care		Other Nonenrolled		All	
	FY94	FY99	FY94	FY99	FY94	FY99	FY94	FY99	FY94	FY99
Blood pressure check	0.81	0.90*	0.78	0.90*	0.91	0.96*	0.91	0.94*	0.81	0.90*
Cholesterol test	0.46	0.41*	0.43	0.47*	0.70	0.67*	0.65	0.62*	0.52	0.53
Flu shot (age 65+)	0.84	—	0.66	0.76*	0.69	0.80*	0.72	0.81*	0.67	0.78*
Flu shot (all ages)	0.78	0.79	0.30	0.36*	0.45	0.60*	0.47	0.56*	0.45	0.56*
Mammogram (age 40+)	0.75	0.64	0.64	0.66	0.73	0.72	0.72	0.69	0.65	0.67*
Mammogram (age 50+)	0.81	0.85	0.68	0.73	0.76	0.75	0.75	0.74	0.70	0.72
Pap test	0.84	0.82	0.72	0.69*	0.71	0.66*	0.73	0.64*	0.69	0.67*
Physical examination	0.50	0.50	0.47	0.53*	0.69	0.69	0.61	0.59	0.54	0.57*
Prenatal care first trimester	0.98	0.85*	0.95	0.89*	0.95	0.77*	0.93	0.82*	0.94	0.86*

Note: Procedures performed during the 12 months preceding the survey.

– Indicates insufficient data.

\* Statistically significant difference;  $p < 0.05$ .

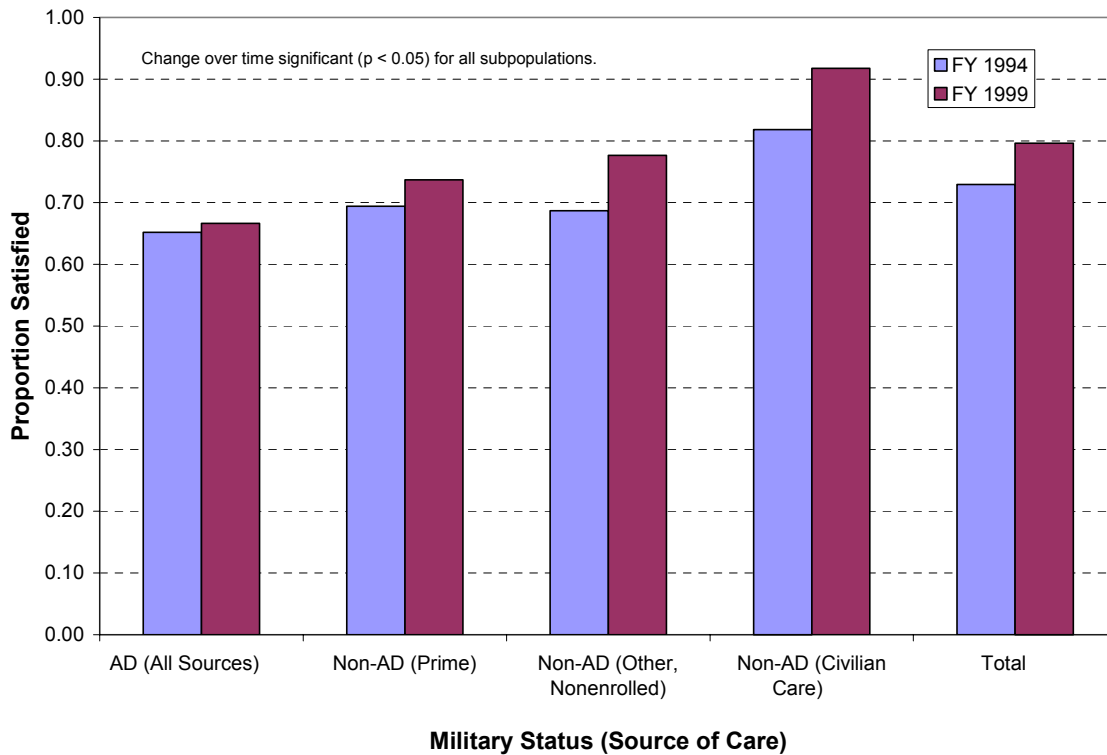
### 3.3.2 Availability of Care

There has been a perception of increased availability of care. A greater proportion of the population reported that they were able to get care when they felt they needed it, as shown in Figure 3-1. The pattern shown in the figure, which is a composite of the 11 regions being studied, is similar for most regions, as shown in Table 3-9.

The greatest increases in perceived access are among those who enrolled in Prime. Note, however, that the level of perceived access to care when needed,<sup>14</sup> in general, is considerably higher for those receiving care outside the military system (about 92 percent satisfied, with a 2-percentage-point increase over time). Thus, while TRICARE seems to result in an impression of improved access to care, it still has room for improvement.

<sup>14</sup> Includes specialty and primary care.





**Figure 3-1. Getting Care When Needed (CAHPS Composite)—All Regions Combined**

**Table 3-9. Percentage Satisfied With Getting Care When Needed**

Region	Military Status/Source of Care									
	Active Duty		Non-Active Duty						Total	
					Other					
	All		Prime		Civilian		Nonenrolled		All	
	FY94	FY99	FY94	FY99	FY94	FY99	FY94	FY99	FY94	FY99
1	0.65	0.66	0.71	0.77*	0.83	0.96*	0.70	0.79*	0.75	0.83*
2	0.64	0.64	0.67	0.71*	0.81	0.91*	0.68	0.79*	0.70	0.76*
3	0.66	0.65	0.69	0.74*	0.81	0.93*	0.69	0.80*	0.73	0.81*
4	0.66	0.70	0.67	0.72*	0.81	0.91*	0.68	0.81*	0.73	0.81*
5	0.67	0.69	0.72	0.74	0.81	0.91*	0.69	0.79*	0.74	0.81*
6	0.64	0.67	0.68	0.73*	0.82	0.91*	0.66	0.74*	0.72	0.78*
7/8	0.65	0.67	0.68	0.74*	0.81	0.90*	0.68	0.77*	0.72	0.80*
9	0.63	0.66	0.71	0.72	0.83	0.91*	0.74	0.70	0.73	0.75*
10	0.67	0.74*	0.74	0.73	0.84	0.89*	0.69	0.71	0.77	0.80*
11	0.67	0.68	0.73	0.79*	0.84	0.91*	0.67	0.80*	0.74	0.81*
12	0.65	0.68	0.70	0.77*	0.83	0.95*	0.75	0.90*	0.70	0.77*
All	0.65	0.67*	0.69	0.74*	0.82	0.92*	0.69	0.78*	0.73	0.80*

Note: "Choice of Personal Physician" item not included in composite for compatibility with pre-1999 data.

\* Statistically significant change from base year;  $p < 0.05$ .

We examined several additional measures of availability of care and perceived a similar pattern of increased availability of care. Table 3-10 gives the details.

**Table 3-10. Availability Measures of Access—All Evaluated Regions Combined**

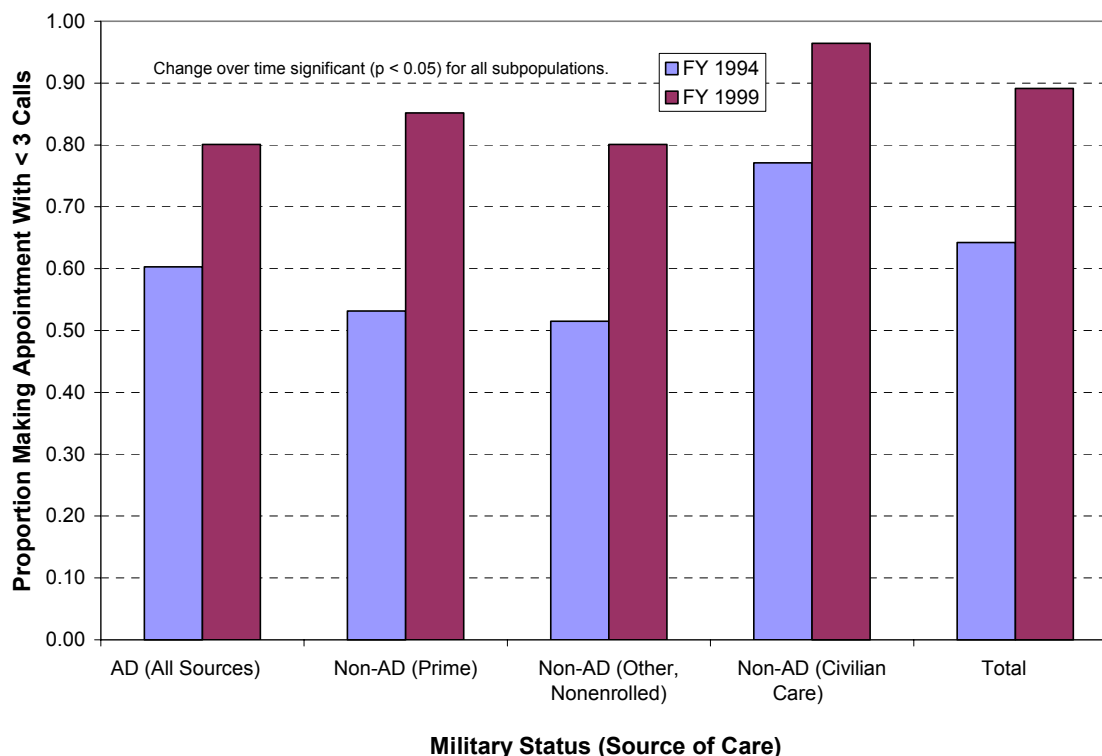
CAHPS Measure <sup>a</sup>	Military Status/Source of Care									
	Active Duty		Non-Active Duty						Total	
							Other			
	All		Prime		Civilian		Nonenrolled		All	
	FY94	FY99	FY94	FY99	FY94	FY99	FY94	FY99	FY94	FY99
Referral to specialist	0.54	0.49*	0.61	0.63*	0.75	0.85*	0.60	0.70*	0.66	0.71*
Getting necessary care	0.65	0.68*	0.69	0.74*	0.83	0.89*	0.68	0.74*	0.73	0.79*
Delays waiting for referral approval	0.75	0.83*	0.78	0.79*	0.88	0.90*	0.77	0.83*	0.80	0.85*
Advice by phone	0.68	0.65*	0.73	0.75*	0.88	0.91*	0.72	0.81*	0.78	0.81*

<sup>a</sup> Proportion responding favorably to CAHPS item; i.e., value of 8 or greater on a 0 – 10 scale.

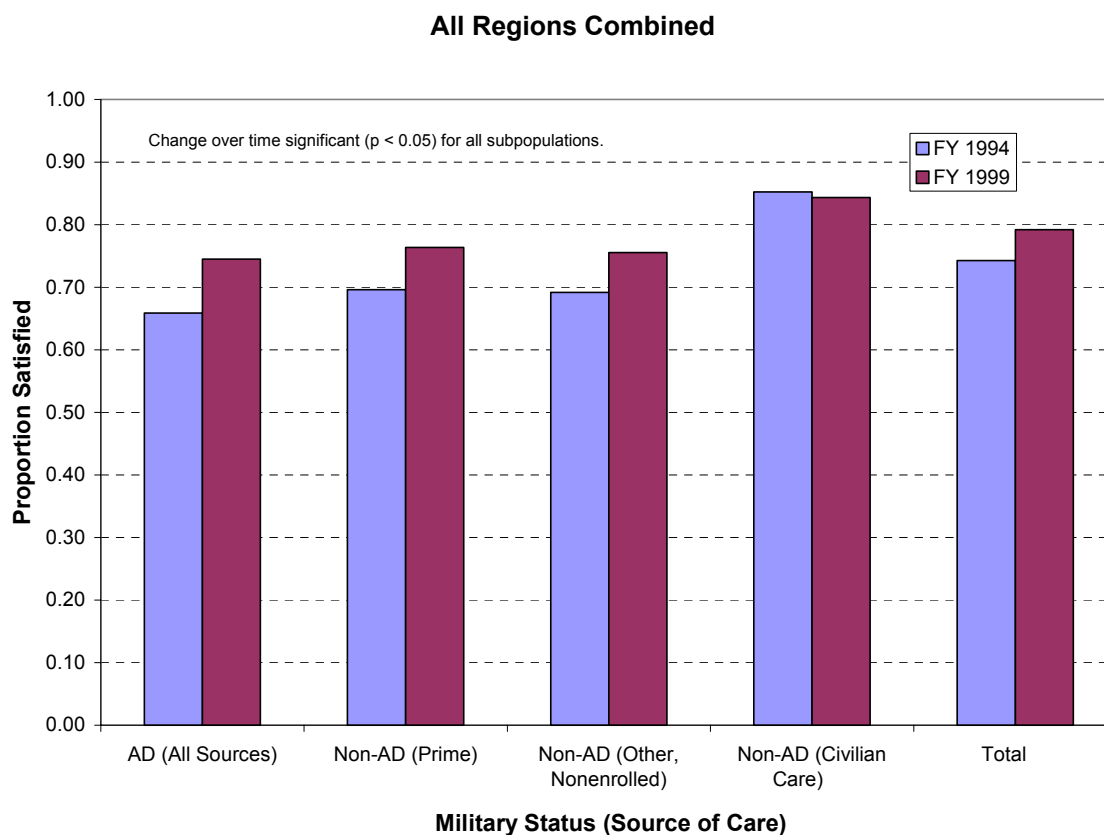
\* Statistically significant change from base year;  $p < 0.05$ .

### 3.3.3 Process of Obtaining Care

Two measures that reflect the process of obtaining care are the ease of making an appointment and the waiting time between making the appointment and seeing the health-care provider. As shown in Figures 3-2 and 3-3, TRICARE has made it easier to make a medical appointment, and people can see their providers more quickly (shorter gap between making an appointment and the actual visit).



**Figure 3-2. Ease of Making Appointments (Fewer than Three Phone Calls)—**



**Figure 3-3. Getting Appointment Without Long Waits—All Regions Combined**

Table 3-11 shows estimated waiting times and the proportion of a given subpopulation who were seen within TRICARE guidelines. Results are broken down by military status and source of care.

**Table 3-11. Wait for a Medical Appointment (1994 vs. 1999)  
(Proportion Seen in Specified Time<sup>a</sup>)**

Appointment Type	Military Status/Source of Care									
	Active Duty		Non-Active Duty						Total	
	All		Prime		Civilian		Other Nonenrolled		All	
	FY94	FY99	FY94	FY99	FY94	FY99	FY94	FY99	FY94	FY99
Well care	—	0.86	—	0.84	—	0.89	—	0.82	—	0.87
Routine	0.61	0.78*	0.65	0.75*	0.83	0.85*	0.65	0.74*	0.71	0.80*
Urgent	0.64	0.67*	0.69	0.68	0.85	0.78*	0.68	0.70	0.74	0.72*

<sup>a</sup> Well care (< 30 days); routine care (<7 days); urgent care (1 day)

— indicates no data

The gap between making an appointment for routine care and seeing a provider has dropped dramatically since 1994—particularly for Prime enrollees. The proportions of

those groups—both those on active duty and their family members—that were seen within 7 days for routine care showed an average 13-percentage-point improvement. In contrast, wait times for urgent care appointments increased, on average, only 2 percentage points. Lack of specificity in the 1994 survey does not allow a breakdown for well-care appointments. The estimates indicate that a greater proportion of those receiving care from civilian providers generally have shorter wait times for appointments. However, there has been a drop in the proportion of civilian urgent care appointments seen within the specified time, from 1994 to 1999. TRICARE goals for appointment wait time are met about 85 percent of the time by both civilian and military providers.

Table 3-12 lists other process measures that we examined. The general pattern shown in the data is for improved access under TRICARE, but the degree of improvement for those using the military system was considerably less than for those using civilian-only care. There continues to be an improvement in the ability to make an appointment by telephone over that identified in previous years' evaluations. We observed this for both those with military and civilian sources of care. On average, the percentage of those who were able to get an appointment with three or fewer phone calls increased from 64 percent in 1994 to 89 percent in 1999. Waiting time in the provider's office has decreased for those with military providers, but has increased for those under the care of non-Prime civilian providers.

**Table 3-12. Process Measures of Access—All Evaluated Regions Combined  
(Proportion of Subpopulation)**

Measure	Military Status/Source of Care									
	Active Duty		Non-Active Duty						Total	
	All		Prime		Civilian		Other Nonenrolled		All	
	FY94	FY99	FY94	FY99	FY94	FY99	FY94	FY99	FY94	FY99
Appointment by phone (< 3 calls)	0.60	0.80*	0.53	0.85*	0.77	0.96*	0.51	0.80*	0.64	0.89*
Wait in office < 30 minutes	0.72	0.76*	0.73	0.80*	0.87	0.82*	0.68	0.78*	0.77	0.80*

\* Statistically significant change from base year;  $p < 0.05$ .

### **3.3.4 Effects of Provider Type on Perceptions of Prime Enrollees**

In general, more people are enrolled with military PCMs (77 percent) than with civilian PCMs. The DoD did not have an explicit policy of assigning a particular physician to a Prime enrollee until December 1999. In many cases, people were assigned to military clinics with no specific PCMs. However, if a person was allowed to enroll in the non-military network of civilian providers, he or she was typically able to choose a particular provider as PCM.

Our previous TRICARE evaluation showed that, in 1997, free choice of a PCM had a profound effect on satisfaction with many aspects of the military health care system. The results indicated that Prime enrollees with military providers report greater levels of access than those with civilian providers, and those who get to choose their providers have higher satisfaction with the health care system. Unfortunately, the current survey

data do not have information about choice of a PCM. Therefore, the effect of choice of PCM type could not be directly examined here. However, survey respondents were asked if they had, “one person you think of as your personal doctor or nurse.” We contrast satisfaction and access on the basis of having a *personal* physician or nurse, viz., PCM (Table 3-13).

**Table 3-13. Effect of Having One’s Own Provider (Proportion of Subpopulation)**

Measure/Has own personal doctor or nurse	Military Status/Source of Care									
	Active Duty		Non-Active Duty						Total	
							Other			
	All		Prime		Civilian		Nonenrolled		All	
	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes
Proportion having own provider	–	0.25	–	0.60	–	0.89	–	0.71	–	0.64
<b>General</b>										
Health plan rating (8+)	0.30	0.39*	0.42	0.52*	0.48	0.62*	0.43	0.54*	0.41	0.54*
Claims	0.57	0.65*	0.74	0.78*	0.83	0.89*	0.80	0.85*	0.77	0.85*
Customer service	0.44	0.47	0.51	0.55*	0.51	0.60*	0.51	0.56*	0.50	0.56*
<b>Access</b>										
Getting needed care	0.72	0.74*	0.72	0.77*	0.82	0.89*	0.69	0.82*	0.76	0.82*
Getting care promptly	0.74	0.77*	0.73	0.78*	0.77	0.85*	0.69	0.81*	0.75	0.81*
Urgent care appointment (1 day)	0.66	0.71*	0.67	0.69	0.73	0.78*	0.66	0.74*	0.69	0.74*
Routine appointment (7 days)	0.77	0.79	0.74	0.76*	0.79	0.86*	0.67	0.82*	0.77	0.82*
Well care appointment within 4 weeks	0.85	0.90*	0.81	0.86*	0.84	0.89*	0.74	0.88*	0.83	0.88*
Cholesterol check (12 months)	0.38	0.47*	0.36	0.55*	0.46	0.70*	0.44	0.60*	0.40	0.60*
Used ER	0.23	0.28*	0.26	0.27	0.20	0.21	0.34	0.25*	0.23	0.25*
Blood pressure check	0.89	0.93*	0.85	0.94*	0.90	0.97*	0.90	0.95*	0.84	0.95*
<b>Quality</b>										
Health care rating	0.42	0.53*	0.53	0.68*	0.63	0.80*	0.55	0.71*	0.56	0.71*
Specialty care rating	0.52	0.64*	0.62	0.72*	0.69	0.80*	0.67	0.75*	0.65	0.75*
Staff relations	0.82	0.86*	0.85	0.91*	0.93	0.96*	0.89	0.93*	0.87	0.93*
Doctor communications	0.80	0.85*	0.80	0.89*	0.85	0.93*	0.84	0.90*	0.83	0.90*

\* Statistically significant difference;  $p < 0.05$ .

About 64 percent of beneficiaries are estimated to have had a personal physician or nurse in 1999. This percentage varied by active-duty status and health plan. Only 25 percent of active-duty personnel, and 60 percent of non-AD Prime enrollees had a personal doctor or nurse. Having a personal health care provider had several positive effects:

- better satisfaction with one’s health plan,
- better perceived quality of care,
- fewer problems with claims, customer relations, and relations with provider’s staff, and

- greater levels of self-reported access, including fewer visits to the ER.

The current survey data allow us to compare perceptions and outcomes of TRICARE beneficiaries enrolled with different PCM types. The comparisons are shown in Table 3-14 (see Appendix D for regional statistics).

**Table 3-14. PCM Type and Prime Enrollee Differences in Various Access Measures (Proportion of Subgroup—1999, All Evaluated Regions Combined)**

Measure	PCM Type	
	Civilian	Military
<b>Ratings</b>		
Health care	0.61	0.55*
PCM	0.67	0.70*
Health plan	0.42	0.43
Specialty care		
<b>Composites</b>		
Claims	0.75	0.70*
Customer service	0.47	0.46
Getting needed care	0.70	0.72*
Doctor communication	0.86	0.84*
Getting care quickly	0.79	0.72*
Courteous staff	0.90	0.85*
<b>Miscellaneous Access</b>		
Had outpatient visit	0.86	0.90*
Appointment by phone (< 3 calls)	0.91	0.81*
Used ER	0.24	0.28*
Wait in office < 30 minutes	0.76	0.80*

\* Statistically significant difference;  $p < 0.05$ .

Table 3-14 shows that those enrolled with a military PCM:

- rated their PCM higher,
- reported greater levels of access to care when needed, and
- had shorter waits in their provider's office.

On the other hand, those with civilian PCMs:

- rated their overall health care and specialty care higher,
- had fewer problems with claims,
- had better communication with their PCM and his or her staff,
- found it easier to make an appointment in general, and to make an appointment by phone with fewer phone calls; and
- were less likely to have utilized the ER.

As shown in Table 3-15, Prime enrollees with military PCMs generally received higher levels of preventive care in 1999 than those enrolled with civilian PCMs, with the exceptions of having had a physical exam and a cholesterol test.

**Table 3-15. Preventive Care Received in 1999 from Civilian and Military PCMs  
(Proportion Receiving Care)**

Preventive Care Measure	PCM Type	
	Civilian	Military
Cholesterol test	0.53	0.44*
Flu shot (age 65+)	0.79	0.76
Flu shot (all ages)	0.46	0.57*
Mammogram (age 40+)	0.64	0.68*
Mammogram (age 50+)	0.68	0.75*
Pap test	0.65	0.74*
Physical examination	0.57	0.51*
Prenatal care first trimester	0.89	0.89
Blood pressure check	0.90	0.91*
Prostate check	0.60	0.58

\* Statistically significant difference;  $p < 0.05$ .

TRICARE comes close to meeting its goals for scheduling appointments for care. As shown in Table 3-16, Prime enrollees with military PCMs had to wait somewhat longer for appointments for routine care than those with civilian PCMs.

**Table 3-16. Waiting Time for an Appointment for Civilian and Military PCMs  
(Proportion of 1999 Population)**

Measure	PCM Type	
	Civilian	Military
Appointment goals		
Well care (< 30 days)	0.85	0.85
Routine care (< 7 days)	0.80	0.75*
Urgent care (1 day)	0.69	0.68

\* Statistically significant difference;  $p < 0.05$ .

### 3.4 Changes in Quality of Care

Quality of care has many dimensions. This evaluation considers two major aspects of quality: meeting national standards and quality of care as perceived by DoD beneficiaries. In a departure from the established methodology, we evaluate standards from the perspective of a single point in time, during 1999 when the 11 regions studied had been under the TRICARE program for at least 1 year. This approach was necessary because the 1994 survey did not include items designed to measure the achievement of many national goals. The methodology compares levels of quality achieved in 1999 with levels specified in the national goals.

#### 3.4.1 Meeting Standards Under TRICARE

TRICARE Prime offers additional enhanced benefits that are not covered under TRICARE Standard. These enhanced benefits include such services as periodic examinations and preventive-care procedures. Counseling on well-care issues, such as nutrition, exercise, and substance abuse, are integrated into routine office visits. In

addition, Prime offers increased continuity of care through the selection of a PCM, who either provides or coordinates all the beneficiary's health care services.

DoD has adopted as its standard the national health-promotion and disease-prevention objectives specified by the United States Department of Health and Human Services in *Healthy People 2000*.<sup>15</sup> We compared care levels under TRICARE with these national standards. Prime covers specific well-care procedures at stated frequencies that tend to coincide with or exceed these national goals. We compared beneficiaries' survey responses with the national objectives in the following areas:

- smoking cessation,
- prenatal care (first trimester),
- blood pressure checks,
- cholesterol screening,
- mammograms, and
- Pap smears.

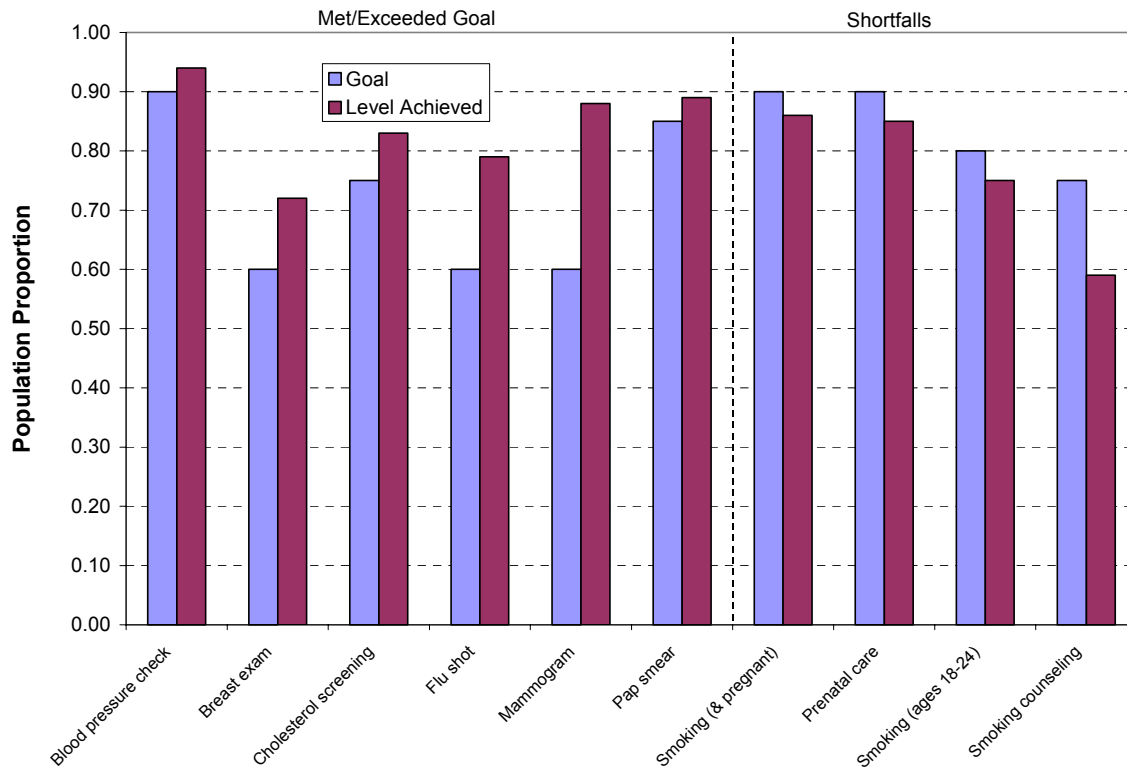
*Healthy People 2000* identifies both current national care levels and target levels for the year 2000. It identifies outcome targets for such things as smoking cessation and immunizations. In 1987, for example, 30 percent of the 20- to 24-year-olds were regular cigarette smokers. The national target is to reduce that percentage to 15 percent by 2000. In addition, *Healthy People 2000* identifies targets for frequency of well-care procedures. For example, by 2000, the national objective is for 90 percent of the adult population to have had their blood pressure checked by a trained professional within the previous 2 years. We compared the care levels under TRICARE with these national targets.

Figure 3-4 shows the average levels achieved, for those goals met and not met, respectively, in the 11 TRICARE regions combined along with the *Healthy People 2000* goals. Results are shown for the total population only. Subpopulation results are shown in Table 3-17, and regional statistics are given in Appendix E. These data indicate that TRICARE is meeting (or nearly meeting) most of the *Healthy People 2000* goals examined. Shortfalls include: smoking among 18-24 year-olds and for pregnant women, counseling for the use of tobacco products, and physical exams for active-duty personnel. In our previous, we had identified shortfalls in goals for smoking and chewing of tobacco products. Data were unavailable to estimate chewing tobacco use for FY 1999.

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<sup>15</sup> Department of Health and Human Services, Office of Disease Prevention and Health Promotion, *Healthy People 2000: National Health Promotion and Disease Prevention Objectives*, 1991.





Note: All differences between level achieved and goal statistically significant ( $p < 0.05$ ). Red bars to the left of vertical dotted line represent areas where MHS performance meets or exceeds goal (blue bar); red bars to the right of dotted line represent areas where MHS performance does not meet goal.

**Figure 3-4. Achievement of *Healthy People 2000* Goals in 1999  
(Entire Population, Averaged Across TRICARE Regions)**

**Table 3-17. *Healthy People 2000* Goal Achievement by Military Status and Source of Care—  
All Evaluated Regions Combined (Proportion Meeting Goal in 1999)**

Measure	Goal		Military Status/Source of Care				
			Active Duty	Non-Active Duty			Total
	Criteria	Met <sup>a</sup>	All	Prime	Civilian	Other Non-enrolled	All
Blood pressure check	0.90	Yes	0.94	0.91	0.92	0.95	0.97
Breast exam	0.60	Yes	0.72	0.77	0.70	0.70	0.73
Cholesterol screening	0.75	Yes	0.83	0.77	0.77	0.86	0.90
Flu shot (age 65+)	0.60	Yes	0.79	—	0.76	0.81	0.79
Mammogram	0.60	Yes	0.88	0.97	0.89	0.88	0.87
Pap smear	0.85	Yes	0.89	0.96	0.91	0.85	0.86
Prenatal care	0.90	No	0.85	0.83	0.89	0.81	0.76
Prostate exam	None	n/a	0.69	0.62	0.60	0.67	0.72
Smoking counseling	0.75	No	0.59	0.52	0.60	0.64	0.62

<sup>a</sup> “Yes” indicates goal met or exceeded in each subgroup; “No” indicates goal not met in any subgroup.

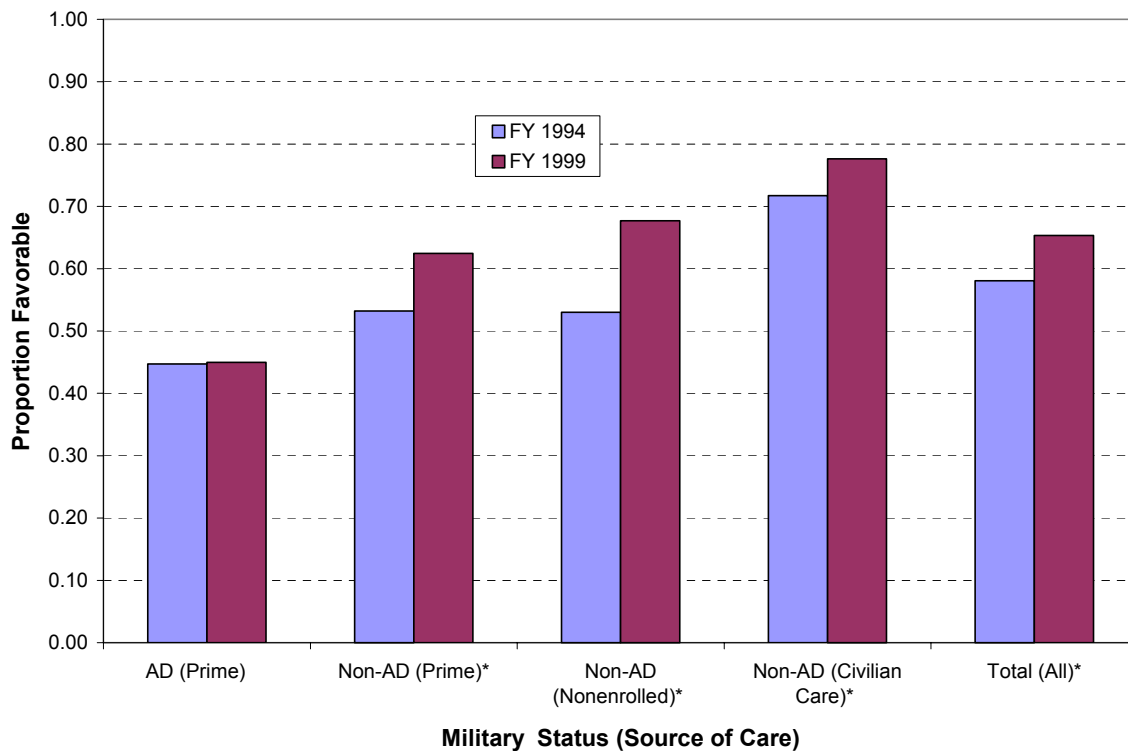
“n/a” indicates no DoD standard; “—” indicates insufficient data for estimate.

### 3.4.2 Perceptual Measures of Quality of Care

We examined changes in beneficiaries' perceptions of quality under TRICARE based on their survey responses. The perception measures examined include beneficiaries' ratings of:

- overall quality of health care (CAHPS "Health Care" rating),
- rating of one's physician (CAHPS "PCM" rating),
- rating of health plan's specialty care (CAHPS "Specialty Care" rating),
- ability of doctors to communicate with patients (CAHPS "Doctor Communication" composite), and
- courtesy and friendliness of provider's staff.

Figure 3-5 shows that the levels of perceived overall quality of care have increased significantly from 1994 to 1999. (We considered ratings of 8 and above on the 0 – 10 CAHPS scales as "favorable.") While there have been improvements in perceived quality by those receiving care in the military system, their levels still fall below those using civilian care. We observed similar patterns in most of the regions, as displayed in Table 3-18.



\* Indicates statistically significant change ( $p < 0.05$ ) in CAHPS Health Care rating.

**Figure 3-5. Change in Satisfaction With Overall Quality of Care—All Regions Combined**

**Table 3-18. Regional Changes in Perceived Overall Quality of Care  
(Proportion of Subpopulation with Favorable CAHPS “Health Care” Ratings)**

Region	Military Status/Source of Care									Total
	Active Duty		Non-Active Duty							
	All	Prime	Civilian	Other		All				
				Nonenrolled						
FY94	FY99	FY94	FY99	FY94	FY99	FY94	FY99	FY94	FY99	
1	0.47	0.47	0.55	0.62*	0.74	0.79*	0.55	0.68*	0.61	0.67*
2	0.42	0.42	0.48	0.53*	0.71	0.76*	0.50	0.63*	0.52	0.58*
3	0.46	0.45	0.51	0.61*	0.69	0.77*	0.52	0.66*	0.57	0.66*
4	0.48	0.47	0.54	0.66*	0.70	0.79*	0.53	0.74*	0.59	0.69*
5	0.47	0.42	0.56	0.64*	0.72	0.77*	0.56	0.70*	0.61	0.65*
6	0.43	0.47	0.51	0.64*	0.74	0.78*	0.49	0.69*	0.57	0.66*
7/8	0.46	0.46	0.52	0.65*	0.70	0.77*	0.51	0.69*	0.57	0.67*
9	0.40	0.46	0.57	0.64*	0.72	0.77*	0.57	0.60	0.57	0.63*
10	0.50	0.53	0.59	0.65*	0.71	0.76*	0.56	0.69*	0.63	0.70*
11	0.47	0.43	0.58	0.62*	0.73	0.78*	0.55	0.70*	0.60	0.65*
12	0.46	0.40	0.55	0.65*	0.76	0.84	0.65	0.86*	0.54	0.59
All	0.45	0.45	0.53	0.62*	0.72	0.78*	0.53	0.68*	0.58	0.65*

\* Indicates statistically significant change over time ( $p < 0.05$ ).

Table 3-19 shows the effects of TRICARE on various quality-of-care attributes. We observed improvements under TRICARE for each aspect of quality. The familiar pattern of greater levels of satisfaction for those with civilian-only (versus military) sources of care is observed for these data. As a group, those using MTF space-available care (Other nonenrolled) had the greatest increase in satisfaction with these quality attributes (9-percentage-point average increase).

**Table 3-19. Measures of Perceived Quality of Care—All Evaluated Regions Combined  
(Proportion of Subpopulation Satisfied with Attribute)**

Quality Measure	Military Status/Source of Care									
	Active Duty		Non-Active Duty						Total	
	All		Prime		Civilian		Other Nonenrolled		All	
	FY94	FY99	FY94	FY99	FY94	FY99	FY94	FY99	FY94	FY99
PCM rating (0-1)	0.58	0.61	0.65	0.71*	0.74	0.78*	0.67	0.76*	0.69	0.74*
Specialty care rating (0-1)	0.59	0.56	0.65	0.69*	0.75	0.79*	0.65	0.76*	0.68	0.73*
Doctor communications	0.80	0.81	0.84	0.86*	0.92	0.93	0.84	0.89*	0.86	0.88*
Courteous staff	0.82	0.83	0.85	0.89*	0.94	0.96*	0.85	0.92*	0.58	0.61

\* Indicates statistically significant change over time ( $p < 0.05$ ).

### **3.5 Comparisons of MHS Beneficiaries With the General Population**

How does MHS beneficiaries' satisfaction with access to and quality of health care compare with that of the general population? We used data from the NCBDB to contrast the populations.

Because population demographics are likely to affect satisfaction and other ratings, we statistically adjusted estimates of satisfaction in the general population to reflect MHS beneficiary demographics.<sup>16</sup> The general pattern of results, displayed in Table 3-20, suggests that MHS beneficiaries are less satisfied with most aspects of their health care than those in comparable health plans in the general population.<sup>17</sup> Please note that, because of methodological differences in our estimation procedures, our estimates differ slightly from those shown on TMA's web site as its "report card."<sup>18</sup>

### **3.6 Satisfaction With Filing Medical Claims Under TRICARE**

When seeking care outside the managed care network, a medical claim must be filed for reimbursement.<sup>19</sup> Use of CHAMPUS (TRICARE Standard) by those using civilian care-only increased from 40 percent in 1994, to 51 percent in 1999, suggesting that more claims are now being filed.<sup>20</sup> About one-half of TRICARE Prime enrollees having a civilian PCM in 1999 also filed claims because they were referred to out-of-network providers. This was double the rate of claims filing for Prime enrollees having a military PCM. Presumably, referrals by military PCMs are more likely to be within the military system, where no claim has to be filed.

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<sup>16</sup> We adjusted estimates for the NCBDB civilian populations to account for age, health status, gender and education differences from the 1999 DoD population.

<sup>17</sup> We grouped the two populations into three subpopulations corresponding to source of care or health plan. The groupings consisted of: (1) "HMO" (all TRICARE Prime enrollees) versus civilian HMOs; (2) nonenrolled MHS beneficiaries using civilian providers versus those in the general population with preferred provider organization (PPO), point-of-service (POS), or indemnity plans; and (3) nonenrolled MHS beneficiaries using TRICARE Extra and MTF space-available care versus those in the general population with POS plans.

<sup>18</sup> See <http://www.tricare.osd.mil/survey/hcsurvey/1999.html>. We based our estimates on individual weighted composite scores (vs. the averaging of item means procedure), and a more complete set of demographics, for consistency with the estimation procedures used elsewhere in this evaluation.

<sup>19</sup> In principle, those enrolled in Prime and nonenrollees using the Extra network do not have to file claims. Participating providers in the Extra network and providers receiving referrals from PCMs of Prime enrollees are supposed to handle the necessary claims filing. Before TRICARE, filing a CHAMPUS claim was the responsibility of the patient.

<sup>20</sup> Information on the proportion of beneficiaries who had to file their own claims was not available from the survey data.

**Table 3-20. Comparison of TRICARE With the General Population  
(Proportion of 1999 Subpopulation)**

Item (Scale)	Civilian Only versus Other							
	Prime versus HMO		POS+PPO+ Indemnity		Nonenrolled versus POS		All	
	TRI- CARE	NCBD	TRI- CARE	NCBD	TRI- CARE	NCBD	TRI- CARE	NCBD
<b>General Satisfaction</b>								
Health plan rating	0.41	0.59	0.62	0.76	0.54	0.74	0.51	0.67
<b>Access</b>								
Getting care when needed (4-item composite)	0.67	0.77	0.89	0.86	0.76	0.87	0.77	0.82
Getting care when needed (3-item composite)	0.70	0.81	0.91	0.89	0.77	0.90	0.80	0.85
Getting care quickly (composite)	0.72	0.75	0.88	0.78	0.77	0.82	0.80	0.79
Advice by telephone	0.70	0.86	0.91	0.93	0.80	0.92	0.80	0.89
Wait less than 7 days for routine visit	0.76	0.84	0.85	0.86 <sup>a</sup>	0.75	0.86	0.80	0.85
Urgent care within 24 hours	0.67	0.86	0.78	0.86	0.69	0.87	0.72	0.86
Wait less than 30 minutes past appointment time	0.77	0.68	0.82	0.73	0.76	0.72	0.79	0.72
<b>Quality of Care</b>								
How well doctors communicate (composite)	0.83	0.93	0.93	0.95	0.89	0.97	0.88	0.96
Listens carefully	0.83	0.92	0.93	0.95	0.90	0.96	0.88	0.94
Explains so you can understand	0.88	0.95	0.94	0.97	0.91	0.96	0.91	0.96
Shows respect	0.84	0.93	0.93	0.96	0.90	0.96	0.89	0.95
Spends time with you	0.79	0.88	0.89	0.92	0.84	0.92	0.83	0.90
Staff courtesy (composite)	0.86	0.93	0.96	0.95 <sup>a</sup>	0.92	0.97	0.91	0.96
Courteous and respectful	0.89	0.95	0.97	0.98 <sup>a</sup>	0.94	0.97	0.93	0.96
Staff helpful	0.82	0.90	0.94	0.95 <sup>a</sup>	0.90	0.94	0.88	0.93
Health care rating	0.54	0.72	0.78	0.84	0.69	0.83	0.66	0.79
PCM rating	0.67	0.74	0.78	0.82	0.76	0.81	0.73	0.78
Specialty care rating	0.63	0.76	0.79	0.85	0.75	0.84	0.71	0.80

<sup>a</sup> Difference between TRICARE and NCBD estimates *not* statistically significant ( $p > 0.05$ ).

Using data from the NCBD, we compare claims filing experience of those under TRICARE to those with civilian plans in Table 3-21. The numbers shown for those in civilian plans (NCBD) are adjusted for demographic differences in the populations, and are based on the characteristics of MHS beneficiaries in 1999.

**Table 3-21. Claims Processing Problems in 1999 (Proportion of Subpopulation)**

Item	Source of Care/Population									
	Civilian Only					Other				
	Military PCM		Civilian PCM		POS+PPO+		Nonenrolled		All	
	versus HMO		versus HMO		Indemnity		versus POS			
	TRI- CARE	NCBD <sup>a</sup>	TRI- CARE	NCBD <sup>b</sup>	TRI- CARE	NCBD	TRI- CARE	NCBD	TRI- CARE	NCBD
Claim filed <sup>c</sup>	0.24	0.45	0.65	0.61	0.76	0.67	0.57	0.67	0.51	0.58
Claims processing (composite)	0.67	0.76	0.77	0.87	0.90	0.90#	0.86	0.93	0.80	0.85
Claims handled correctly	0.70	0.80	0.77	0.87	0.91	0.92#	0.87	0.92	0.82	0.86
Claims handled in reasonable time	0.66	0.74	0.77	0.85	0.87	0.89	0.84	0.89	0.78	0.83

# Difference between TRICARE and NCBD populations *not* statistically significant ( $p > 0.05$ ).

<sup>a</sup> Enrolled in civilian HMO.

<sup>b</sup> Enrolled in civilian HMO/PPO.

<sup>c</sup> Either by provider or beneficiary.

The results suggest that overall there are fewer problems with claims under civilian plans. Within the MHS, those not enrolled using a mix of space-available care and civilian providers (Other nonenrolled), presumably using TRICARE Extra, had fewer problems with claims than Prime enrollees did. We observed some regional differences in claims filing experiences (see Appendix E). These differences are partially the result of differences in procedures followed by the managed care contractor responsible for processing claims in a given region.<sup>21</sup>

### 3.7 Retirees

There had been some concern that, with the advent of Prime, retirees who had depended on space-available care in the MTF would be “squeezed out”—forcing them to either enroll in Prime or seek care from civilian sources (or Medicare for those 65 and over). Table 3-22 shows the proportions of retirees by age group and source of care in FY 1994 (pre-TRICARE) and in 1999.<sup>22</sup> Among those under 65, there was a shift out of space-available MTF care and civilian care into Prime. A similar shift is observed for those 65 and over. The 13 percent who indicated that they were in Senior Prime<sup>23</sup> were either enrolled, empanelled in special programs that give military physicians experience treating an elderly population, or may think that they are in Prime but are really using space-available military care.

<sup>21</sup> CHAMPUS claims were handled differently in 1994 and 1999. In 1994, before TRICARE, claims were filed directly with a fiscal intermediary who processed claims for the beneficiary’s state of residence. In 1999, each region under TRICARE has a contractor responsible for handling claims. Procedures can vary from region to region.

<sup>22</sup> The numbers sum to 100 percent within year and age group.

<sup>23</sup> Senior Prime enrollment began on 1 September 1998.

**Table 3-22. Retirees and Changes in Source of Care (Proportion of Age Group)**

Age	Source of Care					
	Prime		Civilian		Other Nonenrolled	
	FY94	FY99	FY94	FY99	FY94	FY99
Under 65	–	0.38	0.49	0.51	0.29	0.11
Over 64	–	0.06	0.67	0.76	0.30	0.18

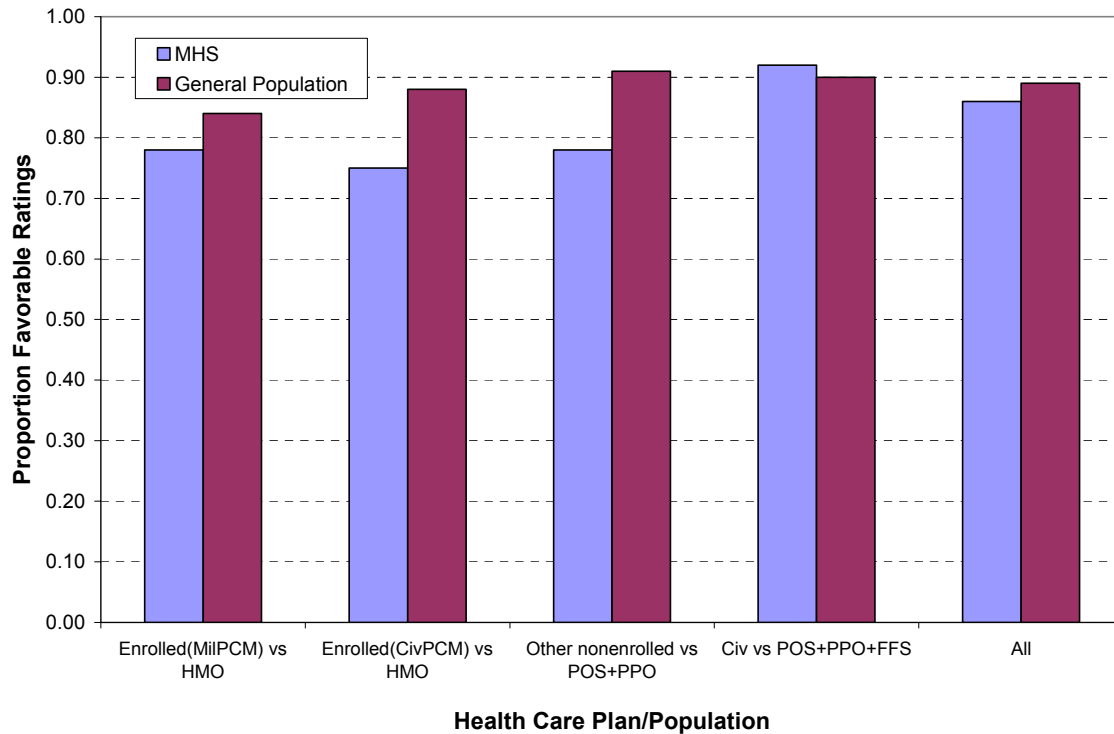
How satisfied are retirees with their health care? Table 3-23 shows changes in satisfaction levels of retirees from 1994 to 1999 for key indicators of access and quality. (Detailed data are shown in Appendix G.) We observed statistically significant increases in satisfaction for nearly all measures over the period. An exception was for nonenrolled retirees who mostly use space-available MTF care. Their levels of satisfaction were noticeably lower—and have remained lower—than enrolled retirees and those getting their care outside the MHS (from civilian sources).

**Table 3-23. Changes in Satisfaction Measures of Access and Quality for Retirees—All Evaluated Regions Combined (Proportion of Subpopulation)**

Satisfaction Measure	Source of Care							
	Prime		Civilian Care		Other Nonenrolled		All	
	FY94	FY99	FY94	FY99	FY94	FY99	FY94	FY99
<b>ACCESS</b>								
<i>Availability</i>								
Getting needed care composite	0.71	0.77*	0.82	0.92*	0.69	0.78*	0.77	0.85*
Getting care quickly composite	0.72	0.79*	0.84	0.89*	0.70	0.78*	0.79	0.83*
Used ER	0.44	0.25*	0.35	0.21*	0.48	0.31*	0.39	0.23*
<i>Process:</i>								
Wait in office less than 30 minutes	0.72	0.82*	0.87	0.82*	0.69	0.78*	0.80	0.82*
Appointment by phone (< 3 calls)	0.54	0.88*	0.77	0.97*	0.53	0.80*	0.68	0.93*
<i>Preventive Care:</i>								
Blood pressure check	0.79	0.91*	0.91	0.96*	0.91	0.94*	0.83	0.91*
Cholesterol test	0.53	0.57*	0.71	0.68*	0.67	0.64*	0.60	0.61
Flu shot (age 65+)	0.66	0.76*	0.69	0.80*	0.72	0.81*	0.67	0.78*
Flu shot (all ages)	0.28	0.43*	0.45	0.60*	0.46	0.58*	0.39	0.54*
Mammogram (age 40+)	0.66	0.68	0.74	0.72	0.72	0.69	0.67	0.68
Mammogram (age 50+)	0.68	0.73*	0.76	0.75	0.75	0.74	0.70	0.72
Pap test	0.68	0.66	0.71	0.66*	0.71	0.64*	0.66	0.63*
Physical examination	0.45	0.55*	0.70	0.69	0.60	0.60	0.57	0.61*
<b>QUALITY</b>								
Health care rating	0.57	0.69*	0.72	0.78*	0.54	0.69*	0.65	0.74*
PCM rating	0.68	0.72*	0.75	0.78*	0.68	0.76*	0.72	0.76*
Specialty care rating (0-1)	0.67	0.71*	0.75	0.79*	0.66	0.76*	0.71	0.77*
<b>OVERALL SATISFACTION</b>								
Health plan rating	0.39	0.52*	0.39	0.52*	0.52	0.61*	0.45	0.57*

\* Indicates statistically significant change over time (p < 0.05).

How does retiree satisfaction compare with that of active-duty beneficiaries and their families and the civilian population in general? Two key indicators are shown as the basis of comparison: access to routine appointments and rating of health care. Figures 3-6 through 3-8 provide estimates of the level of retiree satisfaction under their current plan (military system), and demographically similar non-DoD beneficiaries enrolled in civilian plans.



**Figure 3-6. Satisfaction With Access to Care When Needed: Military Retirees versus General Population (Proportion of Subpopulation)**

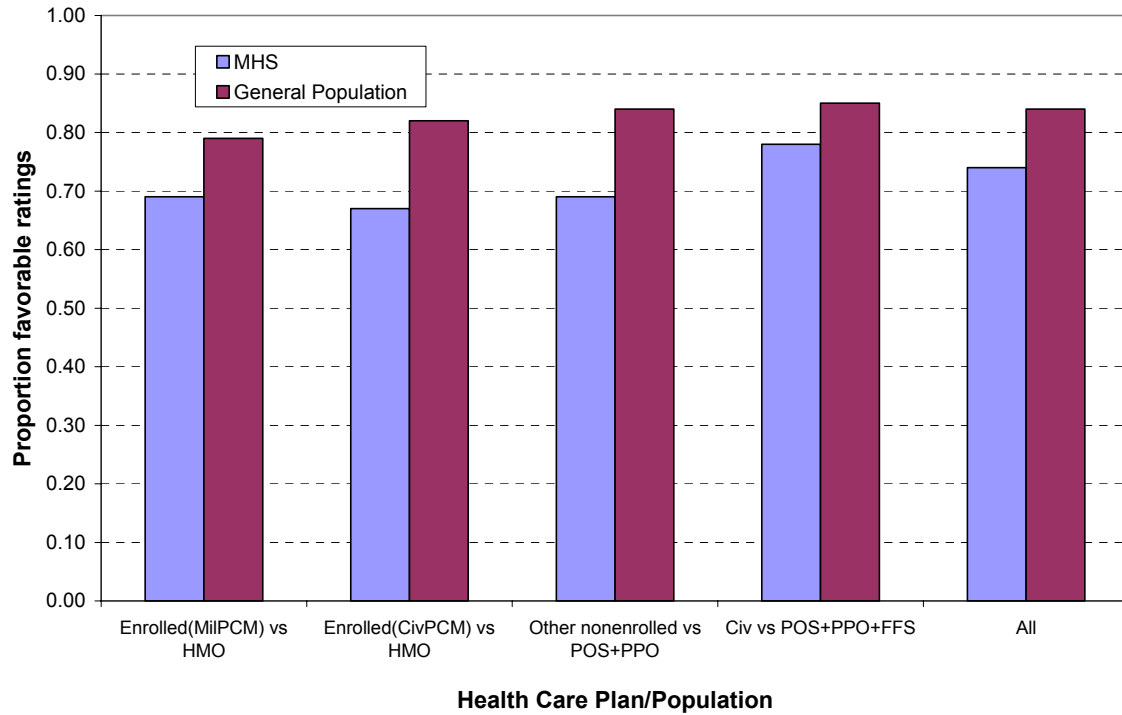
The general conclusion that can be drawn from these data is that retirees tend to be less satisfied with access and do not rate their health care as highly as those in the general population with similar demographic characteristics.<sup>24</sup>

### 3.8 Effects of Region Maturity

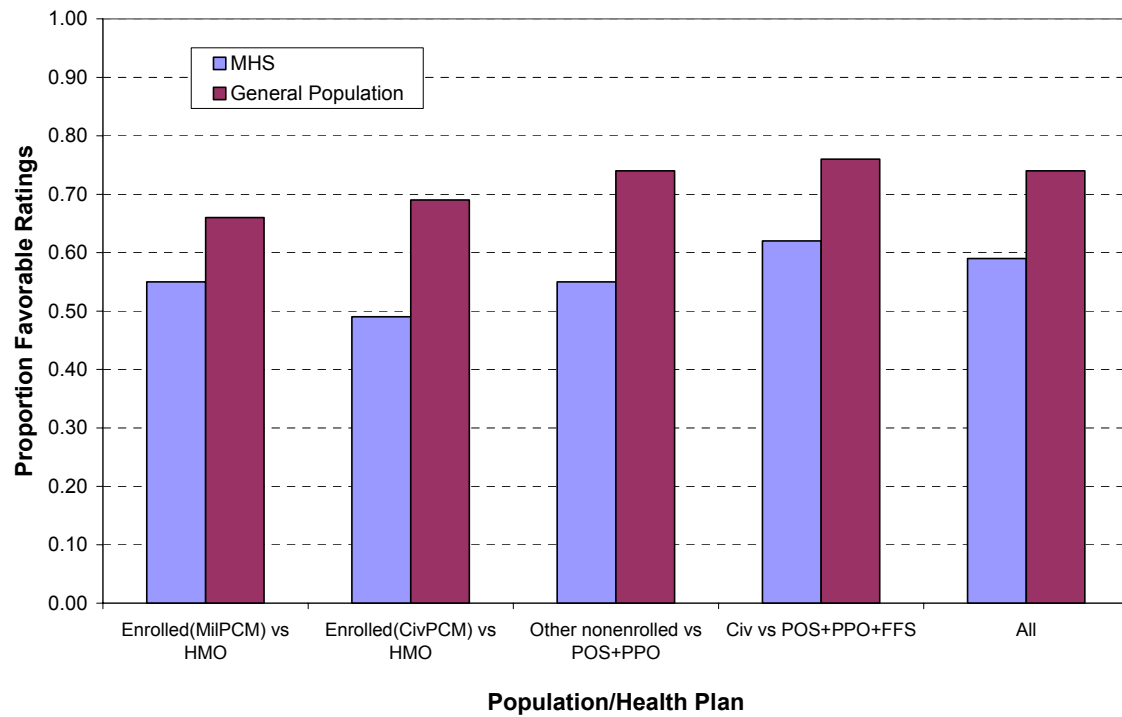
The methodology adopted for this evaluation examines changes in measures of access and quality from a single baseline period before TRICARE inception (1994) to 1999. This methodology is extended to examine trends in access and quality indicators.

<sup>24</sup> Note that the comparisons between the retired military and general populations are adjusted for differences in demographics. Data labeled “under civilian system” are estimates of levels of satisfaction for the military population if they were under the civilian plan.





**Figure 3-7. Military Retiree versus General Civilian Population Rating of Health Care**



**Figure 3-8. Military Retiree versus General Civilian Population Rating of Health Plan**

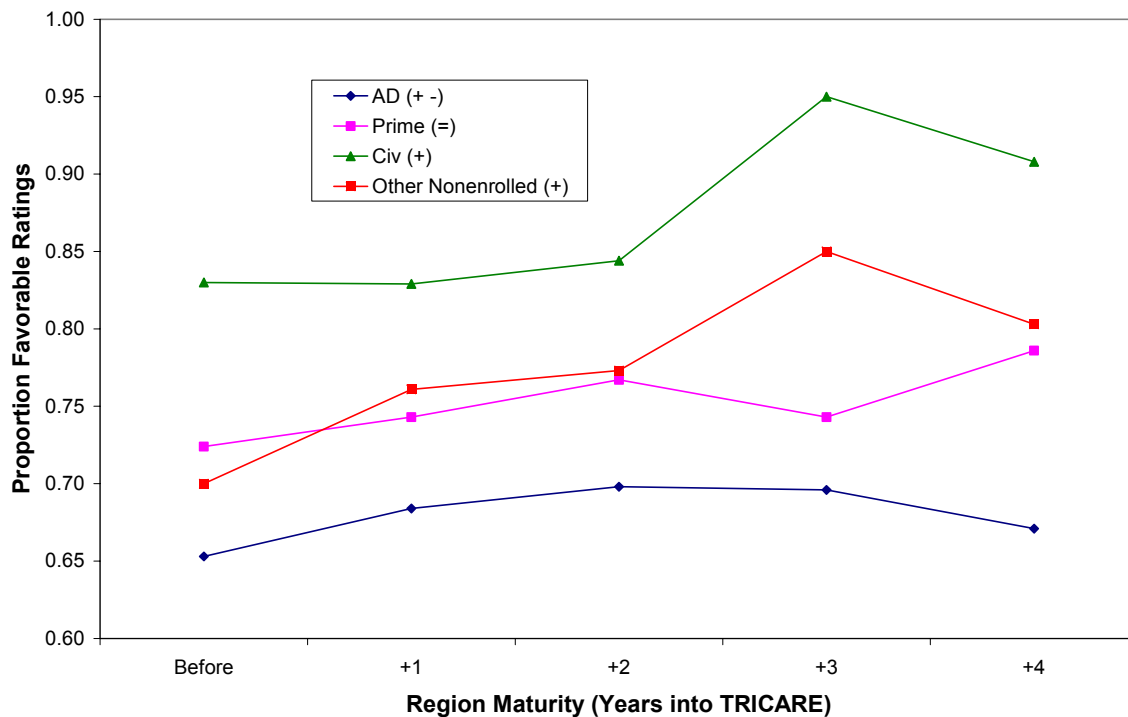
Because initial enrollment dates were staggered across regions, regions will achieve a given level of maturity in different calendar years. Using a fixed baseline period of 1994 (necessitated by data limitations) leaves gaps in an annual trend line for certain regions. The exception is Region 11, for which there were five consecutive periods of data, 1994/1995 to 1999.

### 3.8.1 Region 11 Changes

Region 11 was the first TRICARE site and has been enrolling people in Prime since March 1995. The previous evaluations focused on this single region because it was the only one that had been operational long enough at the time with meaningful longitudinal data. Our earlier evaluations suggested that as TRICARE has matured in Region 11, satisfaction with access had improved and that quality of care was being maintained. A further look is now taken for evidence of a continued trend in access and quality of care in Region 11.

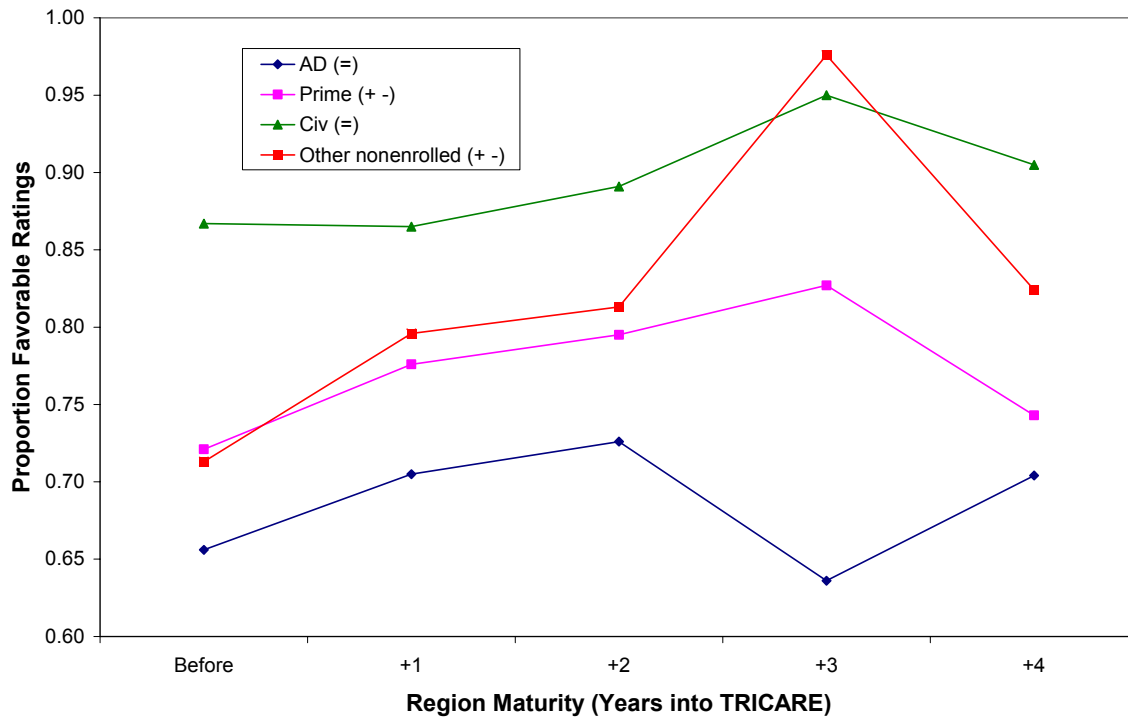
#### 3.8.1.1 Access to Care

Figures 3-9 and 3-10 show 4-year trends<sup>25</sup> for beneficiary satisfaction with access to care when needed, and ease of making an appointment, respectively, for each of the defined subpopulations (Appendix H provides supporting data). The results are mixed.



**Figure 3-9. Trends in Satisfaction with Access to Care When Needed in Region 11**

<sup>25</sup> Statistical significance of a linear trend ( $p < 0.05$ ) is indicated by “+” if positive/rising, and “-” if negative/falling. An equal sign is used to indicate that year-to-year changes were not statistically significant. (A second plus or minus is used to indicate the statistical significance [ $p < 0.05$ ] of a nonlinear trend.)



**Figure 3-10. Trends in Satisfaction With Getting an Appointment in Region 11**

*Access to care when needed.* We observed *positive* 4-year trends in levels of satisfaction with access to care when needed for most source-of-care groups—with the exception of those enrolled in Prime. (The variation in satisfaction over time for Prime enrollees was not statistically significant.) In addition to assessing the statistical significance of the 4-year trend, we looked at changes in satisfaction levels from year +3, to year +4. Satisfaction for active-duty beneficiaries fell during year +4 (FY 1999), but remained unchanged for others.

*Access to appointments.* There was considerable variation over time with satisfaction to access to appointments. Prime enrollees and other users of MTF's, i.e., the “other non-enrolled” group, experienced increased levels of satisfaction overall, with a dip during year +4. The trend for Active Duty, and uses of civilian care, showed no evidence of a significant trend. Satisfaction with access for users of civilian care was uniformly high.

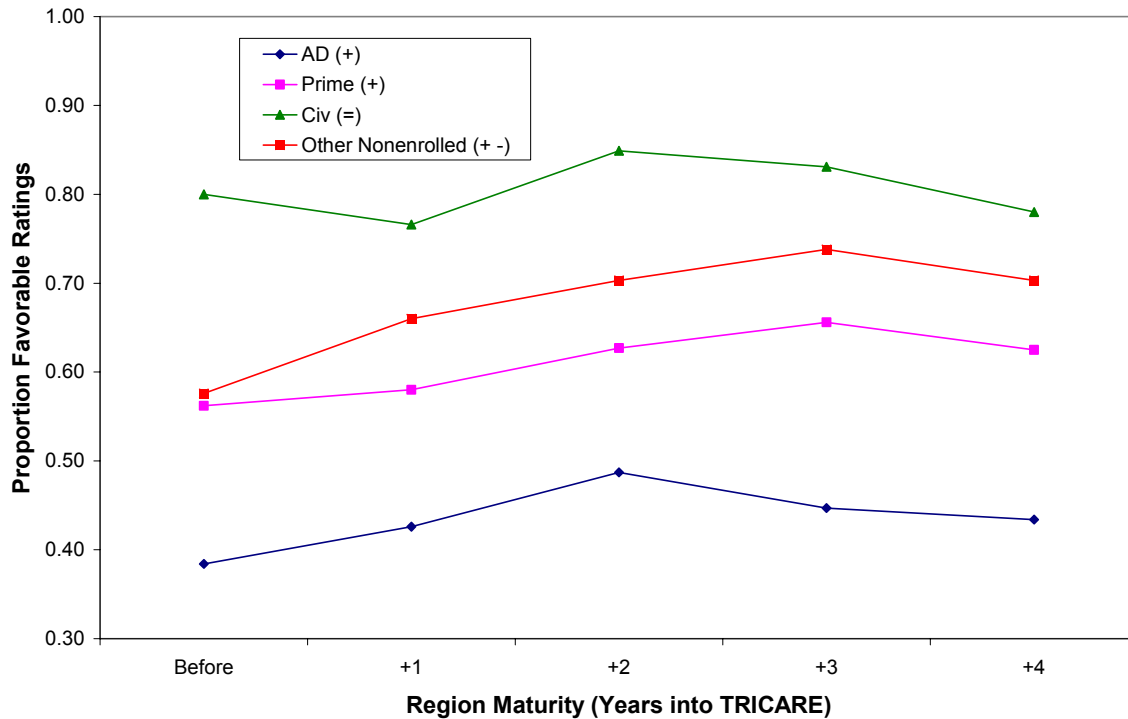
### 3.8.1.2 Quality of Care

Figure 3-11 shows the 4-year trends for satisfaction with quality of care in Region 11. The general trend suggests a gradually improving perception of quality of care for the first 3 years, followed by a leveling-off in the fourth year. Levels of satisfaction with quality of care received at military facilities are approaching those received at civilian ones in Region 11 for all but active-duty beneficiaries.

### 3.8.2 Region Maturity

As TRICARE matures, will there be a leveling-off in the increase in access and quality measures that we observed from the baseline period to 1 year after implementation? The

previous look at key indicators for Region 11 had shown a linear growth trend for the first 3 years, followed by a leveling-off in the fourth year. Table 3-24 shows estimates of satisfaction of non-active-duty Prime enrollees over the 4-year period. The data are grouped by regions that began enrolling beneficiaries at about the same time.<sup>26</sup>



**Figure 3-11. Trends In Satisfaction With Overall Quality of Care In Region 11**

**Table 3-24. Trends in Satisfaction with Health Care (Proportion MHS Population Satisfied)**

Regions	Year				
	1994	1996	1997	1998	1999
11	0.56	0.58	0.64	0.67	0.66
6, 9, 10, 12	0.54		0.59	0.64	0.66
3, 4, 7/8	0.54			0.65	0.67
1, 2, 5	0.53				0.64
Combined	Maturity				
	Base (1994)	+1	+2	+3	+4
Combined	0.54	0.63	0.66	0.66	0.66

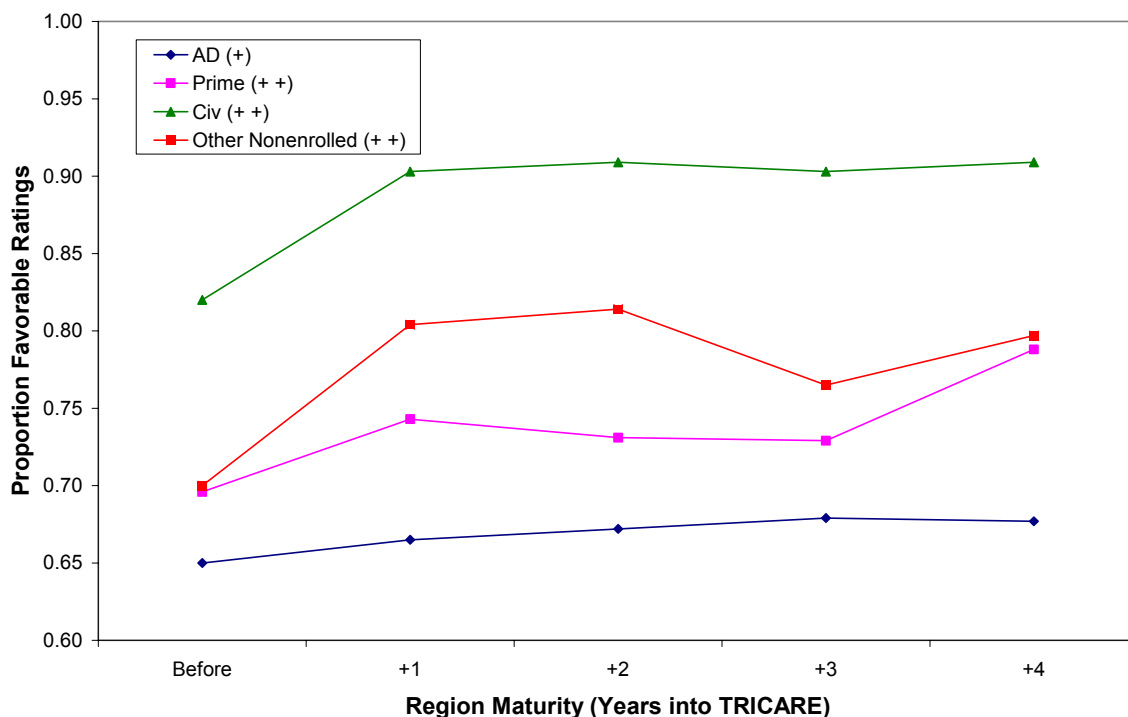
<sup>26</sup> Regions grouped together had been enrolling for about 12 months prior to survey administration. Because the date of survey administration did not necessarily correspond to the date of initial enrollments, a maturity of 1 year could vary somewhat for the regions represented in a given row of the table. Perhaps a more accurate label for “1 year maturity” would be “maturity period one.” However, the intervals between subsequent maturity periods correspond to survey administration intervals. These intervals were approximately 1 year in length.

Each column of Table 3-24 corresponds to a year. The cell entries are the average proportion of non-active-duty enrollees satisfied with “access to care when needed” for the regions shown in the left-most column. Diagonal entries represent a particular year of TRICARE maturity. For instance, Region 11 in 1996, Regions 6, 9, 10, and 12 in 1997, and Regions 3, 4, and 8 in 1998 represent 1 year of maturity. Region 11 in 1997 and Regions 6, 9, 10, and 12 in 1998 represent 2 years of maturity. The last row of the table shows the averages of regions with 1, 2, 3, and 4 years of maturity, respectively, as well as the baseline (0 years of maturity). The data shown in Table 3-24 suggest a positive trend between the baseline and 2 years into TRICARE, followed by a leveling-off after that.

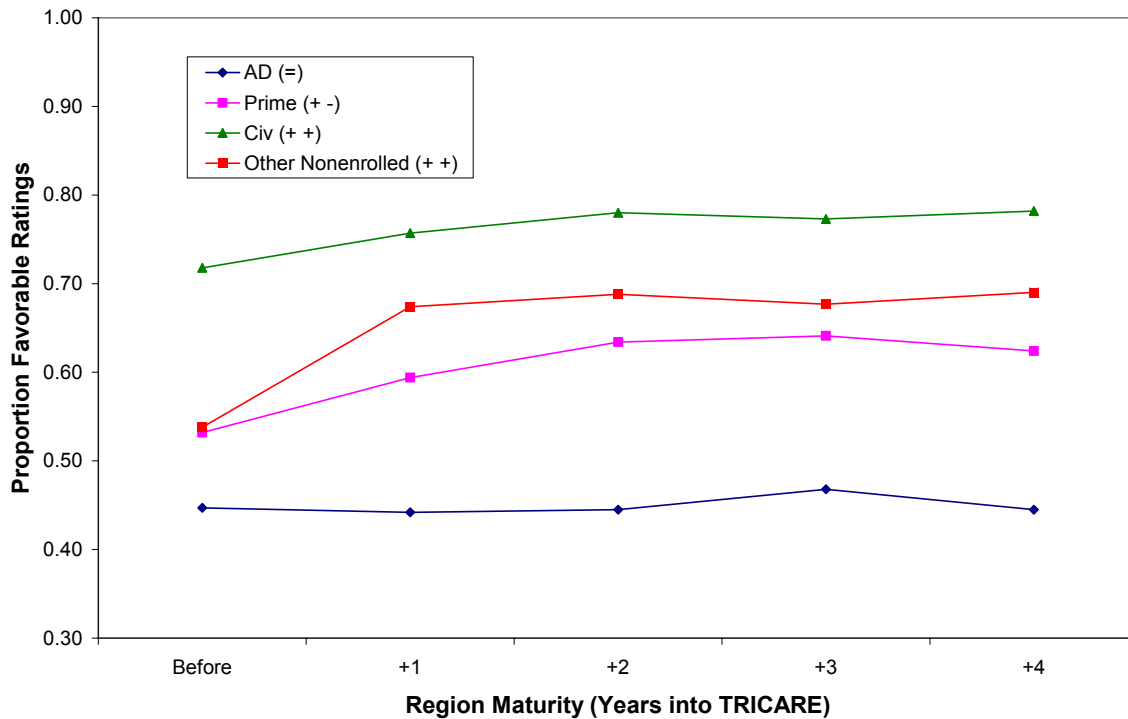
The pattern of available data contributing to each of the levels of maturity is somewhat sparse. Note that only Region 11 has 4 years of maturity. It is only at 1 year of maturity that all regions are used. For these reasons, findings about the effects of region maturity on the outcomes measured here are only suggestive.

The efficacy of using this method to measure region maturity rests on the assumption that year-to-year changes are the result of TRICARE. So-called “annual effects” and “regional effects” are assumed to net to zero. This assumption is virtually the same as that made earlier: changes in access and quality from the 1994 baseline to the current evaluation year are caused only by TRICARE effects.

Figures 3-12 and 3-13 show estimates of access and quality-of-care indicators and region maturity by source of health care. (Additional measures are shown in Appendix I.) A positive trend is seen for each source-of-care group on both indicators for the first 3 years. Changes in trend from the third to fourth year seem to vary, depending on military status/source of care, and the particular measure.



**Figure 3-12. Trends in Satisfaction with Access to Care When Needed**



**Figure 3-13. Trends in Satisfaction with Overall Quality of Care**

### 3.9 Satisfaction with Health Plan

The availability of the CAHPS metrics has given us the opportunity to include a measure of beneficiary satisfaction with their health plan. Table 3-25 shows estimates for changes in beneficiary ratings of their health plan from 1994 (pre-TRICARE) to the current year (1999). Figure 3-14 shows trends in health plan ratings, for up to 4 years of region maturity. These data indicate a substantial increase over time for most subpopulations examined.

#### 3.9.1 Predictors of Satisfaction With Health Plan

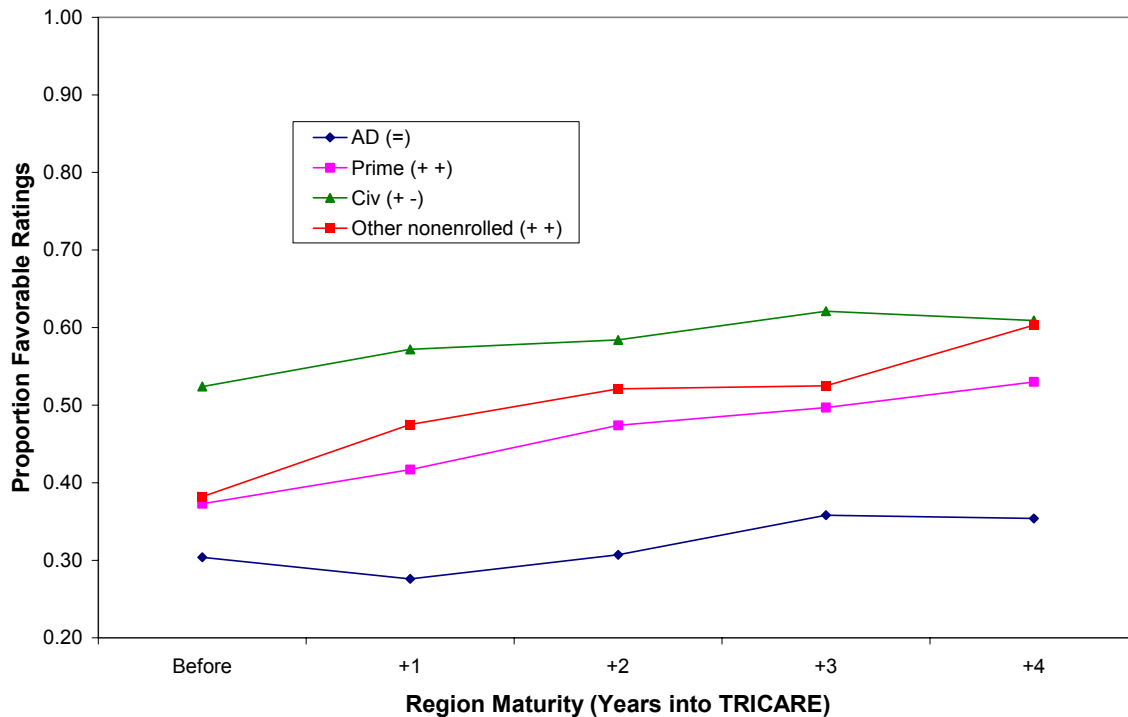
What factors contribute to how well beneficiaries rate their health plans? We examined the contributions of perceived access to care (including getting referrals to specialists and getting routine appointments), problems with claims processing, and quality of care as predictors of health plan rating.<sup>27</sup> Once again, we used the “proportion 8+” metric. Therefore, the average value of this measure of health plan rating will be the proportion of beneficiaries in the “top 3” rating categories (8–10). We used a logistic regression model to relate the predictors of the health plan rating for each subpopulation.

<sup>27</sup> Survey respondents rated their health plans on an 11-point scale, anchored by the descriptors “worst” (score of 0) and “best” (score of 10). We gave those ratings 8 and above a value of 1, and those below 8 a value of 0.

**Table 3-25. Health Plan Ratings (Proportion of Population with *Favorable* Rating)**

Region	Military Status/Source of Care									Total	
	Active Duty		Non-Active Duty								
							Other				
	All		Prime		Civilian		Nonenrolled		All		
	FY94	FY99	FY94	FY99	FY94	FY99	FY94	FY99	FY94	FY99	
1	0.32	0.28*	0.38	0.46*	0.54	0.62*	0.37	0.52*	0.43	0.49*	
2	0.29	0.26	0.34	0.38*	0.53	0.59*	0.53	0.59*	0.38	0.41*	
3	0.32	0.32	0.37	0.48*	0.50	0.60*	0.50	0.60*	0.41	0.50*	
4	0.32	0.35	0.38	0.49*	0.52	0.58*	0.52	0.58*	0.42	0.51*	
5	0.31	0.28	0.37	0.43*	0.52	0.59*	0.52	0.59*	0.43	0.47*	
6	0.30	0.36*	0.35	0.50*	0.54	0.60*	0.54	0.60*	0.40	0.51*	
7/8	0.31	0.34*	0.36	0.52*	0.50	0.58*	0.50	0.58*	0.40	0.50*	
9	0.28	0.39*	0.41	0.52*	0.53	0.70*	0.53	0.70*	0.41	0.54*	
10	0.33	0.42*	0.41	0.51*	0.53	0.64*	0.53	0.64*	0.45	0.56*	
11	0.32	0.34	0.40	0.53*	0.54	0.61*	0.54	0.61*	0.43	0.52*	
12	0.30	0.31	0.39	0.55*	0.57	0.78*	0.57	0.78*	0.39	0.49*	
All	0.31	0.32*	0.37	0.48*	0.52	0.61*	0.52	0.61*	0.41	0.49*	

\* Indicates statistically significant change over time ( $p < 0.05$ ).



**Figure 3-14. Trends in Satisfaction With Health Plan**

To assess the effect of claims processing problems on ones' satisfaction with their health plan, we compared the difference in the average health plan rating of those with and without those problems. For example, we estimated that 27 percent of active-duty

beneficiaries rate their health plan with a value of 8 and above when they report “no problems with claims processing.” Alternatively, this value falls to 6 percent for those with claims processing problems. Thus, the marginal effect of claims processing on health plan rating is a change of 21 percentage points. We assessed the effect of other variables such as “access to appointments” on the health plan rating in a similar manner.

The results shown in Table 3-26 indicate that *satisfaction with health care* (i.e., quality of care), and *having had a problem with claims processing* have the greatest impact on health plan rating. For those enrolled in Prime (including active-duty personnel), satisfaction with quality of care was the more important of these two factors. Alternatively, problems with claims processing had the greatest effect on health plan rating for those with other sources of care. The relative importance of the other predictors varies with beneficiary health plan/source of care. (Note that for those in Prime, having an MTF PCM plays a relatively minor role in differentiating health plan ratings once the other variables are taken into account.)

### **3.10 Areas of Possible Concern**

While the general pattern of results shows that TRICARE has made dramatic improvements in access to care, and that most quality-of-care goals are being met, this study has identified several problem areas. These are summarized in the subsections that follow.

#### **3.10.1 Satisfaction With Military versus Civilian Care**

Levels of satisfaction with most aspects of access were again shown to be markedly greater for MHS beneficiaries with a source of care outside the military system and for those in the general population.<sup>28</sup> Why are those who use the MHS as a source of care less satisfied? Four characteristics of the group *not* using military health care distinguish them from those who do.<sup>29</sup>

Those in the civilian-care group are demographically different. They are:

- older,
- less likely to be from a minority group (non-Caucasian, non-Hispanic),
- more likely to live out of catchment, and
- more likely to have private insurance.

As in previous years, we found that older people have greater levels of satisfaction with their health care, regardless of the source of care. However, age alone does not account for the observed differences in satisfaction. Those living out of catchment do not have access to military care and have little choice but to use civilian sources. Having private insurance is a consequence of using civilian sources of care, not the reason for it.

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<sup>28</sup> Identified in the 1997, 1998 and 1999 evaluations.

<sup>29</sup> These demographics are accounted for (controlled) in comparisons of outcomes over time. However, at any one point in time, demographic differences between military status and source of care groups are as stated.



**Table 3-26. Predictors of Satisfaction with Health Plan Rating in FY 1999  
(Proportion 8+ Ratings)**

Military Status (Care)	Prop. in “Top 3”	Predictor (x)	Predicted Plan Rating (Proportion in “Top 3”)		Marginal Effect
			Predictor Value		
			No	Yes	
Active Duty	0.20	Claims	0.06	0.27*	0.21
	0.20	Health care rating	0.10	0.31*	0.20
	0.20	Customer service	0.14	0.29*	0.16
	0.20	Doctor communications	0.13	0.21	0.09
	0.20	Access to care	0.16	0.22	0.06
	0.20	Staff relations	0.23	0.20	−0.03
	0.20	Access to appointments	0.20	0.21	0.01
Prime	0.41	Claims	0.20	0.52*	0.33
	0.41	Health care rating	0.23	0.46*	0.23
	0.41	Customer service	0.30	0.50*	0.20
	0.41	Access to care	0.30	0.44*	0.14
	0.41	Access to appointments	0.38	0.42	0.03
	0.41	Staff relations	0.40	0.41	0.01
	0.41	Military PCM	0.41	0.42	0.01
0.41	Doctor communications	0.41	0.41	0.00	
Civilian Only	0.57	Claims	0.21	0.61*	0.40
	0.57	Health care rating	0.35	0.63*	0.29
	0.57	Customer service	0.44	0.67*	0.23
	0.57	Access to care	0.45	0.58*	0.13
	0.57	Staff relations	0.50	0.57*	0.08
	0.57	Access to appointments	0.54	0.57*	0.03
	0.57	Doctor communications	0.58	0.57	−0.01
Other Nonenrolled	0.51	Claims	0.23	0.55*	0.32
	0.51	Health care rating	0.28	0.60*	0.31
	0.51	Customer service	0.39	0.60*	0.21
	0.51	Access to care	0.41	0.52*	0.12
	0.51	Staff relations	0.55	0.51	−0.04
	0.51	Access to appointments	0.48	0.51	0.03
	0.51	Doctor communications	0.51	0.51	0.00
Total	0.50	Claims	0.21	0.54*	0.33
	0.50	Health care rating	0.28	0.57*	0.30
	0.50	Customer service	0.38	0.59*	0.21
	0.50	Access to care	0.39	0.51*	0.12
	0.50	Access to appointments	0.47	0.50*	0.03
	0.50	Staff relations	0.47	0.50	0.03
	0.50	Doctor communications	0.50	0.50	0.00

\* Indicates a statistically significant effect on plan rating ( $p < 0.05$ ).

Those who, in principle, could use military sources of care but do not are also different in a more subtle way—they *chose* their civilian health care plan and chose *not* to use the military system. This “taste” for civilian care possibly accounts for some of the differences in satisfaction. While it is possible to “adjust” the data and statistically predict the outcomes of a subpopulation on the basis of different demographics, it is not possible

to account for the factors underlying the choice of the source of health care with the available data.

The 1997 evaluation of TRICARE found that those enrolled in Prime who were able to choose their own PCM had significantly greater levels of satisfaction with most aspects of their health care—even such things as how long it takes to get an appointment.<sup>30</sup> Initiatives were taken in FY 1999 to let Prime enrollees choose their PCMs. That should result in increased satisfaction in the future.<sup>31</sup>

### **3.10.2 Shortfalls in Meeting Quality-of-Care Goals**

While most *Healthy People 2000* goals were being met, a few were not. Some of these shortfalls are described below.

#### **3.10.2.1 Tobacco Use**

Our previous evaluations have shown that the use of tobacco products (cigarettes and smokeless tobacco) is prevalent among the enlisted population. While not a mitigating circumstance, prevalence of the use of tobacco products by youth in the general population is also high.

TRICARE did not meet its goals for curtailing smoking for those in the 18-24 year age group, and for counseling cigarette smokers. While it may be difficult to achieve a reduction in the use of tobacco products, providing counseling services is a matter of enforcing policy. If the counseling is to be provided by a health care professional, this requires some interaction between the health care professional and the smoker. This could be done during an outpatient visit. However, many smokers, particularly otherwise healthy ones, may not regularly have an outpatient visit. An alternative approach for providing smoking counseling to the active-duty population, is to have a counselor visit the workplace, or otherwise provide training for unit counseling. However, providing unit level training would likely be expensive and require considerable resources.

#### **3.10.2.2 Gynecological Care**

As reported previously in Table 3-7, the level of *annual* Pap tests dropped from 69 to 67 percent over the period of analysis, for women in the overall DoD beneficiary population. This is somewhat mitigated by the FY 1999 achievement of the *Healthy People 2000* goal of “Pap test in past 3 years.” We observed a similar phenomenon in the earlier evaluations.

Specific screening mechanisms tend to increase the chance of early detection and improve treatment outcomes. Therefore, it is in the best interest of both the DoD and the beneficiaries to use these screening mechanisms because they save lives and dollars.

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<sup>30</sup> The 1999 survey did not ask about the ability to choose one’s provider.

<sup>31</sup> This occurred on 3 December 1999—too late to be reflected in the survey data used in the current evaluation.

### **3.10.2.3 Prostate Exams**

While there is no specific goal as to the percentage of the applicable population that should have an annual prostate test, DoD policy on prostate exams implicitly follows that of the American Cancer Society.<sup>32</sup> Only 60 percent of the eligible group was tested in 1999.

### **3.10.3 Claims Processing**

Having a problem with a claim is the primary cause of dissatisfaction with one's health plan. The rate of claim filing for MHS beneficiaries was higher than that observed both under DoD-supported civilian plans and in plans serving the general population. At the same time, MHS beneficiaries tend to experience more problems than the general population with claims processing. This was especially true for those enrolled in Prime who expect less paperwork and associated problems.

## **3.11 What Went Right**

Despite these few glitches, the net effect of TRICARE is continued improvement in access to care, as evidenced by increased satisfaction with:

- one's health plan,
- quality of care,
  - one's PCM, and
  - specialty care
- access to care,
  - ease of making appointments,
  - wait-times for getting an appointment,
  - wait-times for seeing a doctor during an appointment, and
  - preventive care.

TRICARE has also resulted in increased satisfaction with overall quality of care, including one's PCM and specialty care, and with satisfaction with one's health plan, for the population as a whole. Quality-of-care standards have mostly been maintained under TRICARE. Most of the quantifiable *Healthy People 2000* goals examined were met, or nearly met, for the population as a whole.

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<sup>32</sup> Annually for African-American males, ages 40 and above; and annually for members of other racial groups, ages 50 and above.

## **4. COST TO THE GOVERNMENT**

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The evaluation of TRICARE costs considered both the costs to the government and to covered beneficiaries. This chapter considers the effect of TRICARE on government costs; the next chapter considers the cost to covered beneficiaries. In both cases, we compared actual TRICARE utilization and costs in FY 1999 with the corresponding quantities in FY 1994. To make these quantities comparable, we inflated FY 1994 direct care and CHAMPUS costs to FY 1999 dollars, and adjusted both utilization and costs to reflect the beneficiary composition in FY 1999 as well as the effects of BRAC and other Service rightsizing initiatives. Throughout the remainder of this document, we refer to the latter estimates as the FY 1994 baseline. Also, we use the term “purchased care” to refer to both CHAMPUS in FY 1994 and to MCS contractor care in FY 1999.

### **4.1 Methods and Data Sources**

#### **4.1.1 Data Sources**

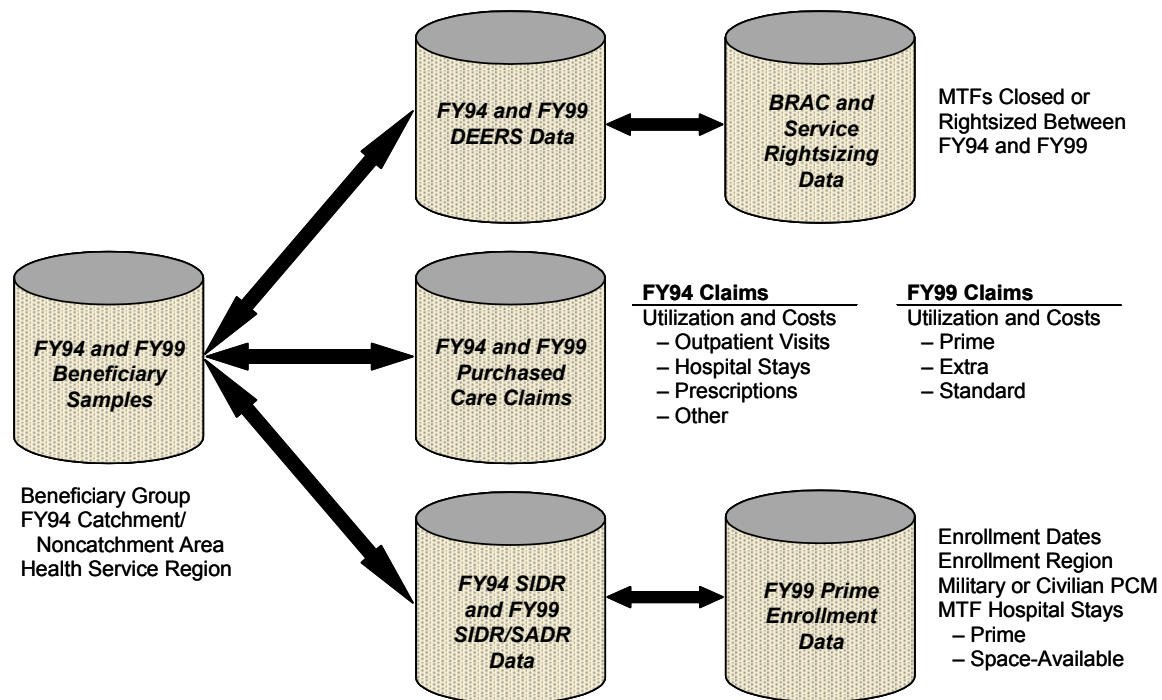
We based the evaluation of government and beneficiary costs on data from several sources. To ensure adequate sample sizes, we drew independent samples from the FY 1994 and FY 1999 Defense Enrollment Eligibility Reporting System (DEERS) databases so that we could estimate both direct-care and purchased-care inpatient costs with a desired level of precision. Appendix J provides a detailed description of the sampling considerations, sample sizes, and weighting procedures. Because inpatient care is the most infrequent health care service, sample sizes determined to estimate hospitalization rates and costs should also be sufficient to estimate outpatient and prescription utilization and costs.

We matched beneficiaries in the FY 1999 sample to the FY 1999 DEERS enrollment database to determine their Prime enrollment status (enrolled or nonenrolled), enrollment intervals, PCM type (military or civilian), and region of enrollment. In many cases, beneficiaries had two or more enrollment intervals, usually involving a move from one region to another, but sometimes involving a shift from a military to a civilian PCM or vice versa. For comparability with the FY 1999 sample, we matched beneficiaries in the FY 1994 sample prospectively to the FY 1999 DEERS enrollment database and classified them in the same manner as the FY 1999 sample, with the exception that some beneficiaries were not eligible for military health care in FY 1999. We included the latter group of beneficiaries in the estimation of the baseline but excluded them from the estimation of the TRICARE effect.

We obtained the health care experience of sampled beneficiaries by matching them to FY 1994 and FY 1999 purchased-care claims and Standard Inpatient Data Records (SIDRs—MTF hospitalization records). In addition, we matched beneficiaries in the FY 1999 sample to ambulatory surgeries recorded on Standard Outpatient Data Records (SADRs). We aggregated purchased-care claims data into inpatient, outpatient, and prescription episodes, with corresponding government and beneficiary out-of-pocket costs. For FY 1999, provider information on the claims records allowed us to further classify utilization and costs into the Prime, Extra, and Standard options. Although the

SIDR data did not indicate the enrollment status of beneficiaries who had a hospital stay, we were able to classify MTF discharges as Prime or space-available by matching the discharge dates to the Prime enrollment file.

Figure 4-1 depicts the data sources used in this evaluation and summarizes the information derived from each source.



**Figure 4-1. Sources of Data Used for Evaluation of TRICARE Costs**

#### **4.1.2 Purchased Care Data**

The FY 1999 purchased-care claims files used in this evaluation were based on 20 months of data (i.e., claims submitted up to 8 months after the close of the fiscal year). According to Title 32 of the Code of Federal Regulations Part 199 [which supercedes the CHAMPUS Regulation (DoD 6010.8-R)], all claims submitted for benefits must, with a few exceptions, be filed no later than 1 year after services are provided. Claims adjudications, often involving large sums of money, can further extend the time period before the claims files can be considered complete. To avoid having to wait much longer before processing the purchased-care claims, we decided to estimate their completeness using 30-month CHAMPUS Medical Information System (CMIS) data available from TMA–Aurora. We derived separate completion factors for inpatient, outpatient, and prescription services for every combination of Health Service Region, Service, and beneficiary category (active-duty family members, retirees, and retiree family members). We then applied the completion factors to the appropriate cost and utilization elements in FY 1999 to estimate a full year of claims experience. We followed a similar procedure for FY 1994 claims data (even though those data are already complete) to correct for sampling error in estimating total utilization and costs.

We burdened the FY 1994 purchased-care costs with the costs of the Office of the Civilian Health and Medical Program of the Uniformed Services (OCHAMPUS) in Colorado, plus the Fiscal Intermediary (FI) contractors who processed claims in each region. At a national level, the cost of the former activity was 2.4 percent, and the latter 3.6 percent, of total direct payments from OCHAMPUS to medical providers.<sup>33</sup> The situation was different in FY 1999. The OCHAMPUS cost was still borne by the Defense Health Program through direct appropriation to TMA (the successor to OCHAMPUS and the TRICARE Support Office), but the FI and certain other administrative costs migrated to the MCS contractors. The allocation of FY 1999 administrative costs is described later in this chapter.

#### **4.1.3 Direct Care Data**

MTFs record inpatient stays in the SIDR data. As with purchased-care claims, the SIDR data remain incomplete until several months have elapsed beyond the end of the fiscal year. To adjust for incompleteness, we reconciled the SIDR data with data from the Medical Expense and Performance Reporting System (MEPRS), which were virtually complete 6 months after the close of FY 1999.

We made an additional adjustment to MTF inpatient utilization and costs to account for a change in the treatment of ambulatory (same-day) surgeries between FY 1994 and FY 1999. In FY 1994, all ambulatory surgeries were recorded on SIDRs along with other procedures requiring an overnight stay. However, as MTFs began shifting to the Ambulatory Data System (ADS) in FY 1996, ambulatory surgeries were recorded on Standard Ambulatory Data Records (SADRs), and corresponding costs were allocated to new MEPRS outpatient accounts. This posed a problem because FY 1994 and FY 1999 inpatient and outpatient utilization and costs were no longer comparable. Whereas all MTFs recorded ambulatory surgeries on SIDRs and MEPRS inpatient accounts in FY 1994, those MTFs using the ADS recorded them on SADRs and MEPRS outpatient accounts in FY 1999, and those not yet using the ADS recorded them as in FY 1994.

We considered two possible approaches to correct this accounting anomaly. First, because ambulatory surgeries are now treated as outpatient procedures, all ambulatory surgeries identified on FY 1994 SIDRs could be moved to the outpatient side of the ledger. This would obviously require that the corresponding costs be moved as well. However, there was no separate visibility into ambulatory surgery costs in FY 1994 MEPRS. This left the only feasible approach of moving all ambulatory surgeries identified on FY 1999 SADRs back to the inpatient side of the ledger. Because new MEPRS accounts were created to identify ambulatory surgery costs for MTFs using the ADS, the corresponding costs could also be moved to the inpatient side.

Although the SIDR data contain individual patient identifiers, these identifiers are absent from the MTF outpatient data. Instead, MTF outpatient services are recorded only at an aggregate level in terms of workcenters and broad beneficiary categories. Therefore, we necessarily conducted the analysis of MTF outpatient services at a lesser degree of detail. In particular, we estimated the impact of TRICARE on MTF outpatient costs by

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<sup>33</sup> Office of the Civilian Health and Medical Program of the Uniformed Services, “CHAMPUS Chartbook of Statistics,” OCHAMPUS Guide 5400.2-CB, December 1995, p. III-9.

simply comparing actual FY 1999 costs with FY 1994 costs adjusted for inflation, changes in demographics, and BRAC and other Service rightsizing initiatives. We were unable to partition the cost difference into components due to the Prime and space-available options.

We developed the direct-care costs from MEPRS, which records costs and workload by workcenter at each MTF. MEPRS classifies final operating costs into five accounts:

- A (Inpatient),
- B (Outpatient),
- C (Dental),
- F (Special Programs), and
- G (Readiness).

MEPRS also records intermediate operating costs in accounts D (Ancillary Services, e.g., pharmacy, pathology, and radiology) and E (Support Services, e.g., base operations and real property maintenance). However, these costs are fully allocated or “stepped down” to the five final operating accounts, so they need not be considered separately in this analysis.

In particular, most pharmacy costs are recorded in the three-digit account DAA (Pharmacy), and are stepped down to the final operating accounts. Some pharmacy costs are stepped down to the three-digit accounts FCC (CHAMPUS Beneficiary Support) and FCD (Support to Other Military Medical Activities). All non-active-duty beneficiaries have the option of obtaining a prescription from a civilian physician, and filling the prescription free of charge at an MTF pharmacy. The cost for these prescriptions is recorded in the DAA account and stepped down to the FCC account. Similarly, prescriptions may be written by a physician at one MTF but filled by the pharmacy at another MTF. The cost for these prescriptions is recorded in the DAA account and stepped down to the FCD account. This report considers the FCC and FCD costs along with those of the A and B accounts. Indeed, as will be seen later, 18 three-digit F-accounts are included in the analysis because they were judged to be potentially affected by TRICARE.

#### **4.1.4 Utilization and Cost Models**

Using the above data sources, we developed models to estimate the impact of Prime enrollment on utilization and costs. We further distinguished between Prime enrollees with a military PCM and those with a civilian PCM. Prior to model estimation, we created some measures of beneficiary access to help predict utilization. Appendix K gives a detailed description of these measures.

Because we observed individuals over varying time periods, we also considered the potential for seasonal variation in utilization. For example, winter utilization tends to be higher than during the rest of the year. Consequently, annual utilization would probably be overestimated if we simply scaled utilization during the winter months by a factor of four. By analyzing the variation in monthly DoD-wide utilization and costs over the past several years, we derived factors that enabled us to appropriately scale utilization and costs observed over fractional MHS eligibility and Prime enrollment intervals into annual equivalents.

Utilization of MHS services for any individual is measured in terms of counts—number of hospital stays, number of outpatient visits, and number of prescriptions. We

used models that take account of the discrete nature of count data, and the intervals over which they are observed, for all the utilization analyses. For the purchased-care outpatient and prescription analyses, we used two-stage models. In the first stage, we estimated the probability that an episode occurred during the period of observation. In the second stage, we estimated the expected number of episodes, conditional on having at least one. We then combined the models to produce an estimate of the expected utilization for each eligible beneficiary. For both the purchased care and MTF inpatient analyses, two-stage models were neither feasible nor necessary because very few beneficiaries had more than one hospital stay. Therefore, we used single-stage models to estimate the expected number of hospital stays.

Two-stage models were also used to estimate purchased-care unit costs (i.e., cost per unit of service—hospital stays, outpatient visits, and prescriptions). In the first stage, we estimated the probability of a positive government cost. Government costs can be zero when a beneficiary has not met his or her deductible or has private insurance that covers the full CHAMPUS allowed amount. In the second stage, we estimated the unit cost conditional on its being positive. To obtain an estimate of total cost, we multiplied the utilization and unit-cost estimates for each beneficiary, weighted them (using the sampling weights described in Appendix J), and summed them across all eligible beneficiaries.

We used a single-stage model to estimate MTF inpatient costs. Because MTFs do not bill beneficiaries for a hospital stay, the SIDRs do not contain any information on cost. Rather, they contain a measure of relative resource consumption for each discharge. This measure, called a Relative Weighted Product (RWP), is computed by applying what is referred to as the TRICARE Grouper<sup>34</sup> and associated weights that reflect the resources expended relative to the nationwide average. It is normalized so that a procedure that consumes the nationwide average amount of resources receives an RWP of 1.0.

To estimate the cost of a discharge, we needed to convert the associated RWP to dollars. The conversion was complicated by the fact that some MTFs recorded ambulatory surgeries on SADRs in FY 1999. Ambulatory surgeries reported on SADRs (which are intended to report outpatient procedures) do not contain an RWP field; therefore, we needed a method to assign an RWP value to each ambulatory surgery to make it comparable with ambulatory surgeries recorded on SIDRs. We accomplished the assignment by applying the TRICARE Grouper to the diagnosis and treatment codes recorded on the SADRs. However, because the SADRs are designed for outpatient procedures, they use different treatment codes than the SIDRs, which are designed for inpatient procedures. Therefore, we had to first convert the SADR treatment codes to the SADR coding scheme before applying the TRICARE Grouper. We used commercially available software (*CodeBreaker*, produced by Info-X, Incorporated, includes a CPT to ICD-9 crosswalk) to achieve the conversion.

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<sup>34</sup> Produced by 3M Health Information Systems, the TRICARE Grouper takes account of the length of stay, diagnoses, treatments, complications, and co-morbidities associated with a hospitalization to assign procedures to Diagnosis Related Groups (DRGs). We used version number 16, applicable to FY 1999, for this analysis.



We computed the cost of a discharge by multiplying each RWP by the average cost per RWP. To compute the average cost per RWP, we first obtained total inpatient and ambulatory surgery costs from MEPRS. However, MEPRS records only total discharges and bed-days, not RWPs. Consequently, we had to obtain total RWPs from the SIDs and scale them to the total number of discharges recorded in MEPRS (the scale factor for most MTFs was slightly over 1.0). Because the SIDs record the discharging MTF, we were able to apply an MTF-specific cost factor to each RWP. Once we computed the cost of each discharge in this manner, we estimated a unit cost regression model in a manner similar to the second stage of the purchased-care cost models.

As previously noted, MTF outpatient services are recorded only at an aggregate level in terms of workcenters and broad beneficiary categories. Although some ADS data were available in FY 1999, no such individual patient-level accounting system was in place during FY 1994. We therefore evaluated MTF outpatient costs on an aggregate level, without recourse to statistical models to estimate the FY 1994 baseline. Furthermore, we did not need to develop models for MTF prescription costs because the latter are already allocated to the MEPRS inpatient and outpatient accounts.

#### **4.1.5 Summary of Findings**

Many of the tables and figures in this section display results in terms of the enrollment status of military health care beneficiaries. Considerations of space and clarity of exposition preclude displaying the information in greater detail. The displays can better be put in context, however, by knowing something about the composition of beneficiaries within and among enrollment status (i.e., enrolled with a military PCM, enrolled with a civilian PCM, or nonenrolled). Table 4-1 shows the distribution of beneficiaries in Regions 1 through 12 by enrollment status, beneficiary group, and location (catchment area or noncatchment area). Beneficiaries are broken out by these characteristics because they are probably the most influential in determining utilization patterns.

A brief summary of the findings from the various models is presented below. The results are presented for all evaluated TRICARE regions combined. However, as the reader will note in Appendix L, which presents more detailed findings by region, the effect of TRICARE on utilization and costs varies widely from region to region. The combined results displayed in this chapter are therefore representative of the TRICARE program as a whole but obscure major differences across regions. Because the sample sizes in both the baseline and TRICARE years are so large, nearly all the differences in utilization and cost are statistically significant.

In all the tables and figures to follow, we calculated the FY 1994 baseline by applying the FY 1994 models to the FY 1999 population so that the baseline represents an estimate of what would have happened in FY 1999 without TRICARE. Of course, without a control group, any inferences on what would have happened without TRICARE are incomplete. For example, utilization and costs could have been influenced by capitated funding, trends in the standard of care, or other unidentified reasons not related to TRICARE. Known changes explicitly controlled for by the statistical models are inflation, the effects of BRAC and other Service rightsizing initiatives, changes in the unemployment rate (which may affect private insurance coverage) and the HMO

penetration rate (which may affect purchased-care utilization by nonenrollees), changes in MTF accounting practices, and changes in the beneficiary composition and size.

**Table 4-1. Distribution of Beneficiary Population in Regions 1 Through 12 by Enrollment Status, Beneficiary Group, and Location**

Enrollment Status	Beneficiary Group	Location	End FY 1999 Population Size	Overall Percent	Percent Within Enrollment Group
Military PCM	Active Duty	Catchment	1,085,052	14.3	81.0
Military PCM	Active Duty	Noncatchment	254,429	3.3	19.0
Military PCM	Active-Duty Family Members	Catchment	1,024,280	13.5	59.0
Military PCM	Active-Duty Family Members	Noncatchment	160,482	2.1	9.2
Military PCM	Retirees <65 and Family Members	Catchment	463,903	6.1	26.7
Military PCM	Retirees <65 and Family Members	Noncatchment	87,544	1.2	5.0
Civilian PCM	Active-Duty Family Members	Catchment	78,406	1.0	18.8
Civilian PCM	Active-Duty Family Members	Noncatchment	113,096	1.5	27.1
Civilian PCM	Retirees <65 and Family Members	Catchment	87,711	1.2	21.0
Civilian PCM	Retirees <65 and Family Members	Noncatchment	137,820	1.8	33.0
Nonenrolled	Active-Duty Family Members	Catchment	326,475	4.3	12.0
Nonenrolled	Active-Duty Family Members	Noncatchment	226,003	3.0	8.3
Nonenrolled	Retirees <65 and Family Members	Catchment	985,542	13.0	36.1
Nonenrolled	Retirees <65 and Family Members	Noncatchment	1,192,054	15.7	43.7
Ineligible	Retirees ≥65 and Family Members	Catchment	598,930	7.9	43.6
Ineligible	Retirees ≥65 and Family Members	Noncatchment	774,176	10.2	56.4

The reader may be tempted to compare the results in this report with the FY 1998 results reported last year.<sup>35</sup> The comparisons should be made with caution, however. First, there are three additional regions (Regions 1, 2, and 5) in the mix. Second, and probably more important, Prime enrollment increased about 15 percent from FY 1998 to FY 1999, excluding active-duty members. Consequently, some beneficiaries who were in the nonenrolled population subset in FY 1998 migrated to the enrolled population subset in FY 1999. The mix of beneficiaries (in terms of utilization patterns) within each enrollment group may therefore be different from what it was in FY 1998.

We also made some modifications to our analytical approach that should enhance the reliability of the evaluation. The first modification involved a recalculation of beneficiaries' eligibility intervals using quarterly DEERS snapshots in addition to the begin and end eligibility dates already recorded in DEERS. The latter dates are notoriously inaccurate; we tracked each individual in the FY 1994 and FY 1999 samples over the five quarterly snapshots that span the fiscal year to determine when they were enrolled in DEERS and when they were not. We used these snapshots along with the dates on the DEERS records to determine new eligibility intervals. The result was an

<sup>35</sup> Peter H. Stoloff, Philip M. Lurie, Lawrence Goldberg, and Michele Almendarez, *Evaluation of the TRICARE Program: FY 2000 Report to Congress*, 31 October 2000.

average eligibility interval length longer than that used in previous evaluations. Consequently, average annual utilization per beneficiary is somewhat lower in this year's evaluation.

The next modification we made took into account the potential bias introduced by considering only those beneficiaries in the FY 1994 sample who are still part of the eligible beneficiary population in FY 1999. As described earlier, we matched beneficiaries in the FY 1994 sample prospectively to the FY 1999 DEERS enrollment database and classified them in the same manner as the FY 1999 sample. With the exception of active-duty members, this means that beneficiaries who are no longer eligible in FY 1999 (e.g., because the sponsor left military service) cannot be prospectively assigned an enrollment status. Because beneficiaries in the FY 1994 sample who are still eligible in FY 1999 are not randomly selected, but instead constitute a self-selected subsample, we may be introducing a potential bias into the utilization models. As it turns out, beneficiaries in the FY 1994 sample who are still eligible in FY 1999 tend to have greater utilization of MHS services than their ineligible counterparts. Consequently, we employed a statistical correction procedure to mitigate the bias.

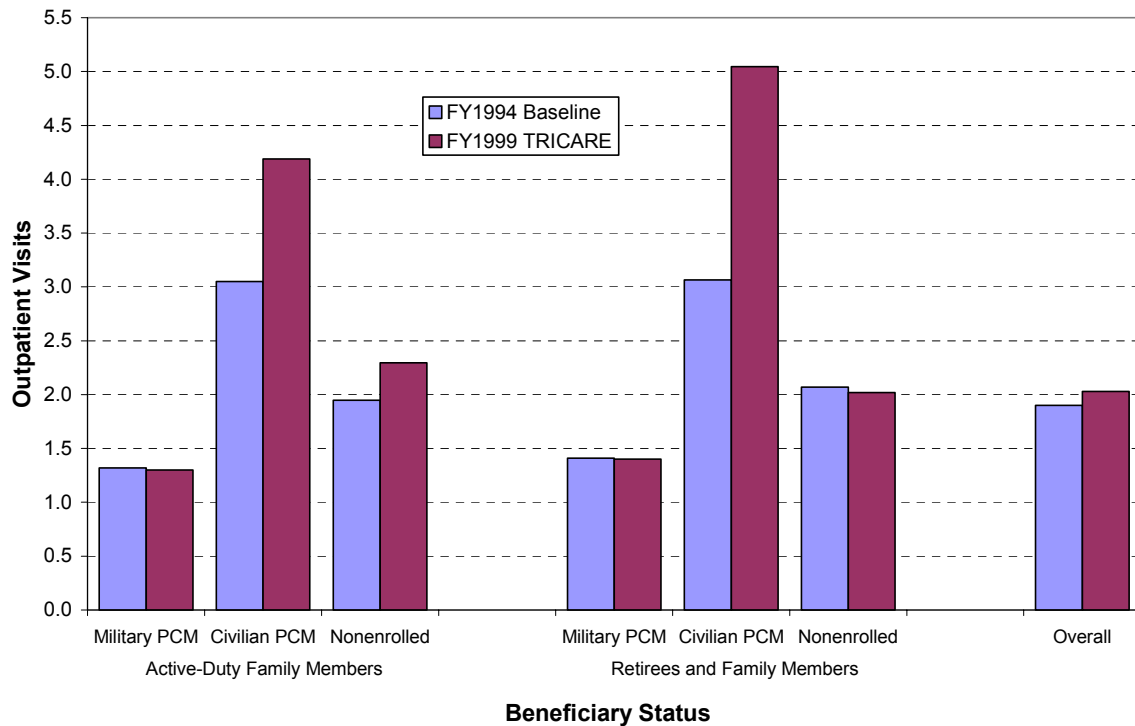
#### **4.1.5.1 Purchased-Care Outpatient Utilization and Costs**

Figure 4-2 compares the average annual purchased-care outpatient utilization per beneficiary by enrollment type and beneficiary status in the FY 1994 baseline with the FY 1999 TRICARE experience. We measured purchased-care outpatient utilization as the number of visits per eligible beneficiary. With presumably improved access to care at MTFs, beneficiaries enrolled with a military PCM can be expected to be treated more often at the MTF and referred to the network for specialty care only when necessary. In previous years, this observation was manifested in reduced purchased-care outpatient utilization by beneficiaries enrolled with a military PCM. In FY 1999, however, purchased-care outpatient utilization by beneficiaries enrolled with a military PCM was virtually unchanged from the FY 1994 baseline. This could be due to Defense Health Program (DHP) funding shortfalls and MTF inefficiencies that have resulted in more care being shifted to the civilian sector.

Beneficiaries enrolled with a civilian PCM show a large increase in outpatient utilization (37 percent for active-duty family members and 65 percent for retirees and family members). This trend can be partly explained by lower beneficiary cost shares (lower out-of-pocket costs tend to increase utilization) and a greater emphasis on preventive care under Prime.<sup>36</sup> The increase in outpatient utilization by beneficiaries with a civilian PCM is consistent with what occurs in commercial managed-care settings (i.e., outpatient utilization increases in response to tightening controls on inpatient utilization).

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<sup>36</sup> The same emphasis on preventive care is also present for enrollees with a military PCM but is reflected in outpatient utilization and costs at the MTFs rather than at civilian providers.



**Figure 4-2. Average Annual Purchased-Care Outpatient Utilization per Beneficiary**

Overall, TRICARE had a negligible impact on the outpatient utilization of nonenrollees (an increase of 2 percent), but there was a marked difference between the impact on active-duty family members and retirees and family members. Active-duty family members experienced an 18-percent increase in utilization whereas retirees and family members experienced a 3-percent decrease (the overall increase in utilization was small because most nonenrolled beneficiaries are retirees). An increase in purchased-care outpatient utilization by nonenrolled active-duty family members might be expected because some beneficiaries who previously relied primarily on the direct-care system for their care have undoubtedly been “squeezed out” of the MTF under TRICARE and must now rely more heavily on purchased care. Further, according to the FY 1999 Health Care Survey of DoD Beneficiaries, a relatively small percentage of active-duty family members have private health insurance coverage, so they have few options for care other than TRICARE Standard or Extra. On the other hand, nonenrolled retirees may be picking up private insurance (they are a more affluent group than active-duty family members and many have insurance provided by civilian employers) to cover expected increases in civilian sector costs.

To examine this possibility, a question was included in the FY 1999 Health Care Survey of DoD Beneficiaries, asking whether TRICARE had any effect on the respondent’s decision to be covered by private insurance. Table M-2 of Appendix M shows the results, broken out by Health Service Region, beneficiary group, and enrollment status. To summarize, retirees and family members, who constitute about 85 percent of nonenrollees, had a net increase of 18 percent in private insurance coverage from FY 1994 to FY 1999 because of TRICARE. That fact, together with nationwide statistics showing a trend away from standard fee-for-service plans and toward more

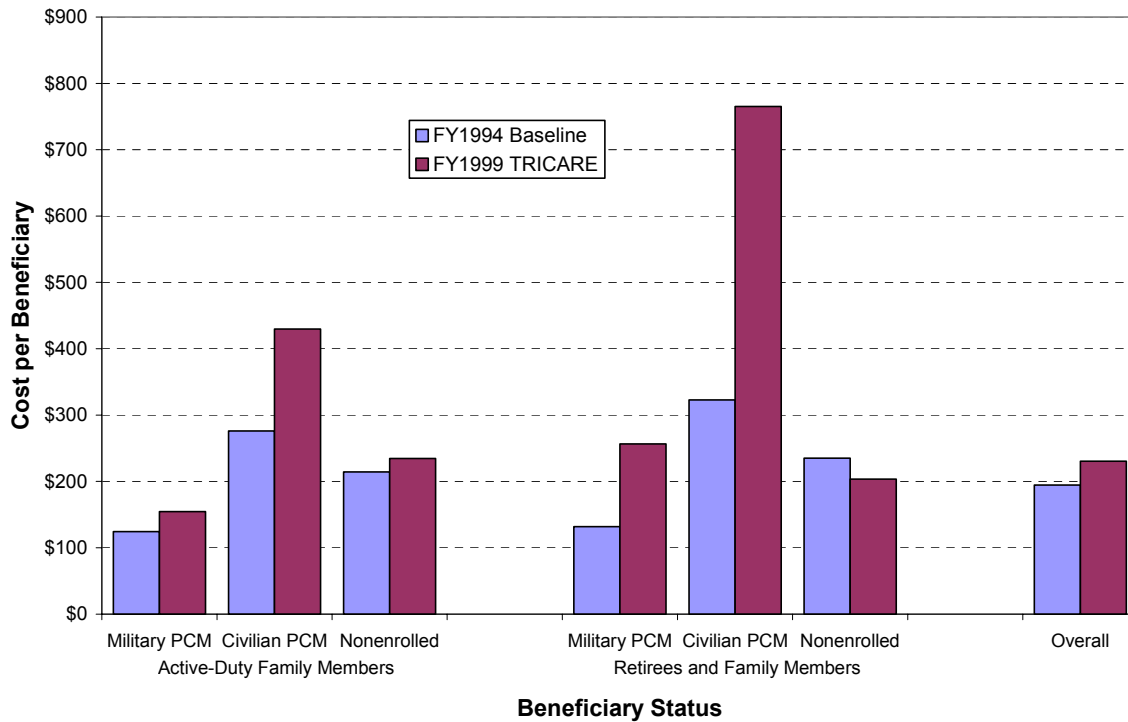
HMOs and PPOs (resulting in lower copayments that reduce the likelihood of filing a network claim), likely explains most of the drop in outpatient utilization among nonenrolled retirees.<sup>37</sup>

Figure 4-3 shows the impact of TRICARE on the average purchased-care outpatient cost per beneficiary. We inflated FY 1994 costs by the Medicare Economic Index (5-year cumulative inflation of 10.9 percent) because that index is one of the factors used by TMA–Aurora in setting its maximum allowable charges. The general trends in cost are similar to those observed for outpatient utilization, but the magnitudes are quite different. First, although utilization by beneficiaries enrolled with a military PCM remained essentially unchanged, corresponding costs increased by 45 percent. This phenomenon occurs because beneficiaries are not usually referred to the network unless they need specialty care, which tends to be more costly. Second, the cost for beneficiaries enrolled with a civilian PCM increased by 98 percent, compared with 52 percent for utilization. This pattern is likely caused by beneficiaries dropping their private insurance coverage (see Table M-2 of Appendix M for evidence of this) because of anticipated reductions in their out-of-pocket costs upon enrollment in Prime, thereby increasing the cost to the government. Finally, the cost for nonenrollees declined by almost 9 percent, compared with a 2-percent increase in utilization. The disproportionate drop results from an increase in nonenrolled retirees with private insurance coverage (which reduces the amount the government needs to cover) and savings due to discounted provider fees when beneficiaries use the Extra option. Overall, outpatient costs increased by 18 percent.

The total cost can be expressed as the product of the total number of visits and the average cost per visit. The average cost per visit can be expected to increase for Prime enrollees because the government is picking up a greater share of the cost. For nonenrollees, the average cost per visit should decline because of increased third-party collections and discounted provider fees when beneficiaries use the Extra option. The estimated trends in the cost per visit are consistent with these expectations. For enrollees with a military PCM, the cost per visit increased by 47 percent; for enrollees with a civilian PCM, it increased by 33 percent. On the other hand, the government experienced an 10-percent drop in the cost per visit for nonenrollees. Overall, the average cost per visit increased by 11 percent.

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<sup>37</sup> From 1994 to 1998, civilian HMO enrollment increased from 25 percent to 33 percent, while PPO utilization increased from 30 percent to 40 percent. The source is Bureau of Labor Statistics, United States Department of Labor, *News*, January 7, 1999, Table 5, p. 9.

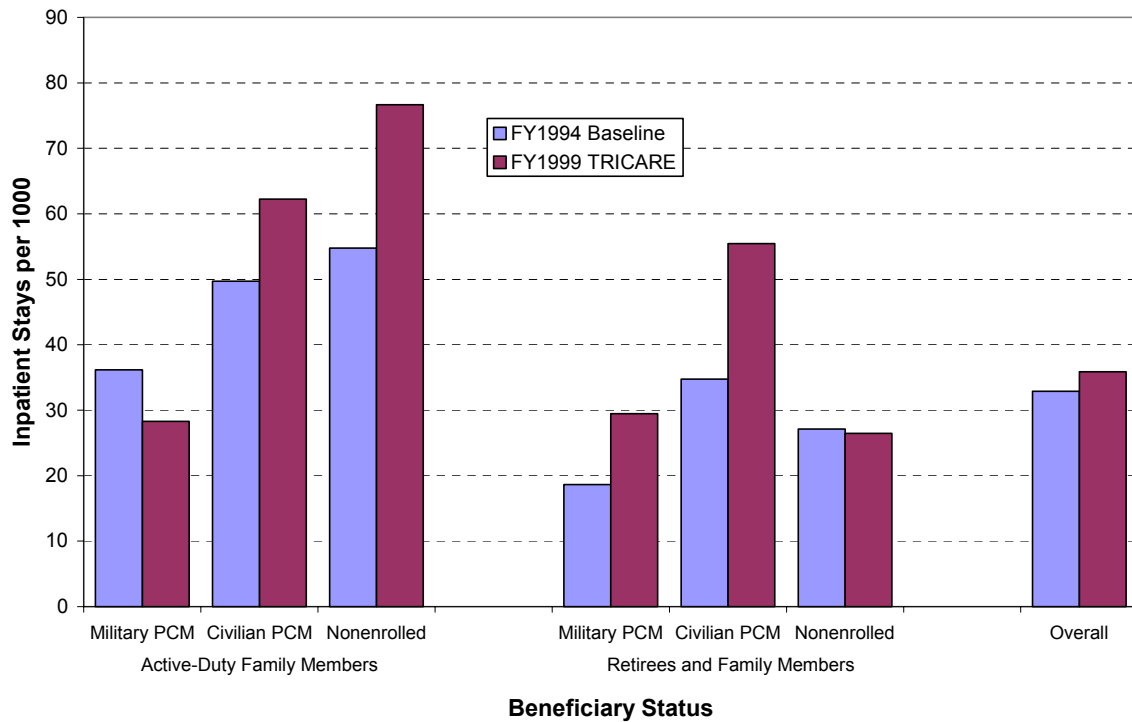


**Figure 4-3. Average Purchased-Care Outpatient Cost per Beneficiary**

#### 4.1.5.2 Purchased-Care Inpatient Utilization and Costs

In theory, managed care programs apply utilization management (UM) initiatives to reduce the incidence of unneeded hospitalizations. Utilization management includes prospective reviews by physicians, discharge planning, disease management programs, demand management programs, and other techniques to exercise clinical oversight. If a hospitalization is deemed necessary, managed care programs additionally apply quality management to reduce the length of stay without compromising the health of the patient. Therefore, much of the savings realized under TRICARE is expected to come from containing the costs of expensive inpatient care. Some of the potential cost savings could come from the UM initiatives just described; the remainder could come from discounts that the MCS contractor negotiates with civilian network hospitals and physicians.

Figure 4-4 compares the average annual purchased-care inpatient utilization per beneficiary by enrollment type in the FY 1994 baseline with the FY 1999 TRICARE experience. We measured purchased-care inpatient utilization as the number of hospital discharges per 1,000 eligible beneficiaries. The effect of TRICARE on purchased-care inpatient utilization is similar to that for outpatient utilization for each beneficiary group except retirees and family members with a military PCM. Active-duty family members with a military PCM show a decline of almost 22 percent in their purchased-care inpatient utilization, consistent with the application of UM at MTFs including referrals to the network only when needed. Retirees and family members with a military PCM, on the other hand, exhibit a 58-percent increase in purchased-care inpatient utilization.



**Figure 4-4. Average Annual Purchased-Care Inpatient Utilization per Beneficiary**

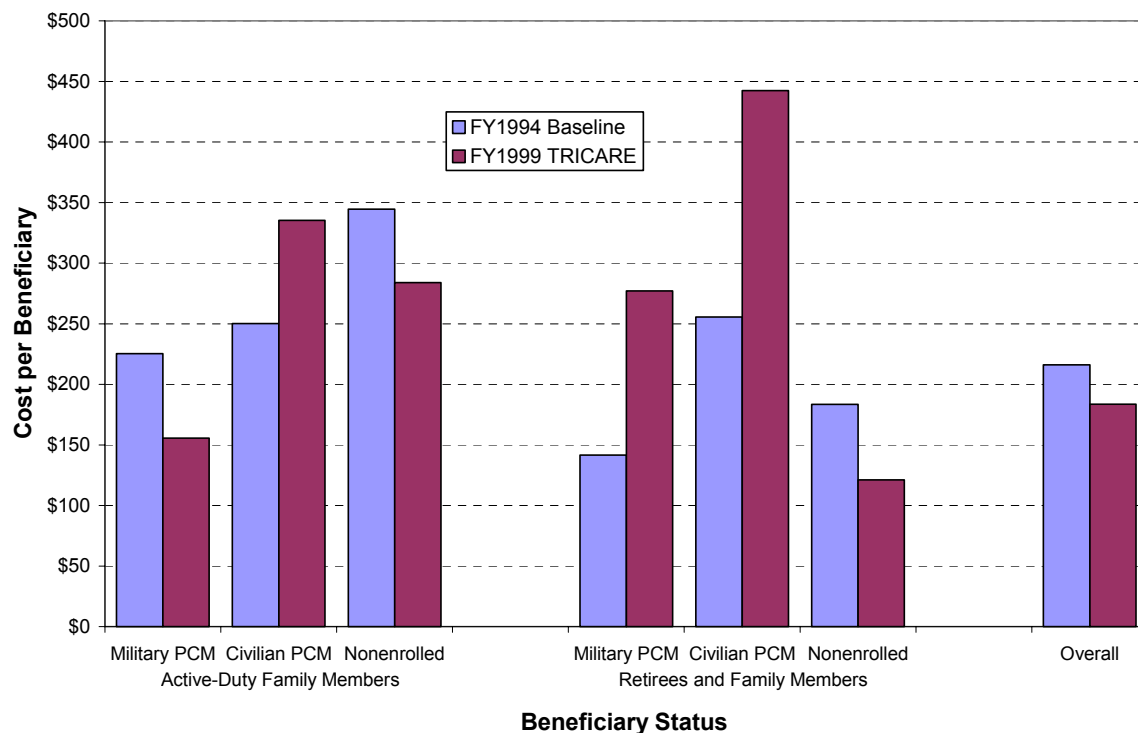
Beneficiaries enrolled with a civilian PCM show a 43-percent increase in inpatient utilization, with the increase for retirees (60 percent) much higher than for active-duty family members (25 percent). The reason for the increase is related to the parallel increase in outpatient utilization (i.e., reduced beneficiary cost shares and improved preventive benefits under Prime cause beneficiaries to increase their utilization of outpatient services, thereby increasing their chances of having an illness detected that requires hospitalization).

Nonenrolled active-duty family members also experienced an increase in inpatient utilization in FY 1999 (40 percent), more than double the increase in their outpatient utilization. Nonenrolled retirees and family members, on the other hand, experienced a decline in inpatient utilization of 3 percent—identical to the decline in their outpatient utilization. The reasons for the increase in inpatient utilization by nonenrolled active-duty family members are unclear as a decrease might have been expected because of increased private insurance coverage and a requirement for pre-authorization of inpatient mental health services that became effective in FY 1997. On the other hand, the savings offered under the Extra option may have induced beneficiaries to increase their utilization somewhat. Overall, the purchased-care inpatient hospitalization rate increased by 9 percent.

If TRICARE was successful in implementing control over the delivery process, one might expect a reduction in both the length and variation of a hospital stay. Because TRICARE is likely to affect the case-mix of procedures performed in the hospital, we must hold the case mix constant when comparing the average length of stay before and

after TRICARE. We did this by computing the average length of stay within the same Diagnosis Related Groups (DRGs)<sup>38</sup> and applying the FY 1999 case mix (i.e., the percentage of procedures within each DRG) to both years. From FY 1994 to FY 1999, the case-mix-adjusted average length of stay decreased from 6.2 to 5.0 days (a 19-percent decrease). However, the standard deviation of length of stay remained essentially the same (from 13.2 days in FY 1994 to 12.8 days in FY 1999).

Figure 4-5 shows the effect of TRICARE on purchased-care inpatient costs. Purchased-care inpatient costs include both institutional and professional services charges. We inflated FY 1994 institutional costs by the HCFA Hospital Input Price Index (14.0 percent) and professional services costs by the Medicare Economic Index (10.9 percent). Government costs were 31-percent lower for active-duty family members with a military PCM, but that decrease was more than offset by a 96-percent increase for retirees and family members with a military PCM. Government costs increased substantially for enrollees with a civilian PCM (34 percent higher for active-duty family members and 73 percent higher for retirees and family members). Again, the largest drop in cost (31 percent) is for nonenrollees because of their increased reliance on private insurance and because of discounted provider fees when beneficiaries choose the Extra option. The overall drop in purchased-care inpatient costs was 15 percent.



**Figure 4-5. Average Purchased-Care Inpatient Cost per Beneficiary**

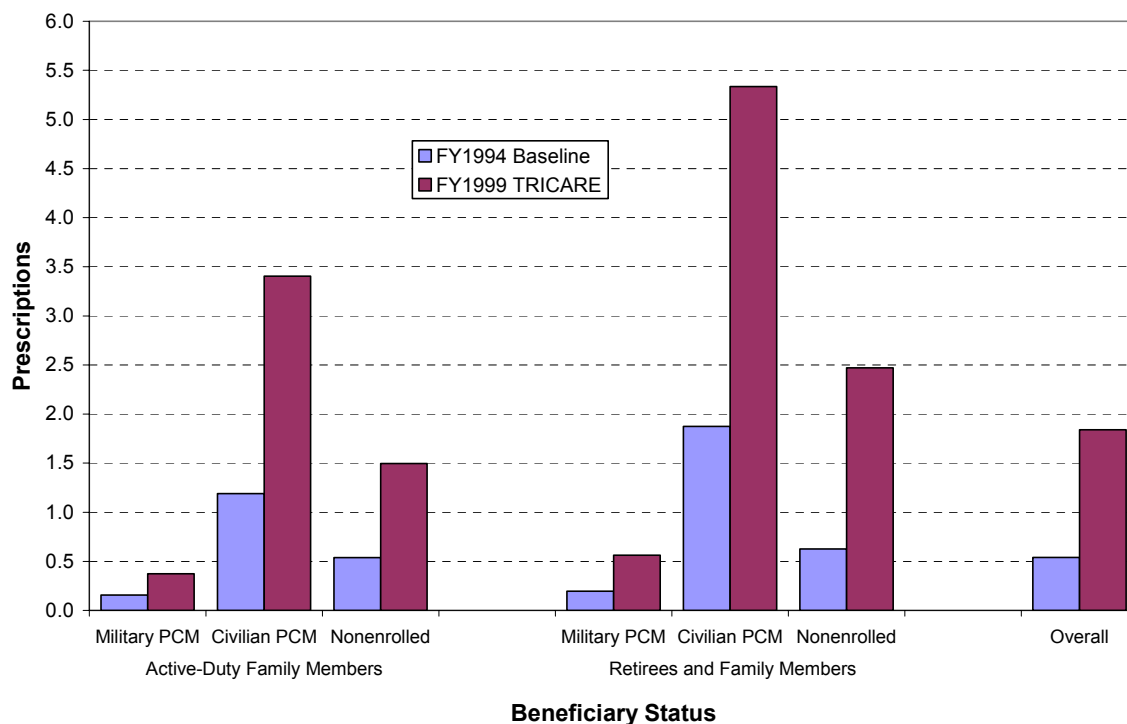
<sup>38</sup> DRG is a patient classification system that relates demographic, diagnostic, and therapeutic characteristics of patients to the length of inpatient stays and amount of resources consumed. It provides a framework for specifying hospital case mix and identifies classifications of illnesses and injuries for which payment is made under prospective pricing programs.



There was a slight increase (3 percent) in the average cost per stay for beneficiaries enrolled with a military PCM. Although the average length of stay declined from 5.6 to 4.7 days for that group of beneficiaries, the resource consumption per stay increased, as evidenced by an increase in the average RWP from 0.92 to 1.02. The likely reason for the increased resource consumption is that beneficiaries with a military PCM are hospitalized in civilian facilities only if the procedure that is needed cannot be performed in the MTF. These procedures tend to be more complex and costly than the “typical” procedure performed in a civilian hospital. The average cost per stay increased by 10 percent for beneficiaries with a civilian PCM and declined by 36 percent for nonenrollees, again reflecting the higher level of private insurance coverage by the latter group of beneficiaries. Overall, the average cost per stay declined by 22 percent.

#### 4.1.5.3 Purchased Care Prescription Utilization and Costs

Figure 4-6 presents a comparison of average annual purchased-care prescription utilization per beneficiary. Prescriptions include all initial and refill prescriptions filed on purchased-care claims or filled at network pharmacies (excluding NMOP) but are, by their nature, difficult to quantify (a single prescription can embody varying numbers of pills and/or dosages).



**Figure 4-6. Average Annual Purchased-Care Prescription Utilization per Beneficiary**

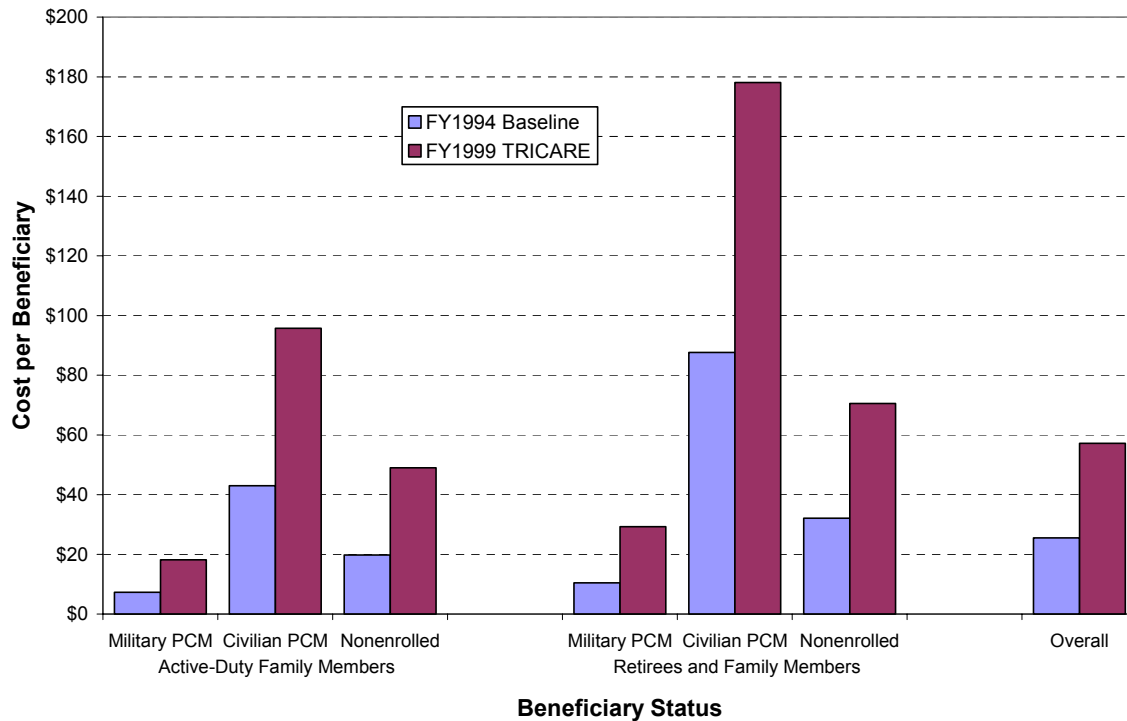
It is of interest to note that Prime enrollees with a civilian PCM were already significantly more frequent users of purchased-care prescription services than those with a military PCM before TRICARE began, as evidenced by their higher FY 1994 baseline estimates. Under Prime, their prescription utilization increased by 185 percent—almost three times the baseline estimate. One possible explanation is that the increased reliance

by MTFs on formularies under TRICARE has forced some beneficiaries to fill their prescriptions at civilian pharmacies. Another possibility is that under Prime, the participating pharmacy files all prescription claims, regardless of cost. Under the traditional benefit, if a prescription cost did not meet the deductible, some beneficiaries may not have bothered to file a claim. Consequently, the additional utilization may be associated with low-cost prescriptions.

Although the TRICARE benefit appears to have its greatest impact on Prime enrollees with a civilian PCM, utilization by other beneficiary groups also increased significantly. For Prime enrollees with a military PCM, purchased-care prescription utilization increased by 154 percent (139 percent for active-duty family members and 190 percent for retirees and family members), whereas utilization nearly quadrupled for nonenrollees. The greatly increased utilization of prescriptions by nonenrollees may seem surprising in light of only a slight increase in their use of purchased-care outpatient and inpatient services. However, unlike purchased-care outpatient and inpatient services, there is no deductible for prescriptions filled at a network pharmacy. The lack of a deductible, together with a 5-percent savings off an already discounted price, is likely attracting beneficiaries receiving care in the private sector to the Extra network. Overall, there was a 241-percent increase in the prescription utilization rate under TRICARE.

Figure 4-7 shows the corresponding impact of TRICARE on purchased-care prescription costs. We inflated FY 1994 costs by the Consumer Price Index (CPI) for prescription drugs (5-year cumulative inflation of 19.6 percent). Although prescription costs increased significantly for all beneficiary groups, the magnitude was much smaller than the increase in utilization. Under the traditional CHAMPUS benefit, if a prescription cost did not meet the deductible or met it only marginally, some beneficiaries might not have bothered to file a claim. Under TRICARE Prime and Extra, network pharmacies file all prescription claims regardless of cost. The additional government costs shown in Figure 4-7 may be a consequence of automatic claims filing. Moreover, first-dollar coverage of Extra prescriptions contributed to the increases in utilization and government cost.

Although the average per capita prescription cost increased for each beneficiary group, the average cost per user actually declined for beneficiaries enrolled with a civilian PCM (from \$307 to \$258 per year). This implies that the government's prescription costs are going up not only because the government is spending more per beneficiary, but because many more beneficiaries are using network pharmacies. The average cost per prescription also declined for most beneficiary groups, consistent with the earlier conjecture that increased utilization may be associated with low-cost prescriptions. The average cost per prescription increased by only 1.5 percent for enrollees with a military PCM and declined by 27 percent for those with a civilian PCM. As with outpatient and inpatient services, nonenrollees experienced the largest drop—40 percent—in the average cost per prescription. Overall, the average cost per prescription declined by 34 percent.



**Figure 4-7. Average Purchased-Care Prescription Cost per Beneficiary**

#### 4.1.5.4 MTF Outpatient Utilization and Costs

In FY 1994, there was no centralized patient-level accounting system with information on MTF outpatient workload and costs. Although many MTFs were reporting detailed outpatient visit information through the ADS by FY 1999, there is no comparable baseline information with which to compare it. The only comparable sources of outpatient workload and costs between FY 1994 and FY 1999 are MEPRS data. Information on outpatient workload and costs are captured in MEPRS on an aggregate basis by clinical area only. In particular, no distinction is made between Prime and space-available visits. Consequently, we could not determine the effect of Prime on MTF outpatient utilization and cost.

Because of the lack of individual patient identifiers, we were unable to estimate MTF utilization and cost models to rigorously compute the FY 1994 baseline. We also were unable to decompose utilization and costs by enrollment option. We used a different procedure to compute the FY 1994 baseline directly from the MEPRS data. First, we eliminated all MEPRS B (Outpatient) accounts that record ambulatory surgeries from consideration (recall that we considered ambulatory surgeries as inpatient procedures for this evaluation). Next, we partitioned the remaining MEPRS B accounts into BRAC and non-BRAC areas depending on where the reporting MTF was located (we included those MTFs that were “rightsized” based on Service initiatives in the definition of BRAC areas).

In the BRAC areas, we set the baseline MEPRS visit counts and costs equal to the FY 1999 values. The assumption here is that those levels would have been observed even in the absence of TRICARE (without a utilization model, we were unable to separate

BRAC from TRICARE effects). In the non-BRAC areas, we scaled FY 1994 utilization by the ratio of the total eligible population in FY 1999 to the total eligible population in FY 1994. We inflated FY 1994 costs using the HCFA Hospital Input Price Index plus a factor for medical intensity and technology (a total of 18.1 percent). We used the latter index because, unlike civilian care, most MTF outpatient care is provided in a hospital setting. Finally, we combined the BRAC and non-BRAC area results. Table 4-2 summarizes the results.

**Table 4-2. MTF Outpatient Utilization and Costs**

Year	Visits per Capita	Average Cost per Visit	Total Cost (\$Millions)
FY 1994 Baseline	5.47	\$104.36	\$3,633
FY 1999 TRICARE	4.56	\$132.66	\$3,848

It should be noted that MTF “visits” cannot be easily compared with purchased-care visits because they are measured differently. An MTF visit does not necessarily involve a face-to-face contact with a physician; it could be a phone call for medical advice. Assuming that MTFs have recorded visits consistently between FY 1994 and FY 1999, the average number of visits per beneficiary declined by 17 percent under TRICARE, while the average cost per visit increased by 27 percent. This result could be considered surprising given that the government bears the entire cost of an outpatient visit, and that outpatient visits might be expected to increase under TRICARE because of improved access to primary care and greater emphasis on preventive care. It follows that the average cost per visit might be expected to decrease given that preventive care visits are relatively inexpensive and that there should be fewer visits for expensive specialty care.

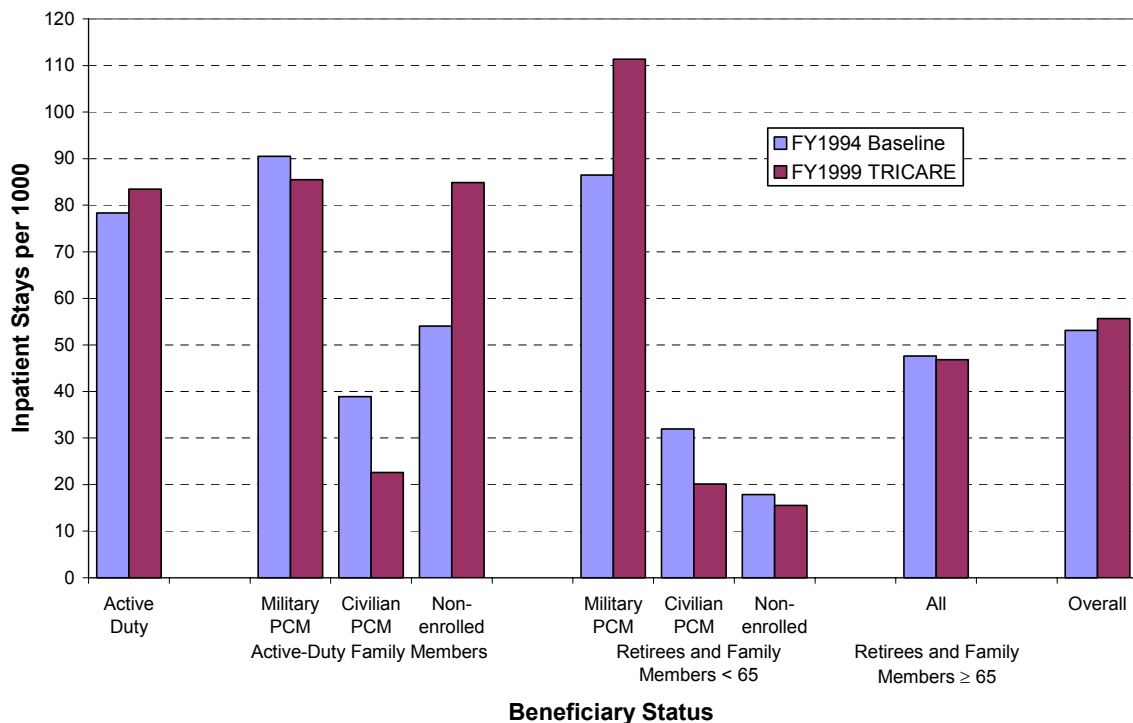
#### **4.1.5.5 MTF Inpatient Utilization and Costs**

Under the traditional military health care benefit of direct care and CHAMPUS, there was a priority system for access to the MTF. The group with the highest priority was (and still is) active-duty service members. Next came active-duty family members and then retirees and their family members. Because of this priority system, baseline utilization and cost estimates should vary significantly by beneficiary category.

Two additional beneficiary categories are included in the analysis of MTF inpatient utilization and costs—active-duty members and retirees and family members age 65 and over. We keep the latter group of beneficiaries separate from other retirees to allow a comparison with purchased-care utilization and costs, and because of concern that they may be “squeezed out” of space-available MTF care as a consequence of being ineligible to enroll in Prime.<sup>39</sup>

<sup>39</sup> A relatively small number of these beneficiaries were enrolled in TRICARE Senior Prime, available in only select parts of the country. We therefore did not separate these beneficiaries from the vast majority of those who were ineligible for Prime.

Figure 4-8 shows the effect of TRICARE on MTF inpatient utilization. As expected, there is considerable variation in the impact of TRICARE on utilization by both beneficiary category and enrollment status. Active-duty members experienced a slight increase (7 percent) in MTF inpatient utilization under TRICARE. Whereas active-duty family members with a military PCM had a 6-percent drop in utilization, their retired counterparts experienced a sizable increase of 29 percent. The latter finding is not surprising in light of the priority system for access to MTFs. Before the implementation of TRICARE, retirees had the lowest priority for obtaining space-available MTF care. Once enrolled in Prime with a military PCM, retirees receive guaranteed access to care and have a greater likelihood of being hospitalized, if needed, at an MTF rather than at a civilian facility.



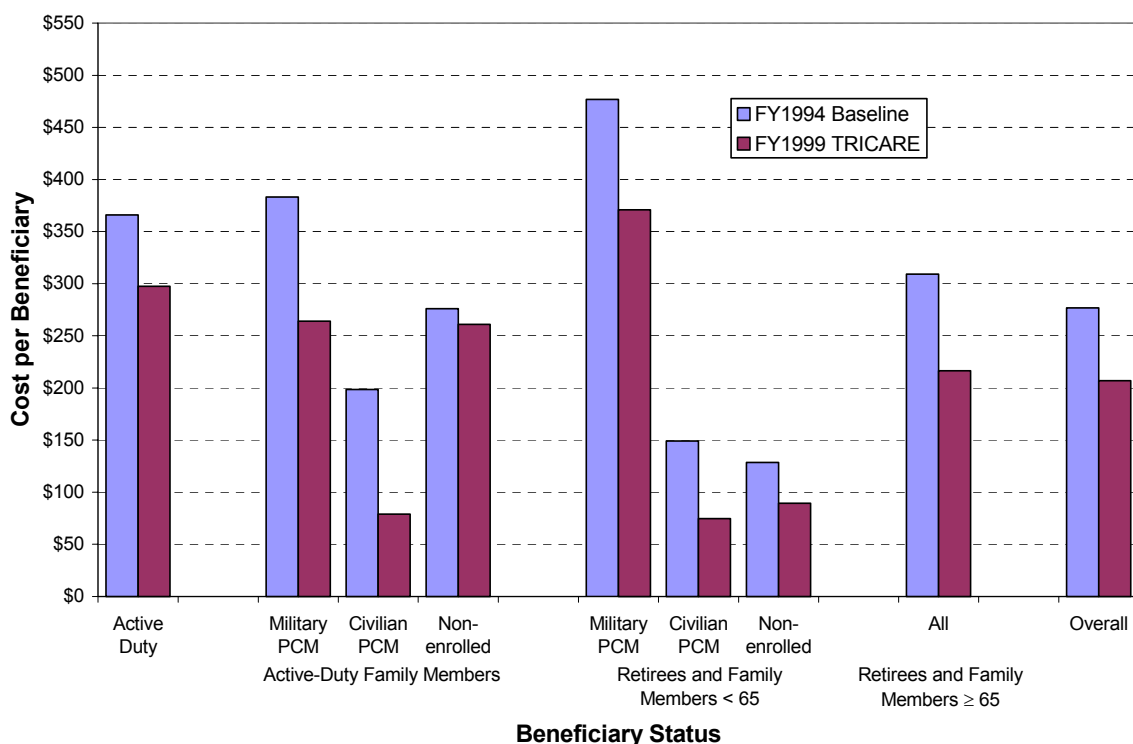
**Figure 4-8. Average Annual MTF Inpatient Utilization per Beneficiary**

Both active-duty family members and retirees and family members enrolled with a civilian PCM experienced large drops in utilization (42 percent and 37 percent, respectively). The large drop is possibly a result of successful application of UM at military facilities [successful because utilization has been reduced without reducing beneficiary satisfaction with the quality of care (although no reliable objective measures of health outcomes are available)], changing standards of practice, or reduced MTF inpatient capacity. Nonenrolled beneficiaries also experienced drops in utilization. The decline in inpatient utilization for nonenrolled active-duty family members is expected because they no longer have priority access to care at the MTFs, having ceded that access to Prime enrollees. Nonenrolled and ineligible retirees (the latter group is composed primarily of retirees and family members age 65 and over) have an even more difficult time gaining access to MTF care under TRICARE, experiencing drops in utilization of 13

percent and 2 percent, respectively. Ever since the advent of TRICARE in FY 1995, senior retirees have complained of being “squeezed out” of MTF care because they are ineligible to enroll in Prime; the results of this section do not strongly support that complaint, however. Overall, MTF inpatient utilization increased by 5 percent.

Analogous to the evaluation of purchased-care inpatient utilization, we considered the average and standard deviation of the length of hospital stays as measures of TRICARE’s success in controlling inpatient utilization and costs. As before, we held the case mix constant when comparing the average length of stay before and after TRICARE. From FY 1994 to FY 1999, the case-mix-adjusted average length of stay decreased from 4.5 to 3.5 days (a 21-percent decrease) whereas the standard deviation decreased from 7.1 to 4.9 days (a 31-percent decrease).

Figure 4-9 shows the effect of TRICARE on MTF inpatient costs. We inflated MTF inpatient costs in FY 1994 using the HCFA Hospital Input Price Index plus a factor for medical intensity and technology (a total of 18.1 percent). Although some beneficiary groups experienced an increase in MTF inpatient utilization under TRICARE, the cost reductions produced by shortened and less variable lengths of stay resulted in a lower government cost for every class of beneficiary and enrollment status. The overall result was a 25-percent drop in MTF inpatient costs.



**Figure 4-9. Average MTF Inpatient Cost per Beneficiary**

The average government cost per MTF hospital stay declined under TRICARE for all beneficiary groups. The largest declines (40 percent each) were realized for nonenrolled active-duty family members and for retirees and family members with a military PCM;

the smallest decline (20 percent) was for nonenrolled retirees and family members. Overall, the average government cost per MTF inpatient stay declined by 29 percent.

## **4.2 Cost to the Government**

In addition to the direct costs of delivering health care, the government incurs substantial indirect, or overhead, costs to support the MHS. The indirect costs are distributed into three general categories:

- Costs incurred at MTFs,
- MCS costs for purchased care, and
- System-wide costs developed from the DoD budget [specifically, the Future Years Defense Program (FYDP)].

The MCS contractor collects all Prime enrollment fees (for beneficiaries having both military and civilian PCMs), and the resulting revenue reduces the net contract price. The MCS costs reported in subsequent tables are net of this revenue.

The MTFs also collect revenue from third-party collections and inpatient subsistence charges. Third-party collections are already captured in the MEPRS EBH subaccount (Third-Party Collection Administration) and are stepped down to the final operating accounts. Inpatient subsistence charges are currently zero for retired enlisted personnel, \$7.50 per day for active-duty personnel and retired officers, and \$10.85 per day for all other beneficiaries. Because so few beneficiaries are hospitalized in an MTF during a given 1-year window, these charges contribute a negligible offset to total direct-care cost.

Table 4-3 summarizes the estimated FY 1994 baseline costs and the actual FY 1999 TRICARE costs within the above categories. We made an effort to provide as complete an accounting of MHS costs as possible. However, as noted in the Section 733 Study:<sup>40</sup>

It is impossible to develop a complete reconciliation between MEPRS and the FYDP, partly because FYDP obligations translate into outlays over a multi-year time window. In addition, there is no standard crosswalk between MEPRS and any particular subset of PEs [Program Elements]....

Consequently, the costs identified by the IDA study team do not align completely with the FY 1999 DHP—the portion of the DoD appropriation that provides funding for peacetime military medical and dental care, training of medical personnel, and readiness of all medical units. The DHP for FY 1999 was \$16.15 billion, whereas total worldwide costs identified from DoD information systems were \$15.85 billion. Thus, we were able to reconstruct the DHP to within \$300 million.

A detailed discussion of Table 4-3, as well as a description of the content of each cost category, is provided in the following subsections.

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<sup>40</sup> Matthew S. Goldberg et al., “Cost Analysis of the Military Medical Care System: Final Report,” Institute for Defense Analyses, Paper P-2990, September 1994.

**Table 4-3. Comparison of Baseline with TRICARE Costs in Evaluated Regions**

Source	Account/Program Element	FY 1994 Baseline	FY 1999 TRICARE	Difference
Direct Care	MEPRS A (Inpatient)	\$2,452.8	\$1,832.9	-\$619.9
	MEPRS B (Outpatient)	3,632.9	3,848.2	215.3
	MEPRS C (Dental)	643.1	643.1	0.0
	MEPRS F (Special Programs)			
	Affected by TRICARE	538.0	724.7	186.7
	Unaffected by TRICARE	742.3	742.3	0.0
	MEPRS G (Readiness)	184.7	184.7	0.0
	Military Pay Adjustment	148.3	144.4	-3.9
	Military Construction	286.8	279.2	-7.6
	Contractor Administrative Cost	0.0	30.1 <sup>a</sup>	30.1
	Subtotal	\$8,628.9	\$8,429.5	-\$199.4
Purchased Care	Inpatient	\$1,211.4	\$1,029.8	-\$181.7
	Outpatient	1,091.8	1,292.5	200.7
	Prescriptions	142.9	321.0	178.1
	NMOP (TRICARE Beneficiaries)	0.0	51.1	51.1
	NMOP (BRAC/Other Beneficiaries)	32.3	32.3	0.0
	Capital Construction/DME	110.1	109.7	-0.4
	Special and Emergent Care	7.3	7.3 <sup>a</sup>	0.0
	Other Pass-Through Costs	0.0	2.2 <sup>a</sup>	2.2
	Global Settlements	0.0	184.2	184.2
	Resource Sharing Adjustment	0.0	-69.7	-69.7
	Contractor Administrative Cost	88.1 <sup>b</sup>	557.8 <sup>b,c</sup>	469.7
	Government Administrative Cost	58.7	49.0	-9.8
	Subtotal	\$2,742.5	\$3,567.0	\$824.6
Other DHP Costs <sup>d</sup>	Affected by TRICARE			
	Management Headquarters	\$51.4	\$53.7	\$2.4
	MHS IM/IT	241.0	233.0	-8.1
	Other Procurement, Construction	117.6	27.9	-89.7
	Other Procurement, Replacement	174.9	375.0	200.1
	TRICARE Management Activity	0.0	78.4	78.4
	Armed Forces Institute of Pathology	47.5	49.5	2.0
	Unaffected by TRICARE			
	Examining Activities-Health Care	38.0	38.0	0.0
	USUHS	103.5	103.5	0.0
	Armed Forces Health Scholarship	119.2	119.2	0.0
	Other Health Activities	417.8	417.8	0.0
	Medical Development	38.4	38.4	0.0
	Medical Combat Support-Active	40.3	40.3	0.0
	Subtotal	\$1,389.8	\$1,574.9	\$185.1
Overall	Total Government Cost	\$12,761.2	\$13,571.4	\$810.2

Note: Costs exclude Alaska and overseas.

<sup>a</sup> Weighted average of two option years for each TRICARE region, where weights are proportions of those years that fell within FY 1999.

<sup>b</sup> Includes only the cost of fiscal intermediaries in FY 1994; includes the cost of fiscal intermediaries and other contractor administrative costs in FY 1999.

<sup>c</sup> Allocated to TRICARE regions by share of total purchased-care operating cost.

<sup>d</sup> Allocated to TRICARE regions by share of total MHS operating cost.



#### **4.2.1 Direct-Care Costs**

The estimation of inpatient and outpatient direct-care costs has already been explained. In particular, we obtained the FY 1994 baseline costs by inflating FY 1994 actual costs, adjusting for BRAC and other Service rightsizing initiatives, and standardizing the beneficiary population. Table 4-3 reveals that outpatient costs increased slightly under TRICARE, but inpatient costs decreased dramatically. The large offset in costs from substituting outpatient for inpatient care indicates successful application of managed care at MTFs.

The pharmacy costs associated with inpatient and outpatient care are recorded in the DAA account of MEPRS and stepped down to the final operating accounts shown in Table 4-3. Pharmacy costs in the evaluated TRICARE regions increased from \$771 million [after adjusting FY 1994 costs for a reduction in the eligible population, BRAC effects, and 17.9 percent cumulative inflation in the Producer Price Index (PPI) for prescription preparations<sup>41</sup>] to \$1,179 million.

No major changes to the dental benefit have occurred under TRICARE. Actual FY 1999 dental costs in the TRICARE Regions were \$643 million. Rather than inflating the actual FY 1994 cost to represent the baseline, we used the actual FY 1999 cost (i.e., the \$643 million) in both columns. The judgment here is that costs of \$643 million would have been incurred even in the absence of TRICARE. Placing this figure in both columns provides a complete accounting of FY 1999 costs, while forcing to zero the difference in dental costs attributable to TRICARE.

We followed the same procedure in the other rows of Table 4-3 corresponding to cost categories that were not affected by TRICARE. For example, the F Account (Special Programs) in MEPRS contains some subaccounts that may be affected by TRICARE and others that, by their nature, should not be affected by TRICARE. The former set of subaccounts is shown in Table 4-4 and was arrived at by a committee representing the OASD(HA) and the Surgeons General of the three Military Services. As detailed in Table 4-4, the costs affected by TRICARE increased from \$538 million to \$725 million.<sup>42</sup>

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<sup>41</sup> The PPI actually increased by over 34 percent from FY 1994 to FY 1999. However, half of that increase is attributable to an increase in the cost of psychotherapeutic drugs. Because the large increase in the psychotherapeutics index resulted from price changes by a small number of producers for a small number of drugs, the PPI was likely affected by sampling variability. Exclusive of psychotherapeutics, prices for prescription drugs rose 17.9 percent from FY 1994 to FY 1999. See the Bureau of Labor Statistics Special Notice for Prescription Drugs Index at <http://stats.bls.gov/ppidrug.htm> for more details.

<sup>42</sup> Non-prescription expenses in the former figure are adjusted for cumulative inflation of 7.4 percent between FY 1994 and FY 1999, using the DoD outlay deflator for Operations and Maintenance less fuel and pay. The source is Office of the Under Secretary of Defense (Comptroller), "National Defense Budget Estimates for FY 2001," March 2001, Table 5-9, p. 51. Prescription expenses are adjusted by the PPI for prescription preparations, which increased by 17.9 percent from FY 1994 to FY 1999 (exclusive of psychotherapeutics).

**Table 4-4. MEPRS F Subaccounts Affected by TRICARE in Evaluated Regions  
(Millions of FY 1999 Dollars)**

Subaccount	Description	FY 1994 Baseline	FY 1999 TRICARE	Difference
FAA	Area Reference Laboratories	\$4.8	\$5.1	\$0.3
FAH	Clinical Investigation Program	39.0	30.3	-8.7
FAL	Continuing Health Education	58.2	56.6	-1.6
FBI	Immunizations	37.7	58.7	21.0
FBJ	Early Intervention Services	0.0	4.0	4.0
FBK	Medically Related Services	0.0	0.0	0.0
FBL	Multidisciplinary Team	0.0	2.1	2.1
FCA	Supplemental Care	99.7	183.8	84.1
FCB	Guest Lecturer and Consultant Program	2.0	2.0	0.0
FCC	CHAMPUS Beneficiary Support	203.6	413.8	210.2
FCD	Support to Other Military Medical Activities <sup>a</sup>	30.3	29.5	-0.8
FCG	Support to Non-MEPRS Reporting Medical Activities	2.7	11.3	8.6
FCH	Active Duty Emergency	0.0	21.0	21.0
FCZ	Health Care Services Support, Not Elsewhere Classified	0.0	-0.0	0.0
FDF	Urgent Minor Construction	1.2	16.6	15.4
FEA	Patient Transportation	51.9	52.9	1.0
FEB	Patient Movement Expenses	6.8	10.3	3.5
FEZ	Patient Movement and Military Patient Administration, Not Elsewhere Classified	0.3	0.3	0.0
	Subtotal	\$538.0	\$898.4	\$360.4
	Revised Financing Adjustment	0.0	-173.7	-173.7
	Total	\$538.0	\$724.7	\$186.7

<sup>a</sup> Includes prescription costs only; borrowed labor costs reported in A and B accounts.

The largest contributors to the increase in F-account costs were the FCC subaccount, covering prescriptions written by civilian physicians but filled at MTFs; and the FCA subaccount, covering supplemental care for services purchased from civilian sources. The increase in prescription costs is consistent with what we have found in previous TRICARE evaluations and with what has been happening in the civilian economy; the increase in supplemental care is related to revised financing contracts in Regions 1, 2, and 5, where MTFs must purchase care for their enrollees if they are referred to the network.

The FCD account records the costs associated with personnel loaned between MTFs and prescriptions written by a physician at one MTF but filled by the pharmacy at another. In the former case, the personnel costs are recorded in both the FCD account of the lending MTF and in the A or B account of the borrowing MTF. Thus, to the extent that FCD includes borrowed labor, these costs are double-counted. However, the prescription costs embedded in FCD are counted only once (at the pharmacy that fills the prescription), and must be included for a complete analysis. Using Stepdown Assignment Statistics (data assignment factors that measure the amount of services rendered by intermediate work centers to other work centers), we can separate borrowed labor costs from prescription costs in the FCD account. In FY 1994, 26 percent of FCD costs were for prescriptions, whereas in FY 1999 that percentage declined to 16 percent. Hence, we include the FCD prescription costs in our comparisons, but the remainder is excluded because it would duplicate personnel costs already recorded in the A or B accounts.

In the Revised Financing Regions (Regions 1, 2, and 5), purchased-care government costs for MTF enrollees is charged to an F account in MEPRS. However, TMA has not provided any guidance to the MTFs on which specific accounts to charge these expenses and, consequently, there is no uniformity in how they are charged. We therefore cannot determine exactly how much MTFs in the Revised Financing Regions spent to reimburse contractors for care referred to the network. We can, however, estimate this quantity from Health Care Service Records filed by the MCS contractors. The estimate for FY 1999 is \$52.2 million in Region 1 and \$121.5 million in Regions 2/5, for a total of \$173.7 million. Because this total is already included under purchased-care costs, we would be double-counting it if we included it as a direct-care cost as well. We have therefore subtracted this cost, referred to as the “Revised Financing Adjustment,” from the total in Table 4-4.

MEPRS estimates military personnel costs by applying standard DoD Comptroller pay factors to full-time equivalent labor utilization. However, these pay factors are based on the average of bonuses and special pays across an entire Military Service and are not specific to the medical occupations. Thus, they may understate the pay of military physicians, who earn more than the typical officer of the same rank. Conversely, they may overstate the pay of medical enlisted personnel, who do not receive as much sea pay or hazardous-duty pay as their non-medical counterparts. We obtained the military pay adjustment in Table 4-3 by substituting medical-specific pay factors for the generic pay factors used internally to MEPRS. The pay adjustment turns out to be almost identical in the baseline and TRICARE columns, so the net effect of this adjustment on the comparison is negligible.

Minor military construction is funded by the Operations and Maintenance (O&M) appropriation, is included in the MTF budget, and is reported in MEPRS. However, major military construction is centrally funded by the Military Construction (MilCon) appropriation and is neither included in the MTF budget nor reported in MEPRS. During the Section 733 Study, IDA developed a military-construction adjustment factor.<sup>43</sup> We updated that factor for use in the current study. The actual MilCon appropriation tends to be volatile from one year to another, as major construction projects (e.g., building a new hospital or adding a new wing to an existing hospital) are started or completed. Instead, we determined that a fund could be established, earning interest at the 30-year Treasury rate, to generate enough revenue to eventually replace every MTF in the continental United States after a 40-year life span. This fund would require annual deposits equal to 3.5 percent of reported MEPRS operating costs. Thus, we adopted a 3.5-percent factor as a smooth estimate of military construction costs. Because the MEPRS costs are similar in the baseline and TRICARE columns, the net effect of this adjustment on the comparison is small.

Finally, Contractor Administrative Cost represents services that the MTFs chose to purchase through the MCS contractor rather than directly from the civilian economy. For example, the Region 11 Lead Agent paid the MCS contractor to install and maintain a region-wide clinic appointment system. These same services may have been purchased

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<sup>43</sup> Matthew S. Goldberg et al., “Cost Analysis of the Military Medical Care System: Final Report,” Institute for Defense Analyses, Paper P-2990, September 1994.

during FY 1994, albeit directly by the MTFs because the MCS contracts were not yet in place. Thus, the corresponding costs are presumably embedded in the preceding figures in the baseline column, and the figure zero is shown for Contractor Administrative Cost in the baseline.

On balance, direct-care costs were \$199 million lower under TRICARE than in the baseline estimate.

#### **4.2.2 Purchased-Care Costs**

Because the actual cost to the government is determined by the value of the fixed-price MCS contracts, including change orders and bid-price adjustments (BPAs), the purchased care claims do not accurately reflect the true government cost. In particular, the claims submitted by network subcontractors report costs estimated from the TRICARE Standard price schedules (e.g., the CMAC and DRG rates) rather than true costs.<sup>44</sup> However, the claims are still useful for allocating costs to regions<sup>45</sup> (see Appendix L), beneficiary groups, and inpatient, outpatient, and prescription services.

All the at-risk health care prices (including profit) reported here are current as of the most recent BPA. The costs for Region 11 are current through BPA 6; the costs for Region 6 and Regions 9, 10, and 12 through BPA 5; the costs for Regions 3 and 4 through BPA 4; the costs for Regions 2, 5, and 7/8 through BPA 3; and the cost for Region 1 through BPA 8. Note that Regions 1, 2, and 5 receive quarterly BPAs instead of the annual BPAs of the older contracts. The first BPA updates the health care prices for actual base period data (the Data Collection Period—the year immediately preceding the first contract option period) and for revised government projections of the beneficiary population and MTF utilization in the option periods. Subsequent BPAs account for the impact of actual data for the previous option period, including risk sharing, and reflect the impact of updated projections for population and MTF utilization for the present and future option periods, but not actual data or risk sharing for those option periods.<sup>46</sup> The health care prices, and the administrative prices shown, also reflect the most current settled contract modifications.

The health care prices also include an adjustment for the non-claims portion of FY 1999 resource sharing costs.<sup>47</sup> These costs were included in the MCS contract in

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<sup>44</sup> Some network subcontractors are funded through capitated arrangements with the MCS contractors. Their capitated payments do not exactly correspond to the total government costs reported on the purchased care claims.

<sup>45</sup> With the exception of Regions 1, 6, and 11, the MCS contracts cover more than one region. A single contract covers Regions 2 and 5, another covers Regions 3 and 4, and another covers Regions 9, 10, and 12.

<sup>46</sup> Additional BPAs will eventually be negotiated to reflect actual workload and cost experience during Option Periods 2 through 5. In principle, subsequent BPAs may involve either increases or decreases in contract costs.

<sup>47</sup> There are two components to the purchased-care portion of resource sharing (formerly Partnership Program) costs: expenditures for physician services on a fee-for-service basis, and salaries for physicians contracted to provide services at MTFs. The former are already included in the purchased-care claims; the latter, though included in the FY 1994 CHAMPUS program totals, are not separately identifiable.

FY 1999, but we deleted them for the purpose of this evaluation because the corresponding FY 1994 Partnership Program costs were unavailable.

As determined from the most recent purchased-care claims, inpatient MCS costs decreased substantially under TRICARE but that decrease was offset by an increase in outpatient costs. In addition, prescription costs (including NMOP) increased by 130 percent under TRICARE, contributing another \$229 million to the increase in MCS contract costs. Overall, purchased health care costs under TRICARE are \$248 million higher than the baseline estimate.

There are several additional cost elements for which the government is responsible but for which the MCS contractors are not at risk. These include capital construction and direct medical education (DME),<sup>48</sup> special and emergent care, and other pass-through costs. In FY 1999, we obtained these cost elements explicitly as line items in the MCS contract. We estimated capital construction and DME as 4.5 percent of the total health care cost in FY 1994.<sup>49</sup> In FY 1999, the total nationwide amount expended on capital construction and DME was \$110 million. We set the cost of special and emergent care in FY 1994 equal to the FY 1999 figure because that element should be unaffected by TRICARE. Finally, the other pass-through costs did not apply in FY 1994 and we set them to zero in that year.

New to this year's evaluation is an entry for the global settlements that TMA has recently negotiated with each of the MCS contractors to resolve a wide range of outstanding financial issues. The global settlements include both at-risk health care and administrative costs, but the official split between them is not yet available. In FY 1999, the global settlements contributed an additional \$184 million to the increase in MCS costs.

By design, the MCS contracts include numerous administrative functions to support TRICARE in both the direct- and purchased-care settings. The Contractor Administrative Cost of \$558 million in FY 1999 includes the FI function now performed under the MCS contract. It also includes the following new functions introduced under TRICARE:

- Peer Review Organizations (a panel of physicians who monitor hospitals to assure the medical necessity and quality of services provided to beneficiaries);
- UM for referrals (a process that determines the need for specialty care and directs referrals to the appropriate provider);
- Case management (a collaborative process that evaluates and implements options and services to meet complex health needs through communication and available resources to promote quality, cost-effective outcomes);
- Health Care Information Line (a free 24-hour telephone line that beneficiaries can call to receive pre-recorded information on various health topics, or to receive medical advice and assistance from registered nurses);

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<sup>48</sup> DME includes stipends for residents, salaries for teaching personnel, and overhead for residency programs.

<sup>49</sup> OASD(HA) provided this factor.

- Handbooks and newsletters (literature that provides information about health issues and benefits); and
- TRICARE Service Centers (offices staffed by Health Care Finders and a Beneficiary Services Representative who can help beneficiaries with their health care questions).

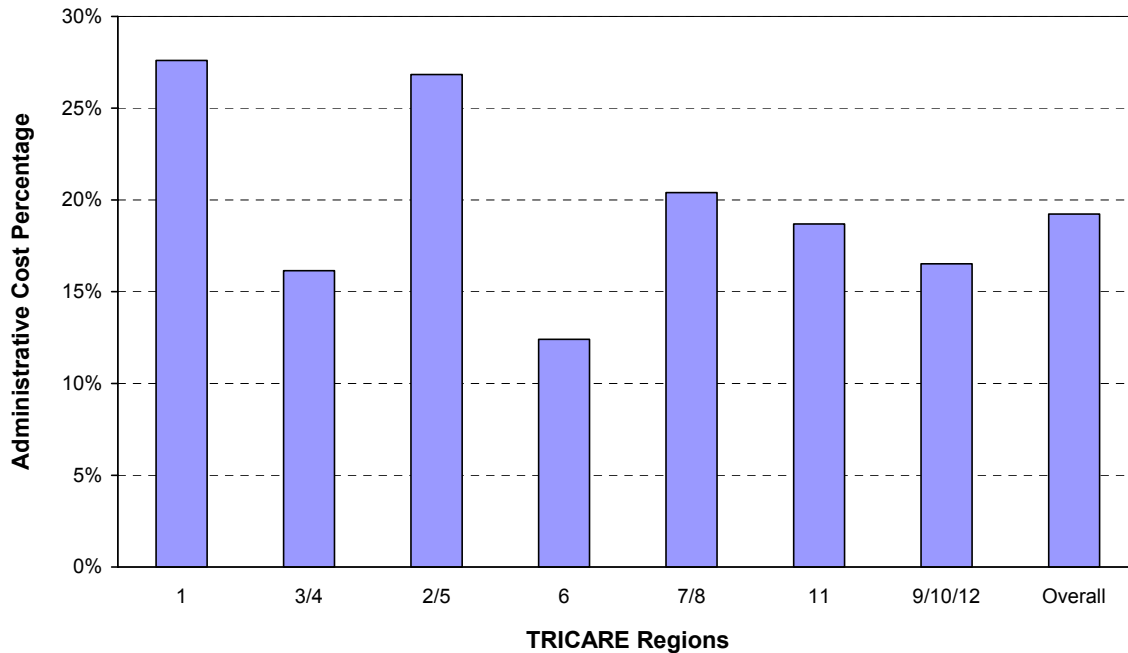
Some of the functions above are designed to reduce the utilization of beneficiaries using the MTFs, thereby freeing space to recapture some workload into the MTFs that had previously been purchased from the civilian sector. If these efforts are successful, the net effect should be an overall reduction in MHS costs because direct care is generally believed to be cheaper than purchased care. However, as Table 4-3 shows, there was no net reduction in cost, but rather a net increase of \$625 million (managed care support costs plus direct care costs). That is, the contractor administrative costs more than offset the savings in health care costs. On the other hand, the MCS administrative functions may be partly responsible for the increases in beneficiary access and satisfaction reported earlier.

In FY 1994, the only contractor administrative cost was \$88.1 million for the FI function. The government administrative cost of \$58.7 million in FY 1994 represents the cost of OCHAMPUS. The FI function was shifted to the MCS contractor when TRICARE was introduced. Thus, at a national level, the only remaining government administrative cost was \$56.8 million for TMA–Aurora,<sup>50</sup> of which we allocated \$49.0 million to the evaluated TRICARE regions based on their share of total purchased-care operating cost (the remaining share being for overseas TRICARE programs).

Including Contractor Administrative Cost in both the direct care (\$30 million) and MCS (\$558 million) categories, administrative costs make up 19 percent of the total MCS contract value. Figure 4-10 compares administrative costs in FY 1999 across the TRICARE regions.

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<sup>50</sup> When the TRICARE Support Office was consolidated into TMA in FY 1998 and became TMA–Aurora, its FYDP PE appropriation was reduced to zero and combined with the TMA PE. We then became unable to separately identify the amount appropriated for TMA–Aurora. Until 1999, annual CHAMPUS Chartbooks of Statistics provided an estimate of the cost of running TMA–Aurora. Because the TMA–Aurora cost is no longer visible after that and because the FY 1999 TMA appropriation is virtually the same as it was in FY 1998, we retained the estimate of \$56.3 million found in the 1999 CHAMPUS Chartbook (which covers data through FY 1998).



**Figure 4-10. MCS Administrative Costs as Percentage of Total Contract Value**

Note that Regions 1, 2, and 5, new to this year's evaluation, have the highest administrative cost as a percentage of total contract value. These regions also have the second largest combined contract value (\$573 million) of any regional contracts under evaluation.

#### **4.2.3 Other DHP Costs**

We estimated several other costs of running the DoD health-care system. These costs, which we determined were not already included in MEPRS or the MCS contracts, were identified from the DHP (see Appendix N for a description of the PEs used) and then allocated to the evaluated TRICARE regions based on their 88-percent share of total direct-care operating costs. For example, the MHS Information Management/Information Technology (IM/IT) and TMA PEs capture the information systems and oversight functions of OASD(HA) and TMA that support the administration of the MHS.<sup>51</sup> These costs may well have been affected by TRICARE.<sup>52</sup> Conversely, the Other Health Activities category captures readiness and other costs that are not likely affected by TRICARE. Thus, we placed the FY 1999 allocation of \$418 million to the TRICARE regions in both the baseline and TRICARE columns. The net effect of the DHP costs on the comparison is a

<sup>51</sup> In FY 1994, the MHS IM/IT PE included the cost of the Defense Medical Program Activity. The estimated cost of TMA-Aurora was backed out of the FY 1999 TMA PE because the former is already included as a separate line item in Table 4-3.

<sup>52</sup> We adjusted the FY 1994 costs affected by TRICARE for cumulative inflation before making the comparison. We applied appropriate deflators separately to the O&M and Military Pay components of each program element. In this case, we used the deflators for DoD Total Obligational Authority for O&M less fuel and pay, and for Military Pay, respectively. The source is "National Defense Budget Estimates for FY 2001," Table 5-5, p. 47.

\$185-million increase as a result of TRICARE. The increase is attributable almost exclusively to procurement of investment equipment and TMA administration costs.

#### **4.2.4 Total DoD Cost per User**

Total government cost is but one measure of the efficacy of TRICARE. It is an incomplete measure in the sense that it does not account for the number of beneficiaries who actually use the MHS. Thus, it is possible for the total cost to be higher under TRICARE but for the cost per user to be lower. To examine this possibility, we obtained estimates from TMA (Office of Resource Management) of the percentage of beneficiaries in FY 1994 and FY 1999 who were reliant on the MHS for at least some of their health care. TMA estimated those percentages from responses to the MHS User Surveys, which used to be conducted twice annually but were terminated in 1998. Because we have no other source from which to estimate the number of full-time equivalent users of the MHS, we extended the FY 1998 estimates to FY 1999.

After adjusting for the change in the beneficiary distribution between FY 1994 and FY 1999, we found the estimated percentage of MHS-reliant beneficiaries in the TRICARE regions remained virtually the same (70.3 percent in FY 1994, 70.1 percent in FY 1999). TRICARE has therefore maintained approximately the same number of MHS-reliant beneficiaries while not attracting “ghost” beneficiaries back into the system. Applying the estimated percentages to the beneficiary population in FY 1999 yields a total DoD cost (i.e., all direct and purchased health care, administrative, and overhead costs) per user of \$2,341 under the baseline and \$2,494 under TRICARE. Thus, in FY 1999, TRICARE was more costly to the government on a per-user basis than the traditional health care benefit.

#### **4.2.5 Summary**

Overall, MHS costs in the evaluated TRICARE regions were \$810 million higher than those estimated for the baseline. Considering only those costs that could reasonably have been affected by TRICARE (i.e., all direct care costs except dental, readiness, and MEPRS F accounts unaffected by TRICARE; all MCS costs except special and emergent care; and certain FYDP costs enumerated in Table 4-3), the net cost increase in FY 1999 was 7.8 percent.

The results of this year’s evaluation, showing an increase in government costs under TRICARE, contrast significantly with the results of past evaluations, which showed a decline or no change in government costs. What happened in FY 1999 that could have caused such a significant shift? First, this year’s evaluation included Regions 1, 2, and 5 for the first time. These regions account for approximately one third of total health care costs in the continental United States and Hawaii. The large increase in costs (\$314 million) exhibited for Regions 1 and 2 in particular accounts for some of the cost shift. Further, benefit enhancements in FY 1999, such as TRICARE Senior and TRICARE Prime Remote, undoubtedly contributed to some of the cost increase.

Another major contributor was a large increase in prescription costs. Between FY 1994 and FY 1999, prescription costs increased across the board: prescriptions filled at MTF pharmacies in connection with MTF visits (up \$198 million), prescriptions written by civilian physicians but filled at MTF pharmacies (up \$210 million), and



prescriptions filled at MCS network pharmacies (up \$178 million). In addition, the NMOP benefit increased costs by another \$51 million. Much of the increase in total prescription costs occurred between FY 1998 and FY 1999 (almost \$400 million). This is far more than can be accounted for by the addition of Regions 1, 2, and 5 to the evaluation. The pattern of escalating prescription costs is not unique to TRICARE, however. Prescription costs have been spiraling ever higher in the civilian sector as well, in part from the growing use of newer, expensive prescription drugs that do not have generic equivalents.

There was also a large increase in outpatient costs, both in the direct-care and purchased-care settings. Some of the increase may be attributed to an increase (about 15 percent) in the number of Prime enrollees between FY 1998 and FY 1999. Attendant declines in inpatient costs were insufficient to offset the increase in outpatient costs. Finally, the cost of global settlements that TMA has recently negotiated with each of the MCS contractors appears for the first time in this year's evaluation, contributing an additional \$184 million to government costs under TRICARE. Although the data were unavailable at the time of last year's evaluation, we now know that the value of the global settlements in FY 1998 would have been an additional \$135 million.

## 5. COST TO COVERED BENEFICIARIES

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In addition to direct care, MHS beneficiaries are eligible to obtain health services from civilian providers under either TRICARE or Medicare, or from private sources. Whereas MTFs charge little or nothing for their services, beneficiaries may incur significant out-of-pocket expenses when they use civilian providers. For beneficiaries enrolled with a military PCM, TRICARE may reduce their out-of-pocket expenses by decreasing their reliance on civilian sources of care and by inducing them to drop private insurance coverage. For those with a civilian PCM, per-visit and per-stay costs are lower under TRICARE but low copayments may induce these beneficiaries to use more health care services. If their health care utilization increases enough, their total expenses could increase. Finally, for beneficiaries who are unenrolled, either by choice or ineligibility, reduced access to MTFs may force them to use more civilian-sector care and to add private insurance coverage. We will examine the above possibilities in this chapter when we evaluate the effect of TRICARE on beneficiaries' out-of-pocket expenses.

The first section analyzes TRICARE's effect on costs to TRICARE-eligible beneficiaries. Costs potentially affected by TRICARE include deductibles and copayments for purchased care, TRICARE Prime enrollment fees, and premiums for TRICARE supplemental and other private health insurance.<sup>53</sup> The second section analyzes TRICARE's effect on the costs to Medicare-eligible beneficiaries. Costs potentially affected by TRICARE include Medicare deductibles and copayments and insurance expenses. Since MTF charges are negligible, we do not consider them in the analyses.

### 5.1 Analytical Approach

To evaluate out-of-pocket costs, we used the family as the unit of analysis. This is appropriate because insurance decisions are typically made on a family basis, and because deductibles are capped for families. To obtain samples of families for this evaluation (one for FY 1994 and one for FY 1999), we started with the samples of individual beneficiaries (drawn from DEERS) used for the evaluation of government costs. If an individual was selected for the sample, we selected all other members of his or her family to comprise the family unit. We then computed family weights, as described in Appendix J, so that the sample mix of families resembles the mix in the overall military population.

For the purpose of this evaluation, a "family" is defined as a group of individuals who are all eligible either for purchased care (TRICARE-eligible family) or Medicare (Medicare-eligible family). In actuality, a family may include some members who are TRICARE-eligible, Medicare-eligible, or ineligible for care under either system. Individuals ineligible for care under either system are simply not counted as eligible family members.

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<sup>53</sup> Under TRICARE, the incidence of outpatient surgeries has increased while the length of hospital stays has decreased. This may force some beneficiaries to obtain post-surgical nursing/health care at home. No data are available to estimate TRICARE's effect on those expenses.

Some MHS beneficiaries purchase supplemental insurance or a private insurance policy (often through a civilian employer). They pay insurance premiums but expenses for deductibles and copayments are lower. To more accurately estimate the effects of TRICARE on out-of-pocket expenses, we group families by insurance type, e.g., no additional coverage, a supplemental policy, or a private insurance policy. The effect of TRICARE is the average effect over all insurance family groups.

In addition to insurance coverage, we classified families by sponsor type:

- active-duty enlisted, pay grade E4 or below;
- active-duty enlisted, pay grade E5 or above, or active-duty warrant or commissioned officer; or
- eligible retiree family.

This distinction is important because deductibles and copayments vary by sponsor type, and supplemental insurance policy costs differ greatly for active-duty versus retiree families.

We further classified families in FY 1994 and FY 1999 by their FY 1999 enrollment status.<sup>54</sup>

- all eligible family members enrolled in Prime with a military PCM,
- all eligible family members enrolled in Prime with a civilian PCM, or
- no eligible family members enrolled in Prime.

We grouped families by enrollment status because this factor affects deductibles, copayments, enrollment fees, and supplemental insurance premium costs.<sup>55</sup>

### **5.1.1 Analysis of TRICARE-Eligible Families**

#### **5.1.1.1 Deductible and Copayment Expenses**

We estimated average deductible and copayment expenses in FY 1994 and FY 1999 for TRICARE-eligible families using the “patient-paid” amounts recorded on the Health Care Service Records (summary records of CHAMPUS/TRICARE claims). We excluded active-duty sponsors with no other eligible family members because they receive all their care at MTFs. We also excluded families with members in more than one Health Service Region (HSR), those affected by BRAC, those with missing or implausible data, those who were not eligible for TRICARE (or Medicare) the entire year, and those with private insurance who filed for reimbursements from TRICARE.<sup>56</sup>

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<sup>54</sup> We dropped families with a split enrollment status (i.e., some members with a military PCM and some with a civilian PCM, or some members enrolled and some not) from the samples.

<sup>55</sup> We based supplemental insurance premiums on the cost of a CHAMPUS Supplemental policy in FY 1994, adjusted for inflation. In FY 1999, we based premiums on a Prime Supplemental policy for families who enrolled, and on a Standard Supplemental policy for families who did not enroll.

<sup>56</sup> A relatively small percentage of those with private insurance filed for reimbursements, but they had extraordinarily large expenses that did not seem to be representative of all those with private insurance. To obtain an unbiased estimate of deductibles and copayment expenses, claim filers were excluded from the sample. However, we included those with private insurance as a separate group in the analysis of the effects of TRICARE. We assumed their deductibles and copayment expenses were equal to that calculated for nonenrollees.

The final (i.e., filtered) samples used to estimate deductible and copayment expenses include 159,829 families in FY 1994 and 276,511 families in FY 1999.<sup>57</sup> Table 5-1 reports the distribution of families in the FY 1999 family sample used to compute these expenses, i.e., the share of family weights for all observations and by group. It also reports the weighted average number of eligibles per family. Active-duty families account for about half the sample. Approximately three out of four active-duty families were enrolled in Prime with a military PCM; about the same percentage of retiree families did not enroll. The number of eligible family members ranged from 1.5 to 2.8 in FY 1999.

**Table 5-1. Distribution of Sample Weights and Eligibles per Family in FY 1999**

Sponsor Type	Enrollment Status	Share of Total Family Weights	Share of Sponsor Type Family Weights	Average Eligibles per Family
Active-Duty Family Members, E1–E4	Military PCM	7.5%	71.0%	2.0
	Civilian PCM	0.6	5.7	1.9
	Nonenrolled	2.5	23.3	1.5
Active-Duty Family Members, E5 and Above	Military PCM	27.9	73.7	2.7
	Civilian PCM	3.0	8.0	2.6
	Nonenrolled	6.9	18.2	2.3
Retirees and Family Members	Military PCM	10.5	20.3	2.8
	Civilian PCM	3.4	6.6	2.7
	Nonenrolled	37.7	73.1	2.2

#### 5.1.1.2 Insurance Expenses

Premiums for TRICARE supplemental and private health insurance are a function of family size and demographics. We used data on premiums by family type to estimate costs for each family in the 1999 family sample. We also used data from the 1999 Health Care Survey of DoD Beneficiaries to estimate (1) the percent of families who purchased supplemental and private health insurance, and (2) the effects of TRICARE on insurance demand. With the data on premium costs and insurance demand, we estimated expected insurance costs per family in FY 1999 with and without TRICARE.

#### 5.1.1.3 Calculation of TRICARE Effect

For each beneficiary group (defined by sponsor type and enrollment status), we computed expected deductible and copayment costs per family under TRICARE in FY 1999 and under CHAMPUS in FY 1994. Costs under CHAMPUS were updated for inflation between FY 1994 and FY 1999 (see section 5.2.6). The effect of TRICARE was measured as the difference between expected total expenses per family in FY 1999 under TRICARE and expected total expenses per family under CHAMPUS had it been in effect in FY 1999.

<sup>57</sup> Because beneficiaries in the FY 1994 sample are prospectively classified by enrollment status, we had to exclude those who were no longer eligible in FY 1999. This is why the FY 1994 subsample is so much smaller than the FY 1999 subsample.

## **5.1.2 Analysis of Medicare-Eligible Families**

### **5.1.2.1 Deductible and Copayment Expenses**

We used a similar methodology to estimate the effect of TRICARE on Medicare eligibles, i.e., a comparison of expected expenses under TRICARE in FY 1999 with expected expenses under CHAMPUS had it been in effect in FY 1999. However, data problems forced us to use a different methodology to estimate expected deductibles and copayments. For last year's evaluation, we obtained estimates of unreimbursed Medicare expenses for a random sample of Medicare-eligible military beneficiaries from Fu Associates, Inc., who used data supplied by HCFA for FY 1994 and FY 1998.<sup>58</sup> However, because of HCFA procedural restrictions, we were unable to obtain an update for FY 1999. Further, few Medicare-eligible beneficiaries in this year's sample match those in last year's sample, so that not even year-old data were available on an individual level. Another problem was that the last observation year is FY 1998—before TRICARE was fully implemented in Regions 1, 2, and 5. Our challenge was to use the HCFA data to estimate deductibles and copayments for individuals in the FY 1994 and FY 1999 family samples for all HSRs.

To estimate expenses of individuals in the family samples, we used average expenses for groups of Medicare eligibles. In particular, we estimated average deductibles and copayments expenses for Medicare eligibles grouped by age, sex, catchment area status, and HSR. Expenses were estimated for all HSRs in FY 1994, and for all regions in FY 1998 in which TRICARE was in effect for the entire year (i.e., Regions 3, 4, and 6 through 12). However, direct estimates of deductible and copayment costs were not available for the three regions that had not yet fully transitioned to TRICARE (i.e., Regions 1, 2, and 5).

To overcome this data problem, we used a regression model to estimate Medicare deductible and copayment expenses under TRICARE in FY 1998 for Regions 1, 2, and 5. The model was estimated using state-level data for the remaining HSRs in FY 1998. The model relates average Medicare expenses for deductibles and copayments to an individual's age, sex, catchment area status, and the total Medicare liability per enrollee in the state (to capture regional differences in costs).<sup>59</sup> We used this model to estimate average Medicare deductibles and copayments expenses by age, sex, catchment area status, and state for individuals in Regions 1, 2 and 5 in FY 1998.

For each group of eligibles, we updated actual and estimated FY 1994 and FY 1998 Medicare expenses for inflation to obtain costs in FY 1999 dollars (see section 5.2.6). We then assigned these estimates to individual Medicare-eligible beneficiaries in the FY 1994 and FY 1999 family samples based on their group membership. Finally, we aggregated the estimates for individual family members to obtain family-level estimates of expenses. As in the analysis of TRICARE-eligibles, we excluded families with members in more than one HSR, those affected by BRAC, and those with missing or

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<sup>58</sup> The HCFA data do not contain information on beneficiary out-of-pocket expenses. Fu Associates applied an algorithm they developed for HCFA to estimate unreimbursed expenses from Medicare claims records.

<sup>59</sup> The model also includes a dummy variable for Hawaii because costs were inexplicably lower there.

implausible data. We also excluded beneficiaries living in TRICARE Senior sites, those with employer-sponsored insurance, and those covered by Medicaid. The samples of Medicare-eligible families used to estimate deductible and copayment expenses included 26,816 families in FY 1994 and 30,216 families in FY 1999.

#### **5.1.2.2 Insurance Expenses**

For Medicare-eligible families, premiums for private and supplementary insurance (Medigap) are a function of family size and location. We used data on premiums by family size and state to estimate insurance costs for families in the FY 1999 family sample. Data on the percentage of families who purchased Medigap and private insurance coverage as well as the effects of TRICARE on insurance coverage were obtained from the 1999 Health Care Survey of DoD beneficiaries. We then combined the data on insurance premiums and demand for insurance to estimate expected insurance costs per family with and without TRICARE.

Compared to the 1999 Health Care Survey, the 1998 Survey had more information on the private insurance coverage of Medicare eligibles, e.g., the percentage who choose a Medicare HMO versus an employer-sponsored plan for active or retired employees. Medicare HMO premiums are relatively inexpensive. To account for this difference, we used 1998 Survey data on the mix of private insurance coverage for Medicare eligibles to estimate the cost of private insurance in FY 1999.

#### **5.1.2.3 Calculation of TRICARE Effect**

To estimate the effects of TRICARE on Medicare-eligible families, we compared expected costs under TRICARE in FY 1999 with expected costs had CHAMPUS been in effect in FY 1999. We estimated expected Medicare deductibles and copayments under TRICARE for families in the FY 1998 sample, then inflated the estimates to obtain costs in FY 1999 dollars. The baseline estimate is expected deductibles and copayments for families in FY 1994, also updated for inflation between FY 1994 and FY 1999. For all families, we estimated expected insurance expenses with and without TRICARE in FY 1999. The effect of TRICARE on Medicare eligibles in FY 1999 is the difference between expected total expenses estimated in FY 1999 and expected total expenses of families had CHAMPUS still been in effect in FY 1999.

## **5.2 Cost to TRICARE-Eligible Beneficiaries**

### **5.2.1 Deductibles, Copayments, and Fees Under TRICARE**

Copayments are minimal for Prime enrollees<sup>60</sup> but can be substantial for nonenrollees (especially retirees). For example, a TRICARE Prime enrollee paid only \$11 per day for a hospital stay in FY 1999. Under TRICARE Standard, a retiree paid up to \$360 per day.

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<sup>60</sup> Non-active-duty members with a military PCM incur copayments under TRICARE when they are referred to the civilian network for care. There are also substantial point-of-service (POS) copayments if an enrollee uses an out-of-network provider without prior authorization. Because of these costs, the POS option is rarely used.

Under Prime in FY 1999, retirees paid an annual enrollment fee of \$230 per individual or \$430 per family. Active-duty family members were not subject to an enrollment fee.

### 5.2.2 TRICARE Supplemental Insurance

Because beneficiary out-of-pocket expenses are a function of sponsor type and enrollment status, these factors also affect the cost of a supplemental policy. Table 5-2 gives the average cost of TRICARE supplemental policies in FY 1999 for active-duty and retiree families.

**Table 5-2. Average Cost of TRICARE Supplemental Policies in FY 1999**

Beneficiary Group	Family Member	Standard Supplemental <sup>a</sup>	Prime Supplemental <sup>b</sup>
Active-Duty Families	Sponsor	n/a	n/a
	Spouse	\$115	\$83
	Each Child	94	51
Retiree and Spouse Under 40	Sponsor	211	75
	Spouse	247	101
	Each Child	189	60
Retiree and Spouse 40–44	Sponsor	223	75
	Spouse	263	101
	Each Child	189	60
Retiree and Spouse 45–49	Sponsor	261	88
	Spouse	305	116
	Each Child	189	60
Retiree and Spouse 50–54	Sponsor	341	115
	Spouse	386	136
	Each Child	189	60
Retiree and Spouse 55–59	Sponsor	420	124
	Spouse	463	148
	Each Child	189	60
Retiree and Spouse 60–64	Sponsor	500	154
	Spouse	535	160
	Each Child	189	60

<sup>a</sup> Average supplemental premium (18 companies) for those with no *policy* deductible for inpatient and outpatient copayments incurred under the TRICARE plans. Source is the *Army Times*, Special Section, “CHAMPUS/TRICARE User’s Guide,” March 9, 1999. Simple averages reported because data on covered lives per company are unavailable to estimate weighted averages.

<sup>b</sup> Data are for Prime supplemental policies offered by the Military Benefits Association. Premiums for other companies were not given in the *Army Times*.

### 5.2.3 Employer-Sponsored Health Insurance

Another way of covering the cost of TRICARE *copayments* is to obtain other health insurance (OHI) through a civilian employer. In this case, TRICARE becomes the “second payer” and virtually all costs above the TRICARE deductible are paid by either the private insurance policy or TRICARE. However, most families who purchase such a

policy “opt out” of the TRICARE system entirely (i.e., they do not file any purchased-care claims).<sup>61</sup>

In the civilian economy, approximately three out of four full-time employees participate in employer-sponsored health plans.<sup>62</sup> Most employers pay some of the policy cost.<sup>63</sup> Unlike TRICARE supplemental insurance, the contribution of the employee is not based on his/her age; all are charged the same amount. The cost depends on whether the policy is for an individual or a family.

According to an extensive survey of employers in 1999 by the Kaiser Family Foundation, an employee’s expected contribution for health insurance in 1999 was \$420 for an individual policy and \$1,740 for family coverage.<sup>64</sup> These estimates are *expected* costs, and reflect the fact that some employees pay nothing because the employer pays the entire cost of the policy.

The Kaiser survey also found that the average deductibles in 1999 were \$245 for an individual and \$605 for a family.<sup>65</sup> These deductibles were higher than those for nonenrolled retirees under TRICARE Standard (\$150 for an individual and \$300 for a family). However, the typical coinsurance rate was 20 percent.<sup>66</sup> This is (probably) lower than the hospital copayment rate for retirees under TRICARE Standard (i.e., the lesser of \$360 per day or 25 percent of hospital charges).

#### **5.2.4 Effect of TRICARE on Insurance Coverage Decisions**

Income, civilian employment, and health care services utilization are likely to affect the demand for supplemental and private insurance. Income is the lowest for junior-enlisted families, and perhaps greatest for retiree families under 65 (i.e., those eligible for TRICARE). Retirees are more likely to have a family member working for a civilian employer, and so have the opportunity to purchase employer-sponsored insurance. Retirees are older and more likely to have a greater demand for health services than active-duty family members; junior-enlisted families are the youngest and may have the lowest utilization. For these reasons, we expect insurance coverage to vary with sponsor type and for retirees to purchase the most.

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<sup>61</sup> Based on responses to the 1999 Survey of MHS beneficiaries and actual TRICARE claims data, only 31 percent of TRICARE-eligible families with private health insurance in FY 1999 bothered to file a claim for reimbursement from TRICARE.

<sup>62</sup> Bureau of Labor Statistics, “Employee Benefits in Medium and Large Private Establishments, 1997,” Press Release USDL-99-02, January 7, 1999, p. 2. Some part-time employees also have coverage, but their participation rates are much lower.

<sup>63</sup> *Ibid.*, p. 10.

<sup>64</sup> Kaiser Family Foundation, *Employer Health Benefits, 1999 Annual Survey*, p. 63.

<sup>65</sup> *Ibid.*, p. 61.

<sup>66</sup> *Ibid.*



TRICARE Prime and private health insurance are alternative plans.<sup>67</sup> Those who enroll in Prime are likely to drop their private insurance coverage. Nonenrollees may fear being “squeezed out” of the MTF, and are more likely to buy a TRICARE supplemental or private insurance policy. Therefore, we expect insurance demand to depend on enrollment status.

It is unclear how enrollment affects the demand for supplemental insurance. Some who switch from OHI to Prime might add a supplemental policy for maximum coverage. Others who switch from Standard might drop their supplemental insurance because they feel their coverage is extensive enough under Prime. The net effects on out-of-pocket costs are probably small.

The 1999 Health Care Survey asked respondents about their health insurance coverage and whether TRICARE had any effect on their insurance coverage decision. Separate questions were asked about supplemental and other private health insurance. Table 5-3 summarizes the results by sponsor type and enrollment status.<sup>68</sup>

**Table 5-3. Insurance Coverage in FY 1999 and the Effect of TRICARE on Coverage**

Sponsor Type	Enrollment Status	FY 1999 TRICARE		Net Change Due to TRICARE	
		Supplemental Insurance	Other Health Insurance	Supplemental Insurance	Other Health Insurance
Active-Duty Family Members, E1–E4	Military PCM	3.1%	3.2%	1.1%	–0.8%
	Civilian PCM	5.2	7.1	1.6	–2.9
	Nonenrolled	10.2	22.1	1.2	1.4
Active-Duty Family Members, E5 and Above	Military PCM	3.5	6.5	3.1	1.3
	Civilian PCM	2.9	9.1	4.8	4.8
	Nonenrolled	12.9	27.6	18.1	13.7
Retirees and Family Members	Military PCM	5.0	17.4	3.0	–4.7
	Civilian PCM	4.5	11.4	6.0	–3.9
	Nonenrolled	18.4	64.4	15.7	17.7

As expected, retiree families were the most likely and junior-enlisted families the least likely to purchase insurance. For example, 3.2 percent of junior-enlisted families with a military PCM had other health insurance whereas 17.4 percent of retiree families had purchased a policy. Whereas 22.1 percent of nonenrolled junior-enlisted families had private insurance, the percentage was almost three times greater for retirees—64.4 percent. In general, retirees were most likely to purchase a supplemental policy.

Nonenrollees were more likely to purchase either OHI or a TRICARE supplemental policy. For example, 27.6 percent of senior-enlisted families who did not enroll in Prime had private insurance coverage; only 6.5 percent with a military PCM had OHI. For

<sup>67</sup> Although TRICARE and private health insurance can be complementary plans, most beneficiaries use one or the other.

<sup>68</sup> We estimated the FY 1994 baseline by subtracting the net effect of TRICARE (the percentage who added insurance minus the percentage who dropped it) from the percentage with coverage in FY 1999.

senior-enlisted families, 12.9 percent who did not enroll had a supplemental policy but only 3.5 percent with a military PCM had one.

As expected, enrollees reduced their private health insurance coverage (except for small increases by senior-enlisted), and nonenrollees increased their coverage as a result of TRICARE. Nonenrollees increased their supplemental insurance coverage by 1.2 to 18.1 percent. Enrollees also increased their supplemental coverage by less than 6 percent.

### **5.2.5 Effect of TRICARE on Family Utilization Rates**

The effect of TRICARE on deductibles and copayments is a function of health care services utilization. Table 5-4 compares average purchased-care utilization rates per family in FY 1994 with those in FY 1999. For all beneficiary groups, outpatient visits increased, especially for those with a civilian PCM. The number of prescriptions (drugs) increased for all beneficiary groups. Again, those with a civilian PCM had the greatest increase. Hospital bed-days declined for all beneficiary groups.

**Table 5-4. Average Family Purchased-Care Utilization Rates in FY 1994 and FY 1999**

Beneficiary Group	Enrollment Status	FY 1994			FY 1999		
		Visits	Drugs	Bed-Days	Visits	Drugs	Bed-Days
Active-Duty	Military PCM	3.17	0.38	0.92	3.76	0.64	0.52
Family Members, E1-E4	Civilian PCM	4.21	1.49	0.53	10.30	4.77	0.16
	Nonenrolled	3.43	0.56	0.58	3.52	1.39	0.12
Active-Duty	Military PCM	4.42	0.72	0.54	4.59	1.01	0.33
Family Members, E5 and Above	Civilian PCM	6.86	2.89	0.27	13.05	9.32	0.07
	Nonenrolled	5.93	1.73	0.34	8.67	5.40	0.07
Retirees and Family Members	Military PCM	3.46	0.62	0.61	5.16	1.50	0.45
	Civilian PCM	7.38	6.24	0.16	14.45	15.24	0.11
	Nonenrolled	4.12	2.81	0.25	4.53	4.78	0.06

### **5.2.6 Computation of Expected Deductibles and Copayments in FY 1999**

The purchased-care claims for FY 1994 and FY 1999 identify how much the government paid for each beneficiary. They also identify allowable charges, and the amount paid by other health insurance. These data were used to estimate deductibles and copayments owed by beneficiaries (i.e., the beneficiary's obligation for the *balance* of the allowable charge net of OHI reimbursements).

Legally, other health insurance must pay before TRICARE reimburses any unpaid residual. If the beneficiary has a TRICARE supplemental policy, TRICARE pays first, and the supplemental policy reimburses the policyholder directly. However, the purchased-care claims records do not include the amounts paid by TRICARE supplemental policies.

In FY 1999, only about 31 percent of families with OHI bothered to file for reimbursements from TRICARE as a second payer. Those that filed had relatively large claims—which is probably why they made the effort to file. To estimate deductible and copayment expenses for families without OHI, we dropped families with OHI

reimbursements from the sample. We estimated the average deductibles and copayments paid by a typical family, with and without a TRICARE supplemental policy, by summing deductibles and copayments for purchased-care claims (inpatient, outpatient, and prescription) for all eligible family members.

We assumed a TRICARE supplemental insurance policy covers all expenses above the plan deductible, and that the maximum deductible and copayment expenses for a family with a TRICARE supplemental policy equals the TRICARE deductible for an individual (\$150) times the number of eligibles in the family.

Unfortunately, data on out-of-pocket expenses for families with OHI were not available. We assumed the typical OHI family has average deductible and copayment expenses equal to that observed for TRICARE families who do not enroll in Prime.<sup>69</sup>

The above approach understates deductibles and copayments of TRICARE eligibles for two reasons. First, some families who use purchased care do not accumulate enough medical bills to meet their annual deductible and do not file a claim. Although purchased-care providers have been required to file claims directly since FY 1993, the requirement was never enforced and was abandoned a few years ago.

Second, families with OHI who do not file have zero values for purchased care claims. The result is an understatement of the average deductibles and copayments for users of the system. To correct for this bias, we adjusted the estimate of average deductible and copayment expenses for the percentage of TRICARE eligibles with OHI who do not file for reimbursements.

We adjusted the values of deductibles and copayments in FY 1994 for inflation between 1994 and 1999, using separate price indexes for inpatient, outpatient, and prescription expenses. For inpatient expenses, we used the HCFA Hospital Input Price Index (14.0 percent increase between 1994 and 1999); for outpatient expenses, the Medicare Economic Index (10.9 percent increase); and for drugs, the Consumer Price Index for Prescription Drugs (19.6 percent increase).

### ***5.2.7 Effect of TRICARE on Out-of-Pocket Expenses of TRICARE-Eligible Families***

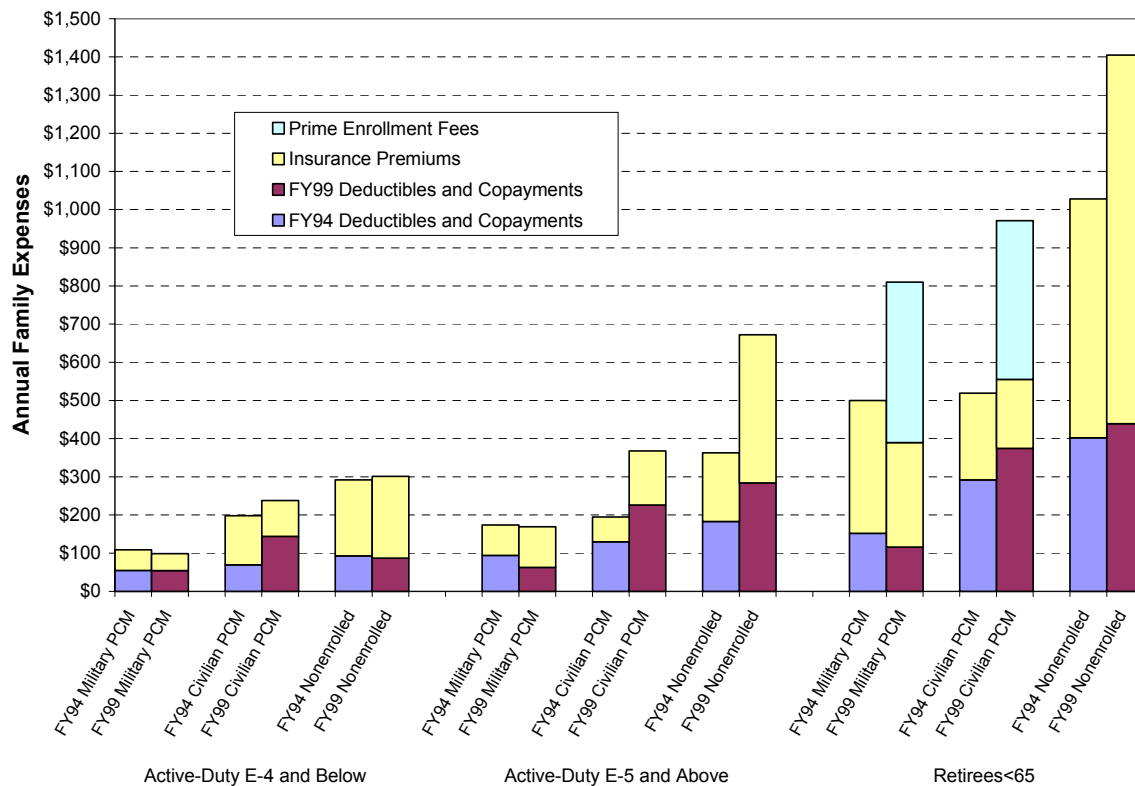
Table 5-5 displays expected out-of-pocket expenses per family under the baseline (i.e. as if CHAMPUS were in effect in FY 1999) and under TRICARE in FY 1999, by sponsor type and enrollment status. The effects of TRICARE on beneficiaries' out-of-pocket expenses are depicted graphically in Figure 5-1.

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<sup>69</sup> If all families with OHI filed for TRICARE reimbursements, a reasonable upper-bound estimate would be the \$150 TRICARE deductible times the number of eligibles in the family. But since most families with OHI do not file, we used the average expense per family under TRICARE as the estimate.

**Table 5-5. Effect of TRICARE on Expected Out-of-Pocket Expenses per Family**

Beneficiary Group	Enrollment Status	Deductibles and Copayments		Enrollment Fees		Other Insurance		Total	
		FY94	FY99	FY94	FY99	FY94	FY99	FY94	FY99
Active-Duty Family Members, E1–E4	Military PCM	\$55	\$54	\$0	\$0	\$54	\$45	\$109	\$98
	Civilian PCM	69	144	0	0	129	94	198	238
	Nonenrolled	93	87	0	0	199	214	292	301
Active-Duty Family Members, E5 and Above	Military PCM	94	63	0	0	80	106	175	169
	Civilian PCM	130	226	0	0	65	142	195	368
	Nonenrolled	183	284	0	0	180	388	364	671
Retirees and Family Members	Military PCM	152	116	0	420	348	274	500	811
	Civilian PCM	292	375	0	416	227	180	519	971
	Nonenrolled	402	439	0	0	626	966	1,029	1,405



**Figure 5-1. Total Family Out-of-Pocket Expenses**

For each sponsor type, actual expenses in FY 1999 were lowest for those with a military PCM and highest for those who did not enroll. For the predominant sponsor type subgroups (recall Table 5-1), expenses were: \$98 for junior-enlisted families with a military PCM, \$169 for senior-enlisted families with a military PCM, and \$1,405 for retiree families who did not enroll.

Because of higher utilization rates in FY 1999, families with a civilian PCM had greater expenses than those with a military PCM. For example, for senior-enlisted families, expenses were \$368 for those with a civilian PCM, but only \$169 for those with a military PCM.

Families enrolled in Prime in FY 1999 had lower insurance expenses compared to nonenrollees. Retirees who did not enroll in TRICARE Prime spent the most for insurance in FY 1999—\$966.

Unlike active-duty families, retiree families pay enrollment fees. For those with a military PCM the average fee was \$420 per family in FY 1999. This accounts for 52 percent of their out-of-pocket expenses. For retirees with a civilian PCM, the average fee was \$416 in FY 1999—43 percent of expenses.

Table 5-6 reports the change in expense by cost category in FY 1999 versus the FY 1994 baseline. The vast majority of active-duty families were enrolled in Prime with a military PCM. For these families, costs actually declined slightly. For other senior-enlisted families, expenses increased by \$173 to \$308 because of greater utilization and higher insurance expenses. For other junior-enlisted families, costs increased slightly.

**Table 5-6. Changes in Family Out-of-Pocket Expenses Due to TRICARE**

Beneficiary Group	Enrollment Status (Percent in Group)	Deductibles and Copays	Enrollment Fees	Other Insurance	Total
Active-Duty Family Members, E1–E4	Military PCM (63%)	–\$1	0	–\$9	–\$10
	Civilian PCM (7%)	75	0	–35	40
	Nonenrolled (30%)	–6	0	–14	9
Active-Duty Family Members, E5 and Above	Military PCM (67%)	–31	0	25	–6
	Civilian PCM (10%)	96	0	77	173
	Nonenrolled (23%)	101	0	207	308
Retirees and Family Members	Military PCM (16%)	–36	420	–73	311
	Civilian PCM (8%)	83	416	–48	451
	Nonenrolled (76%)	37	0	339	376

For the most prevalent retiree group, those not enrolled in Prime, expenses increased by \$376. Most of the increase (\$339) was due to the increase in insurance expenses. Retirees who enrolled with a military PCM had their out-of-pocket costs increase by \$311. This was because of higher enrollment fees that more than offset the decline in the other categories of expenses. For retiree families enrolled with a civilian PCM, costs increased the most—\$451. Most of the increase was due to the enrollment fee of \$416; however, these families also had higher deductibles and copayments (because of higher utilization) and only a slight decline in insurance expenses.

## **5.3 Cost to Medicare-Eligible Beneficiaries**

### **5.3.1 Deductibles and Copayments Under Medicare**

Medicare provides basic health care benefits for hospital services (Part A) and medical services (Part B). Part A covers inpatient hospital services, short-term care in skilled nursing facilities, post-institutional home health care, and hospice care. Part B covers physician services, outpatient hospital services, home health care not covered by Part A, and a variety of other services such as an ambulance, diagnostic tests, and durable medical equipment. Individuals eligible for Social Security are eligible for Medicare when they reach age 65. For most people age 65 or older, Part A is free, but there is a premium for Part B. In 1999, the Part B premium was \$45.50 per month, or \$546 per year.

Most Medicare benefits require cost sharing. For Part A services in 1999, there was a \$776 deductible per inpatient episode, and substantial coinsurance expenses after 60 days in the hospital. For Part B services, there was a \$100 deductible and 20 percent coinsurance for most allowable charges. Medicare benefits are limited; there is no drug coverage, no catastrophic cap, and the beneficiary is liable for 100 percent of non-allowable charges. Because of cost-sharing, Medicare enrollees incur substantial out-of-pocket expenses for covered services. According to HCFA, in CY 1998 the average Medicare cost-sharing liability per Medicare enrollee in the United States was \$853.<sup>70</sup>

### **5.3.2 Medicare Supplemental Insurance**

To cover out-of-pocket expenses, many Medicare enrollees purchase Medicare supplemental insurance (i.e., a “Medigap” policy). Ten standard plans are now available—Plans A through J.<sup>71</sup> All include basic benefits that cover Parts A and B coinsurance, 365 days of hospital care after Medicare benefits end, and the first three pints of blood each year. Plan A provides only these basic benefits. Plans B through J cover the Part A deductible. Plans C, F, and J also cover the Part B deductible and other expenses. Plans H through J provide limited coverage for drugs. Table 5-7 summarizes the benefits under each plan.

Premiums vary even for standard Medigap policies. One reason for the variation is differences in underwriting guidelines. Some companies base the premium on the current age of the policyholder, others on the age of the policyholder when the policy was first issued, with an adjustment for inflation. For others, the premium is a function of location and not the age of the policyholder. Given underwriting guidelines, premiums are a function of regional differences in medical costs.

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<sup>70</sup> Anna Long, Health Care Financing Administration, Office of the Actuary, by fax, July 2, 2001. Data were not available from HCFA on the cost-sharing liability in 1999. Total Medicare costs increased by about 2 percent in 1999. If the cost-sharing liability also increased by 2 percent, it would be about \$870 per enrollee in the United States in 1999.

<sup>71</sup> Prior to January 1, 1992, non-standard policies were sold and many of these are still in force. However, if TRICARE causes a family to purchase a Medicare supplemental policy, it will have to be a standard policy (i.e., Plans A-J), because only these are available to new policyholders.

**Table 5-7. Benefits for Standard Medicare Supplemental Insurance Policies**

Medigap Benefits	Policy Type									
	A	B	C	D	E	F	G	H <sup>a</sup>	I <sup>a</sup>	J <sup>b</sup>
Basic Benefits	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Part A: Inpatient Hospital Deductible		✓	✓	✓	✓	✓	✓	✓	✓	✓
Part A: Skilled Nursing Facility Coinsurance			✓	✓	✓	✓	✓	✓	✓	✓
Part B: Deductible			✓			✓				✓
Foreign Travel Emergency			✓	✓	✓	✓	✓	✓	✓	✓
At-Home Recovery				✓			✓		✓	✓
Part B: Excess Charges						100%	80%		100%	100%
Preventive Care					✓					✓
Prescription Drugs								✓ Basic Coverage	✓ Basic Coverage	✓ Extended Coverage

Source: “Medicare Supplemental Insurance (Medigap) Policies and Protections,” HCFA, July 1999, page 3.

<sup>a</sup> After a \$250 per year deductible, Plans H and I pay 50 percent of prescription drug costs up to a maximum of \$1,250 per year.

<sup>b</sup> After a \$250 per year deductible, Plan J pays 50 percent of prescription drug costs up to a maximum of \$3,000 per year.

The National Association of Insurance Commissioners (NAIC) collects data on Medicare supplemental insurance, on premiums earned, and on the number of covered lives by company and policy type. The U.S. General Accounting Office (GAO) recently used NAIC’s data to estimate the distribution of policies and annual premiums nationally in 1999 (Table 5-8). The average annual premium for all policies was \$1,322.

The premium varies by policy type. For Standard Medigap policies (Plans A through J), the cost ranges from a low of \$877 for a “bare bones” Plan A, to \$1,704 for a “deluxe” Plan I. Using the percentage of covered lives as weights, we estimated the cost in 1999 for a typical standard Medigap policy as \$1,184. The typical non-standard policy cost more—\$1,573 in 1999. Three states—Massachusetts, Minnesota, and Wisconsin—are exempt from plan standards. The average cost of a Medigap policy in these three states in 1999 was \$1,405.

**Table 5-8. Distribution of Medicare Supplemental Insurance Policies and Average Premiums in 1999**

Plan Type	Covered Lives (Percentage)	Average Annual Premium Earned per Covered Life
A	2.7	\$877
B	8.0	1,093
C	15.9	1,151
D	3.8	1,032
E	1.5	1,067
F	23.4	1,217
G	1.5	980
H	1.5	1,379
I	1.5	1,704
J	2.7	1,669
Pre-standard (policies sold before July 31, 1992)	32.9	1,573
Plans in states exempt from plan standard <sup>a</sup>	4.5	1,405
Total <sup>b</sup>	100.0	\$1,322

Source: GAO Testimony, "Medicare: Cost-Sharing Policies Problematic for Beneficiaries and Program," Statement of William J. Scanlon, Director, Health Care Issues, GAO-01-713T, May 9, 2001, Table 3, p. 10.

<sup>a</sup> Massachusetts, Minnesota, and Wisconsin have alternative plans in effect and waivers that exempt them from selling the national standard Medigap plans.

<sup>b</sup> Data reported by insurers to NAIC do not include plan type for policies representing less than 9 percent of Medigap policy covered lives, with an average paid premium of \$1,016. These plans are not included in the plan distribution or average premiums reported in the table.

The distribution of standard Medigap policies in 1999 is given in Table 5-9. The most popular policy was Plan F (37.4 percent) followed by Plan C (25.4 percent). These two accounted for 62.8 percent of the standard Medigap policies in force. Only 9.1 percent of policyholders purchased a plan that covered drugs (H, I, or J). Few purchased the most basic Plan A (4.3 percent), which does not cover the Part A deductible. Consequently, 95.7 percent of those with a standard Medigap policy did not have to pay the Part A deductible. Because they purchased Plans C, F, or J, 67.1 percent did not have to pay the Part B deductible.



**Table 5-9. Distribution of Standard Medigap Policies in 1999**

Plan	Percent of Policies
A	4.3
B	12.8
C	25.4
D	6.1
E	2.4
F	37.4
G	2.4
H	2.4
I	2.4
J	4.3

Source: GAO Testimony, "Medicare: Cost-Sharing Policies Problematic for Beneficiaries and Program," Statement of William J. Scanlon, Director, Health Care Issues, GAO-01-713T, May 9, 2001, Table 3, p. 10.

It is desirable to have data below the national level because premiums vary regionally. We obtained state-level data on premiums for standard Medigap policies by plan in 1999 from Weiss Ratings Inc.<sup>72</sup> The policyholder is assumed to be a 65-year-old male. Using data from Weiss Ratings (premiums) and NAIC (weights), we estimated the weighted average cost of a standard Medigap policy by state in 1999 (Table 5-10). Premiums range from a low of \$1,041 in North Dakota to a high of \$1,770 in Florida.

The demand for Medigap insurance is a function of economic factors (particularly income or wealth), socio-demographic factors and health status. Perhaps the most important determinant is economic—families with below-average income buy less supplemental insurance.<sup>73</sup>

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<sup>72</sup> Data from Weiss Ratings Inc. website, Medigap News Release, March 26, 2001, "Prescription Drugs Costs Boost Medigap Premiums Dramatically." Data were available for all states except New Hampshire. The average for all states was used for New Hampshire.

<sup>73</sup> We are unaware of any studies analyzing the demand for Medigap insurance by military beneficiaries. For evidence on the relationship between income/wealth and the demand for Medigap insurance for the entire Medicare population, see Susan L. Ettner, "Adverse Selection and the Purchase of Medigap Insurance by the Elderly," *Journal of Health Economics*, 16 (1997), pp. 543–562; Lee A. Lillard, Jeannette Rogowski, and Raynard Kington, "Long-Term Determinants of Supplemental Health Insurance Coverage in the Medicare Population," RAND, March 1996, DRU-1378-NIA; and Jessica A. Vistnes and Jessica S. Banthin, "The Demand for Medicare Supplemental Insurance Benefits: The Role of Attitudes Toward Medical Care and Risk," *Inquiry* 34 (Winter 1997/98), pp. 311–324. Other studies have shown that health care utilization is a function of insurance coverage; those with insurance demand more services. See, for example, S. Christensen and J. Shenogle, "Effects of Supplemental Coverage on Use of Services by Medicare Enrollees," *Health Care Financing Review*, Fall 1997.

**Table 5-10. Annual Premiums in 1999 for Medigap Policies and Medicare HMOs, by State**

State	Medigap <sup>a</sup>	Medicare HMO <sup>b</sup>	State	Medigap	Medicare HMO
AK	\$1,178	n/a	MT	\$1,049	n/a
AL	1,332	n/a	NC	1,047	339
AR	1,352	243	ND	1,041	n/a
AZ	1,264	206	NE	1,105	n/a
CA	1,445	135	NH	1,226	130
CO	1,132	230	NJ	1,057	267
CT	1,360	342	NM	1,100	186
DC	1,355	n/a	NV	1,331	213
DE	1,154	360	NY	1,539	238
FL	1,770	83	OH	1,209	167
GA	1,293	62	OK	1,181	162
HI	1,150	823	OR	1,130	622
IA	1,051	n/a	PA	1,398	262
ID	1,301	420	RI	1,201	115
IL	1,214	147	SC	1,164	540
IN	1,044	438	SD	1,122	n/a
KS	1,137	345	TN	1,117	199
KY	1,166	256	TX	1,262	63
LA	1,304	16	UT	1,042	n/a
MA	1,405	33	VA	1,103	295
MD	1,157	172	VT	1,184	n/a
ME	1,345	649	WA	1,249	341
MI	1,283	243	WI	1,405	181
MN	1,405	1443	WV	1,151	579
MO	1,175	203	WY	1,166	n/a
MS	1,157	n/a	ALL	n/a	137

<sup>a</sup> Data from Weiss Ratings Inc. (premiums by plan) and NAIC (percent of covered lives per plan) used to estimate weighted average Medigap policy costs by state in 1999.

<sup>b</sup> Data from Philip Doerr, Health Care Financing Administration, Medicare Managed Care Group, 25 May 2001.

### 5.3.3 Other Private Health Insurance for Medicare Eligibles

#### 5.3.3.1 Medicare Risk HMOs<sup>74</sup>

A “Medicare risk HMO” contracts with HCFA to provide Medicare benefits to beneficiaries enrolled in the HMO. Medicare prepays a monthly amount (capitation fee) to the HMO for the enrollee, regardless of his/her actual health care utilization. In return, the HMO provides the enrollee with all medically necessary Medicare-covered treatment. The provider assumes the risk of expenses above the capitation fee, hence it is a “Medicare risk HMO”. The program began in 1983. Enrollments steadily increased

<sup>74</sup> Information in this section is from the HCFA websites <http://www.hcfa.gov/stats/monthly.htm> and <http://www.hcfa.gov/stats/geos.htm> unless otherwise noted.

during the 1990s, reaching 17 percent of all beneficiaries in the United States in December 1999.<sup>75</sup>

Enrollment in a Medicare risk HMO sharply reduces out-of-pocket expenses because the HMO covers most of the Medicare deductibles and copayments. The plan usually has its own small copayments for visits (\$5 to \$10 per visit), but out-of-pocket expenses are relatively low. The typical plan goes beyond Medicare and offers limited drug coverage and preventive care.

Most Medicare risk HMOs do not charge an enrollment premium to cover the basic benefits offered under Medicare Parts A and B. The individual must enroll in Medicare Part B and pay that premium to Medicare.<sup>76</sup> In December 1998, 70 percent of plans required no premium for enrollment, 17 percent charged less than \$40 per month, and 13 percent charged more.<sup>77</sup>

Although over 300 Medicare risk HMOs existed in December 1998, not all beneficiaries have access to one. In June 1996, only 63 percent of all Medicare beneficiaries lived in an area served by at least one risk plan. About half had access to two or more plans. Medicare risk HMOs are concentrated in urban areas and in three western states—Arizona, California, and Oregon. Enrollment rates are higher in those states. In December 1996, 34 percent of Medicare beneficiaries in Arizona were enrolled in Medicare risk HMOs; in California 35 percent were enrolled; in Oregon, 27 percent. The only eastern states where the Medicare risk HMO enrollment rate topped 10 percent were Florida (22 percent), Massachusetts (14 percent), Pennsylvania (16 percent), and Rhode Island (12 percent).

Table 5-10 also presents data from HCFA on Medicare risk HMO enrollment premiums by state in 1999. Nationally, the average annual premium for an individual was only \$137.<sup>78</sup> The premium varies from a low of \$16 in Louisiana to a high of \$1,443 in Minnesota. Data were not available for twelve states because they did not have any Medicare risk HMOs.

#### **5.3.3.2 Employer-Sponsored Insurance for Retirees and Active Workers**

According to a Hewitt and Associates survey for the Kaiser Family Foundation, most employers with a thousand or more employees offered retiree health benefits in 1996.<sup>79</sup> Retirees must meet minimum requirements for eligibility (e.g., age 55 and 10-15 years of service). According to Hewitt, in 1996 about one-third of Medicare eligibles had health coverage from a current or former employer. We estimated that in 1996, about 20 percent

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<sup>75</sup> HCFA, Office of National Health Statistics.

<sup>76</sup> Nearly all Medicare eligibles do so anyway.

<sup>77</sup> Data from Phillip Doer, HCFA, MMCG, by fax, May 25, 2001.

<sup>78</sup> The average is so low because 70 percent of the HMOs did not charge an enrollment fee.

<sup>79</sup> Hewitt and Associates, "Retiree Health Trends and Implications of Possible Medicare Reforms," September 1997. Hewitt conducts a large survey of employers annually. It has been tracking salaried employee benefits since 1972. For a similar finding in 1999, see Kaiser Family Foundation, "Employer Health Benefits, 1999 Annual Survey," p. 118.

of those with employer-sponsored insurance (i.e., 6 to 7 percent of Medicare beneficiaries) were active employees.<sup>80</sup>

Health benefits are similar for active and retired employees.<sup>81</sup> Therefore, the average deductible for retirees is also about \$245 and the copayment rate is 20 percent. Unlike most Medigap policies, the plans include drug coverage, a major benefit for Medicare eligibles.<sup>82</sup>

Premiums are higher for retirees than for active workers. Medicare is the primary insurer for retirees, so the cost of a health policy is lower for them than for active employees. However, retirees pay a greater share of the policy's cost. Based on 1997 and 1999 Mercer/Foster Higgins surveys of employers, we calculated that the expected annual contribution for a retiree in 1999 was \$925 for an individual policy and \$1,694 for family coverage.<sup>83</sup> As noted earlier, for active employees the expected cost is \$420 for an individual policy and \$1,720 for family coverage. Assuming that 20 percent of Medicare eligibles with employer-sponsored insurance are still working, the expected cost is \$824 for an individual policy and \$1,703 for family coverage. A summary of employer-sponsored insurance costs for Medicare-eligibles is presented in Table 5-11.

**Table 5-11. Average Cost of Employer-Sponsored Health Insurance for Active and Retired Medicare-Eligible Employees in 1999**

Policy Type	Active Employees (20%) <sup>a</sup>	Retired Employees (80%) <sup>b</sup>	Medicare Eligibles
Individual	\$420	\$925	\$824
Family	1,740	1,694	1,703

<sup>a</sup> Data from Kaiser Family Foundation Survey, 1999. In parentheses is our estimate of the percentage of Medicare eligibles with employer-sponsored health insurance who are active employees.

<sup>b</sup> Data from surveys of employers from Mercer/Foster Higgins in 1997 and William M. Mercer, Inc. in 1999. In parentheses is our estimate of the percentage of Medicare eligibles with employer-sponsored health insurance who are retired.

<sup>80</sup> The 20 percent estimate is based on data from the Bureau of Labor Statistics: on the labor force participation rate of older workers; the health benefit participation rate of full and part-time workers; and the marital status of the Medicare population.

<sup>81</sup> Benefits depend on the design of the plan vis-à-vis Medicare. Most employers use the “carve-out method,” which results in the same benefit for active and retired workers [Hewitt and Associates, p.16].

<sup>82</sup> Retiree utilization of prescription drugs is more than double that of active workers. Moreover, drug expenses have been increasing sharply. Because the drug benefit accounts for 40–60 percent of the health plan cost for retirees [Hewitt and Associates, p.22], the health policy premium in 1998 increased more rapidly for retirees (9.5 percent) than for active workers (3.7 percent).

<sup>83</sup> We obtained data from Mercer/Foster Higgins surveys of employers in 1997 from the National Bipartisan Commission on the Future of Medicare website <http://medicare.commission.gov/medicare/K-P-1499.html>. We obtained data to update the 1997 estimates to 1999 values from William M. Mercer, Inc.

### 5.3.4 TRICARE's Effect on the Insurance Coverage of Medicare Eligibles

The 1999 Health Care Survey of DoD Beneficiaries asked respondents about their insurance choices in 1999 and the effect of TRICARE on them (Table 5-12). The survey indicates that 23 percent of MHS Medicare eligibles had a Medigap policy, 56 percent had other private insurance, 2.7 percent were covered under Medicaid, and 18.3 percent had just basic Medicare coverage.

**Table 5-12. Insurance Coverage in FY 1999 for Medicare Eligibles and the Effect of TRICARE on Coverage**

FY 1999 TRICARE				Net Change Due to TRICARE			
Medigap Insurance	Other Health Insurance	Medicaid	Basic Medicare	Medigap Insurance	Other Health Insurance	Medicaid	Basic Medicare
23.0	56.0	2.7	18.3	6.7	9.4	0.0	-15.7

TRICARE caused about 16 percent to add insurance above just basic Medicare: they added supplemental insurance (6.7 percent), private insurance (9.4 percent), or both.

The 1998 Health Care Survey of DoD Beneficiaries collected more detailed information on the insurance choices of Medicare eligibles than did the 1999 Survey. From the 1998 Survey, we were able to estimate the percentage that (1) joined a Medicare HMO, (2) purchased a Medigap policy, (3) purchased another health insurance policy through a current or former employer, (4) purchased both a Medigap policy and a policy from an employer, or (5) relied only on basic Medicare.<sup>84</sup> We define “other health insurance” (OHI) to include choices 1, 3, and 4, and “Medigap insurance” to include choices 2 and 4. Of those with OHI in 1998, 34 percent were enrolled in a Medicare HMO, 49 percent had only employer-sponsored insurance, and 17 percent had employer sponsored insurance *and* a Medigap policy. Of those with Medigap insurance, 23 percent also had employer-sponsored insurance.

We need to estimate insurance choices as precisely as possible because premiums and other expenses vary substantially among the alternatives. The 1998 Health Care Survey is used to distribute the more aggregate OHI and Medigap insurance responses in the 1999 Survey among choices 1 to 4 in the 1998 Survey. Our estimates of insurance choices in 1999 with and without TRICARE are given in Table 5-13.

**Table 5-13. Estimates of Insurance Choices by Medicare-Eligible Military Retirees in 1999**

Year	Medicare Risk HMO (1)	Medigap (2)	OHI (3)	Medigap + OHI (4)	Total OHI (1)+(3)+(4)	Total Medigap (2)+(4)	Basic Medicare	Medicaid
Baseline	17	13	26	4	47	17	34	2
TRICARE	20	18	30	6	56	24	18	2

<sup>84</sup> We used the survey results for only Regions 3, 4, and 6 to 12, because TRICARE was not yet in effect in the other regions.

### 5.3.5 Factors Affecting Medicare Expenses per Eligible

Medicare out-of-pocket expenses are a function of *total* Medicare expenses per eligible. We obtained data from HCFA for fiscal years 1994 and 1998 on Medicare expenses (total and cost-sharing liability) for MHS Medicare beneficiaries. The data show that Medicare expenses are a function of region, age, sex, and whether the individual lives in a catchment area.

To illustrate regional differences, we calculated total Medicare expenditures per eligible for regions under TRICARE in 1998 (Regions 3, 4, and 6 to 12). We computed expenditures separately for Part A and Part B services, as shown in Table 5-14. Total expenses per eligible vary substantially by region. Both Part A and Part B expenditures per eligible are lowest in Hawaii and greatest in Southern California. The difference in total Medicare expenditures per eligible between the two regions is almost \$3,000.

**Table 5-14. Total Medicare Expenditures per MHS Medicare Eligible in FY 1998 by TRICARE Region**

TRICARE Region	Part A	Part B	Total
Southeast (3)	\$1,744	\$2,428	\$4,172
Gulf South (4)	1,830	2,580	4,410
Southwest (6)	2,074	2,868	4,942
Central (7/8)	1,731	2,366	4,096
S. California (9)	2,483	3,490	5,973
Golden Gate (10)	2,179	2,873	5,052
Northwest (11)	1,656	2,261	3,917
Hawaii (12)	1,324	1,701	3,025

Table 5-15 illustrates how the other factors affect total Medicare expenditures. Total expenditures are greater for those who are over 74 years old. Holding age constant, expenditures are greater for males; holding age and sex constant, expenditures are greater for those not living in a catchment area. These relationships are used to estimate Medicare out-of-pocket expenses for individuals in the FY 1994 and FY 1999 family samples.

**Table 5-15. Total Medicare Expenditures per Medicare Eligible by Age, Sex, and Catchment Area Status in 1999**

Age	Sex	Catchment	Part A	Part B	Total
< 75	Female	In	\$1,235	\$1,700	\$2,935
	Female	Out	1,656	2,288	3,944
	Male	In	1,574	2,115	3,689
	Male	Out	1,942	2,699	4,641
≥ 75	Female	In	1,793	2,471	4,264
	Female	Out	2,537	3,577	6,114
	Male	In	2,263	3,083	5,346
	Male	Out	2,772	3,808	6,580

### **5.3.6 Computation of Total Out-of-Pocket Expenses**

Using the HCFA data for 1994, we calculated the average Medicare cost-sharing liability per MHS Medicare eligible under CHAMPUS in 1994, by HSR, age, sex and in-catchment status (96 groups) for Part A and Part B expenses. The estimates exclude those with payments made on their behalf by private insurance and those covered Medicaid.<sup>85</sup> We adjusted the liability for inflation using the HCFA Hospital Input Price Index for Part A expenses (14.0 percent increase), and the Medicare Economic Index for Part B expenses (10.9 percent increase). We assigned individuals in the FY 1994 family sample these estimates of updated expenses under CHAMPUS, based on their region, age, sex, and catchment area status. We then aggregated expenses for individuals to obtain observations for Medicare-eligible families.

We used the HCFA data for 1998 to estimate the average Medicare cost-sharing liability per MHS Medicare eligible in 1998 for Regions 3, 4, and 6 to 12 by region, age, sex, and in-catchment status (72 groups). We also updated the data for inflation between 1998 and 1999 using the HCFA Hospital Input Price Index and the Medicare Economic Index for Parts A and B, respectively.

Direct estimates were not available for the Medicare cost-sharing liability under TRICARE in FY 1998 for Regions 1, 2, and 5 because those regions had not yet fully transitioned to the new system. To overcome this data problem, we used a regression model to estimate the average Medicare cost-sharing liability per MHS Medicare eligible in 1998 in those regions.

The model is estimated with state-level data for the states in Regions 3, 4, and 6 to 12 in FY 1998. The dependent variable in the model is the logarithm of the Medicare cost-sharing liability per MHS Medicare eligible. The independent variables are dummy variables for age (greater than 74 years old = 1), sex (male = 1), and catchment area status (out of catchment = 1). In addition, the model includes the logarithm of total Medicare expenses per enrollee in the state to control for regional differences in costs, and a dummy variable for Hawaii because it is an extreme outlier. The model is estimated using ordinary least squares<sup>86</sup> with data on the average liability in 208 state subgroups. The model parameters and summary statistics are shown in Table 5-16. The estimates show that the cost sharing liability is greatly affected by age, total Medicare expenses per eligible, and whether the individual lives in a non-catchment area. Holding other factors constant, expenses are slightly higher for males.

We used the regression model to predict the cost-sharing liability for individuals in the states in Regions 1, 2, and 5 in FY 1998. For the other regions, we updated the predictions for inflation between 1998 and 1999. We assigned the 1999 predictions to individuals in the three regions in the FY 1999 family sample based on the factors in the model. Then we aggregated the individual predictions to obtain family-level predictions.

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<sup>85</sup> We similarly screened the FY 1999 data.

<sup>86</sup> Similar estimates of the regression coefficients were obtained using weighted least squares to account for heteroscedasticity.

**Table 5-16. Regression Model for Estimating Medicare Cost-Sharing Liability in TRICARE Regions 1, 2 and 5.**

Variable	Estimate	t-value
Constant	4.495	10.648
Male	.035	1.668
Age greater than 74	0.311	14.822
Living out-of-catchment	0.095	4.656
Logarithm of total Medicare expenses per eligible	0.227	4.579
Hawaii	-0.492	4.896
R-squared = 0.634	F[5,202]=69.86	Obs. = 208

Weighted average estimates of the Medicare cost-sharing liability under the baseline and under TRICARE are given in Table 5-17. Under TRICARE, deductible and copayment expenses for families with just basic Medicare coverage (18 percent of Medicare-eligible military families) increased by \$167.

**Table 5-17. Weighted Average Deductibles and Copayments per Medicare-Eligible Family**

FY 1994 Baseline	FY 1999	Difference
\$807	\$974	\$167

Because of TRICARE, about 16 percent of Medicare-eligible military families purchased additional insurance beyond basic Medicare. To calculate the net effect of TRICARE, we must estimate the increased insurance and reduced deductible and copayment expenses for those families. Finally, we must add together the net effects for all families to obtain the total effect of TRICARE.

The first step is to estimate insurance premiums, by plan choice, for families in the FY 1999 family sample. Weighted average premiums per family are given in Table 5-18. The estimates take into account family size and state-level differences in Medicare risk HMO and Medigap premiums. Weighted average premiums per family in FY 1999 were \$312 for a Medicare Risk HMO, \$1,797 for a Medigap policy, \$1,170 for other employer-sponsored health insurance (OHI), and \$2,507 for those families with both Medigap and OHI. The typical family had 1.39 Medicare eligibles.

**Table 5-18. Weighted Average Premiums per Medicare-Eligible Family in FY 1999**

HMO Premium	OHI	Medigap Premium	Medigap and OHI	Eligibles per Family
\$312	\$1,170	\$1,797	\$2,967	1.39

Unfortunately, data were not available on deductible and copayment expenses for those with private or supplemental insurance. We assumed that deductibles and copayments *net of reimbursements* equal the deductible per individual under each policy



times the number of eligibles per family. The implications of this assumption are shown in Table 5-19.

**Table 5-19. Assumed Net Deductibles and Copayments  
for Medicare-Eligible Families by Insurance Choice in FY 1999**

Medicare Risk HMO	Medigap	OHI	Medigap + OHI	Basic Medicare
\$0	\$92	\$340	\$0	\$974

In a Medicare risk HMO, deductibles are zero and copayments are minimal, so we assumed deductibles and copayments were \$0. Taking into account the distribution of standard Medigap policies, the expected deductible per eligible is \$66.27. The latter quantity times the average number of eligibles per family (1.39) yields \$92 of expenses per family. The deductible per eligible with OHI is \$245; this quantity times 1.39 yields \$340. If the family had both a Medigap policy and OHI, we assumed deductibles and copayments were \$0.

### **5.3.7 Effect of TRICARE On Out-of-Pocket Expenses of Medicare-Eligible Families**

The effect of TRICARE is the net change in expected deductibles, copayments, and insurance expenses under TRICARE in FY 1999 for all Medicare eligible military families. Table 5-20 gives weighted-average expenses under the baseline and TRICARE for all families (i.e., those with just basic Medicare plus those with insurance); it also gives the change in expected expenses.<sup>87</sup> TRICARE increased the deductibles and copayments for the 18 percent of families with just basic Medicare coverage but reduced it for the 16 percent who purchased insurance. The net effect was to *reduce* expected deductibles and copayments by \$95. Because of greater insurance coverage, expected insurance expenses increased by \$199. The net effect of TRICARE was to increase expected out-of-pocket expenses for Medicare-eligible families by \$104.

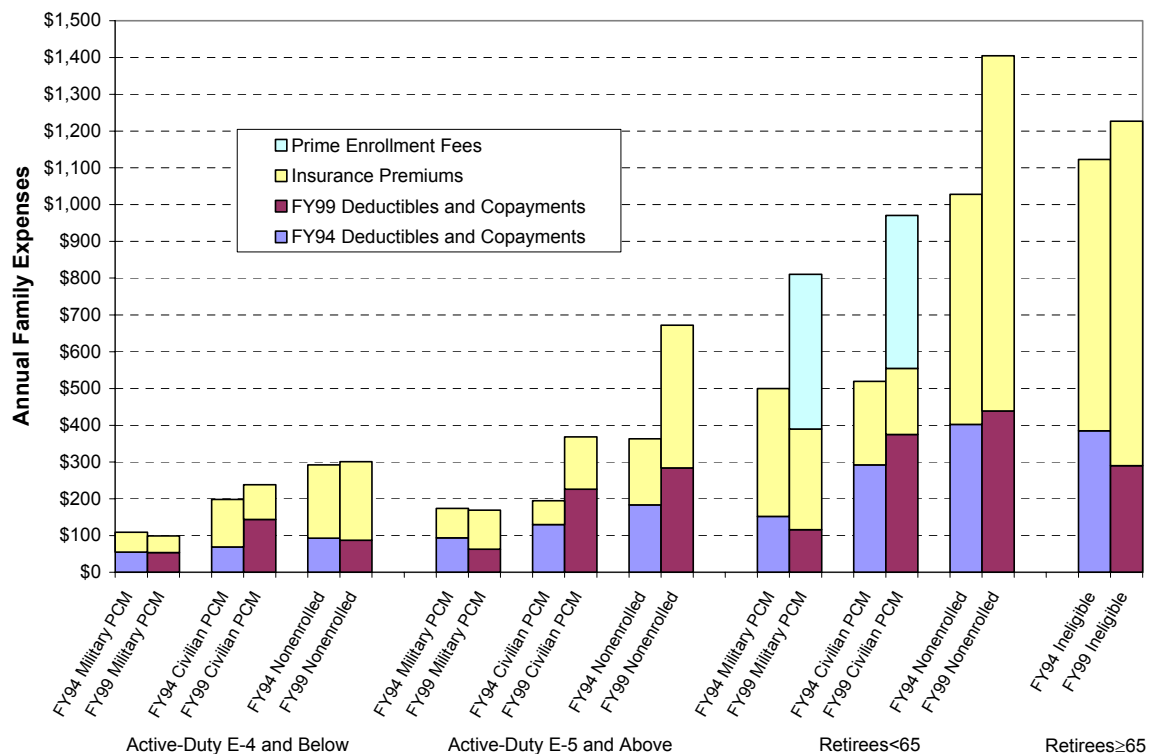
**Table 5-20. Effect of TRICARE on Out-of-Pocket Costs of Medicare-Eligible Families**

Source	FY 1999 CHAMPUS	FY 1999 TRICARE	Change
Deductibles and Copays	\$385	\$290	-\$95
Insurance	738	937	199
Total	\$1,123	\$1,227	\$104

<sup>87</sup> We assumed no effect of TRICARE on the 2 to 3 percent of MHS Medicare-eligible families covered under Medicaid in FY 1999.

## 5.4 Summary

Figure 5-2 displays the effect of TRICARE on the out-of-pocket expenses of TRICARE- and Medicare-eligible families in FY 1999. Both junior-enlisted and senior-enlisted families with a military PCM had essentially no change in their expenses. For other senior-enlisted families, expenses increased (\$173 to \$308) because of greater health care utilization. Because about 75 percent of active-duty families enrolled in Prime with a military PCM, most active-duty families experienced no change in their out-of-pocket expenses. However, retiree families had greater expenses (\$311 to \$451) due to increases in enrollment fees and insurance expenses.



**Figure 5-2. Total Family Out-of-Pocket Expenses (Including Retirees ≥ 65)**

TRICARE increased out-of-pocket expenses for Medicare-eligible families by \$104 on average. Most Medicare-eligible families had supplementary or private insurance coverage before and after TRICARE and were not affected by it. About 16 percent of the families purchased insurance because of TRICARE. However, they had little net increase in expenses because of declines in expenses for deductibles and copayments. The relatively few who switched to a Medicare risk HMO actually saved money. The beneficiaries hurt the most were the 18 percent of Medicare-eligible military families who had just basic Medicare coverage before and after TRICARE. These families, who are likely to have relatively low incomes, saw their expenses increase by \$167 under TRICARE.

# **APPENDICES**

# **APPENDIX A: APPROACH TO ANALYZING TRENDS IN SATISFACTION WITH TRICARE**

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We discuss the procedure for estimating CAHPS measures from DoD Annual Beneficiary Survey data.

## **Earlier Investigation**

An earlier investigation by Mathematica<sup>1</sup> sought to correlate the two sets of questions and translate one set of satisfaction scales to the other. They reported moderate success.

The format of the DoD survey has respondents separately rate satisfaction with care received at military and at civilian facilities. Consequently, we performed separate analyses of those who responded to the military health items and those who responded to the civilian health items. While we obtained a similar pattern of results, we were able to get better predictions for those responding to the military health care questions.

The Mathematica investigation validated the groupings of both the DoD and CAHPS survey items into 3 and 6 scales, respectively. (They did not include the CAHPS ratings in their analysis.) They then correlated the 6 CAHPS scales with each of the 3 DoD scales, and with a composite of the DoD scales. Higher correlations were obtained when using a composite of the 3 DoD scales to predict the CAHPS composites. The correlations ( $R^2$ ) ranged from about 0.02 to 0.40.

## **Current Investigation**

We expand the Mathematica study in several ways—by developing estimates for the CAHPS ratings for earlier points in time (1995 to 1997) and by exploring alternate methodologies for predicting CAHPS composites.

## **Methods**

CAHPS composites have been constructed in two ways. The first, Method 1, is as follows:

- (a) Form the three DoD composites
- (b) Form the 6 CAHPS composites and 4 rating scales. Composites are formed by dichotomously scoring (0/1) contributing items. The composite is the average of the item scores.
- (c) Regress the DoD composites on the CAHPS measures (1998 data).
- (d) Apply the prediction equations from step 3 to the earlier DoD survey data (1995-1997) to obtain estimated CAHPS composites/ratings.

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<sup>1</sup> Jang, et al., *A Strategy for Analyzing Satisfaction Scale Trends When Scales Change in Mid-Trend*, Mathematica Policy Research, Document 8514-008, 30 December 1999.

An alternate construction, Method 2, is to:

- (a) Form the three DoD composites
- (b) Compute item scores (0/1), as above.
- (c) Regress the DoD composites on each of the CAHPS items (1998 data) using logistic regression.
- (d) Apply the prediction equations from step 2 to the earlier DoD survey data (1995-1997) to obtain estimated CAHPS item scores.
- (e) Compute the means for each CAHPS item.
- (f) Average the CAHPS means across items used to form particular composites.

Method 2 is the procedure followed by DoD to produce its *Report Card*, as published on the TMA web site.

CAHPS ratings are reported on an 11-point scale, and as the percentage of scores that fall within a particular interval, typically 8 to 10. Our estimates are based on the probability that a given CAHPS score, estimated from the DoD scales, will have a predicted value of 8 or higher.” We do this by dichotomously scoring the ratings, then assigning a 0 to scores below 8, and a value of 1 to scores 8 and above. A logistic regression equation is then estimated using the DoD scales as regressors. Rating probabilities can then be predicted for earlier data by applying this equation.

### **Missing Data**

The construction of the DoD and CAHPS composites is complicated by missing data. Often, respondents to the surveys do not answer all of the questions used to build the scales. The procedure used to avoid losing the remaining data for those respondents is to form the composite as the average of the items answered. Producing composites in this way implicitly weights their item components by the number of responses to each item. Missing data can also result in differences between composites formed with Methods 1 and 2.

When all people respond to all items used in a particular composite, the mean of the composite formed by Method 1 will be equal to the mean of the item means, as determined by Method 2. Alternatively, the composite formed by Method 1 can be equated to a Method 2 composite by weighting the contributing items. The weighting formula is:

$$C_i = \frac{nw_i x_i}{\sum_{j=1}^n w_j}$$

where:

$C_i$  = the resulting adjusted composite score for individual  $i$ ;

$n$  = the number of respondents;

$w_i$  = the number of items in the composite receiving a response from individual  $i$ ;

$x_i$  = the unadjusted composite score for individual  $i$ .

## Application

CAHPS composites and ratings were formed from the 1995–1999 DoD survey data, using the methods described.<sup>2</sup> We estimated trends in the CAHPS and estimated CAHPS composites and ratings for that time period, weighting the data to account for undersampling or oversampling of subpopulations, as well as missing item data. However, we made no adjustments for changes in demographics that might have occurred over time. We compare the results below.

## Results

Table A-1 shows the multiple correlations of CAHPS weighted composites with DoD scales.

**Table A-1. Validities of Predicted CAHPS Measures**

CAHPS Measure	Number of Items	P(response)	Validity <sup>a</sup>
<b>Composites</b>			
Get needed care <sup>b</sup>	3	0.83	0.42
Timely care	4	0.66	0.51
Doctors communicate	4	1.00	0.51
Courteous staff	2	1.00	0.40
Customer service	3	0.64	0.33
Claims processing	2	0.96	0.28
<b>Rating</b>			
PCM rating	1	1.00	0.40
Specialist rating	1	1.00	0.35
Plan rating	1	1.00	0.44
Care rating	1	1.00	0.57

<sup>a</sup> Correlation of observed composite or rating with DoD scales.

<sup>b</sup> The “Get needed care” composite actually contains four items. However, one item (“have own personal physician”) was not included in the transition year data. Therefore, estimated values for this composite are based on the three items available.

While the validities are low for purposes of predicting individual scores, we feel that they are of sufficient magnitude for predicting population means, as we do in this evaluation.

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<sup>2</sup> We used only CONUS region data because OCONUS data were not available for all years.

## APPENDIX B: DISTRIBUTION OF SUBPOPULATIONS IN THE 1994 AND 1999 SAMPLES

Table B-1 shows estimates of the distribution of the 1994 and 1999 subpopulations by source of care for the seven regions examined in the study. We weighted the proportions,  $p_i$ , to reflect the population distribution using the relationship:

$$p_i = n_i \times w_i / \text{Mean}(w_i),$$

where  $n_i$  is the number of individuals in the sample survey for a given year in a given region in a particular subpopulation,  $w_i$  is the sampling weight ( $N_i/n_i$ ), and  $N_i$  is the number of people in the eligible population for a given year and region in a particular subpopulation.

**Table B-1. Distribution of Subpopulations in the 1994 and 1999 Samples  
(Proportion Having Particular Source of Care Within Region)**

Region	Military Status (Source of Care)	FY94	FY99
1	Active Duty (All)	26	22
	Non-Active Duty (Prime)	13	23
	Non-Active Duty (Civilian Care Only)	27	14
	Non-Active Duty (Other Nonenrolled)	35	42
	Total	100	100
2	Active Duty (All)	37	34
	Non-Active Duty (Prime)	16	24
	Non-Active Duty (Civilian Care Only)	24	10
	Non-Active Duty (Other Nonenrolled)	23	32
	Total	100	100
3	Active Duty (All)	24	21
	Non-Active Duty (Prime)	18	27
	Non-Active Duty (Civilian Care Only)	25	8
	Non-Active Duty (Other Nonenrolled)	34	44
	Total	100	100
4	Active Duty (All)	22	18
	Non-Active Duty (Prime)	18	27
	Non-Active Duty (Civilian Care Only)	23	8
	Non-Active Duty (Other Nonenrolled)	37	47
	Total	100	100
5	Active Duty (All)	23	23
	Non-Active Duty (Prime)	14	21
	Non-Active Duty (Civilian Care Only)	20	10
	Non-Active Duty (Other Nonenrolled)	43	45
	Total	100	100

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**Table B-1—Continued**

Region	Military Status (Source of Care)	FY94	FY99
6	Active Duty (All)	25	22
	Non-Active Duty (Prime)	21	31
	Non-Active Duty (Civilian Care Only)	23	8
	Non-Active Duty (Other Nonenrolled)	31	39
	Total	100	100
7/8	Active Duty (All)	26	22
	Non-Active Duty (Prime)	19	28
	Non-Active Duty (Civilian Care Only)	26	9
	Non-Active Duty (Other Nonenrolled)	29	42
	Total	100	100
9	Active Duty (All)	34	31
	Non-Active Duty (Prime)	18	28
	Non-Active Duty (Civilian Care Only)	20	10
	Non-Active Duty (Other Nonenrolled)	28	31
	Total	100	100
10	Active Duty (All)	22	12
	Non-Active Duty (Prime)	20	27
	Non-Active Duty (Civilian Care Only)	22	11
	Non-Active Duty (Other Nonenrolled)	36	50
	Total	100	100
11	Active Duty (All)	22	22
	Non-Active Duty (Prime)	22	31
	Non-Active Duty (Civilian Care Only)	20	7
	Non-Active Duty (Other Nonenrolled)	36	40
	Total	100	100
12	Active Duty (All)	47	45
	Non-Active Duty (Prime)	20	32
	Non-Active Duty (Civilian Care Only)	21	7
	Non-Active Duty (Other Nonenrolled)	11	16
	Total	100	100



## APPENDIX C: REGIONAL CHANGES FROM 1994 TO 1999 IN ACCESS AND SATISFACTION WITH CARE INDICATORS

Table C-1 shows regional changes from 1994 to 1999 in outcome measures for each subpopulation. Estimates are based on 1999 population characteristics. An entry of “–” indicates that there were too few observations to make a reliable estimate. Entries marked with an asterisk (\*) indicate a statistically significant change ( $p < 0.05$ ). CAHPS composites are weighted, as indicated by (w). The metrics for CAHPS ratings estimates are shown as the probability of a rating being greater or equal to 8 [ $p(8+)$ ].

**Table C-1. Regional Changes in Outcome Measures**

Measure	Region	Military Status (Source of Care)									
		AD (All)		Non-AD (Prime)		Non-AD (Civilian)		Non-AD (Other Nonenrolled)		Total	
		FY94	FY99	FY94	FY99	FY94	FY99	FY94	FY99	FY94	FY99
Appointment by phone (less than 3 calls)	1	0.67	0.75*	0.57	0.83*	0.80	0.97*	0.59	0.83*	0.69	0.88*
	2	0.59	0.74*	0.48	0.79*	0.80	0.95*	0.51	0.78*	0.62	0.84*
	3	0.58	0.81*	0.52	0.85*	0.75	0.96*	0.56	0.81*	0.64	0.90*
	4	0.58	0.85*	0.51	0.88*	0.77	0.97*	0.54	0.83*	0.65	0.92*
	5	0.65	0.89*	0.52	0.85*	0.81	0.97*	0.52	0.88*	0.67	0.93*
	6	0.55	0.77*	0.52	0.85*	0.74	0.96*	0.37	0.71*	0.58	0.88*
	7/8	0.63	0.83*	0.52	0.88*	0.75	0.97*	0.48	0.79*	0.62	0.91*
	9	0.51	0.80*	0.61	0.86*	0.75	0.97*	0.56	0.76*	0.65	0.88*
	10	0.68	0.90*	0.63	0.90*	0.73	0.94*	0.60	0.81*	0.69	0.92*
	11	0.63	0.84*	0.54	0.89*	0.81	0.97*	0.49	0.79*	0.66	0.91*
	12	0.74	0.82	0.53	0.80*	0.65	1.00	0.46	0.89	0.63	0.85*
	Total	0.60	0.80*	0.53	0.85*	0.77	0.96*	0.51	0.80*	0.64	0.89*
Blood pressure check	1	0.78	0.88*	0.77	0.92*	0.94	0.96*	0.93	0.95	0.82	0.91*
	2	0.85	0.86	0.78	0.89*	0.85	0.95*	0.86	0.93*	0.80	0.88*
	3	0.80	0.88*	0.75	0.91*	0.92	0.96*	0.92	0.93	0.82	0.90*
	4	0.81	0.93*	0.78	0.92*	0.90	0.96*	0.92	0.96*	0.79	0.92*
	5	0.82	0.89*	0.81	0.88*	0.91	0.95*	0.90	0.96*	0.80	0.90*
	6	0.79	0.93*	0.78	0.91*	0.91	0.96*	0.91	0.96*	0.80	0.92*
	7/8	0.80	0.92*	0.74	0.90*	0.90	0.96*	0.90	0.94*	0.79	0.90*
	9	0.75	0.91*	0.85	0.90*	0.91	0.96*	0.92	0.90	0.82	0.90*
	10	0.77	0.92*	0.84	0.88	0.92	0.95	0.89	0.91	0.85	0.91*
	11	0.86	0.90	0.78	0.89*	0.91	0.95*	0.91	0.95	0.81	0.90*
	12	0.85	0.86	0.75	0.90*	0.88	0.91	0.96	0.97	0.82	0.87*
	Total	0.81	0.90*	0.78	0.90*	0.91	0.96*	0.91	0.94*	0.81	0.90*

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**Table C-1—Continued**

Measure	Region	Military Status (Source of Care)									
		AD (All)		Non-AD (Prime)		Non-AD (Civilian)		Non-AD (Other Nonenrolled)		Total	
		FY94	FY99	FY94	FY99	FY94	FY99	FY94	FY99	FY94	FY99
Cholesterol test	1	0.45	0.40*	0.47	0.49	0.70	0.67	0.66	0.64	0.55	0.54
	2	0.45	0.39	0.34	0.36	0.66	0.66	0.60	0.57	0.47	0.47
	3	0.49	0.38*	0.43	0.49*	0.75	0.69*	0.70	0.65	0.56	0.55
	4	0.47	0.43	0.48	0.51	0.71	0.67	0.65	0.59	0.54	0.56
	5	0.50	0.38*	0.44	0.46	0.67	0.64	0.62	0.67	0.52	0.52
	6	0.46	0.44	0.44	0.51*	0.67	0.69	0.69	0.65	0.52	0.55*
	7/8	0.48	0.43*	0.41	0.47*	0.65	0.63	0.64	0.64	0.51	0.52
	9	0.37	0.39	0.47	0.46	0.77	0.71*	0.61	0.51*	0.51	0.50
	10	0.45	0.50	0.55	0.48*	0.69	0.70	0.66	0.60	0.59	0.58
	11	0.51	0.41*	0.40	0.50*	0.67	0.67	0.63	0.61	0.51	0.53
	12	0.52	0.34*	0.34	0.41	0.69	0.54*	0.57	0.56	0.49	0.40*
	Total	0.46	0.41*	0.43	0.47*	0.70	0.67*	0.65	0.62*	0.52	0.53
Claims composite (w)	1	0.74	0.52*	0.79	0.68*	0.87	0.89	0.79	0.85*	0.84	0.81*
	2	0.74	0.62*	0.78	0.72*	0.86	0.89*	0.78	0.84	0.82	0.82
	3	0.75	0.65*	0.78	0.80	0.85	0.91*	0.77	0.86*	0.82	0.86*
	4	0.75	0.59*	0.78	0.78	0.85	0.89*	0.77	0.86*	0.82	0.85*
	5	0.71	0.56*	0.81	0.73*	0.85	0.88	0.79	0.86*	0.83	0.82
	6	0.73	0.67	0.77	0.79	0.87	0.90*	0.74	0.86*	0.82	0.85*
	7/8	0.75	0.57*	0.77	0.78	0.86	0.88*	0.77	0.88*	0.82	0.83
	9	0.73	0.66	0.80	0.76	0.86	0.95*	0.83	0.85	0.83	0.84
	10	0.77	0.64	0.81	0.80	0.88	0.88	0.78	0.87*	0.84	0.85
	11	0.74	0.69	0.79	0.79	0.87	0.93*	0.74	0.87*	0.83	0.87*
	12	0.75	0.60	0.83	0.70*	0.88	0.95	0.77	0.96	0.83	0.79
	Total	0.74	0.60*	0.78	0.76*	0.86	0.90*	0.78	0.86*	0.82	0.84*
Courteous staff composite (w)	1	0.83	0.86*	0.85	0.89*	0.95	0.96*	0.86	0.94*	0.88	0.92*
	2	0.81	0.81	0.83	0.84	0.92	0.95*	0.82	0.94*	0.85	0.88*
	3	0.83	0.82	0.85	0.88*	0.93	0.96*	0.85	0.90*	0.87	0.91*
	4	0.84	0.85	0.85	0.92*	0.93	0.96*	0.85	0.93*	0.88	0.93*
	5	0.83	0.82	0.88	0.89	0.94	0.96	0.85	0.95*	0.89	0.91*
	6	0.80	0.82	0.84	0.89*	0.94	0.96*	0.82	0.90*	0.86	0.91*
	7/8	0.84	0.86	0.84	0.90*	0.93	0.96*	0.85	0.91*	0.87	0.92*
	9	0.81	0.82	0.87	0.88	0.94	0.95	0.88	0.90	0.88	0.88
	10	0.86	0.87	0.89	0.92*	0.94	0.96*	0.88	0.93*	0.90	0.94*
	11	0.83	0.80	0.88	0.91*	0.95	0.97*	0.85	0.92*	0.88	0.91*
	12	0.81	0.81	0.87	0.86	0.94	0.98	0.88	0.99*	0.84	0.86
	Total	0.82	0.83	0.85	0.89*	0.94	0.96*	0.85	0.92*	0.87	0.91*

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**Table C-1—Continued**

Measure	Region	Military Status (Source of Care)									
		AD (All)		Non-AD (Prime)		Non-AD (Civilian)		Non-AD (Other Nonenrolled)		Total	
		FY94	FY99	FY94	FY99	FY94	FY99	FY94	FY99	FY94	FY99
Customer service composite (w)	1	0.41	0.33*	0.47	0.45	0.59	0.56*	0.46	0.50	0.51	0.48*
	2	0.38	0.39	0.44	0.48*	0.58	0.51*	0.44	0.50	0.47	0.47
	3	0.44	0.40	0.44	0.53*	0.56	0.54	0.45	0.55*	0.49	0.51*
	4	0.43	0.39	0.45	0.48	0.57	0.54	0.45	0.49	0.50	0.50
	5	0.42	0.39	0.46	0.44	0.57	0.53*	0.45	0.50	0.50	0.48
	6	0.42	0.37*	0.44	0.51*	0.59	0.56	0.41	0.49*	0.49	0.50
	7/8	0.42	0.36*	0.45	0.52*	0.57	0.57	0.44	0.52*	0.49	0.51*
	9	0.42	0.42	0.49	0.55*	0.58	0.67*	0.49	0.50	0.51	0.55*
	10	0.45	0.46	0.51	0.55	0.59	0.58	0.46	0.49	0.53	0.55
	11	0.43	0.42	0.48	0.53*	0.59	0.59	0.44	0.51	0.51	0.53
	12	0.40	0.40	0.46	0.50	0.62	0.65	0.44	0.65	0.47	0.49
	Total	0.42	0.38*	0.46	0.50*	0.58	0.56*	0.45	0.51*	0.50	0.50
Doctor communication composite (w)	1	0.82	0.84*	0.84	0.87*	0.94	0.94	0.85	0.91*	0.87	0.90*
	2	0.80	0.80	0.80	0.80	0.91	0.93*	0.81	0.90*	0.82	0.85*
	3	0.81	0.81	0.83	0.86*	0.90	0.93*	0.84	0.89*	0.85	0.88*
	4	0.82	0.82	0.84	0.87*	0.91	0.93	0.84	0.93*	0.87	0.89*
	5	0.79	0.81	0.87	0.87	0.92	0.93	0.85	0.90*	0.87	0.88
	6	0.78	0.80	0.83	0.86*	0.93	0.93	0.81	0.88*	0.85	0.87*
	7/8	0.80	0.83*	0.83	0.87*	0.91	0.93*	0.83	0.88*	0.85	0.89*
	9	0.76	0.80	0.85	0.85	0.92	0.93	0.87	0.86	0.85	0.86
	10	0.84	0.87	0.87	0.88	0.92	0.93	0.86	0.87	0.88	0.90
	11	0.81	0.78	0.85	0.89*	0.93	0.94	0.85	0.90	0.87	0.89*
	12	0.79	0.82	0.84	0.88	0.92	0.95	0.88	0.96*	0.82	0.87*
	Total	0.80	0.81*	0.84	0.86*	0.92	0.93*	0.84	0.89*	0.86	0.88*
Flu shot (all ages)	1	0.66	0.72*	0.29	0.41*	0.42	0.60*	0.49	0.59*	0.42	0.57*
	2	0.86	0.79*	0.28	0.25	0.44	0.53*	0.44	0.46	0.49	0.53*
	3	0.83	0.77*	0.26	0.31*	0.43	0.56*	0.45	0.60*	0.44	0.53*
	4	0.78	0.82	0.28	0.39*	0.42	0.58*	0.48	0.56*	0.41	0.56*
	5	0.71	0.74	0.27	0.39*	0.45	0.56*	0.42	0.60*	0.41	0.56*
	6	0.78	0.84*	0.33	0.39*	0.48	0.61*	0.48	0.60*	0.45	0.58*
	7/8	0.79	0.85*	0.31	0.39*	0.46	0.64*	0.51	0.56	0.46	0.59*
	9	0.83	0.82	0.31	0.32	0.52	0.67*	0.40	0.47	0.50	0.58*
	10	0.77	0.78	0.28	0.38*	0.53	0.66*	0.50	0.57	0.49	0.58*
	11	0.78	0.82	0.37	0.41	0.45	0.63*	0.52	0.62	0.45	0.59*
	12	0.77	0.78	0.46	0.25*	0.50	0.47	0.55	0.52	0.57	0.53
	Total	0.78	0.79	0.30	0.36*	0.45	0.60*	0.47	0.56*	0.45	0.56*

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**Table C-1—Continued**

Measure	Region	Military Status (Source of Care)									
		AD (All)		Non-AD (Prime)		Non-AD (Civilian)		Non-AD (Other Nonenrolled)		Total	
		FY94	FY99	FY94	FY99	FY94	FY99	FY94	FY99	FY94	FY99
Flu shot (age 65+)	1	—	—	0.64	0.78	0.68	0.81*	0.75	0.85*	0.65	0.80*
	2	—	—	1.00	0.77	0.71	0.78*	0.64	0.82*	0.65	0.77*
	3	—	—	0.94	0.76	0.66	0.75*	0.67	0.79*	0.65	0.75*
	4	—	—	0.66	0.66	0.67	0.78*	0.77	0.82	0.66	0.76*
	5	—	—	0.84	0.86	0.65	0.81*	0.80	0.82	0.63	0.79*
	6	—	—	0.61	0.80*	0.72	0.81*	0.76	0.82	0.71	0.79*
	7/8	—	—	0.79	0.81	0.68	0.82*	0.74	0.81	0.66	0.79*
	9	—	—	0.72	0.61	0.73	0.82*	0.64	0.79*	0.68	0.78*
	10	—	—	0.40	0.73	0.74	0.80	0.69	0.72	0.71	0.79*
	11	—	—	0.75	0.84	0.72	0.81*	0.68	0.81*	0.67	0.80*
	12	—	—	0.21	0.53	0.70	0.71	0.72	0.71	0.70	0.68
	Total	—	—	0.66	0.76*	0.69	0.80*	0.72	0.81*	0.67	0.78*
Getting care quickly composite (w)	1	0.65	0.68*	0.68	0.76*	0.85	0.91*	0.71	0.80*	0.75	0.80*
	2	0.62	0.67*	0.66	0.70*	0.84	0.86	0.66	0.76*	0.70	0.75*
	3	0.65	0.68	0.68	0.77*	0.83	0.86*	0.69	0.78*	0.73	0.79*
	4	0.67	0.70	0.69	0.78*	0.83	0.86	0.70	0.78*	0.75	0.79*
	5	0.66	0.74*	0.71	0.77*	0.84	0.89*	0.71	0.79*	0.75	0.81*
	6	0.63	0.66*	0.68	0.76*	0.85	0.88*	0.67	0.75*	0.72	0.78*
	7/8	0.65	0.70*	0.67	0.79*	0.84	0.90*	0.68	0.75*	0.73	0.81*
	9	0.64	0.70*	0.72	0.75	0.85	0.89*	0.74	0.75	0.74	0.77*
	10	0.70	0.76*	0.76	0.80*	0.86	0.90*	0.72	0.75	0.79	0.83*
	11	0.66	0.71	0.72	0.74	0.87	0.91*	0.69	0.83*	0.75	0.80*
	12	0.60	0.73*	0.68	0.74	0.82	0.91*	0.77	0.83	0.67	0.77*
	Total	0.65	0.69*	0.69	0.76*	0.84	0.88*	0.69	0.77*	0.74	0.79*
Getting needed care composite (w)	1	0.65	0.66	0.71	0.77*	0.83	0.96*	0.70	0.79*	0.75	0.83*
	2	0.64	0.64	0.67	0.71*	0.81	0.91*	0.68	0.79*	0.70	0.76*
	3	0.66	0.65	0.69	0.74*	0.81	0.93*	0.69	0.80*	0.73	0.81*
	4	0.66	0.70	0.67	0.72*	0.81	0.91*	0.68	0.81*	0.73	0.81*
	5	0.67	0.69	0.72	0.74	0.81	0.91*	0.69	0.79*	0.74	0.81*
	6	0.64	0.67	0.68	0.73*	0.82	0.91*	0.66	0.74*	0.72	0.78*
	7/8	0.65	0.67	0.68	0.74*	0.81	0.90*	0.68	0.77*	0.72	0.80*
	9	0.63	0.66	0.71	0.72	0.83	0.91*	0.74	0.70	0.73	0.75*
	10	0.67	0.74*	0.74	0.73	0.84	0.89*	0.69	0.71	0.77	0.80*
	11	0.67	0.68	0.73	0.79*	0.84	0.91*	0.67	0.80*	0.74	0.81*
	12	0.65	0.68	0.70	0.77*	0.83	0.95*	0.75	0.90*	0.70	0.77*
	Total	0.65	0.67*	0.69	0.74*	0.82	0.92*	0.69	0.78*	0.73	0.80*

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**Table C-1—Continued**

		Military Status (Source of Care)									
Measure	Region	AD (All)		Non-AD (Prime)		Non-AD (Civilian)		Non-AD (Other Nonenrolled)		Total	
		FY94	FY99	FY94	FY99	FY94	FY99	FY94	FY99	FY94	FY99
Had outpatient visit	1	0.63	0.81*	0.72	0.92*	0.88	0.98*	0.88	0.98*	1.00	1.00
	2	0.57	0.82*	0.71	0.91*	0.88	0.97*	0.88	0.97*	1.00	1.00
	3	0.62	0.83*	0.69	0.90*	0.91	0.97*	0.91	0.97*	1.00	1.00
	4	0.67	0.83*	0.74	0.91*	0.91	0.96	0.91	0.96	1.00	1.00
	5	0.64	0.79*	0.70	0.88*	0.86	0.97*	0.86	0.97*	1.00	1.00
	6	0.62	0.85*	0.70	0.90*	0.88	0.97*	0.88	0.97*	1.00	1.00
	7/8	0.63	0.84*	0.71	0.89*	0.89	0.98*	0.89	0.98*	1.00	1.00
	9	0.58	0.83*	0.78	0.90*	0.93	0.97	0.93	0.97	1.00	1.00
	10	0.65	0.83*	0.75	0.88*	0.93	1.00*	0.93	1.00*	1.00	1.00
	11	0.70	0.83*	0.68	0.91*	0.88	0.94	0.88	0.94	1.00	1.00
	12	0.56	0.88*	0.73	0.92*	0.89	0.97	0.89	0.97	1.00	1.00
	Total	0.62	0.83*	0.72	0.90*	0.89	0.97*	0.89	0.97*	1.00	1.00
Health care rating [p(8+)]	1	0.47	0.47	0.55	0.62*	0.74	0.79*	0.55	0.68*	0.61	0.67*
	2	0.42	0.42	0.48	0.53*	0.71	0.76*	0.50	0.63*	0.52	0.58*
	3	0.46	0.45	0.51	0.61*	0.69	0.77*	0.52	0.66*	0.57	0.66*
	4	0.48	0.47	0.54	0.66*	0.70	0.79*	0.53	0.74*	0.59	0.69*
	5	0.47	0.42	0.56	0.64*	0.72	0.77*	0.56	0.70*	0.61	0.65*
	6	0.43	0.47	0.51	0.64*	0.74	0.78*	0.49	0.69*	0.57	0.66*
	7/8	0.46	0.46	0.52	0.65*	0.70	0.77*	0.51	0.69*	0.57	0.67*
	9	0.40	0.46	0.57	0.64*	0.72	0.77*	0.57	0.60	0.57	0.63*
	10	0.50	0.53	0.59	0.65*	0.71	0.76*	0.56	0.69*	0.63	0.70*
	11	0.47	0.43	0.58	0.62*	0.73	0.78*	0.55	0.70*	0.60	0.65*
	12	0.46	0.40	0.55	0.65*	0.76	0.84	0.65	0.86*	0.54	0.59
	Total	0.45	0.45	0.53	0.62*	0.72	0.78*	0.53	0.68*	0.58	0.65*
Health plan rating [p(8+)]	1	0.32	0.28*	0.38	0.46*	0.54	0.62*	0.37	0.52*	0.43	0.49*
	2	0.29	0.26	0.34	0.38*	0.53	0.59*	0.36	0.48*	0.38	0.41*
	3	0.32	0.32	0.37	0.48*	0.50	0.60*	0.36	0.54*	0.41	0.50*
	4	0.32	0.35	0.38	0.49*	0.52	0.58*	0.36	0.52*	0.42	0.51*
	5	0.31	0.28	0.37	0.43*	0.52	0.59*	0.36	0.54*	0.43	0.47*
	6	0.30	0.36*	0.35	0.50*	0.54	0.60*	0.33	0.50*	0.40	0.51*
	7/8	0.31	0.34*	0.36	0.52*	0.50	0.58*	0.35	0.53*	0.40	0.50*
	9	0.28	0.39*	0.41	0.52*	0.53	0.70*	0.41	0.51*	0.41	0.54*
	10	0.33	0.42*	0.41	0.51*	0.53	0.64*	0.35	0.57*	0.45	0.56*
	11	0.32	0.34	0.40	0.53*	0.54	0.61*	0.36	0.62*	0.43	0.52*
	12	0.30	0.31	0.39	0.55*	0.57	0.78*	0.49	0.69*	0.39	0.49*
	Total	0.31	0.32*	0.37	0.48*	0.52	0.61*	0.36	0.52*	0.41	0.49*

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**Table C-1—Continued**

Measure	Region	Military Status (Source of Care)									
		AD (All)		Non-AD (Prime)		Non-AD (Civilian)		Non-AD (Other Nonenrolled)		Total	
		FY94	FY99	FY94	FY99	FY94	FY99	FY94	FY99	FY94	FY99
Mammogram (age 40+)	1	0.70	0.59	0.72	0.70	0.73	0.75	0.76	0.70	0.67	0.70
	2	0.95	0.83	0.65	0.59	0.78	0.71	0.75	0.74	0.67	0.66
	3	0.67	0.69	0.57	0.68*	0.69	0.75	0.81	0.72	0.64	0.69*
	4	0.66	0.47	0.57	0.67*	0.73	0.71	0.66	0.69	0.64	0.67
	5	0.68	0.76	0.77	0.66*	0.80	0.70*	0.76	0.76	0.71	0.68
	6	0.59	0.42	0.53	0.66*	0.69	0.73	0.62	0.72	0.61	0.68*
	7/8	0.57	0.70	0.63	0.67	0.74	0.72	0.66	0.69	0.64	0.66
	9	0.77	0.84	0.71	0.62	0.73	0.68	0.73	0.57*	0.66	0.62
	10	0.61	0.78	0.72	0.71	0.71	0.73	0.80	0.62*	0.67	0.69
	11	0.90	0.47	0.63	0.66	0.67	0.70	0.62	0.60	0.63	0.66
	12	1.00	0.71	0.63	0.62	0.55	0.75	0.66	0.67	0.55	0.64
	Total	0.75	0.64	0.64	0.66	0.73	0.72	0.72	0.69	0.65	0.67*
Mammogram (age 50+)	1	1.00	0.79	0.76	0.78	0.75	0.78	0.82	0.78	0.73	0.76
	2	1.00	1.00	0.67	0.69	0.83	0.74*	0.76	0.79	0.72	0.71
	3	0.62	0.98	0.61	0.74	0.71	0.75	0.79	0.77	0.67	0.73*
	4	1.00	1.00	0.62	0.67	0.75	0.74	0.74	0.69	0.68	0.70
	5	0.00	1.00	0.91	0.73*	0.85	0.74*	0.84	0.82	0.78	0.72
	6	1.00	—	0.50	0.73*	0.68	0.76	0.65	0.78	0.64	0.73*
	7/8	0.64	0.49	0.64	0.74*	0.78	0.75	0.67	0.67	0.68	0.70
	9	—	1.00	0.76	0.69	0.76	0.69	0.77	0.61*	0.71	0.66
	10	1.00	1.00	0.77	0.73	0.76	0.73	0.86	0.75	0.73	0.70
	11	1.00	1.00	0.75	0.71	0.69	0.72	0.71	0.68	0.67	0.70
	12	—	—	0.67	0.70	0.57	0.80*	0.68	0.66	0.59	0.71
	Total	0.81	0.85	0.68	0.73	0.76	0.75	0.75	0.74	0.70	0.72
Outpatient or ER visit	1	0.65	0.84*	0.92	1.00*	1.00	1.00	0.98	0.99	0.91	0.96*
	2	0.66	0.83*	1.00	1.00	1.00	1.00	0.98	1.00	0.88	0.94*
	3	0.67	0.85*	0.98	1.00	1.00	1.00	0.97	1.00*	0.93	0.97*
	4	0.72	0.86*	0.99	1.00*	1.00	1.00	0.94	0.99*	0.94	0.97*
	5	0.73	0.82*	0.97	1.00	1.00	1.00	0.94	0.99	0.92	0.95*
	6	0.69	0.87*	0.99	1.00	1.00	1.00	0.96	0.99*	0.93	0.97*
	7/8	0.69	0.85*	0.99	0.99	1.00	1.00	0.99	1.00	0.93	0.96*
	9	0.71	0.85*	0.99	0.99	1.00	1.00	0.97	1.00	0.91	0.95*
	10	0.67	0.84*	0.96	0.99	1.00	1.00	0.98	1.00	0.95	0.98*
	11	0.74	0.86*	0.99	0.99	1.00	1.00	0.96	0.99	0.94	0.97*
	12	0.65	0.91*	1.00	1.00	1.00	1.00	0.98	1.00	0.84	0.96*
	Total	0.69	0.85*	0.99	1.00*	1.00	1.00	0.97	0.99*	0.92	0.96*

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**Table C-1—Continued**

Measure	Region	Military Status (Source of Care)									
		AD (All)		Non-AD (Prime)		Non-AD (Civilian)		Non-AD (Other Nonenrolled)		Total	
		FY94	FY99	FY94	FY99	FY94	FY99	FY94	FY99	FY94	FY99
Pap test	1	0.78	0.80	0.74	0.71	0.71	0.68	0.70	0.66	0.68	0.68
	2	0.81	0.86	0.72	0.72	0.77	0.74	0.78	0.68*	0.72	0.72
	3	0.88	0.79	0.68	0.69	0.69	0.69	0.76	0.62*	0.68	0.67
	4	0.89	0.80	0.67	0.67	0.73	0.68	0.72	0.64	0.66	0.66
	5	0.90	0.84	0.75	0.66*	0.73	0.66	0.68	0.71	0.68	0.66
	6	0.89	0.85	0.71	0.72	0.66	0.65	0.71	0.65	0.68	0.68
	7/8	0.84	0.81	0.71	0.69	0.69	0.61*	0.69	0.67	0.67	0.64*
	9	0.95	0.84*	0.77	0.67*	0.69	0.61	0.79	0.65*	0.71	0.64*
	10	0.68	0.65	0.71	0.67	0.71	0.65	0.83	0.45*	0.70	0.62*
	11	0.75	0.83	0.71	0.65	0.74	0.61*	0.66	0.47*	0.69	0.62*
	12	0.74	0.78	0.69	0.72	0.71	0.76	0.75	0.55	0.65	0.71
	Total	0.84	0.82	0.72	0.69*	0.71	0.66*	0.73	0.64*	0.69	0.67*
PCM rating [p(8+)]	1	0.61	0.68*	0.67	0.72*	0.76	0.78	0.68	0.79*	0.71	0.75*
	2	0.57	0.59	0.62	0.75*	0.75	0.77	0.64	0.69	0.66	0.73*
	3	0.60	0.59	0.64	0.70*	0.73	0.79*	0.67	0.76*	0.68	0.75*
	4	0.59	0.60	0.64	0.70*	0.73	0.81*	0.67	0.81*	0.69	0.76*
	5	0.59	0.60	0.68	0.70	0.76	0.77	0.71	0.73	0.71	0.74
	6	0.58	0.56	0.64	0.72*	0.76	0.80*	0.65	0.77*	0.69	0.75*
	7/8	0.60	0.62	0.64	0.72*	0.73	0.78*	0.66	0.76*	0.68	0.75*
	9	0.55	0.64	0.67	0.72*	0.75	0.79*	0.70	0.69	0.69	0.74*
	10	0.63	0.56	0.69	0.69	0.73	0.73	0.69	0.73	0.71	0.71
	11	0.56	0.61	0.68	0.68	0.74	0.74	0.69	0.75	0.69	0.71
	12	0.57	0.61	0.63	0.69	0.75	0.79	0.75	0.95*	0.65	0.72*
	Total	0.58	0.61	0.65	0.71*	0.74	0.78*	0.67	0.76*	0.69	0.74*
Physical examination	1	0.48	0.46	0.49	0.56*	0.72	0.71	0.67	0.62	0.57	0.58
	2	0.53	0.49	0.46	0.48	0.65	0.65	0.59	0.55	0.53	0.53
	3	0.50	0.47	0.46	0.54*	0.70	0.70	0.63	0.66	0.55	0.59*
	4	0.52	0.56	0.45	0.55*	0.68	0.68	0.60	0.60	0.53	0.59*
	5	0.52	0.48	0.39	0.50*	0.70	0.68	0.54	0.64	0.53	0.57*
	6	0.50	0.54	0.43	0.52*	0.69	0.69	0.64	0.57	0.53	0.57*
	7/8	0.48	0.54*	0.43	0.52*	0.69	0.67	0.56	0.62	0.52	0.57*
	9	0.42	0.49	0.56	0.52	0.69	0.70	0.62	0.48*	0.56	0.55
	10	0.50	0.56	0.59	0.55	0.69	0.68	0.60	0.49	0.61	0.59
	11	0.58	0.46*	0.47	0.55*	0.70	0.69	0.54	0.63	0.56	0.57
	12	0.46	0.40	0.48	0.55	0.66	0.62	0.49	0.63	0.51	0.49
	Total	0.50	0.50	0.47	0.53*	0.69	0.69	0.61	0.59	0.54	0.57*

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**Table C-1—Continued**

Measure	Region	Military Status (Source of Care)									
		AD (All)		Non-AD (Prime)		Non-AD (Civilian)		Non-AD (Other Nonenrolled)		Total	
		FY94	FY99	FY94	FY99	FY94	FY99	FY94	FY99	FY94	FY99
Prenatal care first trimester	1	0.82	0.88	0.96	0.88	1.00	0.59	0.87	0.80	0.93	0.85*
	2	1.00	0.91	1.00	0.84	1.00	0.84	0.96	0.81	0.99	0.85*
	3	0.99	0.85	0.91	0.91	1.00	0.68	0.93	0.35	0.92	0.85
	4	1.00	0.75	0.90	0.90	1.00	1.00	0.79	1.00	0.91	0.89
	5	1.00	0.62	0.82	0.78	0.05	0.66	0.89	0.83	0.88	0.77
	6	1.00	0.82*	0.96	0.91	0.78	0.74	0.90	0.96	0.93	0.88
	7/8	0.96	0.90	0.91	0.90	0.99	0.84	0.92	0.66	0.91	0.87
	9	1.00	0.73	0.99	0.90*	1.00	0.88	0.90	1.00	0.98	0.89*
	10	0.97	0.90	0.93	0.93	1.00	1.00	0.98	0.96	0.97	0.93*
	11	1.00	0.97	0.93	0.96	0.90	0.92	0.93	1.00	0.93	0.95
	12	1.00	0.93	1.00	0.90	0.31	0.19	1.00	1.00	0.96	0.81
	Total	0.98	0.85*	0.95	0.89*	0.95	0.77*	0.93	0.82*	0.94	0.86*
Specialty care rating [p(8+)]	1	0.60	0.57	0.67	0.72*	0.77	0.79	0.67	0.77*	0.70	0.74*
	2	0.59	0.56	0.63	0.66	0.76	0.80*	0.64	0.72*	0.66	0.70*
	3	0.58	0.47*	0.64	0.67	0.72	0.82*	0.65	0.76*	0.68	0.73*
	4	0.59	0.58	0.65	0.69	0.74	0.82*	0.65	0.78*	0.69	0.75*
	5	0.58	0.62	0.66	0.71	0.75	0.81*	0.67	0.76*	0.69	0.75*
	6	0.57	0.56	0.64	0.69*	0.75	0.79*	0.61	0.76*	0.67	0.72*
	7/8	0.59	0.58	0.63	0.70*	0.74	0.75	0.65	0.78*	0.68	0.72*
	9	0.55	0.61	0.67	0.68	0.75	0.79	0.66	0.72	0.68	0.71*
	10	0.63	0.59	0.70	0.70	0.76	0.76	0.67	0.77*	0.72	0.73
	11	0.60	0.59	0.69	0.64	0.74	0.78	0.66	0.75	0.69	0.71
	12	0.60	0.44*	0.67	0.71	0.76	0.83	0.62	0.94	0.67	0.65
	Total	0.59	0.56	0.65	0.69*	0.75	0.79*	0.65	0.76*	0.68	0.73*
Used ER	1	0.37	0.25*	0.43	0.23*	0.37	0.21*	0.47	0.29*	0.40	0.23*
	2	0.51	0.23*	0.47	0.30*	0.37	0.18*	0.45	0.35*	0.44	0.24*
	3	0.48	0.24*	0.49	0.26*	0.33	0.18*	0.52	0.33*	0.44	0.22*
	4	0.46	0.22*	0.46	0.27*	0.32	0.20*	0.48	0.33*	0.42	0.23*
	5	0.50	0.28*	0.51	0.31*	0.39	0.23*	0.41	0.34	0.45	0.27*
	6	0.51	0.25*	0.45	0.28*	0.31	0.21*	0.50	0.34*	0.41	0.25*
	7/8	0.54	0.25*	0.49	0.27*	0.34	0.23*	0.55	0.28*	0.46	0.25*
	9	0.44	0.26*	0.43	0.25*	0.35	0.24*	0.41	0.28*	0.40	0.25*
	10	0.39	0.17*	0.32	0.22*	0.39	0.22*	0.50	0.27*	0.39	0.23*
	11	0.43	0.24*	0.50	0.28*	0.37	0.21*	0.60	0.36*	0.45	0.25*
	12	0.51	0.28*	0.51	0.25*	0.28	0.20	0.53	0.25*	0.49	0.25*
	Total	0.47	0.24*	0.46	0.27*	0.35	0.21*	0.49	0.31*	0.43	0.24*

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**Table C-1—Continued**

Measure	Region	Military Status (Source of Care)									
		AD (All)		Non-AD (Prime)		Non-AD (Civilian)		Non-AD (Other Nonenrolled)		Total	
		FY94	FY99	FY94	FY99	FY94	FY99	FY94	FY99	FY94	FY99
Wait in office less than 30 minutes	1	0.73	0.77	0.72	0.83*	0.88	0.86	0.69	0.84*	0.78	0.83*
	2	0.65	0.72	0.62	0.70*	0.86	0.79*	0.58	0.76*	0.69	0.75*
	3	0.74	0.73	0.69	0.79*	0.84	0.79*	0.69	0.80*	0.75	0.78*
	4	0.75	0.79	0.71	0.79*	0.79	0.72*	0.62	0.77*	0.73	0.75
	5	0.76	0.73	0.67	0.79*	0.88	0.80*	0.76	0.77	0.80	0.79
	6	0.73	0.77	0.70	0.80*	0.85	0.80*	0.63	0.72	0.74	0.79*
	7/8	0.75	0.81*	0.78	0.86*	0.90	0.85*	0.73	0.80	0.81	0.84*
	9	0.69	0.73	0.78	0.78	0.91	0.86*	0.62	0.72	0.77	0.79
	10	0.75	0.83	0.82	0.83	0.94	0.86*	0.76	0.80	0.84	0.85
	11	0.76	0.79	0.79	0.85*	0.95	0.89*	0.71	0.56	0.83	0.85
	12	0.66	0.81*	0.77	0.82	0.90	0.91	0.73	0.85	0.74	0.83*
	Total	0.72	0.76*	0.73	0.80*	0.87	0.82*	0.68	0.78*	0.77	0.80*

## APPENDIX D: EFFECT OF PCM TYPE ON ACCESS AND QUALITY OF CARE OF PRIME ENROLLEES BY REGION

Table D-1 contrasts the responses of Prime enrollees to survey items by region, with the focus on the effects of having a military versus a civilian provider. Entries marked with an asterisk (\*) indicate a statistically significant change ( $p < 0.05$ ). An entry of “–” indicates that there were too few observations to make a reliable estimate. CAHPS composites are weighted, as indicated by (*w*). The metrics for CAHPS ratings estimates are shown as the probability of a rating being greater than or equal to 8 [ $p(8+)$ ].

In general, the results indicate that those with military providers tended to have higher levels of satisfaction than those with civilian providers. The pattern of results is consistent across regions. The data come from the 1999 DoD Beneficiary survey.

**Table D-1. Access and Quality of Care Differences of Prime Enrollees by PCM Type**

Measure	Region	Military Status/Provider Type					
		AD		ADFM/Retirees		All Prime	
		Civilian	Military	Civilian	Military	Civilian	Military
Appointment by phone (fewer than 3 calls)	1	0.83	0.75	0.91	0.79*	0.90	0.77*
	2	0.82	0.72	0.86	0.78*	0.85	0.75*
	3	0.61	0.82*	0.92	0.82*	0.88	0.82*
	4	0.90	0.84	0.92	0.86*	0.92	0.85*
	5	–	–	0.90	0.83*	0.91	0.86*
	6	0.70	0.76	0.92	0.81*	0.90	0.79*
	7/8	0.81	0.83	0.92	0.87*	0.91	0.85*
	9	–	–	0.94	0.82*	0.93	0.79*
	10	–	–	0.92	0.88	0.93	0.88*
	11	–	–	0.96	0.86*	0.94	0.86*
	12	–	–	0.93	0.79	0.94	0.81
	Total	0.81	0.79	0.92	0.83*	0.91	0.81*
Blood pressure check	1	0.87	0.91	0.93	0.91	0.92	0.91
	2	0.84	0.86	0.90	0.90	0.88	0.88
	3	0.86	0.89	0.89	0.92*	0.89	0.91
	4	0.84	0.96*	0.91	0.93	0.90	0.94*
	5	0.90	0.92	0.89	0.92	0.90	0.92
	6	0.91	0.93	0.92	0.91	0.92	0.92
	7/8	0.85	0.94*	0.93	0.90	0.91	0.92
	9	0.90	0.91	0.92	0.91	0.91	0.91
	10	0.97	0.94	0.89	0.88	0.90	0.90
	11	0.85	0.94*	0.91	0.89	0.90	0.91
	12	–	–	0.96	0.89*	0.84	0.88
	Total	0.87	0.91*	0.91	0.91	0.90	0.91*

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**Table D-1—Continued**

Measure	Region	Military Status/Provider Type					
		AD		ADFM/Retirees		All Prime	
		Civilian	Military	Civilian	Military	Civilian	Military
Cholesterol test	1	0.49	0.41	0.61	0.44*	0.59	0.42*
	2	0.48	0.42	0.46	0.35*	0.47	0.38*
	3	0.52	0.37*	0.57	0.48*	0.56	0.43*
	4	0.43	0.46	0.54	0.50	0.52	0.48
	5	0.46	0.41	0.50	0.47	0.49	0.43
	6	0.44	0.45	0.56	0.50	0.54	0.48*
	7/8	0.38	0.44	0.52	0.46	0.50	0.45
	9	0.38	0.41	0.53	0.42*	0.50	0.41*
	10	0.57	0.51	0.51	0.46	0.52	0.48
	11	0.53	0.41	0.58	0.48*	0.57	0.45*
	12	—	—	0.61	0.38*	0.54	0.36*
	Total	0.46	0.42*	0.55	0.45*	0.53	0.44*
Claims composite (w)	1	0.51	0.52	0.73	0.66	0.69	0.60*
	2	0.75	0.54*	0.74	0.71	0.74	0.64*
	3	0.60	0.68	0.82	0.79	0.80	0.76
	4	0.57	0.61	0.80	0.79	0.78	0.74
	5	0.58	0.50	0.74	0.71	0.70	0.61*
	6	0.68	0.68	0.79	0.78	0.78	0.75
	7/8	0.49	0.58	0.77	0.79	0.73	0.72
	9	0.74	0.69	0.76	0.74	0.75	0.72
	10	—	—	0.81	0.82	0.79	0.77
	11	0.49	0.75	0.77	0.84	0.73	0.81
	12	—	—	0.77	0.65	0.78	0.65
	Total	0.60	0.60	0.78	0.76	0.75	0.70*
Courteous staff composite (w)	1	0.90	0.85	0.93	0.88*	0.92	0.86*
	2	0.81	0.84	0.91	0.83*	0.88	0.83
	3	0.88	0.81	0.89	0.88	0.89	0.85*
	4	0.81	0.86	0.92	0.91	0.90	0.89
	5	0.89	0.80*	0.93	0.87*	0.92	0.83*
	6	0.75	0.82	0.91	0.89*	0.90	0.85*
	7/8	0.88	0.86	0.93	0.89*	0.92	0.88*
	9	0.84	0.81	0.91	0.85*	0.90	0.83*
	10	—	—	0.92	0.92	0.92	0.90
	11	0.86	0.81	0.94	0.90	0.92	0.87*
	12	—	—	0.88	0.84	0.83	0.83
	Total	0.85	0.83	0.92	0.88*	0.90	0.85*

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**Table D-1—Continued**

Measure	Region	Military Status/Provider Type					
		AD		ADFM/Retirees		All Prime	
		Civilian	Military	Civilian	Military	Civilian	Military
Customer service composite (w)	1	0.24	0.35*	0.51	0.41*	0.46	0.38*
	2	0.31	0.44*	0.48	0.49	0.41	0.46
	3	0.35	0.41	0.53	0.54	0.51	0.49
	4	0.37	0.42	0.44	0.52*	0.43	0.48*
	5	0.39	0.42	0.43	0.47	0.42	0.44
	6	0.41	0.38	0.49	0.52	0.48	0.46
	7/8	0.34	0.38	0.53	0.52	0.50	0.46
	9	0.43	0.45	0.53	0.55	0.51	0.50
	10	—	—	0.54	0.58	0.53	0.54
	11	0.40	0.46	0.45	0.58*	0.44	0.53*
	12	—	—	0.45	0.51	0.40	0.47
	Total	0.35	0.40*	0.49	0.51	0.47	0.46
Doctor communication composite (w)	1	0.81	0.85	0.90	0.87	0.88	0.86*
	2	0.81	0.82	0.87	0.78*	0.85	0.80*
	3	0.75	0.81	0.86	0.86	0.84	0.84
	4	0.85	0.82	0.86	0.87	0.86	0.85
	5	0.86	0.79	0.89	0.86*	0.88	0.82*
	6	0.74	0.80	0.87	0.86	0.85	0.83
	7/8	0.84	0.82	0.90	0.87*	0.89	0.85*
	9	0.77	0.82	0.86	0.84	0.84	0.83
	10	—	—	0.88	0.89	0.88	0.88
	11	0.80	0.80	0.91	0.89	0.89	0.85
	12	—	—	0.85	0.87	0.86	0.86
	Total	0.81	0.82	0.88	0.85*	0.86	0.84*
Flu shot (all ages)	1	0.68	0.76	0.48	0.39*	0.52	0.58*
	2	0.73	0.79	0.33	0.24*	0.48	0.53
	3	0.61	0.77*	0.34	0.29	0.38	0.51*
	4	0.69	0.84*	0.42	0.37*	0.47	0.57*
	5	0.47	0.77*	0.41	0.42	0.42	0.61*
	6	0.66	0.86*	0.43	0.39	0.46	0.61*
	7/8	0.61	0.87*	0.46	0.37*	0.48	0.59*
	9	0.65	0.84*	0.36	0.32	0.42	0.59*
	10	0.65	0.83	0.44	0.35*	0.45	0.54*
	11	0.74	0.83	0.47	0.38	0.52	0.56
	12	—	—	0.37	0.25	0.42	0.51
	Total	0.64	0.81*	0.41	0.35*	0.46	0.57*

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**Table D-1—Continued**

Measure	Region	Military Status/Provider Type					
		AD		ADFM/Retirees		All Prime	
		Civilian	Military	Civilian	Military	Civilian	Military
Flu shot (age 65+)	1	—	—	0.82	0.77	0.82	0.77
	2	—	—	—	—	—	—
	3	—	—	—	—	—	—
	4	—	—	—	—	—	—
	5	—	—	—	—	—	—
	6	—	—	0.86	0.79	0.86	0.79
	7/8	—	—	—	—	—	—
	9	—	—	0.42	0.86*	0.42	0.86*
	10	—	—	—	—	—	—
	11	—	—	0.83	0.82	0.83	0.82
	12	—	—	—	—	—	—
	Total	—	—	0.79	0.76	0.79	0.76
Getting care quickly composite (w)	1	0.71	0.68	0.83	0.73*	0.81	0.71*
	2	0.70	0.68	0.76	0.69*	0.74	0.68*
	3	0.57	0.70*	0.79	0.77	0.76	0.74
	4	0.67	0.71	0.79	0.79	0.77	0.76
	5	0.75	0.73	0.84	0.73*	0.81	0.73*
	6	0.63	0.69	0.80	0.75*	0.78	0.72*
	7/8	0.72	0.70	0.84	0.77*	0.82	0.74*
	9	0.75	0.70	0.76	0.75	0.76	0.72
	10	—	—	0.80	0.79	0.80	0.78
	11	0.73	0.72	0.85	0.70*	0.83	0.71*
	12	—	—	0.75	0.76	0.77	0.75
	Total	0.70	0.70	0.80	0.75*	0.79	0.72*
Getting needed care composite (w)	1	0.54	0.67*	0.85	0.72*	0.80	0.70*
	2	0.58	0.67	0.72	0.71	0.67	0.69
	3	0.49	0.68*	0.73	0.75	0.69	0.72
	4	0.69	0.72	0.68	0.75*	0.68	0.74*
	5	0.61	0.71*	0.73	0.76	0.70	0.73
	6	0.50	0.70*	0.71	0.74	0.68	0.72
	7/8	0.59	0.68*	0.72	0.74	0.70	0.72
	9	0.44	0.70*	0.64	0.77*	0.60	0.74*
	10	—	—	0.68	0.78*	0.68	0.77*
	11	0.61	0.71	0.82	0.78	0.78	0.75
	12	—	—	0.65	0.80*	0.55	0.76*
	Total	0.55	0.69*	0.73	0.75*	0.70	0.72*

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**Table D-1—Continued**

Measure	Region	Military Status/Provider Type					
		AD		ADFM/Retirees		All Prime	
		Civilian	Military	Civilian	Military	Civilian	Military
Had outpatient visit	1	0.57	0.88*	0.91	0.93	0.84	0.90*
	2	0.73	0.85*	0.89	0.93	0.83	0.89*
	3	0.72	0.86*	0.90	0.91	0.87	0.89*
	4	0.60	0.90*	0.92	0.92	0.86	0.91*
	5	0.40	0.89*	0.91	0.91	0.78	0.90*
	6	0.68	0.90*	0.91	0.91	0.88	0.90*
	7/8	0.67	0.90*	0.90	0.91	0.86	0.90*
	9	0.71	0.91*	0.94	0.91*	0.89	0.91
	10	0.55	0.88*	0.91	0.85*	0.89	0.86
	11	0.60	0.91*	0.92	0.91	0.86	0.91*
	12	—	—	0.94	0.91	0.90	0.90
	Total	0.63	0.88*	0.91	0.91	0.86	0.90*
Health care rating [p(8+)]	1	0.46	0.48	0.69	0.59*	0.65	0.53*
	2	0.40	0.46	0.63	0.50*	0.55	0.48
	3	0.27	0.46*	0.60	0.63	0.55	0.56
	4	0.50	0.47	0.64	0.66	0.62	0.58
	5	0.47	0.40	0.65	0.63	0.61	0.50*
	6	0.35	0.49	0.65	0.64	0.62	0.57
	7/8	0.45	0.45	0.69	0.64*	0.65	0.56*
	9	0.45	0.50	0.64	0.64	0.60	0.57
	10	0.55	0.53	0.66	0.67	0.66	0.61
	11	0.35	0.49	0.67	0.63	0.61	0.57
	12	—	—	0.64	0.63	0.60	0.52
	Total	0.42	0.47	0.65	0.62*	0.61	0.55*
Health plan rating [p(8+)]	1	0.25	0.30	0.56	0.42*	0.50	0.36*
	2	0.21	0.30	0.37	0.39	0.31	0.34
	3	0.24	0.33	0.47	0.51	0.43	0.43
	4	0.28	0.37	0.43	0.53*	0.41	0.46
	5	0.25	0.31	0.39	0.45	0.35	0.38
	6	0.33	0.37	0.46	0.53*	0.45	0.45
	7/8	0.22	0.36*	0.49	0.52	0.45	0.45
	9	0.33	0.44	0.46	0.56*	0.43	0.50*
	10	0.30	0.47	0.47	0.59*	0.46	0.54*
	11	0.12	0.43*	0.47	0.58*	0.40	0.52*
	12	—	—	0.41	0.57*	0.42	0.44
	Total	0.26	0.35*	0.46	0.50*	0.42	0.43

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**Table D-1—Continued**

Measure	Region	Military Status/Provider Type					
		AD		ADFM/Retirees		All Prime	
		Civilian	Military	Civilian	Military	Civilian	Military
Mammogram (age 40+)	1	—	—	0.67	0.71	0.66	0.70
	2	—	—	0.58	0.62	0.57	0.64
	3	—	—	0.62	0.71*	0.62	0.70*
	4	—	—	0.61	0.72*	0.62	0.69
	5	—	—	0.64	0.68	0.63	0.70
	6	—	—	0.65	0.68	0.64	0.66
	7/8	—	—	0.59	0.70*	0.59	0.71*
	9	—	—	0.65	0.61	0.65	0.61
	10	—	—	0.67	0.78	0.67	0.78*
	11	—	—	0.73	0.60	0.73	0.59
	12	—	—	0.65	0.64	0.65	0.64
	Total	0.51	0.64	0.64	0.68*	0.64	0.68*
Mammogram (age 50+)	1	—	—	0.69	0.79	0.69	0.79
	2	—	—	0.65	0.73	0.65	0.73
	3	—	—	0.66	0.78*	0.66	0.79*
	4	—	—	0.64	0.71	0.64	0.72
	5	—	—	0.69	0.74	0.70	0.75
	6	—	—	0.67	0.76	0.67	0.76
	7/8	—	—	0.66	0.76*	0.66	0.75*
	9	—	—	0.69	0.73	0.69	0.73
	10	—	—	0.69	0.83	0.69	0.83
	11	—	—	0.76	0.65	0.76	0.66
	12	—	—	—	—	—	—
	Total	—	—	0.68	0.75*	0.68	0.75*
Outpatient or ER visit	1	0.67	0.89*	1.00	1.00	0.93	0.94
	2	0.77	0.86*	1.00	1.00	0.91	0.92
	3	0.74	0.88*	1.00	1.00	0.96	0.94
	4	0.69	0.92*	1.00	1.00	0.94	0.96*
	5	0.55	0.91*	1.00	1.00	0.87	0.95*
	6	0.71	0.91*	1.00	1.00	0.96	0.95
	7/8	0.73	0.91*	1.00	1.00	0.95	0.95
	9	0.76	0.93*	1.00	1.00	0.95	0.96
	10	0.63	0.88*	1.00	1.00	0.98	0.94
	11	0.71	0.93*	1.00	1.00	0.94	0.97*
	12	—	—	—	—	0.95	0.96
	Total	0.70	0.90*	1.00	1.00	0.94	0.95*

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**Table D-1—Continued**

Measure	Region	Military Status/Provider Type					
		AD		ADFM/Retirees		All Prime	
		Civilian	Military	Civilian	Military	Civilian	Military
Pap test (past 12 months)	1	—	—	0.66	0.72	0.66	0.74
	2	—	—	0.66	0.74*	0.68	0.76*
	3	—	—	0.63	0.71*	0.64	0.73*
	4	—	—	0.62	0.72*	0.63	0.73*
	5	—	—	0.62	0.71	0.64	0.75*
	6	—	—	0.69	0.74	0.69	0.76*
	7/8	—	—	0.61	0.71*	0.61	0.74*
	9	—	—	0.66	0.70	0.66	0.73
	10	—	—	0.65	0.70	0.65	0.69
	11	—	—	0.61	0.66	0.62	0.69
	12	—	—	0.71	0.73	0.72	0.74
	Total	0.80	0.83	0.65	0.72*	0.65	0.74*
PCM rating [p(8+)]	1	0.67	0.71	0.70	0.76	0.70	0.74
	2	0.62	0.62	0.72	0.75	0.70	0.69
	3	0.52	0.59	0.67	0.74*	0.66	0.69
	4	0.53	0.64	0.66	0.72	0.65	0.70
	5	0.50	0.62	0.65	0.77*	0.61	0.71
	6	0.49	0.59	0.70	0.75	0.68	0.70
	7/8	0.60	0.63	0.69	0.74*	0.68	0.71
	9	0.52	0.63	0.68	0.77*	0.66	0.72
	10	—	—	0.67	0.73	0.67	0.67
	11	0.37	0.69*	0.69	0.71	0.65	0.70
	12	—	—	0.68	0.67	0.67	0.65
	Total	0.54	0.63	0.68	0.74*	0.67	0.70*
Physical examination (past 12 months)	1	0.54	0.46	0.66	0.51*	0.64	0.48*
	2	0.52	0.51	0.55	0.48	0.54	0.49
	3	0.42	0.47	0.58	0.54	0.55	0.51
	4	0.44	0.59	0.62	0.53*	0.59	0.56
	5	0.48	0.47	0.58	0.48*	0.56	0.48*
	6	0.46	0.56	0.59	0.51*	0.57	0.54
	7/8	0.42	0.55*	0.57	0.52	0.54	0.53
	9	0.47	0.49	0.59	0.49*	0.57	0.49*
	10	0.56	0.58	0.58	0.54	0.58	0.56
	11	0.39	0.48	0.65	0.51*	0.60	0.50*
	12	—	—	0.70	0.51*	0.58	0.45
	Total	0.47	0.51	0.60	0.51*	0.57	0.51*

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**Table D-1—Continued**

Measure	Region	Military Status/Provider Type					
		AD		ADFM/Retirees		All Prime	
		Civilian	Military	Civilian	Military	Civilian	Military
Prenatal care first trimester	1	—	—	0.85	0.86	0.85	0.87
	2	—	—	0.91	0.83	0.91	0.87
	3	—	—	0.93	0.92	0.94	0.90
	4	—	—	0.87	0.88	0.87	0.83
	5	—	—	—	—	—	—
	6	—	—	0.97	0.90	0.97	0.88
	7/8	—	—	0.84	0.91	0.82	0.92
	9	—	—	0.94	0.95	0.94	0.89
	10	—	—	0.91	0.94	0.91	0.93
	11	—	—	0.89	0.97	0.87	0.98
	12	—	—	—	—	—	—
	Total	—	—	0.88	0.89	0.89	0.89
Specialty care rating [p(8+)]	1	0.57	0.58	0.78	0.70	0.75	0.64*
	2	0.47	0.58	0.62	0.66	0.58	0.62
	3	0.28	0.49*	0.68	0.68	0.63	0.61
	4	0.44	0.62	0.70	0.66	0.67	0.64
	5	0.64	0.63	0.74	0.67	0.72	0.65
	6	0.47	0.56	0.70	0.69	0.68	0.63
	7/8	0.64	0.57	0.71	0.70	0.70	0.65
	9	—	—	0.66	0.70	0.65	0.67
	10	—	—	0.69	0.72	0.69	0.67
	11	0.77	0.58	0.72	0.65	0.73	0.63*
	12	—	—	0.73	0.69	0.66	0.58
	Total	0.53	0.57	0.70	0.68	0.68	0.64*
Used ER	1	0.29	0.25	0.19	0.25*	0.21	0.25*
	2	0.18	0.24	0.25	0.31	0.23	0.28*
	3	0.19	0.25	0.24	0.28	0.23	0.27*
	4	0.31	0.23	0.26	0.27	0.27	0.25
	5	0.34	0.31	0.30	0.32	0.31	0.32
	6	0.18	0.27*	0.25	0.30*	0.24	0.29*
	7/8	0.32	0.26	0.21	0.29*	0.23	0.28*
	9	0.31	0.30	0.21	0.26*	0.24	0.28*
	10	0.20	0.19	0.21	0.22	0.21	0.21
	11	0.26	0.27	0.19	0.35*	0.20	0.32*
	12	—	—	0.23	0.26	0.20	0.28
	Total	0.26	0.26	0.23	0.29*	0.24	0.28*

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**Table D-1—Continued**

Measure	Region	Military Status/Provider Type					
		AD		ADFM/Retirees		All Prime	
		Civilian	Military	Civilian	Military	Civilian	Military
Wait in office less than 30 minutes	1	0.79	0.77	0.83	0.83	0.83	0.80
	2	0.75	0.73	0.73	0.71	0.74	0.72
	3	0.61	0.74	0.74	0.81*	0.72	0.78
	4	0.72	0.78	0.69	0.86*	0.70	0.83*
	5	—	—	0.76	0.83	0.77	0.76
	6	0.49	0.79*	0.72	0.84*	0.70	0.81*
	7/8	0.69	0.81	0.81	0.87*	0.80	0.84*
	9	0.74	0.73	0.71	0.82*	0.71	0.77
	10	—	—	0.83	0.85	0.83	0.85
	11	—	—	0.88	0.84	0.84	0.82
	12	—	—	0.78	0.84	0.79	0.82
	Total	0.71	0.77	0.76	0.82*	0.76	0.80*
Prostate examination (past 12 months—race/age dependent)	1	—	—	0.66	0.60	0.67	0.60
	2	—	—	0.43	0.60*	0.42	0.56
	3	—	—	0.55	0.55	0.56	0.58
	4	—	—	0.64	0.60	0.61	0.60
	5	—	—	0.61	0.61	0.61	0.57
	6	—	—	0.58	0.62	0.58	0.64
	7/8	—	—	0.61	0.59	0.60	0.58
	9	—	—	0.59	0.53	0.57	0.53
	10	—	—	0.56	0.56	0.56	0.55
	11	—	—	0.75	0.56*	0.73	0.57*
	12	—	—	0.69	0.54	0.69	0.51
	Total	0.50	0.59	0.60	0.58	0.60	0.58

## APPENDIX E: REGIONAL QUALITY-OF-CARE INDICATORS

Table E-1 shows quality-of-care measures for the 1999 population, broken down by TRICARE region, source of care, and military status. Entries of “n/a” indicate insufficient data for estimate. Items marked with a “+” indicate the goal was exceeded. Items marked with a “-” indicate the goal was not met. Items with neither a “+” nor “-” indicate that the differences between the goal and level achieved was not statistically significant ( $p < 0.05$ ).

**Table E-1. Quality-of-Care Measures**

			Military Status/Source of Care				
			AD	Non-Active Duty			Total
Measure	Region	Goal	All	Prime	Civilian	Other Nonenrolled	All
Blood pressure check	1	0.90	0.92+	0.94+	0.97+	0.95+	0.95+
	2	0.90	0.89–	0.91+	0.97+	0.94+	0.92+
	3	0.90	0.91+	0.93+	0.97+	0.95+	0.95+
	4	0.90	0.95+	0.93+	0.97+	0.95+	0.96+
	5	0.90	0.91+	0.91+	0.97+	0.94+	0.94+
	6	0.90	0.91+	0.93+	0.97+	0.95+	0.94+
	7/8	0.90	0.93+	0.92+	0.97+	0.96+	0.95+
	9	0.90	0.91+	0.91+	0.97+	0.91+	0.93+
	10	0.90	0.93+	0.91+	0.97+	0.93+	0.94+
	11	0.90	0.92+	0.93+	0.97+	0.96+	0.95+
	12	0.90	0.91+	0.93+	0.95+	0.91+	0.92+
	Total	0.90	0.91+	0.92+	0.97+	0.95+	0.94+
Breast exam	1	0.60	0.79	0.74+	0.76+	0.74+	0.76+
	2	0.60	0.89	0.69+	0.77+	0.77	0.75+
	3	0.60	0.66+	0.68+	0.74+	0.70+	0.72+
	4	0.60	0.72	0.72+	0.75+	0.62+	0.73+
	5	0.60	0.87	0.69+	0.71+	0.79	0.72+
	6	0.60	0.65+	0.70+	0.73+	0.71+	0.72+
	7/8	0.60	0.81	0.71+	0.72+	0.67+	0.72+
	9	0.60	0.89	0.64+	0.68+	0.65+	0.67+
	10	0.60	0.86	0.75+	0.68+	0.56–	0.69+
	11	0.60	0.62	0.73+	0.72+	0.54–	0.71+
	12	0.60	0.78	0.72+	0.76	0.56	0.71+
	Total	0.60	0.77+	0.70+	0.73+	0.70+	0.72+

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**Table E-1—Continued**

			Military Status/Source of Care				
			AD	Non-Active Duty			Total
Measure	Region	Goal	All	Prime	Civilian	Other Nonenrolled	All
Cholesterol screening	1	0.75	0.79+	0.80+	0.91+	0.88+	0.85+
	2	0.75	0.75–	0.69–	0.90+	0.84+	0.79+
	3	0.75	0.76+	0.78+	0.92+	0.88+	0.85+
	4	0.75	0.80+	0.81+	0.90+	0.87+	0.85+
	5	0.75	0.75–	0.75–	0.88+	0.87+	0.82+
	6	0.75	0.78+	0.79+	0.90+	0.87+	0.84+
	7/8	0.75	0.79+	0.76+	0.88+	0.85+	0.82+
	9	0.75	0.72–	0.73–	0.91+	0.76+	0.79+
	10	0.75	0.77+	0.80+	0.92+	0.88+	0.87+
	11	0.75	0.78+	0.81+	0.91+	0.85+	0.85+
	12	0.75	0.75–	0.74–	0.87+	0.84+	0.77+
	Total	0.75	0.77+	0.77+	0.90+	0.86+	0.83+
Flu shot	1	0.60	n/a	0.78	0.81	0.85	0.81
	2	0.60	n/a	0.76	0.79	0.80	0.79
	3	0.60	n/a	0.69+	0.75+	0.79	0.75+
	4	0.60	n/a	0.71+	0.78+	0.79	0.78+
	5	0.60	n/a	0.85	0.81	0.84	0.82
	6	0.60	n/a	0.80	0.81	0.78	0.80
	7/8	0.60	n/a	0.79	0.81	0.79	0.81
	9	0.60	n/a	0.63+	0.81	0.79	0.79
	10	0.60	n/a	0.78	0.79	0.75	0.78+
	11	0.60	n/a	0.81	0.81	0.80	0.81
	12	0.60	n/a	0.57	0.72	0.72	0.70+
	Total	0.60	n/a	0.76+	0.79+	0.81	0.79+
General physical	1	0.00	0.46	0.55	0.72	0.64	0.61
	2	0.00	0.48	0.48	0.66	0.56	0.55
	3	0.00	0.48	0.55	0.71	0.65	0.61
	4	0.00	0.56	0.56	0.68	0.61	0.62
	5	0.00	0.49	0.50	0.67	0.65	0.59
	6	0.00	0.54	0.53	0.70	0.58	0.60
	7/8	0.00	0.54	0.52	0.67	0.62	0.60
	9	0.00	0.49	0.53	0.70	0.50	0.57
	10	0.00	0.56	0.56	0.68	0.50	0.61
	11	0.00	0.45	0.55	0.70	0.62	0.59
	12	0.00	0.39	0.55	0.64	0.67	0.50
	Total	0.00	0.50	0.53	0.69	0.60	0.59

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**Table E-1—Continued**

			Military Status/Source of Care				
			AD	Non-Active Duty			Total
Measure	Region	Goal	All	Prime	Civilian	Other Nonenrolled	All
Mammogram	1	0.60	0.90	0.90+	0.88+	0.91+	0.89+
	2	0.60	1.00	0.88+	0.88+	0.88	0.88+
	3	0.60	0.95	0.90+	0.87+	0.92+	0.88+
	4	0.60	1.00	0.87+	0.88+	0.90	0.88+
	5	0.60	1.00	0.88+	0.85	0.87	0.86+
	6	0.60	1.00	0.89+	0.87+	0.84	0.87+
	7/8	0.60	1.00	0.88+	0.89+	0.87+	0.89+
	9	0.60	1.00	0.88+	0.87+	0.85	0.87+
	10	0.60	1.00	0.94+	0.87+	0.91	0.89+
	11	0.60	1.00	0.88+	0.88+	0.83	0.87+
	12	0.60	1.00	0.86	0.85	0.89	0.86
	Total	0.60	0.97+	0.89+	0.87+	0.88+	0.88+
Pap smear	1	0.85	0.96+	0.92+	0.85−	0.87+	0.88+
	2	0.85	0.95+	0.93+	0.90+	0.87+	0.91+
	3	0.85	0.93+	0.90+	0.88+	0.88+	0.89+
	4	0.85	0.96+	0.91+	0.87+	0.86+	0.89+
	5	0.85	0.99+	0.90+	0.85−	0.86+	0.88+
	6	0.85	0.96+	0.92+	0.84−	0.85−	0.89+
	7/8	0.85	0.95+	0.91+	0.85−	0.87+	0.88+
	9	0.85	0.99+	0.90+	0.83−	0.82−	0.88+
	10	0.85	0.98+	0.92+	0.84−	0.77−	0.87+
	11	0.85	0.95+	0.93+	0.84−	0.75−	0.88+
	12	0.85	0.90+	0.95+	0.89+	0.93+	0.93+
	Total	0.85	0.96+	0.91+	0.86+	0.85−	0.89+
Prenatal care	1	0.90	0.89−	0.86−	0.74−	0.79	0.84−
	2	0.90	0.81−	0.86−	0.84−	0.76−	0.84−
	3	0.90	0.90−	0.91+	0.70−	0.57	0.87−
	4	0.90	0.78−	0.87−	1.00	1.00	0.88−
	5	0.90	0.78	0.77−	0.75	0.80	0.77−
	6	0.90	0.80−	0.89−	0.70	0.92	0.85−
	7/8	0.90	0.88−	0.90−	0.79−	0.65	0.86−
	9	0.90	0.73	0.93+	0.81	1.00	0.88−
	10	0.90	0.60	0.93+	0.60	0.97	0.85−
	11	0.90	0.93	0.96+	0.96	1.00	0.95+
	12	0.90	0.88	0.84−	0.19	1.00	0.77−
	Total	0.90	0.83−	0.89−	0.76−	0.81−	0.85−

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**Table E-1—Continued**

Measure	Region	Goal	Military Status/Source of Care				Total
			AD	Non-Active Duty			
			All	Prime	Civilian	Other Nonenrolled	All
Prostate exam	1	0.99	0.61–	0.64–	0.74–	0.73–	0.72–
	2	0.99	0.61–	0.56–	0.70–	0.65–	0.67–
	3	0.99	0.77–	0.59–	0.71–	0.66–	0.68–
	4	0.99	0.59–	0.64–	0.75–	0.67–	0.71–
	5	0.99	0.35–	0.61–	0.70–	0.67–	0.67–
	6	0.99	0.67–	0.62–	0.73–	0.65–	0.69–
	7/8	0.99	0.62–	0.59–	0.70–	0.71–	0.68–
	9	0.99	0.66	0.55–	0.77–	0.63–	0.70–
	10	0.99	0.73	0.56–	0.65–	0.56–	0.62–
	11	0.99	0.72	0.62–	0.73–	0.68–	0.69–
	12	0.99	0.82	0.60–	0.51–	0.70	0.58–
	Total	0.99	0.62–	0.60–	0.72–	0.67–	0.69–
Smoking counseling	1	0.75	0.56–	0.62–	0.63–	0.70–	0.62–
	2	0.75	0.52–	0.53–	0.63–	0.57–	0.56–
	3	0.75	0.47–	0.60–	0.63–	0.70–	0.59–
	4	0.75	0.53–	0.59–	0.57–	0.62–	0.57–
	5	0.75	0.41–	0.58–	0.64–	0.64–	0.56–
	6	0.75	0.55–	0.60–	0.60–	0.62–	0.59–
	7/8	0.75	0.60–	0.62–	0.59–	0.58–	0.60–
	9	0.75	0.50–	0.64–	0.66–	0.67–	0.59–
	10	0.75	0.63–	0.61–	0.63–	0.64–	0.63–
	11	0.75	0.43–	0.64–	0.73–	0.63–	0.62–
	12	0.75	0.58–	0.75–	0.67	0.64	0.64–
	Total	0.75	0.52–	0.60–	0.62–	0.64–	0.59–
Smoking (ages 18–24)	1	0.80	0.78–	0.84+	0.84+	0.80+	0.80+
	2	0.80	0.65–	0.76–	0.78–	0.78–	0.69–
	3	0.80	0.68–	0.80+	0.78–	0.92+	0.74–
	4	0.80	0.76–	0.77–	0.91+	0.68–	0.78–
	5	0.80	0.54–	0.74–	0.71–	0.81+	0.62–
	6	0.80	0.74–	0.79–	0.89+	0.70–	0.77–
	7/8	0.80	0.79–	0.84+	0.84+	0.81+	0.82+
	9	0.80	0.73–	0.82+	0.82+	0.68–	0.75–
	10	0.80	0.69–	0.81+	0.73–	0.88+	0.75–
	11	0.80	0.78–	0.78–	0.95+	0.22–	0.79–
	12	0.80	0.76–	0.80+	0.52–	1.00+	0.76–
	Total	0.80	0.71–	0.80+	0.82+	0.77–	0.75–

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**Table E-1—Continued**

			Military Status/Source of Care				
			AD	Non-Active Duty			Total
Measure	Region	Goal	All	Prime	Civilian	Other Nonenrolled	All
Smoking (pregnant)	1	0.90	0.81–	0.87–	0.85–	0.73–	0.85–
	2	0.90	0.93+	0.86–	0.87–	0.70–	0.86–
	3	0.90	1.00+	0.88–	0.82–	0.73–	0.89–
	4	0.90	0.96+	0.86–	0.87–	0.92+	0.88–
	5	0.90	0.80–	0.75–	0.69–	0.74–	0.74–
	6	0.90	0.78–	0.87–	0.77–	0.82–	0.83–
	7/8	0.90	0.75–	0.91+	0.82–	0.89–	0.87–
	9	0.90	0.93+	0.84–	0.94+	0.83–	0.86–
	10	0.90	0.94+	0.84–	0.98+	0.42–	0.81–
	11	0.90	0.88–	0.89–	0.96+	0.97+	0.90+
	12	0.90	0.80–	0.89–	0.93+	0.43–	0.86–
	Total	0.90	0.88–	0.86–	0.84–	0.77–	0.86–

## APPENDIX F: REGIONAL DIFFERENCES IN SATISFACTION WITH CLAIMS PROCESSING

Table F-1 shows changes in survey respondent's claims filing experiences by region, source of care and military status, from 1994 to 1999. Items marked with an asterisk (\*) indicate a statistically significant change ( $p < 0.05$ ).

**Table F-1. Regional Claims Filing**

Measure	Region	Military Status (Source of Care)									
		AD (All)		Non-AD (Prime)		Non-AD (Civilian)		Non-AD (Other Nonenrolled)		Total	
		FY94	FY99	FY94	FY99	FY94	FY99	FY94	FY99	FY94	FY99
CAHPS claims composite (w)	1	0.74	0.52*	0.79	0.68*	0.87	0.89	0.79	0.85*	0.84	0.81*
	2	0.74	0.62*	0.78	0.72*	0.86	0.89*	0.78	0.84	0.82	0.82
	3	0.75	0.65*	0.78	0.80	0.85	0.91*	0.77	0.86*	0.82	0.86*
	4	0.75	0.59*	0.78	0.78	0.85	0.89*	0.77	0.86*	0.82	0.85*
	5	0.71	0.56*	0.81	0.73*	0.85	0.88	0.79	0.86*	0.83	0.82
	6	0.73	0.67	0.77	0.79	0.87	0.90*	0.74	0.86*	0.82	0.85*
	7/8	0.75	0.57*	0.77	0.78	0.86	0.88*	0.77	0.88*	0.82	0.83
	9	0.73	0.66	0.80	0.76	0.86	0.95*	0.83	0.85	0.83	0.84
	10	0.77	0.64	0.81	0.80	0.88	0.88	0.78	0.87*	0.84	0.85
	11	0.74	0.69	0.79	0.79	0.87	0.93*	0.74	0.87*	0.83	0.87*
	12	0.75	0.60	0.83	0.70*	0.88	0.95	0.77	0.96	0.83	0.79
	Total	0.74	0.60*	0.78	0.76*	0.86	0.90*	0.78	0.86*	0.82	0.84*
Claims processed correctly	1	0.76	0.55*	0.82	0.69*	0.88	0.89	0.81	0.86*	0.85	0.82*
	2	0.76	0.61*	0.79	0.73*	0.87	0.91*	0.80	0.84	0.84	0.83
	3	0.77	0.70	0.80	0.81	0.86	0.91*	0.79	0.87*	0.84	0.87*
	4	0.76	0.65*	0.79	0.78	0.87	0.90*	0.79	0.85	0.83	0.85*
	5	0.73	0.57*	0.82	0.74*	0.87	0.90*	0.82	0.88	0.85	0.84
	6	0.76	0.70	0.79	0.81	0.88	0.91*	0.78	0.86*	0.83	0.86*
	7/8	0.77	0.62*	0.79	0.80	0.87	0.91*	0.78	0.90*	0.84	0.86*
	9	0.74	0.70	0.82	0.77*	0.88	0.96*	0.85	0.85	0.85	0.86
	10	0.79	0.65	0.83	0.80	0.89	0.92	0.81	0.89	0.86	0.87
	11	0.75	0.73	0.80	0.82	0.88	0.94*	0.77	0.86*	0.84	0.89*
	12	0.77	0.65	0.83	0.73	0.89	0.95	0.79	0.98	0.84	0.82
	Total	0.76	0.63*	0.80	0.78*	0.87	0.91*	0.80	0.87*	0.84	0.85*

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**Table F-1—Continued**

Measure	Region	Military Status (Source of Care)									
		AD (All)		Non-AD (Prime)		Non-AD (Civilian)		Non-AD (Other Nonenrolled)		Total	
		FY94	FY99	FY94	FY99	FY94	FY99	FY94	FY99	FY94	FY99
Claims processed in reasonable time	1	0.72	0.48*	0.77	0.67*	0.85	0.86	0.77	0.82*	0.82	0.79*
	2	0.72	0.60*	0.76	0.73	0.84	0.85	0.76	0.83*	0.80	0.79
	3	0.74	0.64*	0.76	0.79*	0.84	0.88*	0.76	0.83*	0.80	0.84*
	4	0.74	0.52*	0.76	0.78	0.84	0.86	0.75	0.86*	0.81	0.82
	5	0.70	0.52*	0.79	0.71*	0.84	0.84	0.76	0.82	0.81	0.78*
	6	0.70	0.63	0.75	0.79*	0.86	0.87	0.72	0.83*	0.80	0.83*
	7/8	0.73	0.52*	0.76	0.77	0.84	0.84	0.75	0.85*	0.80	0.80
	9	0.72	0.62	0.78	0.77	0.85	0.90*	0.80	0.84	0.81	0.81
	10	0.76	0.66	0.80	0.83	0.87	0.84	0.75	0.89*	0.82	0.83
	11	0.72	0.64	0.77	0.78	0.86	0.89	0.72	0.83*	0.81	0.84
	12	0.73	0.58	0.81	0.72	0.87	0.93	0.75	0.92	0.82	0.78
	Total	0.72	0.57*	0.77	0.76	0.85	0.86*	0.75	0.83*	0.81	0.81

## APPENDIX G. RETIREE ACCESS AND QUALITY OF CARE MEASURES

Regional changes in access and quality of care measures for retirees from 1994 to 1999 are shown in Table G-1. Military retirees and their families' perceptions about TRICARE in 1999 are compared to those in comparable civilian health care plans in Table G-2.

**Table G-1. Changes in Retiree Access and Quality of Care Measures (1994–1999)**

Measure	Region	Source of Care							
		Prime		Civilian		Other Nonenrolled		Total	
		FY94	FY99	FY94	FY99	FY94	FY99	FY94	FY99
Blood pressure check	1	0.77	0.94*	0.94	0.96	0.92	0.95	0.84	0.92*
	2	0.72	0.88*	0.87	0.94*	0.86	0.93*	0.79	0.89*
	3	0.74	0.90*	0.92	0.96*	0.90	0.93	0.84	0.91*
	4	0.81	0.93*	0.90	0.96*	0.92	0.96*	0.81	0.92*
	5	0.86	0.89	0.91	0.95*	0.91	0.96*	0.82	0.90*
	6	0.80	0.92*	0.91	0.96*	0.91	0.96*	0.83	0.92*
	7/8	0.75	0.90*	0.91	0.96*	0.91	0.94	0.81	0.90*
	9	0.86	0.91	0.91	0.96*	0.93	0.89	0.85	0.90*
	10	0.87	0.89	0.93	0.95	0.88	0.91	0.86	0.91*
	11	0.79	0.89*	0.91	0.95*	0.93	0.95	0.82	0.90*
	12	0.79	0.91*	0.87	0.92	0.88	0.96	0.82	0.88*
	Total	0.79	0.91*	0.91	0.96*	0.91	0.94*	0.83	0.91*
Cholesterol test	1	0.58	0.59	0.71	0.68	0.69	0.66	0.62	0.62
	2	0.48	0.52	0.69	0.68	0.68	0.61	0.59	0.59
	3	0.48	0.58*	0.77	0.69*	0.69	0.66	0.62	0.62
	4	0.57	0.59	0.73	0.68	0.69	0.61	0.61	0.62
	5	0.51	0.52	0.67	0.66	0.62	0.69	0.56	0.59
	6	0.54	0.60	0.67	0.69	0.69	0.66	0.59	0.62
	7/8	0.49	0.55*	0.66	0.64	0.66	0.66	0.57	0.58
	9	0.61	0.58	0.78	0.72*	0.65	0.55	0.65	0.60*
	10	0.65	0.53*	0.70	0.71	0.69	0.61	0.65	0.62
	11	0.48	0.58*	0.67	0.68	0.62	0.62	0.57	0.61
	12	0.62	0.58	0.69	0.55*	0.66	0.60	0.63	0.54*
	Total	0.53	0.57*	0.71	0.68*	0.67	0.64*	0.60	0.61

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**Table G-1—Continued**

Measure	Region	Source of Care							
		Prime		Civilian		Other Nonenrolled		Total	
		FY94	FY99	FY94	FY99	FY94	FY99	FY94	FY99
Flu shot (all ages)	1	0.25	0.49*	0.42	0.61*	0.48	0.62*	0.37	0.56*
	2	0.27	0.34	0.44	0.55*	0.40	0.49*	0.37	0.47*
	3	0.22	0.36*	0.43	0.57*	0.42	0.60*	0.37	0.50*
	4	0.26	0.46*	0.41	0.59*	0.47	0.58*	0.36	0.53*
	5	0.20	0.46*	0.46	0.57*	0.43	0.61*	0.38	0.53*
	6	0.33	0.46*	0.48	0.61*	0.47	0.61*	0.42	0.54*
	7/8	0.29	0.45*	0.45	0.64*	0.52	0.58	0.41	0.56*
	9	0.33	0.41	0.52	0.68*	0.41	0.50	0.42	0.54*
	10	0.29	0.43*	0.53	0.67*	0.51	0.59	0.47	0.58*
	11	0.36	0.48*	0.46	0.63*	0.49	0.63*	0.39	0.56*
	12	0.32	0.37	0.50	0.48	0.61	0.55	0.45	0.43
	Total	0.28	0.43*	0.45	0.60*	0.46	0.58*	0.39	0.54*
Mammogram (age 50+)	1	0.75	0.78	0.75	0.78	0.81	0.77	0.72	0.76
	2	0.66	0.71	0.82	0.75	0.74	0.80	0.72	0.72
	3	0.61	0.74	0.71	0.75	0.79	0.78	0.67	0.73*
	4	0.63	0.68	0.75	0.74	0.73	0.69	0.68	0.70
	5	0.90	0.74*	0.85	0.74*	0.86	0.82	0.79	0.72
	6	0.49	0.73*	0.68	0.76	0.65	0.78	0.64	0.73*
	7/8	0.65	0.74*	0.78	0.75	0.67	0.67	0.68	0.70
	9	0.78	0.69	0.76	0.69	0.80	0.60*	0.72	0.66
	10	0.79	0.73	0.76	0.73	0.87	0.74	0.73	0.70
	11	0.75	0.71	0.69	0.72	0.70	0.68	0.67	0.70
	12	0.67	0.64	0.53	0.80*	0.74	0.68	0.59	0.71
	Total	0.68	0.73*	0.76	0.75	0.75	0.74	0.70	0.72
Mammogram (age 40+)	1	0.69	0.72	0.75	0.75	0.78	0.70	0.69	0.72
	2	0.68	0.62	0.78	0.72	0.72	0.76	0.68	0.68
	3	0.56	0.69*	0.69	0.75	0.80	0.72	0.65	0.70
	4	0.60	0.67	0.74	0.72	0.65	0.69	0.65	0.68
	5	0.82	0.68*	0.82	0.71*	0.75	0.76	0.73	0.68
	6	0.53	0.67*	0.70	0.73	0.62	0.72	0.61	0.69*
	7/8	0.65	0.68	0.74	0.72	0.66	0.68	0.66	0.67
	9	0.79	0.64*	0.74	0.68	0.75	0.55*	0.70	0.62*
	10	0.74	0.71	0.71	0.74	0.82	0.62*	0.69	0.69
	11	0.66	0.69	0.68	0.70	0.61	0.61	0.63	0.67
	12	0.57	0.65	0.52	0.75*	0.72	0.65	0.57	0.66
	Total	0.66	0.68	0.74	0.72	0.72	0.69	0.67	0.68

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**Table G-1—Continued**

Measure	Region	Source of Care							
		Prime		Civilian		Other Nonenrolled		Total	
		FY94	FY99	FY94	FY99	FY94	FY99	FY94	FY99
Pap test	1	0.74	0.69	0.71	0.67	0.69	0.68	0.66	0.65
	2	0.62	0.70	0.77	0.73	0.71	0.68	0.67	0.69
	3	0.59	0.65	0.70	0.68	0.78	0.62*	0.65	0.64
	4	0.66	0.63	0.72	0.68	0.69	0.61	0.65	0.64
	5	0.75	0.64	0.74	0.66	0.61	0.70	0.67	0.63
	6	0.64	0.72	0.65	0.65	0.66	0.64	0.64	0.65
	7/8	0.69	0.67	0.68	0.60*	0.69	0.66	0.64	0.60*
	9	0.76	0.61*	0.69	0.59*	0.72	0.65	0.67	0.58*
	10	0.70	0.64	0.70	0.65	0.85	0.41*	0.68	0.60*
	11	0.69	0.61	0.74	0.61*	0.61	0.45	0.68	0.58*
	12	0.81	0.59	0.62	0.78	0.74	0.47	0.66	0.63
	Total	0.68	0.66	0.71	0.66*	0.71	0.64*	0.66	0.63*
Physical examination	1	0.51	0.60*	0.73	0.72	0.68	0.62	0.62	0.64
	2	0.43	0.53*	0.67	0.66	0.56	0.57	0.55	0.57
	3	0.41	0.56*	0.70	0.71	0.61	0.66	0.57	0.63*
	4	0.45	0.58*	0.67	0.68	0.60	0.60	0.55	0.61*
	5	0.32	0.50*	0.71	0.69	0.54	0.66*	0.56	0.60
	6	0.44	0.54*	0.69	0.69	0.61	0.57	0.55	0.60*
	7/8	0.43	0.54*	0.69	0.67	0.55	0.63*	0.54	0.59*
	9	0.56	0.55	0.68	0.70	0.55	0.49	0.59	0.59
	10	0.63	0.56	0.69	0.68	0.58	0.49	0.63	0.60
	11	0.44	0.56*	0.71	0.69	0.51	0.63	0.56	0.61
	12	0.53	0.62	0.63	0.63	0.46	0.65*	0.53	0.59
	Total	0.45	0.55*	0.70	0.69	0.60	0.60	0.57	0.61*
Prenatal care first trimester	1	—	0.71	1.00	0.40	1.00	0.59	0.84	0.57
	2	—	0.83	1.00	0.64	0.90	0.97	0.92	0.80
	3	0.65	0.96	1.00	0.57	0.67	0.05	0.83	0.64
	4	1.00	0.84	1.00	1.00	0.59	—	0.84	0.91
	5	—	0.86	0.00	0.50	1.00	1.00	0.91	0.79
	6	1.00	0.86	1.00	0.70	1.00	1.00	0.82	0.84
	7/8	1.00	0.80	1.00	0.83	0.97	0.64	0.98	0.77
	9	1.00	0.79	1.00	—	1.00	1.00	1.00	0.78
	10	1.00	0.86	1.00	—	1.00	1.00	1.00	0.80
	11	0.18	0.54	1.00	1.00	—	—	0.59	0.80
	12	—	1.00	1.00	0.20	—	—	1.00	0.50
	Total	0.74	0.84	0.99	0.65	0.89	0.78	0.89	0.73

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**Table G-1—Continued**

Measure	Region	Source of Care							
		Prime		Civilian		Other Nonenrolled		Total	
		FY94	FY99	FY94	FY99	FY94	FY99	FY94	FY99
Appointment by phone (< 3 calls)	1	0.57	0.86*	0.80	0.97*	0.61	0.84*	0.73	0.93*
	2	0.45	0.84*	0.81	0.95*	0.54	0.77*	0.70	0.91*
	3	0.58	0.87*	0.75	0.96*	0.56	0.82*	0.68	0.93*
	4	0.50	0.89*	0.77	0.97*	0.55	0.82*	0.68	0.94*
	5	0.50	0.89*	0.81	0.97*	0.54	0.88*	0.71	0.95*
	6	0.57	0.87*	0.74	0.96*	0.39	0.71*	0.62	0.92*
	7/8	0.50	0.90*	0.74	0.97*	0.46	0.79*	0.63	0.94*
	9	0.64	0.91*	0.74	0.97*	0.68	0.76	0.71	0.93*
	10	0.64	0.91*	0.73	0.94*	0.62	0.82*	0.70	0.93*
	11	0.50	0.90*	0.81	0.97*	0.51	0.78*	0.69	0.94*
	12	0.65	0.83*	0.75	1.00	0.48	0.89	0.62	0.92*
	Total	0.54	0.88*	0.77	0.97*	0.53	0.80*	0.68	0.93*
Used ER	1	0.39	0.21*	0.37	0.21*	0.47	0.28*	0.38	0.22*
	2	0.48	0.24*	0.37	0.17*	0.45	0.36*	0.39	0.22*
	3	0.46	0.25*	0.33	0.18*	0.51	0.32*	0.40	0.21*
	4	0.44	0.26*	0.32	0.20*	0.48	0.34*	0.38	0.23*
	5	0.47	0.28*	0.40	0.23*	0.38	0.35	0.40	0.26*
	6	0.43	0.27*	0.31	0.21*	0.50	0.34*	0.36	0.24*
	7/8	0.49	0.25*	0.33	0.23*	0.55	0.27*	0.41	0.24*
	9	0.39	0.24*	0.34	0.24*	0.43	0.28*	0.35	0.24*
	10	0.28	0.21*	0.39	0.22*	0.51	0.26*	0.38	0.23*
	11	0.50	0.26*	0.37	0.21*	0.59	0.36*	0.42	0.24*
	12	0.43	0.29	0.31	0.18*	0.55	0.26*	0.43	0.24*
	Total	0.44	0.25*	0.35	0.21*	0.48	0.31*	0.39	0.23*
Wait in office less than 30 minutes	1	0.69	0.85*	0.88	0.86	0.71	0.85*	0.81	0.85*
	2	0.66	0.76	0.84	0.79*	0.55	0.74*	0.75	0.78
	3	0.67	0.81*	0.84	0.79*	0.68	0.80*	0.77	0.79
	4	0.72	0.80	0.78	0.72*	0.60	0.77*	0.73	0.74
	5	0.67	0.82*	0.87	0.80*	0.72	0.77	0.82	0.80
	6	0.69	0.81*	0.86	0.80*	0.64	0.71	0.78	0.80
	7/8	0.77	0.87*	0.89	0.85*	0.73	0.79	0.83	0.86*
	9	0.82	0.78	0.91	0.86*	0.68	0.72	0.84	0.82
	10	0.80	0.86	0.94	0.86*	0.78	0.80	0.88	0.85
	11	0.77	0.87*	0.95	0.89*	0.72	0.53*	0.88	0.87
	12	0.72	0.89*	0.90	0.92	0.69	0.83	0.79	0.90*
	Total	0.72	0.82*	0.87	0.82*	0.69	0.78*	0.80	0.82*

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**Table G-1—Continued**

Measure	Region	Source of Care							
		Prime		Civilian		Other Nonenrolled		Total	
		FY94	FY99	FY94	FY99	FY94	FY99	FY94	FY99
Had outpatient visit	1	0.91	0.99*	1.00	1.00	0.91	0.99*	0.96	1.00*
	2	0.90	0.99*	1.00	1.00	0.91	0.97*	0.96	0.99*
	3	0.94	0.99*	1.00	1.00	0.95	0.97	0.97	1.00*
	4	0.97	1.00*	1.00	1.00	0.94	0.97	0.98	1.00*
	5	0.88	0.99*	1.00	1.00	0.92	0.97	0.97	0.99*
	6	0.97	0.99*	1.00	1.00	0.92	0.97	0.97	0.99*
	7/8	0.93	0.99*	1.00	1.00	0.94	0.98*	0.97	0.99*
	9	0.98	0.99	1.00	1.00	0.93	0.97	0.98	0.99
	10	0.97	0.98	1.00	1.00	0.94	1.00*	0.98	0.99*
	11	0.89	0.98*	1.00	1.00	0.89	0.96	0.96	0.99*
	12	0.94	0.98	1.00	1.00	0.92	0.96	0.96	0.99
	Total	0.95	0.99*	1.00	1.00	0.93	0.97*	0.97	0.99*
Flu shot (age 65+)	1	0.64	0.78	0.69	0.81*	0.75	0.85*	0.65	0.80*
	2	1.00	0.77	0.71	0.78*	0.64	0.82*	0.65	0.77*
	3	0.94	0.76	0.66	0.75*	0.67	0.79*	0.64	0.75*
	4	0.66	0.66	0.67	0.78*	0.77	0.82	0.66	0.76*
	5	0.84	0.86	0.65	0.81*	0.80	0.82	0.63	0.79*
	6	0.61	0.80*	0.72	0.81*	0.76	0.82	0.71	0.79*
	7/8	0.79	0.81	0.68	0.82*	0.74	0.81	0.66	0.79*
	9	0.72	0.61	0.73	0.82*	0.65	0.79*	0.68	0.78*
	10	0.40	0.73	0.74	0.80	0.69	0.72	0.71	0.79*
	11	0.75	0.84	0.73	0.81*	0.68	0.81*	0.66	0.80*
	12	0.21	0.53	0.70	0.71	0.71	0.71	0.70	0.68
	Total	0.66	0.76*	0.69	0.80*	0.72	0.81*	0.67	0.78*
Getting needed care composite (w)	1	0.73	0.82*	0.84	0.96*	0.71	0.80*	0.79	0.90*
	2	0.70	0.78*	0.81	0.92*	0.69	0.80*	0.76	0.86*
	3	0.72	0.77*	0.80	0.93*	0.69	0.81*	0.75	0.86*
	4	0.68	0.73*	0.81	0.91*	0.68	0.81*	0.75	0.84*
	5	0.74	0.78	0.81	0.92*	0.68	0.79*	0.78	0.86*
	6	0.69	0.76*	0.82	0.91*	0.66	0.74*	0.75	0.83*
	7/8	0.69	0.77*	0.81	0.91*	0.68	0.78*	0.75	0.84*
	9	0.74	0.72	0.82	0.91*	0.71	0.72	0.78	0.81*
	10	0.76	0.73	0.84	0.90*	0.69	0.70	0.80	0.82
	11	0.75	0.81*	0.84	0.91*	0.67	0.81*	0.78	0.86*
	12	0.81	0.78	0.84	0.96*	0.76	0.91*	0.80	0.88*
	Total	0.71	0.77*	0.82	0.92*	0.69	0.78*	0.77	0.85*

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**Table G-1—Continued**

Measure	Region	Source of Care							
		Prime		Civilian		Other Nonenrolled		Total	
		FY94	FY99	FY94	FY99	FY94	FY99	FY94	FY99
Getting care quickly composite (w)	1	0.70	0.79*	0.85	0.91*	0.73	0.81*	0.80	0.86*
	2	0.70	0.75*	0.85	0.86	0.68	0.76*	0.78	0.81*
	3	0.72	0.79*	0.83	0.86*	0.69	0.78*	0.77	0.82*
	4	0.71	0.80*	0.83	0.86*	0.70	0.78*	0.78	0.82*
	5	0.75	0.79	0.84	0.89*	0.72	0.80*	0.81	0.84*
	6	0.71	0.78*	0.85	0.89*	0.68	0.75*	0.77	0.83*
	7/8	0.69	0.80*	0.84	0.90*	0.69	0.75*	0.77	0.84*
	9	0.76	0.77	0.85	0.89*	0.73	0.76	0.80	0.82
	10	0.78	0.81	0.86	0.90*	0.74	0.74	0.81	0.84*
	11	0.76	0.76	0.87	0.91*	0.70	0.83*	0.80	0.84*
	12	0.79	0.77	0.85	0.92	0.78	0.82	0.80	0.83
	Total	0.72	0.79*	0.84	0.89*	0.70	0.78*	0.79	0.83*
Courteous staff composite (w)	1	0.86	0.92*	0.95	0.97*	0.87	0.95*	0.92	0.95*
	2	0.85	0.92*	0.93	0.95*	0.84	0.95*	0.89	0.94*
	3	0.86	0.92*	0.93	0.96*	0.85	0.91*	0.89	0.94*
	4	0.86	0.94*	0.93	0.96*	0.86	0.93*	0.90	0.95*
	5	0.90	0.93*	0.94	0.96	0.85	0.95*	0.92	0.95*
	6	0.86	0.93*	0.94	0.96*	0.83	0.90*	0.89	0.94*
	7/8	0.84	0.93*	0.94	0.96*	0.85	0.92*	0.89	0.95*
	9	0.89	0.92*	0.94	0.95	0.88	0.91	0.91	0.93*
	10	0.90	0.94*	0.94	0.97*	0.89	0.93	0.92	0.95*
	11	0.90	0.93	0.95	0.97	0.86	0.92*	0.91	0.95*
	12	0.93	0.95	0.96	0.99*	0.89	0.99*	0.92	0.97*
	Total	0.87	0.93*	0.94	0.96*	0.85	0.93*	0.90	0.95*
Doctor communication composite (w)	1	0.86	0.90*	0.94	0.94	0.87	0.92*	0.91	0.92*
	2	0.83	0.87	0.92	0.93	0.83	0.91*	0.88	0.91*
	3	0.85	0.88*	0.90	0.93*	0.84	0.89*	0.88	0.91*
	4	0.85	0.89	0.91	0.93	0.85	0.93*	0.88	0.91*
	5	0.88	0.89	0.92	0.93	0.85	0.90	0.90	0.91
	6	0.85	0.89*	0.93	0.93	0.83	0.88*	0.89	0.91*
	7/8	0.84	0.91*	0.92	0.93*	0.84	0.88*	0.88	0.92*
	9	0.87	0.88	0.92	0.93	0.88	0.87	0.90	0.89
	10	0.88	0.89	0.92	0.93	0.87	0.88	0.90	0.91
	11	0.88	0.91	0.93	0.94	0.86	0.90	0.90	0.92*
	12	0.92	0.90	0.94	0.96	0.89	0.97*	0.91	0.94
	Total	0.86	0.89*	0.92	0.93*	0.85	0.90*	0.89	0.91*

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**Table G-1—Continued**

Measure	Region	Source of Care							
		Prime		Civilian		Other Nonenrolled		Total	
		FY94	FY99	FY94	FY99	FY94	FY99	FY94	FY99
Customer service composite (w)	1	0.49	0.49	0.60	0.56	0.47	0.51	0.55	0.54
	2	0.48	0.51	0.59	0.52*	0.44	0.52*	0.53	0.52
	3	0.47	0.54*	0.56	0.54	0.44	0.56*	0.51	0.54*
	4	0.46	0.49	0.57	0.54	0.45	0.49	0.52	0.52
	5	0.50	0.45*	0.57	0.53	0.44	0.52	0.54	0.52
	6	0.45	0.53*	0.59	0.56	0.41	0.50*	0.52	0.54*
	7/8	0.45	0.55*	0.57	0.57	0.44	0.52*	0.51	0.55*
	9	0.52	0.56	0.58	0.67*	0.50	0.51	0.55	0.60*
	10	0.52	0.55	0.59	0.58	0.45	0.49	0.55	0.56
	11	0.50	0.54	0.59	0.59	0.44	0.50	0.54	0.56
	12	0.54	0.47	0.64	0.65	0.48	0.60	0.55	0.56
	Total	0.48	0.52*	0.58	0.56*	0.45	0.52*	0.53	0.54*
Claims composite (w)	1	0.81	0.71*	0.87	0.89*	0.79	0.86*	0.84	0.86*
	2	0.81	0.76	0.86	0.89*	0.79	0.85*	0.83	0.87*
	3	0.80	0.82	0.85	0.91*	0.77	0.87*	0.82	0.89*
	4	0.78	0.79	0.85	0.90*	0.76	0.86*	0.82	0.87*
	5	0.83	0.76*	0.85	0.88*	0.78	0.88*	0.84	0.86*
	6	0.77	0.81	0.87	0.91*	0.74	0.86*	0.82	0.88*
	7/8	0.77	0.80	0.86	0.88*	0.77	0.89*	0.82	0.87*
	9	0.81	0.76	0.86	0.95*	0.82	0.86	0.85	0.88*
	10	0.82	0.81	0.88	0.89	0.78	0.87*	0.85	0.87
	11	0.80	0.80	0.87	0.93*	0.74	0.87*	0.84	0.90*
	12	0.85	0.76	0.88	0.95*	0.80	0.97	0.87	0.89
	Total	0.79	0.79	0.86	0.90*	0.78	0.87*	0.83	0.87*
PCM rating (0–1)	1	0.71	0.72	0.76	0.78	0.70	0.78*	0.74	0.76*
	2	0.66	0.77*	0.75	0.77	0.64	0.68	0.71	0.75*
	3	0.68	0.71	0.73	0.79*	0.67	0.76*	0.70	0.77*
	4	0.65	0.72*	0.73	0.81*	0.68	0.81*	0.70	0.78*
	5	0.71	0.72	0.76	0.77	0.72	0.73	0.74	0.76
	6	0.67	0.73*	0.76	0.80*	0.66	0.78*	0.71	0.78*
	7/8	0.66	0.74*	0.74	0.78*	0.66	0.77*	0.70	0.76*
	9	0.70	0.73	0.74	0.79*	0.71	0.70	0.73	0.76*
	10	0.71	0.69	0.73	0.74	0.69	0.73	0.72	0.72
	11	0.73	0.68	0.74	0.74	0.70	0.74	0.72	0.73
	12	0.70	0.73	0.77	0.78	0.70	0.96	0.73	0.79*
	Total	0.68	0.72*	0.75	0.78*	0.68	0.76*	0.72	0.76*

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**Table G-1—Continued**

Measure	Region	Source of Care							
		Prime		Civilian		Other Nonenrolled		Total	
		FY94	FY99	FY94	FY99	FY94	FY99	FY94	FY99
Specialty care rating (0–1)	1	0.69	0.76*	0.77	0.79	0.68	0.78*	0.73	0.78*
	2	0.67	0.73	0.76	0.81*	0.65	0.72	0.71	0.78*
	3	0.67	0.68	0.72	0.82*	0.65	0.77*	0.69	0.78*
	4	0.67	0.70	0.74	0.82*	0.66	0.78*	0.70	0.79*
	5	0.70	0.72	0.75	0.81*	0.68	0.75	0.72	0.79*
	6	0.66	0.72*	0.75	0.79*	0.62	0.76*	0.70	0.77*
	7/8	0.63	0.73*	0.74	0.75	0.65	0.78*	0.69	0.75*
	9	0.71	0.70	0.75	0.79	0.66	0.72	0.72	0.75
	10	0.72	0.72	0.76	0.77	0.67	0.78*	0.73	0.75
	11	0.72	0.66	0.74	0.78	0.66	0.75	0.71	0.74
	12	0.72	0.77	0.77	0.84	0.69	0.95	0.73	0.82*
	Total	0.67	0.71*	0.75	0.79*	0.66	0.76*	0.71	0.77*
Health plan rating (0–1)	1	0.41	0.51*	0.54	0.63*	0.38	0.53*	0.48	0.58*
	2	0.39	0.46*	0.53	0.60*	0.36	0.50*	0.46	0.54*
	3	0.40	0.51*	0.50	0.60*	0.36	0.55*	0.44	0.56*
	4	0.40	0.52*	0.51	0.59*	0.36	0.53*	0.44	0.56*
	5	0.40	0.46*	0.52	0.60*	0.36	0.56*	0.48	0.55*
	6	0.36	0.54*	0.54	0.60*	0.33	0.51*	0.44	0.57*
	7/8	0.36	0.56*	0.50	0.59*	0.35	0.54*	0.43	0.56*
	9	0.44	0.55*	0.52	0.71*	0.40	0.53*	0.47	0.62*
	10	0.43	0.53*	0.53	0.64*	0.34	0.58*	0.47	0.60*
	11	0.43	0.56*	0.54	0.61*	0.37	0.62*	0.47	0.59*
	12	0.51	0.57	0.56	0.81*	0.52	0.69*	0.51	0.69*
	Total	0.39	0.52*	0.52	0.61*	0.36	0.54*	0.45	0.57*
Health care rating (0–1)	1	0.59	0.67*	0.75	0.79*	0.57	0.70*	0.68	0.75*
	2	0.55	0.68*	0.73	0.76	0.53	0.63*	0.64	0.72*
	3	0.56	0.66*	0.69	0.78*	0.52	0.67*	0.62	0.73*
	4	0.56	0.70*	0.70	0.79*	0.54	0.74*	0.62	0.76*
	5	0.60	0.70*	0.73	0.77	0.57	0.71*	0.68	0.74*
	6	0.54	0.69*	0.74	0.78*	0.50	0.69*	0.63	0.75*
	7/8	0.53	0.71*	0.71	0.77*	0.51	0.69*	0.62	0.75*
	9	0.64	0.70	0.72	0.77*	0.57	0.62	0.67	0.72*
	10	0.62	0.68*	0.70	0.76*	0.56	0.70*	0.66	0.73*
	11	0.64	0.66	0.74	0.78*	0.57	0.70*	0.66	0.73*
	12	0.71	0.72	0.77	0.85*	0.67	0.87*	0.70	0.81*
	Total	0.57	0.69*	0.72	0.78*	0.54	0.69*	0.65	0.74*

**Table G-2. Comparison Of Retiree Perceptions With the General Population**

Measure	Source of Care	MHS	General Population
Health plan rating	Enrolled (MilPCM) vs. HMO	0.50	0.63
	Enrolled (CivPCM) vs. HMO	0.47	0.67
	Other Nonenrolled vs. POS+PPO	0.50	0.70
	Civilian vs. POS+PPO+FFS	0.61	0.76
	All	0.56	0.71
Health care rating	Enrolled (MilPCM) vs. HMO	0.62	0.75
	Enrolled (CivPCM) vs. HMO	0.64	0.80
	Other Nonenrolled vs. POS+PPO	0.65	0.81
	Civilian vs. POS+PPO+FFS	0.77	0.85
	All	0.72	0.83
Getting needed care	Enrolled (MilPCM) vs. HMO	0.73	0.79
	Enrolled (CivPCM) vs. HMO	0.68	0.83
	Other Nonenrolled vs. POS+PPO	0.67	0.83
	Civilian vs. POS+PPO+FFS	0.86	0.87
	All	0.80	0.85
Getting care quickly	Enrolled (MilPCM) vs. HMO	0.74	0.77
	Enrolled (CivPCM) vs. HMO	0.77	0.81
	Other Nonenrolled vs. POS+PPO	0.69	0.81
	Civilian vs. POS+PPO+FFS	0.86	0.79
	All	0.81	0.81 <sup>a</sup>

<sup>a</sup> Indicates difference *not* statistically significant ( $p > 0.05$ ).

## APPENDIX H: CHANGES IN ACCESS AND QUALITY-OF-CARE OUTCOMES IN REGION 11: 1994–1999

Table H-1 shows four-year trends for access and quality-of-care indicators, which we estimated using 1999 population characteristics. Entries marked with an asterisk (\*) indicate a statistically significant difference ( $p < 0.05$ ) between the estimate for that FY and the preceding one. Where the estimate for FY94 is marked with an #, this indicates a statistically significant linear trend over the time period. The general pattern of results is for a rising trend in perceived satisfaction with access and quality of care from the baseline year (1994). As Table H-1 shows, the greatest increases occurred between 1994 and 1996.

**Table H-1. Four-Year Trends for Access and Quality of Care in Region 11**

Measure/Military Status (Source of Care)	Region Maturity				
	Base	+1	+2	+3	+4
<b>Active Duty (All)</b>					
Blood pressure reading (12 months)	0.86	0.94*	0.94	0.93	0.90
CAHPS claims composite (w)	0.75	0.77*	0.78	0.69*	0.69
CAHPS courteous staff composite (w)	0.82	0.86*	0.86	0.85	0.80*
CAHPS customer service composite (w)	0.42	0.44	0.46	0.44	0.42
CAHPS doctor communication composite (w)	0.80	0.81	0.83	0.84	0.79*
CAHPS getting care quickly composite (w)	0.66	0.71*	0.73	0.64*	0.70*
CAHPS getting needed care composite (w)	0.65	0.68	0.70	0.70	0.67
CAHPS health care rating (8+)	0.45	0.48	0.52	0.45*	0.44
CAHPS health care rating (0–10)	6.82	6.94	7.11	6.87*	6.76
CAHPS health plan rating (8+)	0.30	0.31	0.35*	0.26*	0.35*
CAHPS health plan rating (0–10)	5.91	6.05	6.23	5.86*	6.29*
CAHPS PCM rating (8+)	0.57	0.58	0.62*	0.62	0.60
CAHPS PCM rating (0–10)	7.54	7.56	7.73*	7.78	7.49
CAHPS specialty care rating (8+)	0.59	0.60	0.63	0.55*	0.59
CAHPS specialty care rating (8+)	7.48	7.52	7.64	7.21*	7.29
Cholesterol test (12 months)	0.49	0.43	0.44	0.40	0.41
Got through on telephone	0.61	0.54	0.56	0.89*	0.84
Immunization (12 months)	0.79	0.79	0.85*	0.82	0.82
Immunization (12 months, age 65+)	–	–	–	–	–
Mammogram (12 months, 40+)	–	–	–	–	–
Mammogram (12 months, 50+)	–	–	–	–	–
Pap test (12 months)	0.80	0.76	0.82	0.75	0.84
Physical exam (12 months)	0.57	0.52	0.50	0.46	0.47
Prenatal care (1st trimester)	–	–	–	–	–
Used ER (12 months)	0.45	0.27*	0.23	0.29	0.24
Wait for MD (< 30 minutes)	0.75	0.68	0.74	0.80	0.80

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**Table H-1—Continued**

Measure/Military Status (Source of Care)	Region Maturity				
	Base	+1	+2	+3	+4
<b>Non-Active Duty (Prime )</b>					
Blood pressure reading (12 months)	0.79	0.89*	0.90	0.92	0.89
CAHPS claims composite (w)	0.79	0.81	0.82	0.79	0.79
CAHPS courteous staff composite (w)	0.87	0.89	0.91*	0.91	0.91
CAHPS customer service composite (w)	0.48	0.51*	0.53	0.53	0.53
CAHPS doctor communication composite (w)	0.86	0.85	0.88*	0.90	0.89
CAHPS getting care quickly composite (w)	0.72	0.78*	0.80	0.83	0.74*
CAHPS getting needed care composite (w)	0.72	0.74	0.77*	0.74	0.79*
CAHPS health care rating (8+)	0.58	0.57	0.62*	0.66*	0.62
CAHPS health care rating (0–10)	7.39	7.39	7.56	7.82*	7.61*
CAHPS health plan rating (8+)	0.40	0.42	0.44	0.45	0.53*
CAHPS health plan rating (0–10)	6.48	6.58	6.70	6.96*	7.10
CAHPS PCM rating (8+)	0.68	0.66	0.69*	0.71	0.68
CAHPS PCM rating (0–10)	7.99	7.92	8.05	8.11	8.01
CAHPS specialty care rating (8+)	0.69	0.67	0.70*	0.69	0.65
CAHPS specialty care rating (8+)	7.94	7.89	8.01	7.96	7.80
Cholesterol test (12 months)	0.39	0.48*	0.47	0.45	0.50*
Got through on telephone	0.53	0.56	0.57	0.90*	0.89
Immunization (12 months)	0.37	0.37	0.44*	0.39	0.41
Immunization (12 months, age 65+)	—	—	—	—	—
Mammogram (12 months, 40+)	0.65	0.55	0.61	0.58	0.66
Mammogram (12 months, 50+)	0.75	0.69	0.73	0.64	0.71
Pap test (12 months)	0.72	0.67	0.68	0.67	0.65
Physical exam (12 months)	0.46	0.55*	0.57	0.51*	0.55
Prenatal care (1st trimester)	0.91	0.81	0.95	0.84*	0.96*
Used ER (12 months)	0.49	0.34*	0.28*	0.36*	0.28*
Wait for MD (< 30 minutes)	0.78	0.80	0.80	0.85*	0.85

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**Table H-1—Continued**

Measure/Military Status (Source of Care)	Region Maturity				
	Base	+1	+2	+3	+4
<b>Non-Active Duty (Civilian Only)</b>					
Blood pressure reading (12 months)	0.90	0.94*	0.94	0.96	0.96
CAHPS claims composite (w)	0.86	0.86	0.87	0.92	0.92
CAHPS courteous staff composite (w)	0.94	0.95	0.95	0.98	0.96
CAHPS customer service composite (w)	0.59	0.58	0.60*	0.61	0.58
CAHPS doctor communication composite (w)	0.93	0.92	0.94*	0.97*	0.94*
CAHPS getting care quickly composite (w)	0.87	0.87	0.89*	0.95	0.91
CAHPS getting needed care composite (w)	0.83	0.83	0.84	0.95*	0.91
CAHPS health care rating (8+)	0.74	0.71	0.77*	0.83	0.78
CAHPS health care rating (0–10)	8.15	8.02	8.29*	8.50	8.33
CAHPS health plan rating (8+)	0.54	0.52	0.55*	0.58	0.60
CAHPS health plan rating (0–10)	7.25	7.13	7.32*	7.47	7.59
CAHPS PCM rating (8+)	0.75	0.74	0.77*	0.77	0.74
CAHPS PCM rating (0–10)	8.30	8.21	8.39*	8.41	8.28
CAHPS specialty care rating (8+)	0.75	0.73	0.77*	0.82	0.77
CAHPS specialty care rating (8+)	8.24	8.16	8.34*	8.60	8.26
Cholesterol test (12 months)	0.65	0.66	0.65	0.70	0.67
Got through on telephone	0.82	0.77*	0.72	0.96*	0.97
Immunization (12 months)	0.46	0.51	0.60*	0.66	0.63
Immunization (12 months, age 65+)	0.72	0.76	0.78	0.78	0.81
Mammogram (12 months, 40+)	0.68	0.66	0.71	0.68	0.70
Mammogram (12 months, 50+)	0.70	0.74	0.77	0.75	0.73
Pap test (12 months)	0.76	0.61*	0.64	0.66	0.61
Physical exam (12 months)	0.71	0.69	0.68	0.70	0.69
Prenatal care (1st trimester)	—	—	—	—	—
Used ER (12 months)	0.38	0.01*	0.00*	0.01	0.21*
Wait for MD (< 30 minutes)	0.93	0.92	0.84*	0.97*	0.89*

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**Table H-1—Continued**

Measure/Military Status (Source of Care)	Region Maturity				
	Base	+1	+2	+3	+4
<b>Non-Active Duty (Other Nonenrolled)</b>					
Blood pressure reading (12 months)	0.88	0.95*	0.99*	0.96	0.95
CAHPS claims composite (w)	0.78	0.82*	0.83	0.91*	0.87
CAHPS courteous staff composite (w)	0.85	0.91*	0.91	0.94*	0.92
CAHPS customer service composite (w)	0.46	0.51*	0.53	0.55	0.51
CAHPS doctor communication composite (w)	0.85	0.90*	0.90	0.93	0.90
CAHPS getting care quickly composite (w)	0.71	0.80*	0.81	0.98*	0.82*
CAHPS getting needed care composite (w)	0.70	0.76*	0.77	0.85*	0.80
CAHPS health care rating (8+)	0.58	0.66*	0.67	0.73	0.70
CAHPS health care rating (0–10)	7.42	7.73*	7.87	8.22*	8.01
CAHPS health plan rating (8+)	0.40	0.46*	0.47	0.53	0.62
CAHPS health plan rating (0–10)	6.42	6.79*	6.84	7.08	7.56
CAHPS PCM rating (8+)	0.69	0.71	0.73	0.81*	0.75
CAHPS PCM rating (0–10)	8.02	8.13	8.23	8.55*	8.24
CAHPS specialty care rating (8+)	0.68	0.71*	0.72	0.83*	0.75
CAHPS specialty care rating (8+)	7.98	8.12*	8.18	8.55*	8.39
Cholesterol test (12 months)	0.61	0.63	0.67	0.60	0.61
Got through on telephone	0.48	0.47	0.50	0.77*	0.79
Immunization (12 months)	0.54	0.54	0.65*	0.55*	0.62
Immunization (12 months, age 65+)	0.72	0.79	0.87	0.80	0.81
Mammogram (12 months, 40+)	0.66	0.67	0.71	0.52*	0.60
Mammogram (12 months, 50+)	0.74	0.69	0.75	0.60	0.68
Pap test (12 months)	0.65	0.65	0.63	0.53	0.47
Physical exam (12 months)	0.57	0.66*	0.68	0.57*	0.63
Prenatal care (1st trimester)	—	—	—	—	—
Used ER (12 months)	0.67	0.59*	0.66*	0.61	0.36*
Wait for MD (< 30 minutes)	0.73	0.76	0.75	0.84	0.56*

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**Table H-1—Continued**

Measure/Military Status (Source of Care)	Region Maturity				
	Base	+1	+2	+3	+4
<b>Total (All)</b>					
Blood pressure reading (12 months)	0.81	0.88*	0.91*	0.90	0.90
CAHPS claims composite (w)	0.83	0.84*	0.85	0.87	0.87
CAHPS courteous staff composite (w)	0.88	0.90*	0.91*	0.92	0.91
CAHPS customer service composite (w)	0.51	0.52*	0.54*	0.56	0.53
CAHPS doctor communication composite (w)	0.86	0.87	0.89*	0.90	0.89*
CAHPS getting care quickly composite (w)	0.75	0.78*	0.81*	0.84*	0.80*
CAHPS getting needed care composite (w)	0.74	0.76*	0.78*	0.81*	0.81
CAHPS health care rating (8+)	0.60	0.61	0.65*	0.67	0.65
CAHPS health care rating (0–10)	7.50	7.55	7.72*	7.88*	7.76
CAHPS health plan rating (8+)	0.43	0.44	0.46*	0.47	0.52*
CAHPS health plan rating (0–10)	6.60	6.68	6.79*	6.93*	7.12*
CAHPS PCM rating (8+)	0.69	0.69	0.72*	0.74	0.71
CAHPS PCM rating (0–10)	8.06	8.05	8.18*	8.27	8.13
CAHPS specialty care rating (8+)	0.69	0.69	0.72*	0.74	0.71
CAHPS specialty care rating (8+)	7.97	7.96	8.09*	8.17	7.99
Cholesterol test (12 months)	0.50	0.50	0.52	0.49*	0.53*
Got through on telephone	0.66	0.62	0.61	0.91*	0.91
Immunization (12 months)	0.45	0.49*	0.60*	0.58	0.59
Immunization (12 months, age 65+)	0.67	0.74*	0.81*	0.78	0.80
Mammogram (12 months, 40+)	0.64	0.59	0.61	0.61	0.66
Mammogram (12 months, 50+)	0.69	0.67	0.68	0.66	0.70
Pap test (12 months)	0.70	0.62*	0.63	0.62	0.62
Physical exam (12 months)	0.56	0.58	0.59	0.53*	0.57
Prenatal care (1st trimester)	0.93	0.75*	0.94*	0.89	0.96
Used ER (12 months)	0.45	0.25*	0.23	0.30*	0.25*
Wait for MD (< 30 minutes)	0.82	0.81	0.80	0.87*	0.85

## APPENDIX I. TRENDS IN ACCESS AND QUALITY OF CARE UNDER TRICARE

Trends in measures of access to and quality of care are shown in table I-1 for the beneficiary population broken down by military status and source of care. Entries marked with an asterisk (\*) indicate a statistically significant change from the previous year's values. Most measures exhibited a significant increase from the base year (1994) to one year of region maturity. Few measures showed significant improvement from the third to fourth year. This is attributed in part to data limitations. Only one region (Region 11) is represented in the last year, and the relatively small number of survey responses would require a disproportionately large change for statistical significance.

**Table I-1. Four-Year Trends in Access and Quality of Care**

Measure/Military Status (Source of Care)	Region Maturity				
	Base	+1	+2	+3	+4
<b>Active Duty (All)</b>					
Blood pressure reading (12 months)	0.81	0.90*	0.91	0.91	0.90
CAHPS claims composite (w)	0.74	0.70*	0.66*	0.68	0.68
CAHPS courteous staff composite (w)	0.82	0.84*	0.84	0.83	0.81
CAHPS customer service composite (w)	0.42	0.42	0.41	0.41	0.43
CAHPS doctor communication composite (w)	0.80	0.82*	0.83	0.82	0.79
CAHPS getting care quickly composite (w)	0.65	0.68*	0.68	0.69	0.71
CAHPS getting needed care composite (w)	0.65	0.67*	0.67	0.68	0.68
CAHPS health care rating (8+)	0.45	0.44	0.45	0.47	0.45
CAHPS health care rating (0-10)	6.82	6.77	6.77	6.90*	6.81
CAHPS health plan rating (8+)	0.30	0.28*	0.31*	0.36*	0.35
CAHPS health plan rating (0-10)	5.91	5.84*	5.99*	6.34*	6.34
CAHPS PCM rating (8+)	0.58	0.62*	0.63	0.61	0.61
CAHPS PCM rating (0-10)	7.56	7.66*	7.67	7.71	7.54
CAHPS specialty care rating (8+)	0.59	0.59	0.56*	0.58	0.60
CAHPS specialty care rating (8+)	7.47	7.46	7.36	7.34	7.32
Cholesterol test (12 months)	0.46	0.40*	0.40	0.42	0.42
Got through on telephone	0.59	0.72*	0.81*	0.81	0.85
Immunization (12 months)	0.79	0.81*	0.81	0.81	0.83
Immunization (12 months, age 65+)	—	—	—	—	—
Mammogram (12 months, 40+)	—	—	—	—	—
Mammogram (12 months, 50+)	—	—	—	—	—
Pap test (12 months)	0.84	0.80*	0.81	0.82	0.84
Physical exam (12 months)	0.49	0.48	0.48	0.50	0.47
Prenatal care (1st trimester)	—	—	—	—	—
Used ER (12 months)	0.48	0.26*	0.26	0.25	0.24
Wait for MD (< 30 minutes)	0.72	0.73	0.77*	0.78	0.81

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**Table I-1—Continued**

Measure/Military Status (Source of Care)	Region Maturity				
	Base	+1	+2	+3	+4
<b>Non-Active Duty (Prime )</b>					
Blood pressure reading (12 months)	0.79	0.91*	0.91	0.91	0.89
CAHPS claims composite (w)	0.78	0.78	0.79	0.78	0.79
CAHPS courteous staff composite (w)	0.85	0.88*	0.89	0.89	0.91*
CAHPS customer service composite (w)	0.46	0.50*	0.52*	0.52	0.53
CAHPS doctor communication composite (w)	0.84	0.86*	0.87*	0.87	0.89*
CAHPS getting care quickly composite (w)	0.69	0.78*	0.79	0.77*	0.74*
CAHPS getting needed care composite (w)	0.70	0.74*	0.73	0.73	0.79*
CAHPS health care rating (8+)	0.53	0.59*	0.63*	0.64	0.62
CAHPS health care rating (0–10)	7.19	7.51*	7.69*	7.75	7.61
CAHPS health plan rating (8+)	0.37	0.42*	0.47*	0.50*	0.53
CAHPS health plan rating (0–10)	6.28	6.60*	6.89*	7.08*	7.11
CAHPS PCM rating (8+)	0.65	0.70*	0.70	0.71	0.68
CAHPS PCM rating (0–10)	7.87	8.07*	8.05	8.13	8.02
CAHPS specialty care rating (8+)	0.65	0.68*	0.69	0.69	0.65
CAHPS specialty care rating (8+)	7.78	7.88*	7.96	7.96	7.79
Cholesterol test (12 months)	0.43	0.48*	0.49	0.47	0.49
Got through on telephone	0.53	0.75*	0.84*	0.86*	0.89*
Immunization (12 months)	0.30	0.36*	0.36	0.36	0.39
Immunization (12 months, age 65+)	0.66	0.77*	0.80	0.73	0.83*
Mammogram (12 months, 40+)	0.64	0.64	0.66	0.64	0.66
Mammogram (12 months, 50+)	0.69	0.71	0.73	0.71	0.71
Pap test (12 months)	0.72	0.69*	0.69	0.70	0.66
Physical exam (12 months)	0.47	0.53*	0.55	0.53*	0.55
Prenatal care (1st trimester)	0.95	0.88*	0.91*	0.91	0.96
Used ER (12 months)	0.47	0.28*	0.29	0.28	0.28
Wait for MD (< 30 minutes)	0.73	0.79*	0.82*	0.81	0.85*

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**Table I-1—Continued**

<i>Measure/Military Status (Source of Care)</i>	Region Maturity				
	Base	+1	+2	+3	+4
<b><i>Non-Active Duty (Civilian Only)</i></b>					
Blood pressure reading (12 months)	0.91	0.96*	0.96	0.95	0.96
CAHPS claims composite (w)	0.86	0.88*	0.90*	0.91	0.93
CAHPS courteous staff composite (w)	0.94	0.96*	0.96*	0.96	0.96
CAHPS customer service composite (w)	0.57	0.56	0.57	0.59	0.58
CAHPS doctor communication composite (w)	0.92	0.93*	0.93	0.93	0.94
CAHPS getting care quickly composite (w)	0.85	0.88*	0.89	0.89	0.91
CAHPS getting needed care composite (w)	0.82	0.90*	0.91	0.90	0.91
CAHPS health care rating (8+)	0.72	0.76*	0.78*	0.77	0.78
CAHPS health care rating (0–10)	8.04	8.28*	8.38*	8.35	8.34
CAHPS health plan rating (8+)	0.52	0.57*	0.58	0.62*	0.61
CAHPS health plan rating (0–10)	7.17	7.34*	7.44*	7.61*	7.62
CAHPS PCM rating (8+)	0.74	0.77*	0.79	0.78	0.74
CAHPS PCM rating (0–10)	8.25	8.39*	8.46*	8.43	8.29
CAHPS specialty care rating (8+)	0.75	0.78*	0.80*	0.78	0.78
CAHPS specialty care rating (8+)	8.24	8.42*	8.50*	8.47	8.29
Cholesterol test (12 months)	0.70	0.68	0.66	0.68	0.68
Got through on telephone	0.77	0.90*	0.95*	0.97*	0.97
Immunization (12 months)	0.46	0.59*	0.59	0.61	0.63
Immunization (12 months, age 65+)	0.69	0.81*	0.78*	0.80	0.81
Mammogram (12 months, 40+)	0.73	0.73	0.73	0.72	0.70
Mammogram (12 months, 50+)	0.76	0.76	0.76	0.75	0.72
Pap test (12 months)	0.72	0.67*	0.67	0.65	0.60
Physical exam (12 months)	0.70	0.69	0.68	0.68	0.69
Prenatal care (1st trimester)	—	—	—	—	—
Used ER (12 months)	0.36	0.12*	0.16*	0.21*	0.22
Wait for MD (< 30 minutes)	0.87	0.84*	0.81*	0.84*	0.89*

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**Table I-1—Continued**

Measure/Military Status (Source of Care)	Region Maturity				
	Base	+1	+2	+3	+4
<b>Non-Active Duty (Other Nonenrolled)</b>					
Blood pressure reading (12 months)	0.90	0.96*	0.97	0.94*	0.94
CAHPS claims composite (w)	0.79	0.85*	0.88*	0.87	0.86
CAHPS courteous staff composite (w)	0.85	0.92*	0.93	0.92	0.92
CAHPS customer service composite (w)	0.46	0.52*	0.56	0.52	0.50
CAHPS doctor communication composite (w)	0.84	0.89*	0.90	0.89	0.90
CAHPS getting care quickly composite (w)	0.70	0.84*	0.86	0.82*	0.82
CAHPS getting needed care composite (w)	0.70	0.80*	0.81	0.77*	0.80
CAHPS health care rating (8+)	0.54	0.67*	0.69	0.68	0.69
CAHPS health care rating (0–10)	7.23	7.89*	7.94	7.97	7.95
CAHPS health plan rating (8+)	0.38	0.48*	0.52*	0.53	0.60
CAHPS health plan rating (0–10)	6.34	6.86*	7.14*	7.03	7.48
CAHPS PCM rating (8+)	0.67	0.74*	0.74	0.76	0.74
CAHPS PCM rating (0–10)	7.95	8.31*	8.27	8.41	8.22
CAHPS specialty care rating (8+)	0.66	0.73*	0.75	0.78	0.75
CAHPS specialty care rating (8+)	7.83	8.17*	8.27	8.32	8.38
Cholesterol test (12 months)	0.65	0.66	0.64	0.60*	0.59
Got through on telephone	0.51	0.62*	0.78*	0.78	0.79
Immunization (12 months)	0.51	0.57*	0.57	0.54	0.60
Immunization (12 months, age 65+)	0.71	0.80*	0.81	0.78	0.81
Mammogram (12 months, 40+)	0.72	0.68*	0.69	0.61*	0.60
Mammogram (12 months, 50+)	0.77	0.74	0.73	0.67	0.68
Pap test (12 months)	0.73	0.66*	0.67	0.60*	0.49
Physical exam (12 months)	0.61	0.64*	0.62	0.55*	0.62
Prenatal care (1st trimester)	—	—	—	—	—
Used ER (12 months)	0.53	0.53	0.50	0.38*	0.36
Wait for MD (< 30 minutes)	0.68	0.74*	0.78*	0.76	0.55*

*Continued on next page*

**Table I-1—Continued**

Measure/Military Status (Source of Care)	Region Maturity				
	Base	+1	+2	+3	+4
<b>Total (All)</b>					
Blood pressure reading (12 months)	0.81	0.90*	0.91	0.91	0.90
CAHPS claims composite (w)	0.83	0.83*	0.85*	0.85	0.87
CAHPS courteous staff composite (w)	0.87	0.90*	0.91*	0.90	0.91
CAHPS customer service composite (w)	0.49	0.50*	0.52*	0.53	0.53
CAHPS doctor communication composite (w)	0.86	0.88*	0.89*	0.88*	0.89
CAHPS getting care quickly composite (w)	0.74	0.80*	0.81	0.80	0.80
CAHPS getting needed care composite (w)	0.73	0.79*	0.79	0.79	0.81*
CAHPS health care rating (8+)	0.58	0.63*	0.65*	0.66	0.66
CAHPS health care rating (0–10)	7.43	7.67*	7.77*	7.82	7.77
CAHPS health plan rating (8+)	0.41	0.44*	0.48*	0.52*	0.52
CAHPS health plan rating (0–10)	6.52	6.69*	6.90*	7.10*	7.15
CAHPS PCM rating (8+)	0.69	0.73*	0.74	0.74	0.72
CAHPS PCM rating (0–10)	8.04	8.21*	8.24	8.27	8.16*
CAHPS specialty care rating (8+)	0.68	0.71*	0.72	0.72	0.71
CAHPS specialty care rating (8+)	7.94	8.07*	8.13*	8.12	8.01
Cholesterol test (12 months)	0.53	0.53	0.53	0.53	0.54
Got through on telephone	0.63	0.78*	0.88*	0.89*	0.92*
Immunization (12 months)	0.46	0.56*	0.56	0.58	0.59
Immunization (12 months, age 65+)	0.67	0.79*	0.78	0.78	0.80
Mammogram (12 months, 40+)	0.66	0.66	0.67	0.66	0.66
Mammogram (12 months, 50+)	0.70	0.71	0.72	0.71	0.69
Pap test (12 months)	0.69	0.66*	0.66	0.66	0.63*
Physical exam (12 months)	0.55	0.56*	0.57	0.56	0.57
Prenatal care (1st trimester)	0.94	0.86*	0.89	0.88	0.94*
Used ER (12 months)	0.43	0.26*	0.26	0.25	0.25
Wait for MD (< 30 minutes)	0.77	0.79*	0.80*	0.81	0.85*

Entries with a “–” indicate insufficient data for estimate.

## APPENDIX J: SAMPLE SELECTION PROCEDURES

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We conducted the evaluation of TRICARE costs using independent random samples of MHS-eligible beneficiaries selected from FY 1994 and FY 1999 DEERS records, consisting of all beneficiaries who were eligible at any time during those years. This appendix describes how we determined the sample sizes and how we drew the samples.

### The Individual Beneficiary Sample

We based the sample sizes in both years on estimating both CHAMPUS and MTF inpatient costs with a given level of precision. We chose those costs because they represent a sizable portion of total MHS costs and because inpatient stays are relatively rare events with large variations in cost that require large sample sizes to estimate accurately. Further, estimates of both MTF and CHAMPUS costs are necessary to ensure that we draw adequate samples from both catchment and noncatchment areas (i.e., most costs in catchment areas are generated from MTF stays and most costs in noncatchment areas are generated from CHAMPUS stays).

To estimate the appropriate sample size, we must specify the following quantities:

$d$  = the desired precision of the estimate, i.e., average cost (RWPs),

$\alpha$  = the probability that the actual error is larger than  $d$ ,

$t_{\alpha/2}$  = the abscissa of the unit normal curve that cuts off an area  $\alpha/2$  in each tail,

$S$  = the standard deviation of the cost (or RWP) of an inpatient stay,

$N_D$  = the total number of discharges, and

$p$  = the average number of discharges per beneficiary (total discharges/total population).

The estimated sample size is then determined as<sup>1</sup>

$$n = \frac{\left( \frac{t_{\alpha/2} S}{d} \right)^2}{p \left( 1 + \left( \frac{t_{\alpha/2} S}{d} \right)^2 / N_D \right)}.$$

For each region,  $\alpha = 0.05$  for MTF RWPs, and  $\alpha = 0.10$  for CHAMPUS costs ( $t_{\alpha/2} = 1.96$  and 1.64, respectively). We set the percentage error to 10 percent for MTF RWPs and to 15 percent for CHAMPUS costs, and set  $d$  to the percentage error multiplied by the average RWP (cost). We set acceptable error levels higher for CHAMPUS costs because of greater variability in the CHAMPUS data and the desire to keep the required sample sizes at a manageable level. We determined the quantities  $p$ ,  $S$ , and  $N_D$  from the entire population of SIDRs, CHAMPUS claims, and DEERS data; their values and the corresponding sample sizes for each region are shown in Tables A-1 to A-4.

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<sup>1</sup> The numerator of this expression is obtained from William G. Cochran, *Sampling Techniques*, New York: John Wiley and Sons, Third Ed., 1977, p. 78, eq. 4.3. The discharge rate  $p$  appears in the denominator because we sampled beneficiaries rather than discharges.

**Table J-1. Determinants of FY 1994 Sample Size for Estimating MTF Inpatient RWPs**

Region	Discharges ( $N_D$ )	Standard Deviation ( $S$ )	Discharge Rate ( $p$ )	Precision Level ( $d$ )	Sample Size ( $n$ )
Northeast	61,812	1.905	0.071	0.098	19,965
Mid-Atlantic	65,036	1.339	0.077	0.083	12,868
Southeast	66,158	1.594	0.071	0.085	18,886
Gulf South	37,399	1.426	0.070	0.091	13,171
Heartland	37,336	1.083	0.066	0.086	9,158
Southwest	88,017	1.726	0.102	0.095	12,227
Central	88,449	1.268	0.086	0.084	22,889
S. California	43,681	1.325	0.071	0.086	12,565
N. California	25,371	1.480	0.081	0.095	11,214
Northwest	30,024	1.417	0.091	0.090	10,067
Hawaii	18,701	1.743	0.130	0.085	11,332

**Table J-2. Determinants of FY 1994 Sample Size for Estimating CHAMPUS Inpatient Costs**

Region	Discharges ( $N_D$ )	Standard Deviation ( $S$ )	Discharge Rate ( $p$ )	Precision Level ( $d$ )	Sample Size ( $n$ )
Northeast	27,363	\$13,696	0.049	\$726	18,775
Mid-Atlantic	32,896	11,541	0.060	613	15,407
Southeast	34,080	14,985	0.055	864	14,450
Gulf South	20,142	16,623	0.054	809	19,877
Heartland	22,080	12,039	0.056	721	12,894
Southwest	25,260	14,370	0.043	913	15,220
Central	33,032	15,742	0.047	826	39,406
S. California	17,052	17,314	0.046	980	17,620
N. California	8,632	18,220	0.044	1,077	16,288
Northwest	6,982	13,681	0.031	760	24,871
Hawaii	2,094	13,988	0.025	3,056	2,211

**Table J-3. Determinants of FY 1999 Sample Size for Estimating MTF Inpatient RWPs**

Region	Discharges ( $N_D$ )	Standard Deviation ( $S$ )	Discharge Rate ( $p$ )	Precision Level ( $d$ )	Sample Size ( $n$ )
Northeast	39,984	1.844	0.047	0.107	23,849
Mid-Atlantic	53,848	1.007	0.067	0.081	8,735
Southeast	32,810	1.120	0.033	0.087	18,600
Gulf South	21,160	1.114	0.038	0.090	15,059
Heartland	23,002	0.997	0.040	0.086	12,778
Southwest	55,317	1.375	0.063	0.097	12,152
Central	46,260	0.863	0.044	0.081	18,652
S. California	32,044	1.276	0.055	0.090	13,891
N. California	10,381	1.475	0.038	0.099	20,753
Northwest	20,159	1.189	0.059	0.093	10,471
Hawaii	13,045	1.375	0.089	0.084	10,844

**Table J-4. Determinants of FY 1999 Sample Size for Estimating CHAMPUS Inpatient Costs**

Region	Discharges ( $N_D$ )	Standard Deviation ( $S$ )	Discharge Rate ( $p$ )	Precision Level ( $d$ )	Sample Size ( $n$ )
Northeast	22,633	\$12,469	0.043	\$690	19,734
Mid-Atlantic	26,174	8,393	0.051	588	10,601
Southeast	34,325	12,055	0.053	610	19,431
Gulf South	22,395	10,784	0.059	551	16,872
Heartland	17,606	14,100	0.046	703	22,449
Southwest	25,059	11,393	0.043	737	14,759
Central	29,623	14,846	0.040	794	42,257
S. California	12,981	17,763	0.037	824	31,391
N. California	7,887	14,611	0.046	936	13,131
Northwest	5,726	8,056	0.025	713	12,992
Hawaii	813	27,534	0.009	4,081	11,649

Although the estimates of average MTF RWP and CHAMPUS inpatient costs are needed only at the region level, gains in precision may be possible by stratifying the population into roughly homogeneous subpopulations. To improve the precision of the regional estimates, we further stratified the population within each region by catchment/noncatchment area (determined by the duty location for active-duty members and the residence address for all other beneficiaries) and beneficiary group.

We defined the catchment/noncatchment areas using the FY 1994 definitions for both sample years. Thus, for example, we assigned a ZIP code that was in a state noncatchment area in FY 1999 but in a former catchment area in FY 1994 to the former catchment area. We did this to control for the effect of BRAC and other Service-initiated “rightsizing” measures on utilization and costs. We used eight beneficiary groups for stratification within each catchment/noncatchment area:

- (1) active-duty members,
- (2) active-duty family members under age 18,
- (3) active-duty family members age 18 and above,
- (4) retirees under age 65,
- (5) retirees age 65 and above,
- (6) retiree family members under age 18,
- (7) retiree family members ages 18 to 64, and
- (8) retiree family members age 65 and above.

We created a total of 1,280 strata from all possible combinations of catchment area/noncatchment area and beneficiary group.

The optimal allocation (in the sense of minimizing the variance of the regional estimates) of the sample to strata is obtained from the following formula:<sup>2</sup>

<sup>2</sup> William G. Cochran, *op. cit.*, p. 98, eq. 5.26.

$$n_h = n \frac{N_{Dh} S_h}{\sum_{h=1}^H N_{Dh} S_h},$$

where  $N_{Dh}$  is the number of discharges in stratum  $h$ ,  $S_h$  is the standard deviation of RWPs (cost) in stratum  $h$ , and  $H$  is the number of strata. Once we made the sample allocations for both MTF RWPs and CHAMPUS inpatient costs, we determined the number to be sampled in each stratum as the maximum of the two allocations. Finally, we drew the samples from FY 1994 and FY 1999 DEERS records using a systematic sampling scheme where we selected beneficiary records at fixed intervals (the interval lengths varied by strata).

### **Sample Weights**

Sample weights are used to make statistics obtained from a sample (e.g., means, totals, and ratios) approximately unbiased estimates of the corresponding population quantities. The base weights are the inverse of the probabilities of selection. For the stratified sampling plan described above, the weights are equal to  $w_{ih} = N_h/n_h$  for each member  $i$  of stratum  $h$ , where  $N_h$  and  $n_h$  are the population size and sample size, respectively, in stratum  $h$ . We then poststratified the sample so that the sample weights for beneficiaries who enrolled in Prime with a military PCM, with a civilian PCM, and who did not enroll sum to the number of beneficiaries in those categories in the population for each health service region. To obtain the poststratified weights, the base weights are multiplied by

$$\frac{N_R}{\hat{N}_R} = \frac{N_R}{\sum_i \sum_h w_{ih}},$$

where the base weights are summed over all beneficiaries in stratum  $h$  within region  $R$ .

### **The Family Sample and Weights**

Whereas the individual beneficiary is the unit of analysis for the evaluation of government costs, the evaluation of out-of-pocket costs considers the cost to beneficiary families. A family is selected if at least one member of the family is selected in the stratified sampling scheme described above. The family weights are determined as the inverse of the probabilities of selection. Because the probability of one or more family members being selected is equal to one minus the probability that no family members are selected, the probabilities of selection are obtained as

$$1 - \prod_{h \in S_i} \frac{\binom{N_h - m_{ih}}{n_h}}{\binom{N_h}{n_h}},$$

where  $m_{ih}$  is the number of family members for beneficiary  $i$  (from the individual sample) in stratum  $h$ , and  $S_i$  is the set of strata that include all members of the family.



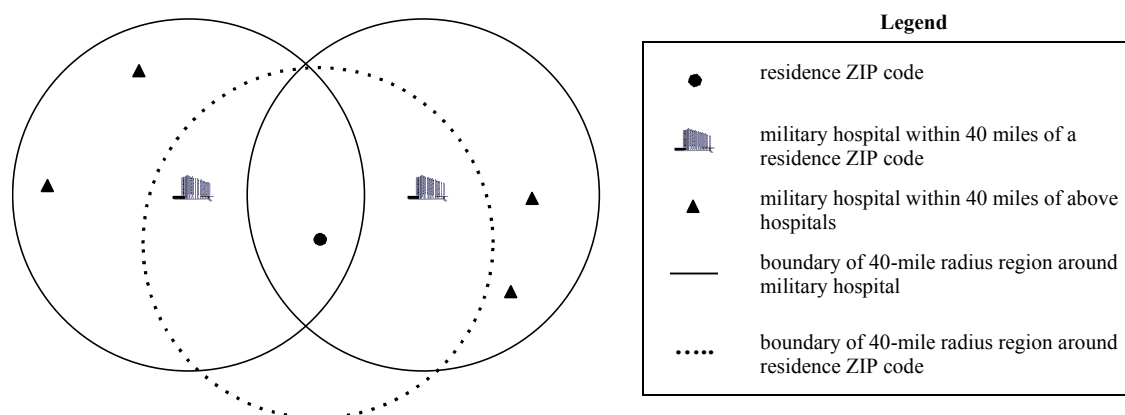
## APPENDIX K: BENEFICIARY ACCESS MEASURES FOR PREDICTING UTILIZATION

To help improve the predictive abilities of the utilization models, we created several measures of beneficiary access for both FY 1994 and FY 1999. We used these measures in a prior analysis of the Uniformed Services Family Health Plan<sup>1</sup> and proved to be significant predictors of utilization. The measures are described below.

**Catchment area indicator.** Using unit ZIP codes for active-duty members and residence ZIP codes for all other beneficiaries, we determined whether beneficiaries resided in a catchment or noncatchment area.

**Distance to nearest MTF or civilian medical facility.** We calculated the distance to the nearest MTF or civilian medical facility using a formula for the distance (in miles) between two points on a sphere. The formula requires the latitude and longitude of the ZIP codes for both the beneficiary and the medical facility.

**Beneficiary composition by access region.** For the inpatient analyses, we determined a 40-mile radius region around the beneficiary's ZIP code. For every military hospital in this region,<sup>2</sup> we determined another 40-mile radius region, as shown in Figure K-1.



**Figure K-1. Construction of MTF Access Regions**

The union of the latter 40-mile radius regions (i.e., the union of the catchment areas around the hospitals within 40 miles of the residence ZIP code) will be referred to as an access region (not to be confused with a Health Service Region). If no hospitals were located within 40 miles of a beneficiary's ZIP code, we determined a 40-mile radius

<sup>1</sup> Philip M. Lurie, Matthew S. Goldberg, and Kathryn L. Wilson, "Summary of IDA's Evaluation of the Uniformed Services Family Health Plan," Institute for Defense Analyses, Document D-1814, January 1996.

<sup>2</sup> We considered only hospitals for which at least 10 percent of the total population served were non-active-duty beneficiaries.

region around the closest military hospital. For the outpatient and prescription analyses, we determined access regions using a 20-mile radius around military hospitals and clinics.

We determined the beneficiary populations (active-duty members, active-duty family members, retirees and family members) in an access region by aggregating the populations across all ZIP codes within the region. Finally, we summed the beneficiary counts over the ZIP codes comprising each region and divided by the total beneficiary count to determine the proportion of each beneficiary type in the region.

***Physician full-time equivalents per capita.*** Physician full-time equivalents (FTEs) are recorded in physician-months by clinical area in MEPRS. The four-digit clinical codes identify both the clinical area and the facility for which physician FTEs are recorded. We classified FTEs into both emergency- and non-emergency-related outpatient care and summed them across all military hospitals and clinics within an access region. We then divided them by the total beneficiary population in the region (in thousands) to determine FTEs per capita.

***Military hospital beds per capita.*** The numbers of operating beds at military hospitals are recorded in the Facilities Analysis and Planning Module of the Defense Medical Information System. The DoD defines operating beds as beds currently set up and ready for the care of a patient, including supporting space, equipment, and staff to operate under normal circumstances. We summed the numbers of operating beds across all military hospitals within an access region and divided by the total beneficiary population in the region (in thousands) to determine operating beds per capita.

***Civilian hospital beds per capita.*** We obtained the numbers of operating beds at civilian hospitals from the American Hospital Association (AHA), and data on civilian population counts by ZIP code from the Bureau of the Census. We computed the number of beds per capita in a manner similar to that for military hospitals except that we defined the access regions and beneficiary populations differently. First, we mapped each ZIP code into a Metropolitan Statistical Area (MSA) as defined by the Office of Management and Budget. We categorized ZIP codes that did not fall within an MSA into non-MSA regions by state. Then we summed the numbers of operating beds across all civilian hospitals within the MSA containing the beneficiary's ZIP code and divided by the total civilian population in the MSA (in thousands) to determine operating beds per capita.

***Civilian providers per capita.*** We obtained data on individual civilian providers and location ZIP codes from the Provider Record Data file maintained by TMA–Aurora. We mapped the ZIP codes into MSAs, counted the total number of providers in each MSA, and divided by the civilian population in the MSA (in thousands) to determine civilian providers per capita.

***Hospital emergency rooms per capita.*** We obtained data on the presence of emergency rooms at civilian hospitals from the AHA. Then we divided the number of hospitals within an MSA having an emergency room by the civilian population in the MSA (in thousands) to determine hospital emergency rooms per capita.

***HMO penetration rates.*** We obtained data on HMO enrollment and population trends by MSA from the InterStudy *HMO Trend Report*,<sup>3</sup> supplemented by the InterStudy *Competitive Edge Report*.<sup>4</sup> We then computed the HMO penetration rates as the number of enrollments divided by the population size.

***Unemployment rates.*** We obtained data on the labor force and the number of unemployed by county from the Bureau of Labor Statistics. We then computed the unemployment rates as the number of unemployed divided by the labor force size.

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<sup>3</sup> The InterStudy *HMO Trend Report*, Bloomington: Decision Resources Incorporated, 1998.

<sup>4</sup> The InterStudy *Competitive Edge 9.2, Part III: Regional Market Analysis*, Bloomington: Decision Resources Incorporated, 1999.

## **APPENDIX L: REGIONAL ANALYSIS OF UTILIZATION AND GOVERNMENT COSTS**

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This appendix presents the results obtained from the utilization and cost models at the regional level. The following subsections present the analyses of purchased-care outpatient, inpatient, and prescription costs, followed by the analyses of MTF outpatient and inpatient costs. We did not perform an analysis of MTF prescription costs because most prescription costs in MEPRS are stepped down to the final operating accounts and are already accounted for in the outpatient and inpatient analyses.

### **Purchased Care Outpatient Utilization and Costs**

We estimated the effects of TRICARE on purchased care outpatient utilization and costs separately for Prime enrollees (differentiated by choice of PCM) and nonenrollees. We measured outpatient utilization as the number of visits per eligible beneficiary. Because utilization is more easily contemplated in terms of annual rates, we scaled the visits for beneficiaries with less than a full year of eligibility to their annual equivalents.

Table L-1 shows the effect of TRICARE on purchased care outpatient utilization and costs. Note that the columns labeled “FY 1994” do not reflect actual utilization or costs in that year. Rather, we estimated outpatient utilization rates from a statistical model that includes adjustments for the impact of BRAC and other Service rightsizing initiatives. We then applied these estimated utilization rates to the FY 1999 sample of TRICARE-eligible beneficiaries. Thus, the FY 1994 baseline reflects changes in the beneficiary size and composition that occurred between FY 1994 and FY 1999, as well as increased purchased care utilization resulting from MTF closings.

Overall outpatient utilization under TRICARE is slightly higher than under the traditional CHAMPUS benefit. This pattern is evident for most regions, the exceptions being the Central region and former CHAMPUS Reform Initiative (CRI) regions (Southern California, Golden Gate, and Hawaii). The latter regions experienced some of the largest drops in visits for mental health care, which resulted from the imposition under TRICARE of a cap on the number of mental health visits allowed without preauthorization (an unlimited number of mental health visits used to be allowed; it is now limited to 8).

Overall, enrollees with a military PCM showed almost no change in purchased-care outpatient utilization. With the exception of POS visits and emergencies, these beneficiaries can visit civilian physicians only if referred by their PCM. Enrollees with a civilian PCM showed a 52-percent increase in utilization, reflecting the fact that these beneficiaries are now receiving virtually all of their outpatient care from civilian providers.

**Table L-1. Effect of TRICARE on Purchased Care Outpatient Utilization and Costs by Region**

Region	Beneficiary Group	Enrollment Status	Annual Visits per Beneficiary		Cost (\$millions)	
			FY 1994	FY 1999	FY 1994	FY 1999
Northeast	Active-Duty Family Members	Military PCM	0.98	0.75	\$17.74	\$15.83
		Civilian PCM	1.75	4.45	1.48	3.98
		Nonenrolled	1.49	2.14	26.03	32.18
	Retirees and Family Members	Military PCM	1.28	0.78	6.07	6.80
		Civilian PCM	1.81	3.00	0.33	0.73
		Nonenrolled	1.35	1.34	72.62	59.32
	Overall	Overall	1.29	1.36	121.10	118.84
Mid-Atlantic	Active-Duty Family Members	Military PCM	1.01	1.21	18.05	26.66
		Civilian PCM	1.55	4.17	1.25	3.70
		Nonenrolled	1.59	2.85	19.48	31.18
	Retirees and Family Members	Military PCM	0.88	1.26	2.76	7.69
		Civilian PCM	1.78	3.20	1.33	3.32
		Nonenrolled	1.98	2.47	54.80	58.32
	Overall	Overall	1.51	2.09	93.06	130.88
Southeast	Active-Duty Family Members	Military PCM	1.32	1.50	20.67	30.62
		Civilian PCM	2.05	4.60	5.33	13.92
		Nonenrolled	1.88	2.37	16.42	19.88
	Retirees and Family Members	Military PCM	1.38	1.52	11.52	25.89
		Civilian PCM	1.50	4.70	5.84	26.80
		Nonenrolled	2.67	2.40	130.92	107.20
	Overall	Overall	2.08	2.32	172.36	224.31
Gulf South	Active-Duty Family Members	Military PCM	1.11	1.35	8.66	13.78
		Civilian PCM	2.77	3.81	6.61	10.71
		Nonenrolled	2.26	2.32	10.49	10.33
	Retirees and Family Members	Military PCM	1.55	1.71	6.70	15.06
		Civilian PCM	3.64	4.96	11.07	22.39
		Nonenrolled	2.67	2.69	71.29	65.54
	Overall	Overall	2.34	2.55	112.30	137.81

*Continued on next page*

**Table L-1—Continued**

Region	Beneficiary Group	Enrollment Status	Annual Visits per Beneficiary		Cost (\$millions)	
			FY 1994	FY 1999	FY 1994	FY 1999
Heartland	Active-Duty Family Members	Military PCM	1.20	0.89	\$11.96	\$10.64
		Civilian PCM	3.83	3.86	5.67	6.21
		Nonenrolled	2.64	2.55	21.92	18.96
	Retirees and Family Members	Military PCM	1.10	0.90	4.29	6.68
		Civilian PCM	2.97	4.21	3.17	6.22
		Nonenrolled	1.66	2.01	57.15	59.11
	Overall	Overall	1.79	1.92	104.54	107.82
Southwest	Active-Duty Family Members	Military PCM	1.25	1.38	19.37	27.47
		Civilian PCM	2.53	4.33	7.50	14.80
		Nonenrolled	1.85	2.15	14.59	16.23
	Retirees and Family Members	Military PCM	1.27	1.39	10.75	23.67
		Civilian PCM	2.30	5.71	9.83	35.81
		Nonenrolled	2.10	2.07	78.42	70.46
	Overall	Overall	1.81	2.14	131.41	188.44
Central	Active-Duty Family Members	Military PCM	1.50	1.50	28.79	33.12
		Civilian PCM	3.77	4.38	6.05	7.29
		Nonenrolled	2.57	2.38	21.17	16.75
	Retirees and Family Members	Military PCM	1.69	1.65	15.15	26.42
		Civilian PCM	4.12	4.65	11.40	16.80
		Nonenrolled	2.37	2.13	102.12	74.84
	Overall	Overall	2.20	2.08	184.88	175.22
Southern California	Active-Duty Family Members	Military PCM	2.14	1.72	16.87	19.13
		Civilian PCM	4.63	4.15	10.49	11.77
		Nonenrolled	1.88	1.61	11.58	10.54
	Retirees and Family Members	Military PCM	2.62	1.96	4.81	7.81
		Civilian PCM	4.35	4.85	13.45	23.77
		Nonenrolled	2.00	1.51	29.48	22.49
	Overall	Overall	2.44	2.06	85.44	95.50

*Continued on next page*

**Table L-1—Continued**

Region	Beneficiary Group	Enrollment Status	Annual Visits per Beneficiary		Cost (\$millions)	
			FY 1994	FY 1999	FY 1994	FY 1999
Golden Gate	Active-Duty Family Members	Military PCM	1.53	1.12	\$3.64	\$3.70
		Civilian PCM	4.15	4.17	5.66	6.98
		Nonenrolled	1.95	1.84	3.47	3.50
	Retirees and Family Members	Military PCM	2.16	1.98	2.37	4.57
		Civilian PCM	4.63	6.28	11.05	23.21
		Nonenrolled	1.81	1.19	18.33	12.33
	Overall	Overall	2.35	2.14	42.96	54.30
Northwest	Active-Duty Family Members	Military PCM	1.11	1.11	6.11	8.37
		Civilian PCM	2.69	3.81	2.94	5.13
		Nonenrolled	1.65	1.96	3.98	4.66
	Retirees and Family Members	Military PCM	0.99	1.09	2.69	6.28
		Civilian PCM	2.51	5.00	3.08	9.52
		Nonenrolled	1.63	1.62	17.08	15.86
	Overall	Overall	1.53	1.74	34.60	49.81
Hawaii	Active-Duty Family Members	Military PCM	2.02	1.44	4.79	4.71
		Civilian PCM	4.40	3.90	0.50	0.54
		Nonenrolled	2.47	1.80	2.24	1.73
	Retirees and Family Members	Military PCM	1.15	0.89	0.50	0.84
		Civilian PCM	2.40	3.32	0.30	0.64
		Nonenrolled	1.67	1.38	2.61	2.19
	Overall	Overall	2.00	1.51	10.96	10.64
Overall	Active-Duty Family Members	Military PCM	1.32	1.30	156.63	194.19
		Civilian PCM	3.05	4.19	53.49	82.80
		Nonenrolled	1.95	2.30	151.36	168.65
	Retirees and Family Members	Military PCM	1.41	1.40	67.61	131.68
		Civilian PCM	3.06	5.05	70.85	162.82
		Nonenrolled	2.07	2.02	634.81	552.33
	Overall	Overall	1.90	2.03	1,093.59	1,292.46

There was a great deal of regional variation in these overall patterns. Changes in utilization by beneficiaries with a military PCM ranged from a decline of 28 percent in the Northeast region to an increase of 25 percent in the Mid-Atlantic region. Although utilization by beneficiaries with a civilian PCM increased in every region, the former CRI regions experienced the smallest increases while the largest increase was in the Southeast region. The small increases in the CRI regions are not surprising because CRI was the precursor to TRICARE with a similar benefit structure and utilization incentives.

Table L-1 also shows the effect of TRICARE on purchased care outpatient costs. For this comparison, we estimated FY 1994 costs by applying a unit cost model to the utilization estimates and inflating by the Medicare Economic Index (10.9 percent cumulative inflation over the 5-year period). Outpatient costs remained about the same in the Northeast, Central, Northwest, and Hawaii Regions and increased in all the other regions.

The cost per visit increased by 47 percent for Prime enrollees with a military PCM and by 30 percent for enrollees with a civilian PCM; however, the cost per visit declined by 10 percent for nonenrollees. The decline for nonenrolled beneficiaries occurred presumably because they are enjoying provider discounts by using the Extra network, and because they are no longer using the emergency room for non-emergency acute care.

There were a few notable differences among regions. Although the cost per visit for Prime enrollees with a military PCM increased in every region, the increase varied from lows of 35 to 40 percent in the Revised Financing Regions to a high of 72 percent in the Golden Gate Region. The patterns were similar for Prime enrollees with a civilian PCM, except the percentage increases were lower.

## **Purchased Care Inpatient Utilization and Costs**

In theory, managed care programs apply UM initiatives (such as prospective review by physicians) to reduce the incidence of unneeded hospitalizations, and they apply quality management to reduce the length of stay without compromising the health of the patient. Therefore, much of savings expected from TRICARE should come from containing the costs of expensive inpatient care. Additional savings may be generated not only by reductions in bed days, but also by discounts negotiated between the MCS contractor and the civilian network hospitals and physicians.

We measured purchased-care inpatient utilization as the number of hospital discharges per 1,000 eligible beneficiaries. Again, we scaled the discharges for beneficiaries with less than a full year of eligibility up to their annual equivalents. We computed all of the utilization and cost estimates shown in Table L-2 relative to the FY 1999 sample of TRICARE-eligible beneficiaries.

Inpatient utilization under TRICARE is 9 percent higher than under the traditional CHAMPUS benefit (32.9 discharges per 1,000 beneficiaries in FY 1999 versus 35.9 discharges in FY 1994). Inpatient utilization patterns vary quite sharply across regions. For example, inpatient utilization in Hawaii decreased by 43 percent, whereas it increased by 33 percent in the Mid-Atlantic region.



**Table L-2. Effect of TRICARE on Purchased Care Inpatient Utilization and Costs by Region**

Region	Beneficiary Group	Enrollment Status	Annual Discharges per 1000 Beneficiaries		Cost (\$millions)	
			FY 1994	FY 1999	FY 1994	FY 1999
Northeast	Active-Duty Family Members	Military PCM	44.76	30.45	\$26.12	\$14.34
		Civilian PCM	47.65	159.10	3.66	12.22
		Nonenrolled	64.49	77.33	55.02	35.50
	Retirees and Family Members	Military PCM	19.83	18.79	6.99	7.76
		Civilian PCM	5.01	70.94	0.04	0.58
		Nonenrolled	24.17	20.75	72.82	41.57
	Overall	Overall	34.48	33.42	175.40	111.97
Mid-Atlantic	Active-Duty Family Members	Military PCM	39.07	23.34	43.68	21.83
		Civilian PCM	30.06	53.82	1.37	2.56
		Nonenrolled	31.48	69.23	26.83	33.28
	Retirees and Family Members	Military PCM	9.63	30.86	3.23	12.86
		Civilian PCM	15.55	7.97	0.07	0.04
		Nonenrolled	18.31	26.35	34.02	31.90
	Overall	Overall	25.43	33.75	110.26	102.47
Southeast	Active-Duty Family Members	Military PCM	48.30	39.72	45.19	33.03
		Civilian PCM	56.78	63.06	6.18	7.64
		Nonenrolled	44.56	71.99	18.41	17.41
	Retirees and Family Members	Military PCM	11.19	30.47	7.67	26.88
		Civilian PCM	32.04	58.31	7.72	15.95
		Nonenrolled	34.12	31.94	80.00	51.21
	Overall	Overall	35.89	40.03	168.15	152.12
Gulf South	Active-Duty Family Members	Military PCM	29.38	29.35	12.45	11.15
		Civilian PCM	62.97	73.09	5.26	6.74
		Nonenrolled	76.89	75.06	20.09	11.75
	Retirees and Family Members	Military PCM	35.61	43.72	9.70	15.52
		Civilian PCM	30.95	54.36	4.79	9.57
		Nonenrolled	34.68	33.54	45.73	30.69
	Overall	Overall	39.65	41.41	98.83	85.41

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**Table L-2—Continued**

Region	Beneficiary Group	Enrollment Status	Annual Discharges per 1000 Beneficiaries		Cost (\$millions)	
			FY 1994	FY 1999	FY 1994	FY 1999
Heartland	Active-Duty Family Members	Military PCM	27.56	25.80	\$17.38	\$13.77
		Civilian PCM	58.35	83.90	3.14	4.66
		Nonenrolled	53.83	77.63	25.61	21.01
	Retirees and Family Members	Military PCM	23.62	25.09	5.83	7.50
		Civilian PCM	69.37	66.96	3.79	3.88
		Nonenrolled	27.89	29.58	56.96	39.01
	Overall	Overall	32.54	37.54	110.62	89.84
Southwest	Active-Duty Family Members	Military PCM	44.41	30.03	41.08	24.80
		Civilian PCM	54.03	52.96	6.47	6.96
		Nonenrolled	58.46	100.03	24.95	25.41
	Retirees and Family Members	Military PCM	15.35	31.07	9.57	25.11
		Civilian PCM	33.08	66.19	8.89	20.16
		Nonenrolled	34.03	31.68	63.03	39.05
	Overall	Overall	36.62	40.66	155.26	141.49
Central	Active-Duty Family Members	Military PCM	36.03	36.09	50.41	40.70
		Civilian PCM	44.13	55.03	4.92	5.97
		Nonenrolled	90.87	101.32	42.28	26.37
	Retirees and Family Members	Military PCM	26.90	32.83	16.88	23.54
		Civilian PCM	39.48	57.35	7.14	10.37
		Nonenrolled	30.42	28.13	96.85	56.60
	Overall	Overall	38.34	39.56	219.04	163.54
Southern California	Active-Duty Family Members	Military PCM	24.57	22.70	20.62	19.29
		Civilian PCM	48.34	51.92	6.53	8.40
		Nonenrolled	55.39	53.03	26.28	18.85
	Retirees and Family Members	Military PCM	28.88	30.07	7.75	11.08
		Civilian PCM	36.92	48.88	11.65	18.86
		Nonenrolled	19.73	12.27	19.59	10.17
	Overall	Overall	30.64	28.22	94.59	86.64

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Table L-2—Continued

Region	Beneficiary Group	Enrollment Status	Annual Discharges per 1000 Beneficiaries		Cost (\$millions)	
			FY 1994	FY 1999	FY 1994	FY 1999
Golden Gate	Active-Duty Family Members	Military PCM	22.69	25.24	\$3.53	\$3.99
		Civilian PCM	47.23	76.51	3.32	6.42
		Nonenrolled	72.65	95.20	7.06	7.07
	Retirees and Family Members	Military PCM	25.75	29.93	3.83	6.08
		Civilian PCM	39.57	63.44	7.85	15.35
		Nonenrolled	15.49	16.96	13.33	12.48
	Overall	Overall	27.95	36.50	39.02	51.39
Northwest	Active-Duty Family Members	Military PCM	20.21	17.43	12.40	9.95
		Civilian PCM	30.19	44.49	2.11	3.55
		Nonenrolled	53.73	55.10	5.18	3.37
	Retirees and Family Members	Military PCM	11.18	21.41	2.42	6.20
		Civilian PCM	35.42	31.67	3.35	3.51
		Nonenrolled	17.98	16.54	15.53	10.22
	Overall	Overall	22.35	22.86	40.17	36.80
Hawaii	Active-Duty Family Members	Military PCM	11.22	1.80	11.97	1.94
		Civilian PCM	18.24	5.56	0.70	0.25
		Nonenrolled	9.88	17.78	1.19	1.61
	Retirees and Family Members	Military PCM	6.46	2.39	0.66	0.35
		Civilian PCM	4.37	10.69	0.06	0.18
		Nonenrolled	4.72	4.60	1.60	1.25
	Overall	Overall	8.92	5.08	11.37	5.57
Overall	Active-Duty Family Members	Military PCM	36.17	28.30	284.82	195.71
		Civilian PCM	49.71	62.25	43.66	64.61
		Nonenrolled	54.77	76.68	252.90	204.11
	Retirees and Family Members	Military PCM	18.63	29.46	74.52	142.30
		Civilian PCM	34.74	55.45	55.35	94.13
		Nonenrolled	27.13	26.44	499.45	328.91
	Overall	Overall	32.88	35.89	1222.69	1,029.76

Overall, enrollees with a military PCM experienced virtually no change in utilization but enrollees with a civilian PCM showed a 43-percent increase. The increase for enrollees with a civilian PCM may reflect the fact that they are more likely to be hospitalized as a consequence of receiving more outpatient care at civilian network facilities (i.e., the more often they are seen, the more likely a condition requiring hospitalization will be detected).

There were a few regional exceptions to these general patterns. Utilization by active-duty family members with a military PCM increased in the Golden Gate region, whereas it declined or remained the same in all other regions. For retirees and family members with a military PCM, utilization increased in every region except the Northeast and Hawaii. Retirees and family members with a civilian PCM saw their utilization increase in every region except the Mid-Atlantic, Heartland, and Northwest.

In addition to the hospitalization rate, we considered the mean and standard deviation of the length of stay as measures of inpatient utilization. Table L-3 reveals that the lengths of stay of purchased-care hospitalizations decreased in every TRICARE region and by 19 percent overall. The standard deviations remained essentially unchanged.

**Table L-3. Effect of TRICARE on Purchased Care Lengths of Stay**

Region	Mean		Standard Deviation	
	FY 1994	FY 1999	FY 1994	FY 1999
Northeast	5.9	4.6	13.8	11.5
Mid-Atlantic	6.4	5.0	13.6	13.9
Southeast	6.5	5.0	12.6	11.5
Gulf South	6.2	4.9	12.5	12.9
Heartland	6.1	5.2	15.1	14.7
Southwest	6.9	5.4	14.1	15.9
Central	6.0	5.1	12.4	11.2
Southern California	5.5	5.0	12.7	10.6
Golden Gate	4.9	4.5	9.3	9.4
Northwest	5.8	5.3	12.3	13.2
Hawaii	6.1	5.9	10.7	10.3
Overall	6.2	5.0	13.2	12.8

Table L-2 also shows the effect of TRICARE on purchased care inpatient costs. For this comparison, we inflated FY 1994 costs by the HCFA Hospital Input Price Index (14 percent cumulative inflation over the 5-year period). Inpatient costs declined in all regions except for a slight increase in the Northwest and a dramatic increase in the Golden Gate region. The most dramatic decrease occurred in Southern California, where costs were reduced by over 40 percent.

Although enrollees with a civilian PCM had a 41-percent higher hospitalization rate under TRICARE, their total costs increased by 47 percent. However, the cost for active-duty family members declined but was offset by a large increase in cost for retirees and family members. Enrollees with a military PCM showed a slight increase in cost despite a moderate drop in utilization, so that the cost per discharge increased somewhat. Although the government benefits from provider discounts, they are offset by the fact that the latter enrollees are hospitalized in civilian facilities only if the required procedures cannot be

performed in the MTF. These procedures tend to be more complex and costly than the typical procedures performed in civilian hospitals.

There were a few notable differences among regions. For Prime enrollees with a military PCM, the cost per discharge increase by a third in the Golden Gate Region and nearly tripled (a 192-percent increase) in Hawaii. Again, the increases were much greater for retirees and family members. By contrast, the cost per discharge declined by 11 percent in TRICARE Central and by 14 percent in Southern California. For Prime enrollees with a civilian PCM, the cost per discharge increased by 36 percent in the Northwest, but decreased by 32 percent in Hawaii.

## **Purchased Care Prescription Utilization and Costs**

Table L-4 shows the effect of TRICARE on purchased-care prescription utilization and costs. Note that the figures shown exclude the NMOP benefit. The FY 1994 baseline estimates reveal that even before TRICARE began, prospective Prime enrollees with a civilian PCM were heavier users of purchased care prescription services than were prospective enrollees with a military PCM. Moreover, the former group's prescription utilization nearly tripled under Prime, and the latter group's more than doubled. One possible explanation for these increases is that MTFs have restricted their formularies under TRICARE, forcing some beneficiaries to fill their prescriptions at civilian pharmacies. Note also that, under Prime, the participating pharmacy files all prescription claims regardless of cost. Under the traditional benefit, if a prescription cost did not meet the deductible, some beneficiaries may not have bothered to file a claim. Consequently, the additional utilization may be associated with low-cost prescriptions.

Overall, prescription utilization more than tripled under TRICARE. Only two regions—Golden Gate and Hawaii—deviated from the general pattern. Prescription utilization decreased by 16 percent in the Golden Gate region and by 17 percent in Hawaii. A similar pattern is exhibited for enrollees with a military PCM, with prescription utilization declining in Southern California as well. For enrollees with a civilian PCM, prescription utilization increased in every region with the exception of the Golden Gate region. Purchased-care prescription utilization by nonenrolled beneficiaries also increased in every region except Golden Gate and Hawaii.

Table L-4 also shows the effects of TRICARE on purchased care prescription costs. We inflated FY 1994 costs by the Consumer Price Index (CPI) for prescription drugs (19.6 percent). Overall, prescription costs increased by 125 percent under TRICARE. This increase, though significant, is much smaller than the 240-percent increase in prescription utilization, consistent with the earlier conjecture that some of the additional utilization may be associated with low-cost prescriptions.

**Table L-4. Effect of TRICARE on Purchased Care Prescription Utilization and Costs by Region**

Region	Beneficiary Group	Enrollment Status	Annual Prescriptions per Beneficiary		Cost (\$millions)	
			FY 1994	FY 1999	FY 1994	FY 1999
Northeast	Active-Duty Family Members	Military PCM	0.06	0.26	\$0.40	\$1.52
		Civilian PCM	0.26	3.21	0.05	0.51
		Nonenrolled	0.17	1.36	0.87	6.09
	Retirees and Family Members	Military PCM	0.04	0.29	0.10	0.63
		Civilian PCM	0.11	3.24	0.01	0.20
		Nonenrolled	0.13	1.60	2.71	17.44
	Overall	Overall	0.11	1.23	4.11	26.39
Mid-Atlantic	Active-Duty Family Members	Military PCM	0.06	0.33	0.51	2.78
		Civilian PCM	0.20	2.47	0.07	0.72
		Nonenrolled	0.23	1.63	1.16	7.10
	Retirees and Family Members	Military PCM	0.02	0.63	0.07	1.45
		Civilian PCM	0.05	3.22	0.01	0.56
		Nonenrolled	0.17	2.45	2.46	17.89
	Overall	Overall	0.14	1.52	4.28	30.50
Southeast	Active-Duty Family Members	Military PCM	0.05	0.49	0.45	4.31
		Civilian PCM	0.18	4.02	0.19	3.20
		Nonenrolled	0.17	1.59	0.49	4.16
	Retirees and Family Members	Military PCM	0.03	0.65	0.14	2.67
		Civilian PCM	0.12	4.83	0.21	5.79
		Nonenrolled	0.27	3.02	5.34	34.01
	Overall	Overall	0.18	2.23	6.74	54.14
Gulf South	Active-Duty Family Members	Military PCM	0.26	0.61	1.11	2.71
		Civilian PCM	1.42	4.05	1.45	3.20
		Nonenrolled	1.78	1.93	2.70	2.63
	Retirees and Family Members	Military PCM	0.26	0.97	0.59	2.13
		Civilian PCM	1.37	6.52	1.86	6.00
		Nonenrolled	1.88	3.39	22.81	22.67
	Overall	Overall	1.31	2.81	28.07	39.34

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**Table L-4—Continued**

Region	Beneficiary Group	Enrollment Status	Annual Prescriptions per Beneficiary		Cost (\$millions)		
			FY 1994	FY 1999	FY 1994	FY 1999	
Heartland	Active-Duty Family Members	Military PCM	0.06	0.27	\$0.19	\$0.80	
		Civilian PCM	0.65	3.09	0.33	1.14	
		Nonenrolled	0.49	2.01	1.08	3.82	
	Retirees and Family Members	Military PCM	0.07	0.38	0.12	0.60	
		Civilian PCM	0.52	3.92	0.18	0.86	
		Nonenrolled	0.42	2.94	5.65	20.73	
	Overall	Overall	0.37	2.23	7.53	27.96	
	Southwest	Active-Duty Family Members	Military PCM	0.12	0.48	0.87	3.60
			Civilian PCM	0.91	3.85	1.04	3.36
Nonenrolled			0.94	1.59	2.05	3.16	
Retirees and Family Members		Military PCM	0.09	0.65	0.44	2.88	
		Civilian PCM	1.28	6.40	2.62	8.86	
		Nonenrolled	1.59	3.06	29.09	30.97	
Overall		Overall	0.88	2.24	32.58	52.83	
Central		Active-Duty Family Members	Military PCM	0.17	0.38	1.91	3.71
			Civilian PCM	1.23	3.06	0.88	1.50
	Nonenrolled		0.91	1.52	2.82	3.77	
	Retirees and Family Members	Military PCM	0.22	0.58	1.20	2.65	
		Civilian PCM	0.81	4.33	1.16	3.80	
		Nonenrolled	0.54	2.11	11.89	22.67	
	Overall	Overall	0.48	1.56	20.16	38.10	
	Southern California	Active-Duty Family Members	Military PCM	0.54	0.37	2.53	1.79
			Civilian PCM	2.46	3.14	2.51	2.66
Nonenrolled			0.92	0.91	2.21	2.06	
Retirees and Family Members		Military PCM	1.14	0.45	2.08	0.79	
		Civilian PCM	5.05	5.62	7.99	6.63	
		Nonenrolled	1.64	1.85	14.84	9.86	
Overall		Overall	1.56	1.63	31.54	23.78	

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**Table L-4—Continued**

Region	Beneficiary Group	Enrollment Status	Annual Prescriptions per Beneficiary		Cost (\$millions)	
			FY 1994	FY 1999	FY 1994	FY 1999
Golden Gate	Active-Duty Family Members	Military PCM	0.59	0.32	\$0.63	\$0.37
		Civilian PCM	3.33	3.44	1.93	1.68
		Nonenrolled	1.08	1.07	0.75	0.71
	Retirees and Family Members	Military PCM	1.36	0.81	1.39	0.83
		Civilian PCM	5.47	5.07	6.39	4.42
		Nonenrolled	3.51	2.56	18.62	8.06
	Overall	Overall	2.80	2.35	26.99	16.07
Northwest	Active-Duty Family Members	Military PCM	0.11	0.26	0.31	0.82
		Civilian PCM	0.74	2.19	0.39	0.95
		Nonenrolled	0.42	0.99	0.36	0.84
	Retirees and Family Members	Military PCM	0.17	0.22	0.31	0.39
		Civilian PCM	0.70	4.72	0.44	2.12
		Nonenrolled	0.39	1.44	3.02	6.59
	Overall	Overall	0.32	1.15	4.68	11.71
Hawaii	Active-Duty Family Members	Military PCM	0.32	0.13	0.94	0.43
		Civilian PCM	1.48	1.65	0.09	0.09
		Nonenrolled	0.62	0.56	0.32	0.28
	Retirees and Family Members	Military PCM	0.30	0.13	0.12	0.05
		Civilian PCM	1.39	3.55	0.12	0.22
		Nonenrolled	0.89	0.80	0.94	0.52
	Overall	Overall	0.52	0.43	2.45	1.59
Overall	Active-Duty Family Members	Military PCM	0.16	0.37	9.86	22.82
		Civilian PCM	1.19	3.40	8.94	18.44
		Nonenrolled	0.54	1.50	14.82	35.21
	Retirees and Family Members	Military PCM	0.19	0.56	6.56	15.03
		Civilian PCM	1.87	5.33	21.00	37.90
		Nonenrolled	0.63	2.47	117.36	191.59
	Overall	Overall	0.54	1.84	169.14	320.99



## MTF Outpatient Utilization and Costs

During FY 1999 there was no widely available, centralized, patient-level accounting system with information on MTF outpatient workload and costs. The Ambulatory Data System had been only partially implemented by the end of FY 1999. Information on outpatient workload and costs are captured in MEPRS on an aggregate basis by clinical area only. Therefore, there is no way to separate the costs generated by nonenrollees during space-available visits from the costs generated by Prime enrollees. As a result, we were unable to determine the effect of Prime enrollment on MTF outpatient costs.

Given the lack of detail in the MEPRS data, we estimated FY 1994 baseline costs by applying the FY 1994 visit rate and the cost per visit to the FY 1999 beneficiary population and adjusting for inflation.<sup>1</sup> The results are shown in Table L-5.

**Table L-5. Effect of TRICARE on MTF Outpatient Utilization and Costs by Region**

Region	Annual Visits per Beneficiary		Cost (\$millions)	
	FY 1994	FY 1999	FY 1994	FY 1999
Northeast	6.21	5.37	\$628.77	\$666.33
Mid-Atlantic	5.05	4.07	343.64	409.04
Southeast	4.81	3.88	466.75	442.93
Gulf South	5.13	3.86	290.60	252.78
Heartland	6.39	5.16	217.85	249.08
Southwest	6.61	5.65	492.47	543.86
Central	5.74	4.11	525.85	490.88
Southern California	4.15	4.12	274.78	326.25
Golden Gate	2.75	2.85	76.85	100.01
Northwest	6.02	4.90	184.54	184.05
Hawaii	7.79	8.63	130.82	183.00
Overall	5.47	4.56	\$3,632.90	\$3,848.22

It should be noted that MTF visits cannot be directly compared with purchased care visits because the two are measured differently. An MTF visit does not necessarily involve a face-to-face contact with a physician—it could be just a phone call for medical advice. As another example, if a physical examination is accompanied by a series of laboratory tests, each test station (e.g., pathology, radiology) may claim a “visit” in addition to the outpatient clinic itself.

With this understanding, the number of MTF visits declined in most regions, except for increases of 11 percent in Hawaii and 4 percent in the Golden Gate region. The TRICARE Central region experienced a 28-percent decline in utilization, the largest

<sup>1</sup> We inflated FY 1994 costs by the HCFA Hospital Input Price Index plus a factor for medical intensity and technology. The 5-year cumulative growth in the HCFA index was 14 percent. A 5-year allowance for intensity and technology was added to that factor at a rate of 0.7 percent per year, yielding a total adjustment of 18.1 percent. The source for the intensity and technology factor is Matthew S. Goldberg and Ravi Sharma, “Inflation in DoD Medical Care,” Institute for Defense Analyses, Paper P-3325, July 1997.

among all the evaluated TRICARE regions. Although outpatient utilization decreased by 17 percent overall, outpatient costs increased by 6 percent.

The average cost per visit increased in every TRICARE region and by 27 percent overall. The Gulf South region had the smallest increase—16 percent. The largest increases were in the Mid-Atlantic and Heartland regions (47 and 42 percent, respectively).

## **MTF Inpatient Utilization and Costs**

Under the traditional military health care benefit of direct care and CHAMPUS, there was a priority system for access to the MTF. The group with the highest priority was active-duty service members. Next came active-duty family members and, finally, retirees and their family members. Under TRICARE, active-duty members retain the highest priority for access to MTFs. Beneficiaries enrolled in Prime have the next highest level of access whereas nonenrolled beneficiaries (including Medicare-eligibles) can access care at MTFs only on a space-available basis. Because of the change in access under TRICARE, baseline utilization and cost estimates should vary significantly by beneficiary category. These estimates are shown in Table L-6.

MTF inpatient utilization increased by 5 percent overall but there was considerable variability across regions. The Northeast, Mid-Atlantic, Central, Southern California, and Hawaii regions showed increases ranging from 5 to 28 percent whereas the remaining regions showed decreases ranging from 4 to 18 percent.

Active-duty service members experienced a 7-percent increase in MTF inpatient utilization under TRICARE in FY 1999. Again, there was no consistent pattern across regions. By contrast, active-duty family members with a military PCM, who enjoyed an intermediate level of access prior to TRICARE, experienced a 6-percent decrease in utilization. Apparently, the trend toward fewer hospitalizations more than offset the increased access for this group of beneficiaries. Seven regions followed the overall pattern, exhibiting a decline, but the other regions—Mid-Atlantic, Heartland, Southern California, and Hawaii—exhibited an increase in MTF inpatient utilization.

Retirees and family members with a military PCM experienced a 29-percent increase in MTF inpatient utilization. The increase was most notable in the Revised Financing Regions and Hawaii. This group had the lowest access to MTF care prior to TRICARE, and their access improved once they enrolled in Prime.

Utilization by beneficiaries with a civilian PCM declined for both active-duty family members and retirees and family members. Regional exceptions to the overall pattern include the Mid-Atlantic, Heartland, and Hawaii regions. Nonenrolled active-duty family members generally experienced increases in MTF inpatient utilization, whereas nonenrolled retirees and family members experienced declines. The most notable exceptions to this pattern were in the Golden Gate and Hawaii regions.

Overall, the MTF inpatient utilization of Medicare-eligible beneficiaries was relatively unaffected by TRICARE. However, all but four regions—the Northeast, Mid-Atlantic, Southwest, and Hawaii—experienced declines in utilization by this group of beneficiaries.

**Table L-6. Effect of TRICARE on MTF Inpatient Utilization and Costs by Region**

Region	Beneficiary Group	Enrollment Status	Annual Discharges per 1,000 Beneficiaries		Cost (\$millions)	
			FY 1994	FY 1999	FY 1994	FY 1999
Northeast	Active Duty Members	Military PCM	67.32	101.55	\$74.82	\$89.39
	Active-Duty Family Members	Military PCM	96.00	79.78	57.79	37.70
		Civilian PCM	66.22	9.66	1.21	0.13
		Nonenrolled	46.95	57.87	32.18	26.45
	Retirees and Family Members < 65	Military PCM	95.91	162.58	29.10	33.49
		Civilian PCM	11.89	3.79	0.08	0.02
		Nonenrolled	21.38	24.63	48.70	46.33
	Retirees and Family Members ≥ 65	Ineligible	51.54	75.21	61.10	68.45
	Overall	Overall	51.09	65.07	304.96	301.97
Mid-Atlantic	Active Duty Members	Military PCM	77.61	72.31	109.02	71.14
	Active-Duty Family Members	Military PCM	53.13	72.15	42.64	38.45
		Civilian PCM	43.18	68.95	1.79	1.78
		Nonenrolled	26.31	85.28	18.31	30.46
	Retirees and Family Members < 65	Military PCM	33.41	92.89	11.43	17.14
		Civilian PCM	57.62	28.91	1.51	0.57
		Nonenrolled	22.20	16.65	37.11	21.23
	Retirees and Family Members ≥ 65	Ineligible	51.51	60.50	36.80	29.96
	Overall	Overall	46.14	58.94	258.61	210.72
Southeast	Active Duty Members	Military PCM	87.41	67.50	80.15	43.03
	Active-Duty Family Members	Military PCM	85.00	58.89	46.12	21.13
		Civilian PCM	41.31	16.97	5.63	1.44
		Nonenrolled	47.40	53.94	20.05	11.55
	Retirees and Family Members < 65	Military PCM	80.98	99.53	30.73	20.79
		Civilian PCM	27.23	22.94	3.99	2.56
		Nonenrolled	10.45	9.45	42.56	29.45
	Retirees and Family Members ≥ 65	Ineligible	30.03	24.69	55.06	31.54
	Overall	Overall	45.77	38.54	284.29	161.49

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Table L-6—Continued

Region	Beneficiary Group	Enrollment Status	Annual Discharges per 1,000 Beneficiaries		Cost (\$millions)	
			FY 1994	FY 1999	FY 1994	FY 1999
Gulf South	Active Duty Members	Military PCM	75.57	64.95	\$42.66	\$26.37
		Civilian PCM	43.37	18.52	4.53	1.25
	Active-Duty Family Members	Military PCM	106.85	94.20	32.10	19.51
		Civilian PCM	56.19	65.73	12.62	7.88
		Nonenrolled	56.19	65.73	12.62	7.88
	Retirees and Family Members < 65	Military PCM	102.78	105.02	19.95	11.77
		Civilian PCM	45.74	14.43	5.83	1.41
		Nonenrolled	16.34	13.35	31.55	19.87
	Retirees and Family Members ≥ 65	Ineligible	38.07	25.00	38.97	16.64
	Overall	Overall	49.61	41.30	188.22	104.71
Heartland	Active Duty Members	Military PCM	67.66	63.46	50.63	32.65
		Civilian PCM	23.17	10.07	2.58	0.66
	Active-Duty Family Members	Military PCM	77.23	81.40	27.50	18.41
		Civilian PCM	29.73	42.80	10.63	7.11
		Nonenrolled	29.73	42.80	10.63	7.11
	Retirees and Family Members < 65	Military PCM	113.98	124.35	21.89	13.02
		Civilian PCM	37.47	41.28	1.49	1.21
		Nonenrolled	14.59	8.79	35.27	16.01
	Retirees and Family Members ≥ 65	Ineligible	33.34	21.65	28.19	12.43
	Overall	Overall	41.21	37.65	178.18	101.49
Southwest	Active Duty Members	Military PCM	104.87	120.94	113.77	95.79
		Civilian PCM	56.35	18.75	9.52	2.08
	Active-Duty Family Members	Military PCM	118.26	94.40	100.81	56.52
		Civilian PCM	117.75	152.09	36.55	25.86
		Nonenrolled	117.75	152.09	36.55	25.86
	Retirees and Family Members < 65	Military PCM	117.85	116.80	55.70	32.79
		Civilian PCM	26.60	8.35	5.73	1.40
		Nonenrolled	26.32	18.47	65.04	35.76
	Retirees and Family Members ≥ 65	Ineligible	73.83	78.67	103.20	70.26
	Overall	Overall	77.84	74.88	490.30	320.47

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Table L-6—Continued

Region	Beneficiary Group	Enrollment Status	Annual Discharges per 1,000 Beneficiaries		Cost (\$millions)	
			FY 1994	FY 1999	FY 1994	FY 1999
Central	Active Duty Members	Military PCM	66.54	79.63	\$57.45	\$48.46
	Active-Duty Family Members	Military PCM	79.23	77.04	56.67	37.23
		Civilian PCM	25.44	24.90	2.27	1.41
		Nonenrolled	62.51	75.60	18.92	11.70
	Retirees and Family Members < 65	Military PCM	87.50	108.17	34.95	24.57
		Civilian PCM	30.32	24.18	4.27	2.62
		Nonenrolled	12.56	12.37	40.00	30.33
	Retirees and Family Members ≥ 65	Ineligible	47.47	42.63	67.13	37.89
	Overall	Overall	48.06	50.57	281.66	194.20
Southern California	Active Duty Members	Military PCM	60.89	74.49	53.52	50.14
	Active-Duty Family Members	Military PCM	94.34	101.66	45.22	36.54
		Civilian PCM	29.89	28.90	6.07	4.22
		Nonenrolled	92.71	119.94	32.14	26.13
	Retirees and Family Members < 65	Military PCM	68.43	91.09	12.49	10.71
		Civilian PCM	31.24	30.07	4.93	3.83
		Nonenrolled	20.86	22.80	19.51	17.21
	Retirees and Family Members ≥ 65	Ineligible	37.74	27.70	35.28	18.53
	Overall	Overall	54.14	60.14	209.17	167.31
Golden Gate	Active Duty Members	Military PCM	66.58	86.19	14.77	15.04
	Active-Duty Family Members	Military PCM	122.69	80.44	15.21	7.85
		Civilian PCM	28.54	17.56	2.82	1.33
		Nonenrolled	78.09	73.42	5.50	3.52
	Retirees and Family Members < 65	Military PCM	112.65	98.94	8.07	4.83
		Civilian PCM	27.63	15.98	2.49	1.20
		Nonenrolled	13.16	10.00	13.57	8.57
	Retirees and Family Members ≥ 65	Ineligible	41.31	28.78	29.39	15.88
	Overall	Overall	47.20	38.87	91.83	58.23

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**Table L-6—Continued**

Region	Beneficiary Group	Enrollment Status	Annual Discharges per 1,000 Beneficiaries		Cost (\$millions)	
			FY 1994	FY 1999	FY 1994	FY 1999
Northwest	Active Duty Members	Military PCM	88.30	71.90	\$35.77	\$21.29
		Military PCM	115.92	93.31	37.75	21.45
	Active-Duty Family Members	Civilian PCM	29.76	17.87	2.85	1.16
		Nonenrolled	103.94	128.28	13.21	9.19
	Retirees and Family Members < 65	Military PCM	75.50	95.14	15.16	11.31
		Civilian PCM	28.24	15.30	1.96	0.83
		Nonenrolled	17.48	14.75	18.45	12.19
	Retirees and Family Members ≥ 65	Ineligible	54.01	46.28	30.78	16.67
	Overall	Overall	63.14	56.11	155.93	94.09
Hawaii	Active Duty Members	Military PCM	93.58	132.46	28.36	32.71
		Military PCM	116.00	185.72	26.15	33.98
	Active-Duty Family Members	Civilian PCM	66.63	54.26	0.54	0.35
		Nonenrolled	39.01	269.31	4.88	23.86
	Retirees and Family Members < 65	Military PCM	63.01	152.08	2.42	4.12
		Civilian PCM	13.66	78.84	0.09	0.42
		Nonenrolled	33.63	42.20	4.72	4.98
	Retirees and Family Members ≥ 65	Ineligible	90.76	207.07	9.82	17.75
	Overall	Overall	78.34	152.93	76.98	118.18
Overall	Active Duty Members	Military PCM	78.32	83.43	642.68	522.84
		Military PCM	90.52	85.47	481.72	332.04
	Active-Duty Family Members	Civilian PCM	38.92	22.59	38.25	15.20
		Nonenrolled	54.03	84.86	200.26	189.34
	Retirees and Family Members < 65	Military PCM	86.48	111.35	232.17	180.64
		Civilian PCM	31.95	20.12	31.05	15.55
		Nonenrolled	17.88	15.52	342.74	238.54
	Retirees and Family Members ≥ 65	Ineligible	47.61	46.85	483.92	338.72
	Overall	Overall	53.14	55.66	2,452.79	1,832.86

Table L-6 also shows the effect of TRICARE on MTF inpatient costs. For this comparison, we inflated MTF inpatient costs in FY 1994 using the same index we previously applied to MTF outpatient costs. Inpatient costs declined by 25 percent overall, a greater percentage decline than the increase in the hospitalization rate, so that the cost per discharge also declined (29 percent). All regions except Hawaii experienced a decline in total MTF inpatient costs; however, the cost per discharge declined in every region.

In addition to the hospitalization rate, we considered the mean and standard deviation of the length of stay as measures of inpatient utilization. Table L-7 reveals that both the mean and standard deviation of MTF lengths of stay decreased in every TRICARE region. The lower standard deviations under TRICARE indicate that TRICARE has been successful in implementing control over the health care delivery process.

**Table L-7. Effect of TRICARE on MTF Lengths of Stay by Region**

Region	Mean		Standard Deviation	
	FY 1994	FY 1999	FY 1994	FY 1999
Northeast	5.7	4.1	9.6	6.1
Mid-Atlantic	3.6	3.0	5.4	3.8
Southeast	4.3	3.4	7.6	5.1
Gulf South	4.7	3.5	7.0	5.2
Heartland	4.3	3.2	6.1	4.4
Southwest	4.9	3.8	7.2	5.1
Central	4.0	3.3	6.3	4.2
Southern California	3.8	3.2	5.4	4.4
Golden Gate	4.8	4.1	7.2	4.2
Northwest	4.3	3.4	6.0	4.1
Hawaii	5.6	4.2	10.3	7.5
Overall	4.5	3.5	7.1	4.9

## Regional Summary

An overall estimate of the regional impact of TRICARE on government costs is obtained by summing all direct and purchased care costs along with administrative and other costs. The cost elements are the same as those we used in Table 4-3 in the main text, and are reproduced below.

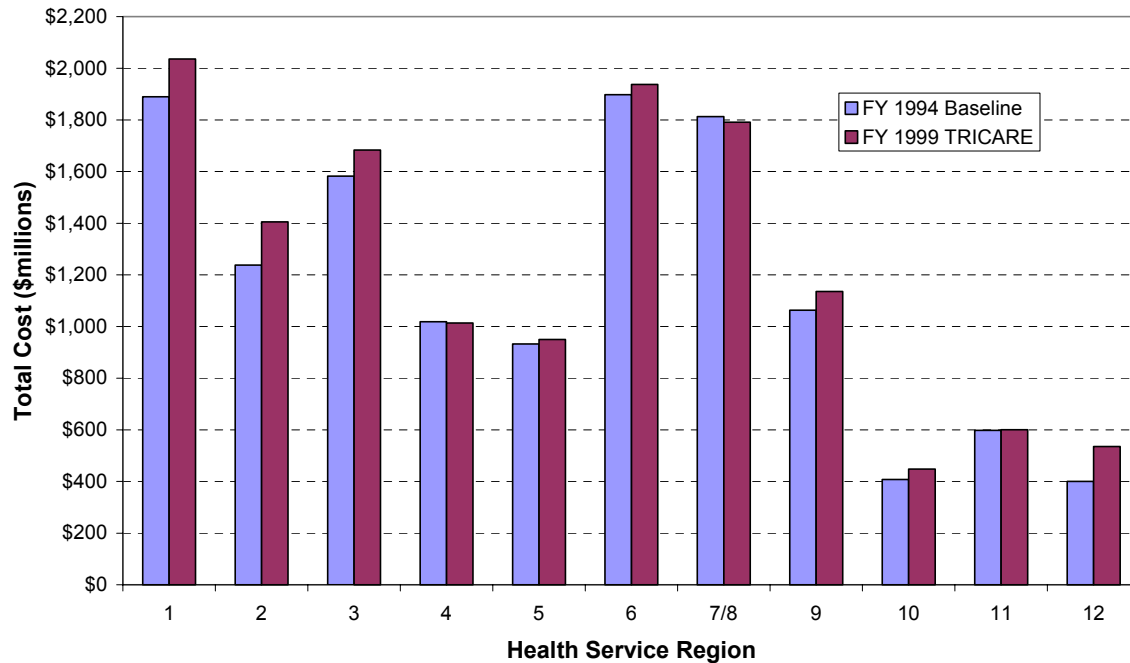
### Direct Care

- Inpatient
- Outpatient
- Dental
- Special Programs
- Readiness
- IM/IT at MTFs
- Military Pay Adjustment
- Military Construction
- Contractor Administrative Cost

### Purchased Care

- Inpatient
- Outpatient
- Prescriptions
- NMOP
- Capital Construction/DME
- Special and Emergent Care
- Other Pass-Through Costs
- Global Settlements
- Resource Sharing Adjustment
- Contractor Administrative Cost
- Government Administrative Cost

In addition, we allocated system-wide overhead costs (the FYDP program elements shown in Table 4-3) across TRICARE regions in proportion to their total health care and administrative costs above. The overall impact of TRICARE by region is shown in Figure L-1.



**Figure L-1. Regional Impact of TRICARE on Government Costs**

Figure L-1 shows that all except the Gulf South and Central regions (Region 4 and 7/8, respectively) experienced slight to moderate increases in cost under TRICARE. Although direct-care costs increased in some regions (most notably in the Northeast and Hawaii), the principal contributor to the overall increase in costs under TRICARE was MCS contract costs. With the exception of Hawaii, MCS contract costs increased in every region.



## APPENDIX M: EFFECT OF TRICARE ON OTHER INSURANCE COVERAGE

On the 1999 Health Care Survey of DoD Beneficiaries, two questions were asked of respondents to ascertain the affect of TRICARE on their private health insurance coverage. Respondents were asked whether they added or dropped private insurance coverage because of TRICARE, or whether TRICARE had no effect on their insurance coverage decision. The first question pertained to TRICARE or Medicare supplemental insurance coverage and the second to other private health insurance or an HMO. Tables M-1 and M-2 show the impact of TRICARE on beneficiaries' insurance coverage decisions.

**Table M-1. TRICARE Effect on Supplemental Insurance Coverage by Region**

Region	Beneficiary Group	Enrollment Status	No Effect	Added	Dropped
Northeast	Active Duty Family Members	Military PCM	90.7%	7.2%	2.1%
		Civilian PCM	88.8	6.3	4.8
		Not Enrolled	79.3	19.3	1.4
	Retirees and Family Members <65	Military PCM	85.8	10.2	4.0
		Civilian PCM	76.2	12.9	10.9
		Not Enrolled	84.4	14.8	0.9
	Retirees and Family Members ≥65	Senior Prime	80.6	3.8	15.6
		Ineligible	93.5	5.8	0.7
Mid-Atlantic	Active Duty Family Members	Military PCM	92.5	5.6	1.9
		Civilian PCM	95.9	4.1	0.0
		Not Enrolled	77.2	21.3	1.4
	Retirees and Family Members <65	Military PCM	84.1	9.8	6.1
		Civilian PCM	81.3	9.2	9.5
		Not Enrolled	80.1	18.9	1.0
	Retirees and Family Members ≥65	Ineligible	89.2	10.8	0.0
Southeast	Active Duty Family Members	Military PCM	95.5	3.1	1.4
		Civilian PCM	92.4	4.6	3.0
		Not Enrolled	78.2	20.3	1.4
	Retirees and Family Members <65	Military PCM	88.0	7.4	4.5
		Civilian PCM	82.7	10.8	6.4
		Not Enrolled	80.3	18.7	1.0
	Retirees and Family Members ≥65	Ineligible	91.1	8.5	0.4

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**Table M-1—Continued**

Region	Beneficiary Group	Enrollment	No Effect	Added	Dropped
		Status			
Gulf South	Active Duty Family Members	Military PCM	92.8%	5.8%	1.4%
		Civilian PCM	91.5	4.6	4.0
		Not Enrolled	80.8	17.5	1.7
	Retirees and Family Members<65	Military PCM	82.8	8.8	8.4
		Civilian PCM	80.0	13.4	6.6
		Not Enrolled	76.2	23.1	0.7
	Retirees and Family Members≥65	Senior Prime	74.8	5.9	19.3
		Ineligible	90.7	9.0	0.2
Heartland	Active Duty Family Members	Military PCM	92.4	5.7	1.9
		Civilian PCM	90.3	9.1	0.7
		Not Enrolled	85.5	13.6	1.0
	Retirees and Family Members<65	Military PCM	86.0	8.4	5.7
		Civilian PCM	84.4	11.4	4.2
		Not Enrolled	86.2	13.1	0.7
	Retirees and Family Members≥65	Ineligible	95.4	4.5	0.1
	Southwest	Active Duty Family Members	Military PCM	93.9	4.1
Civilian PCM			91.2	8.3	0.6
Not Enrolled			81.1	16.8	2.1
Retirees and Family Members<65		Military PCM	90.5	4.8	4.7
		Civilian PCM	87.9	8.8	3.2
		Not Enrolled	81.4	17.8	0.9
Retirees and Family Members≥65		Senior Prime	84.7	2.2	13.0
		Ineligible	91.2	8.5	0.3
Central	Active Duty Family Members	Military PCM	93.5	5.0	1.5
		Civilian PCM	91.9	8.1	0.0
		Not Enrolled	83.8	14.7	1.5
	Retirees and Family Members<65	Military PCM	86.2	8.2	5.6
		Civilian PCM	83.2	12.5	4.4
		Not Enrolled	82.1	16.8	1.1
	Retirees and Family Members≥65	Senior Prime	70.8	5.6	23.6
		Ineligible	92.3	7.4	0.3
S. California	Active Duty Family Members	Military PCM	96.1	2.9	1.0
		Civilian PCM	92.8	5.3	1.9
		Not Enrolled	88.7	11.0	0.3
	Retirees and Family Members<65	Military PCM	88.8	7.5	3.7
		Civilian PCM	89.0	7.6	3.4
		Not Enrolled	90.2	8.5	1.2
	Retirees and Family Members≥65	Senior Prime	86.1	2.1	11.8
		Ineligible	96.1	3.5	0.4

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**Table M-1—Continued**

Region	Beneficiary Group	Enrollment	No Effect	Added	Dropped
		Status			
Golden Gate	Active Duty Family Members	Military PCM	95.8%	2.3%	1.9%
		Civilian PCM	91.7	6.3	2.0
		Not Enrolled	73.6	25.2	1.3
	Retirees and Family Members <65	Military PCM	93.4	5.5	1.2
		Civilian PCM	89.4	9.5	1.1
		Not Enrolled	90.0	9.2	.8
	Retirees and Family Members ≥65	Ineligible	95.3	3.8	.9
Northwest	Active Duty Family Members	Military PCM	96.1	2.5	1.4
		Civilian PCM	94.1	3.3	2.6
		Not Enrolled	84.8	14.6	.6
	Retirees and Family Members <65	Military PCM	88.5	7.9	3.7
		Civilian PCM	88.7	10.3	1.0
		Not Enrolled	88.1	10.6	1.3
	Retirees and Family Members ≥65	Senior Prime	82.8	4.9	12.3
Hawaii	Active Duty Family Members	Ineligible	90.2	8.4	1.3
	Retirees and Family Members <65	Military PCM	95.9	3.1	0.9
		Civilian PCM	83.9	12.7	3.4
		Not Enrolled	89.2	10.8	0.0
	Retirees and Family Members <65	Military PCM	89.6	8.2	2.3
		Civilian PCM	88.1	9.9	2.0
		Not Enrolled	89.5	8.4	2.0
Overall	Retirees and Family Members ≥65	Ineligible	95.6	4.4	0.0
	Active Duty Family Members	Military PCM	94.1	4.3	1.6
		Civilian PCM	91.9	6.2	2.0
		Not Enrolled	82.5	16.3	1.2
	Retirees and Family Members <65	Military PCM	87.2	7.9	4.8
		Civilian PCM	85.2	10.4	4.4
		Not Enrolled	82.9	16.1	1.0
	Retirees and Family Members ≥65	Senior Prime	81.7	3.4	14.9
		Ineligible	92.6	7.0	0.4

**Table M-2. TRICARE Effect on Private Insurance Coverage by Region**

Region	Beneficiary Group	Enrollment			
		Status	No Effect	Added	Dropped
Northeast	Active Duty Family Members	Military PCM	90.1%	7.0%	3.0%
		Civilian PCM	81.5	9.6	8.9
		Not Enrolled	82.0	15.1	2.9
	Retirees and Family Members <65	Military PCM	80.7	8.5	10.8
		Civilian PCM	65.8	14.7	19.6
		Not Enrolled	80.8	17.5	1.7
	Retirees and Family Members ≥65	Senior Prime	79.6	1.5	18.8
		Ineligible	91.1	8.2	0.7
Mid-Atlantic	Active Duty Family Members	Military PCM	91.6	4.8	3.7
		Civilian PCM	90.7	4.8	4.5
		Not Enrolled	77.5	17.7	4.8
	Retirees and Family Members <65	Military PCM	82.4	7.4	10.2
		Civilian PCM	77.2	9.0	13.8
		Not Enrolled	76.6	21.3	2.1
	Retirees and Family Members ≥65	Ineligible	86.4	13.3	0.3
Southeast	Active Duty Family Members	Military PCM	91.2	3.4	5.4
		Civilian PCM	85.2	9.0	5.8
		Not Enrolled	78.7	17.3	4.0
	Retirees and Family Members <65	Military PCM	85.9	4.7	9.4
		Civilian PCM	77.4	6.5	16.1
		Not Enrolled	75.2	22.0	2.8
	Retirees and Family Members ≥65	Ineligible	89.4	10.4	0.2
Gulf South	Active Duty Family Members	Military PCM	93.4	5.1	1.5
		Civilian PCM	89.9	6.5	3.6
		Not Enrolled	83.4	12.0	4.6
	Retirees and Family Members <65	Military PCM	85.6	4.4	9.9
		Civilian PCM	86.9	4.1	9.1
		Not Enrolled	74.7	24.4	0.8
	Retirees and Family Members ≥65	Senior Prime	81.1	1.6	17.3
		Ineligible	90.4	9.6	0.0
Heartland	Active Duty Family Members	Military PCM	91.0	5.9	3.1
		Civilian PCM	84.9	13.8	1.3
		Not Enrolled	82.0	16.8	1.2
	Retirees and Family Members <65	Military PCM	83.9	6.4	9.7
		Civilian PCM	83.0	8.7	8.3
		Not Enrolled	82.1	16.1	1.8
	Retirees and Family Members ≥65	Ineligible	94.6	5.4	0.0

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**Table M-2—Continued**

Region	Beneficiary Group	Enrollment	No Effect	Added	Dropped	
		Status				
Southwest	Active Duty Family Members	Military PCM	90.9%	4.6%	4.5%	
		Civilian PCM	85.2	9.1	5.6	
		Not Enrolled	80.1	16.1	3.8	
	Retirees and Family Members<65	Military PCM	87.5	2.9	9.6	
		Civilian PCM	81.3	6.2	12.5	
		Not Enrolled	77.9	19.7	2.5	
	Retirees and Family Members≥65	Senior Prime	64.9	1.1	34.0	
		Ineligible	87.0	12.9	0.1	
	<hr/>					
Central	Active Duty Family Members	Military PCM	92.1	4.2	3.7	
		Civilian PCM	90.7	6.8	2.6	
		Not Enrolled	81.5	16.7	1.8	
	Retirees and Family Members<65	Military PCM	86.4	3.9	9.8	
		Civilian PCM	79.8	8.1	12.2	
		Not Enrolled	77.0	20.9	2.1	
	Retirees and Family Members≥65	Senior Prime	55.8	1.2	43.0	
		Ineligible	88.9	10.9	0.3	
	<hr/>					
S. California	Active Duty Family Members	Military PCM	93.3	3.1	3.7	
		Civilian PCM	86.2	9.3	4.5	
		Not Enrolled	85.5	9.8	4.7	
	Retirees and Family Members<65	Military PCM	85.6	4.2	10.1	
		Civilian PCM	86.3	6.7	7.1	
		Not Enrolled	82.5	15.0	2.5	
	Retirees and Family Members≥65	Senior Prime	64.3	0.7	35.0	
		Ineligible	92.7	6.8	0.5	
	<hr/>					
Golden Gate	Active Duty Family Members	Military PCM	89.6	4.6	5.8	
		Civilian PCM	86.4	7.6	6.0	
		Not Enrolled	77.6	20.8	1.5	
	Retirees and Family Members<65	Military PCM	89.0	2.9	8.1	
		Civilian PCM	84.0	9.3	6.7	
		Not Enrolled	83.5	15.1	1.4	
	Retirees and Family Members≥65	Ineligible	93.5	5.8	0.7	
	<hr/>					
	Northwest	Active Duty Family Members	Military PCM	92.5	4.4	3.0
Civilian PCM			83.7	9.8	6.5	
Not Enrolled			71.6	25.4	3.0	
Retirees and Family Members<65		Military PCM	85.6	5.1	9.3	
		Civilian PCM	82.1	10.0	7.9	
		Not Enrolled	76.8	22.2	1.1	
Retirees and Family Members≥65		Senior Prime	73.3	2.7	24.0	
		Ineligible	86.0	12.7	1.2	

*Continued on next page*

**Table M-2—Continued**

Region	Beneficiary Group	Enrollment	No Effect	Added	Dropped
		Status			
Hawaii	Active Duty Family Members	Military PCM	96.2	2.2	1.6
		Civilian PCM	71.5	20.8	7.7
		Not Enrolled	84.8	13.4	1.8
	Retirees and Family Members < 65	Military PCM	82.6	5.9	11.5
		Civilian PCM	87.0	6.0	7.0
		Not Enrolled	78.9	14.8	6.3
	Retirees and Family Members ≥ 65	Ineligible	94.0	6.0	0.0
Overall	Active Duty Family Members	Military PCM	91.8%	4.6%	3.6%
		Civilian PCM	86.3	8.9	4.8
		Not Enrolled	80.7	15.9	3.4
	Retirees and Family Members < 65	Military PCM	85.0	5.1	9.8
		Civilian PCM	82.0	7.1	11.0
		Not Enrolled	78.3	19.7	2.0
	Retirees and Family Members ≥ 65	Senior Prime	66.9	1.3	31.7
		Ineligible	90.0	9.7	0.3

## APPENDIX N: SELECTED DHP PROGRAM ELEMENT DEFINITIONS

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**Table N-1. Selected DHP Medical Program Element Definitions**

Program Element	Title	Description
0807798HP	Management Headquarters	Includes manpower authorizations, peculiar and support equipment, necessary facilities and the associated costs specifically identified and measurable to the following: Army: U.S. Army Medical Command Headquarters; Medical Material Agency. Navy: Bureau of Medicine and Surgery. Defense Agencies: Defense Medical Facilities Office, which is a component of the TRICARE Management Activity.
0807791HP	MHS Information Management/ Information Technology (IM/IT)	Includes manpower authorizations, peculiar and support equipment, necessary facilities and the associated costs specifically identified and measurable to the following: This program element contains funding for reliable, responsive standardized information systems support to health care providers, managers, and decision makers at all levels of the DoD through the following MHS IM/IT business areas: Clinical Logistics, Executive Information/Decision Support, resources, Theater, Infrastructure and the TRAC2ES Program. Oversees and maintains DoD Unified Medical Program resources for all medical activities.
0807709HP	TRICARE Management Activity (TMA)	Includes manpower authorizations, peculiar and support equipment, necessary facilities and the associated costs specifically identified and measurable to the following: Resources devoted to the operation of the TMA. This program element contains funding for TMA operating costs supporting delivery of patient care worldwide for members of the Armed Forces, family members, and others entitled to DoD health care. Oversees and maintains DoD Unified Medical Program resources for all medical activities.

*Continued on next page*

**Table N-1—Continued**

Program Element	Title	Description
0807785HP	Armed Forces Institute of Pathology (AFIP)	<p>Includes manpower authorizations, peculiar and support equipment, necessary facilities and the associated costs specifically identifiable and measurable to the following:</p> <p>Includes operation and maintenance of the AFIP as authorized under DoD Directive 5154.24. Includes expenses incurred in the conduct of the AFIP's assigned missions: serves as chief reviewing authority on the diagnosis of pathologic tissue for the Armed Services; conducts experimental, statistical and morphological research and investigation in the field of pathology; operates the Armed Forces Medical Examiner System; operates the National Museum of Health and Medicine; maintains a Medical Illustration Service; administers the drug testing quality control and proficiency testing programs for the DoD; administers implementation of the DoD Clinical Laboratory Improvement Program; operates the Defense Special Weapons Agency Registry.</p>
0801720HP	Examining Activities – Health Care	<p>Includes manpower authorizations, peculiar and support equipment, necessary facilities and the associated costs specifically identified and measurable to the following: Resources devoted to administering physical examinations and performing evaluations of medical suitability. Also includes resources at the Armed Forces Examination and Entrance Stations (AFEES) devoted to the Defense Medical Review Board.</p> <p>Excludes Service recruiting headquarters, career counselors assigned to AFEES, and mental/vocational testing performed by recruiting personnel.</p>
0806721HP	Uniformed Services University of the Health Sciences (USUHS)	<p>Includes manpower authorizations, peculiar and support equipment, necessary facilities and the associated costs specifically identified and measurable to the following:</p> <p>Resources associated with the establishment, operation, and maintenance of the USUHS. Includes instructors and instructional support.</p>
0806722HP	Armed Forces Health Professions Scholarship Program	<p>Includes costs specifically identified and measurable to the Armed Scholarship Program Forces Health Professions Scholarship, Financial Assistance Program, and other precommissioning professional scholarship programs.</p> <p>Excludes manpower authorizations and administrative support costs for the above programs, other health acquisition programs, and the Airman's Education Commissioning Program.</p>

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**Table N-1—Continued**

Program Element	Title	Description
0807714HP	Other Health Activities	<p>Includes manpower authorizations, peculiar and support equipment, necessary facilities and the associated costs specifically identified and measurable to the following:</p> <p>Organizations and functions that support the provision of health care for MHS beneficiaries to include activities such as management headquarters for regional lead agents, central medical laboratories, medical service squadrons, AMEED Field Procurement Offices, the Health Services Data Systems Agency, Navy Healthcare Support Offices, public affairs, and family advocacy among others.</p> <p>Excludes tactical medical units (including dental activities) other than described above; Armed Forces Institute of Pathology and Aeromedical Evacuation resources; AFEES; recovery, preparation, transportation, and internment of deceased military personnel; veterinary services; and functions which are integral to medical center/station hospital/clinic/dispensary operations.</p> <p>Excludes activities that provide support to the unique health care mission required by virtue of the military mission and not generally analogous to services provided under a civilian health benefit plan.</p>
0603115HP	Medical Development	Funds to provide for advanced development of improved methods, equipment and systems for medical identification and protection of naturally occurring diseases and biological warfare.
0807726HP	Medical Combat Support – Active	Includes manpower and funding associated with deployable and employable combat support.
0807720HP	Other Procurement, Construction/Initial Outfitting	Funds procurement of investment equipment items within the Defense Health Program in support of medical military construction projects. This includes initial outfitting investment equipment for medical construction of projects supporting health care delivery (including dental care), health care training, and other health activities within the Army, Navy, Air Force and the Defense Field Activities (e.g., TMA and USUHS).
0807721HP	Other Procurement, Replacement/Modernization	Funds procurement of investment equipment for recurring replacement, modernization, new requirements, and developmental items within the Defense Health Program. This includes procurement of investment equipment in support of health care delivery (including dental care), health care information systems, training, and other health activities within the Army, Navy, Air Force and the Defense Field Activities (e.g., TMA and USUHS).

## **ABBREVIATIONS**

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AD	Active Duty
ADFM	Active-Duty Family Members
ADS	Ambulatory Data System
AFB	Air Force Base
AFEES	Armed Forces Examination and Entrance Stations
AFIP	Armed Forces Institute of Pathology
AHA	American Hospital Association
ARS	All Region Server
BPA	Bid Price Adjustment
BRAC	Base Realignment and Closure
CAHPS	Consumer Assessment of Health Plans Survey
CHAMPUS	Civilian Health and Medical Program of the Uniformed Services
CMAC	CHAMPUS Maximum Allowable Charge
CMIS	CHAMPUS Medical Information System
CPI	Consumer Price Index
CRI	CHAMPUS Reform Initiative
DEERS	Defense Enrollment Eligibility Reporting System
DHHS	Department of Health and Human Services
DHP	Defense Health Program
DME	Direct Medical Education
DoD	Department of Defense
DRG	Diagnosis Related Group
ER	Emergency Room
FEHBP	Federal Employees Health Benefits Program
FI	Fiscal Intermediary
FTE	Full-Time Equivalent
FY	Fiscal Year
FYDP	Future Years Defense Program
GAO	General Accounting Office
HCF	Health Care Finder

HCFA	Health Care Financing Administration
HMO	Health Maintenance Organization
HSR	Health Service Region
IDA	Institute for Defense Analyses
IM/IT	Information Management/Information Technology
MCS	Managed Care Support
MEPRS	Medical Expense and Performance Reporting System
MHS	Military Health System
MilCon	Military Construction
MMSO	Military Medical Support Office
MSA	Metropolitan Statistical Area
MTF	Military Treatment Facility
NAIC	National Association of Insurance Commissioners
NCBD	National CAHPS Benchmarking Database
NDAA	National Defense Authorization Act
NMOP	National Mail Order Pharmacy
O&M	Operations and Maintenance
OASD(HA)	Office of the Assistant Secretary of Defense (Health Affairs)
OCHAMPUS	Office of the Civilian Health and Medical Program of the Uniformed Services
OHI	Other Health Insurance
PCM	Primary Care Manager
PE	Program Element
POS	Point of Service
PPI	Producer Price Index
RWP	Relative Weighted Product
SA	Space-Available
SADR	Standard Ambulatory Data Record
SIDR	Standard Inpatient Data Record
TDP	TRICARE Dental Program
TFMDP	TRICARE Family Member Dental Plan
TMA	TRICARE Management Activity
TPR	TRICARE Prime Remote
TSP	TRICARE Senior Prime

TSRDP	TRICARE Selected Reserve Dental Program
UM	Utilization Management
USUHS	Uniformed Services University of the Health Sciences