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An Analysis of Alternatives for Reducing Outpatient Military Health Care Costs for Active Duty Members and their Families: Implementing a Recommended Savings Strategy Using Defense Acquisition Principles

**By: Ricardo Jaime and Joshua W. Rupert
December 2007**

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MILITARY HEALTH CARE COSTS FOR ACTIVE DUTY MEMBERS AND
THEIR FAMILIES: IMPLEMENTING A RECOMMENDED SAVINGS
STRATEGY USING DEFENSE ACQUISITION PRINCIPLES**

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AN ANALYSIS OF ALTERNATIVES FOR REDUCING OUTPATIENT MILITARY HEALTH CARE COSTS FOR ACTIVE DUTY MEMBERS AND THEIR FAMILIES: IMPLEMENTING A RECOMMENDED SAVINGS STRATEGY USING DEFENSE ACQUISITION PRINCIPLES

ABSTRACT

Rising health care costs are placing a considerable burden on Government and Department of Defense resources. At the current rate, health care costs will likely impact the overall readiness and future force structure of the Department of Defense. In efforts to reduce or contain the costs of the military health care system, this project will propose two cost savings alternatives for providing outpatient care to active duty personnel and their dependents. In addition to analyzing the current system as an alternative (status quo), the two proposed cost-sharing alternatives are a standard co-payment and a monthly allotment program. These strategies are primarily designed to reduce Department of Defense costs by influencing the attitudes of beneficiaries toward outpatient health care, restricting their access to options with higher costs, and shifting a portion of outpatient care costs through co-payments. This project provides an in-depth analysis for each alternative using a set of assumptions for treatment possibilities based on three likely scenarios, and provides quantitative and qualitative data to arrive at a recommendation. Using acquisition principles, this project provides an implementation process for the proposed alternative that should minimize disruption in the current military health care system. This project highlights the hypothesis by implementing a cost-saving strategy to active duty and dependent outpatient care; thus, the military health care system will experience a significant cost reduction over the long run.

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I. INTRODUCTION AND PURPOSE OF THIS PROJECT

A. PURPOSE OF STUDY

Health care costs have risen at an increasingly rapid pace over the past ten years. The rate of growth actually slowed during the mid-1990s before it began to rise at a faster rate than most other sectors in the United States (U.S) economy.¹ Naturally, growth in health care spending will continue to lead to increased competition for Federal dollars. This study will identify the impact that rising health care costs are having on the U.S. Government and the Department of Defense (DoD). If health care costs continue to escalate and the defense department does not make any significant changes, the department will be forced to increase its health care budget allocation in the future, thereby reducing funding for other major vital programs.

This study will analyze two cost-saving strategies that the DoD could adapt to generate long-term savings:

- The first alternative focuses on a cost-sharing methodology where the Government funds a given percentage of each active duty member's and his/her family outpatient care medical expenses.
- The second alternative is a defined monthly allotment for each member for outpatient health care expenses; it is based on factors, such as marital status, number of dependents, and rank.

There are many dimensions to the health care delivery system. This study focuses only on the outpatient payment system. The purpose of this study is to recommend a strategy for reducing DoD health care costs by implementing a change in the current cost sharing methodology for all outpatient health care costs provided to active duty members and their families. This strategy would provide the department the most significant cost savings over a long-term period. This study also focuses on recommending an implementation process that, by following a set of DoD acquisition guidelines, can help

¹ Joel Cohen & Mike Hagan. "Health Care Costs." Agency for Health care Research and Quality September 2002. U.S. Department of Health and Human Services. Accessed in May 2007. www.ahrq.gov.

the department minimize disruptions to the current military health care system while still providing a smooth, effective transition to a new payment system.

B. ORGANIZATION OF THE PROJECT

The rest of this project report will proceed as follows: Chapter II presents an overview of health care costs since 1990. Chapter III offers an overview of the current military health care system, the TRICARE system, and the factors that have contributed to cost escalations in the TRICARE system and the private sector. Chapter IV discusses the definitions, assumptions, and beneficiaries of each proposed cost-saving alternative. Chapter V presents a detailed analysis of each alternative based on a set of treatment options and health care-seeking scenarios. Chapter VI proposes a cost-saving recommendation based on the analysis presented as well as the impact of this recommendation on the active duty member and the DoD. Chapter VII suggests an implementation process using Federal acquisition methods to ensure a smooth and efficient transition. Finally, Chapter VIII concludes the work of this project, discusses its limitations, and it recommends future areas of study.

II. OVERVIEW OF HEALTH CARE COSTS SINCE 1990

Health care expenditures have risen significantly in the past seventeen years. Expenditures in the U.S on health care were nearly \$2 trillion in 2005, more than two and a half times the \$714 billion spent in 1990.² The growth rate in health care costs was particularly high in the early to mid 1990s as Figure 1 below shows. The rate slowed significantly in 1994 until the turn of the century when the rate increased at a higher rate once again. The Federal, state, and local governments funded \$902.7 billion, or 45.41 percent, of health care costs in 2005, up from \$286.7 billion, or 40.15 percent, of health care costs in 1990.

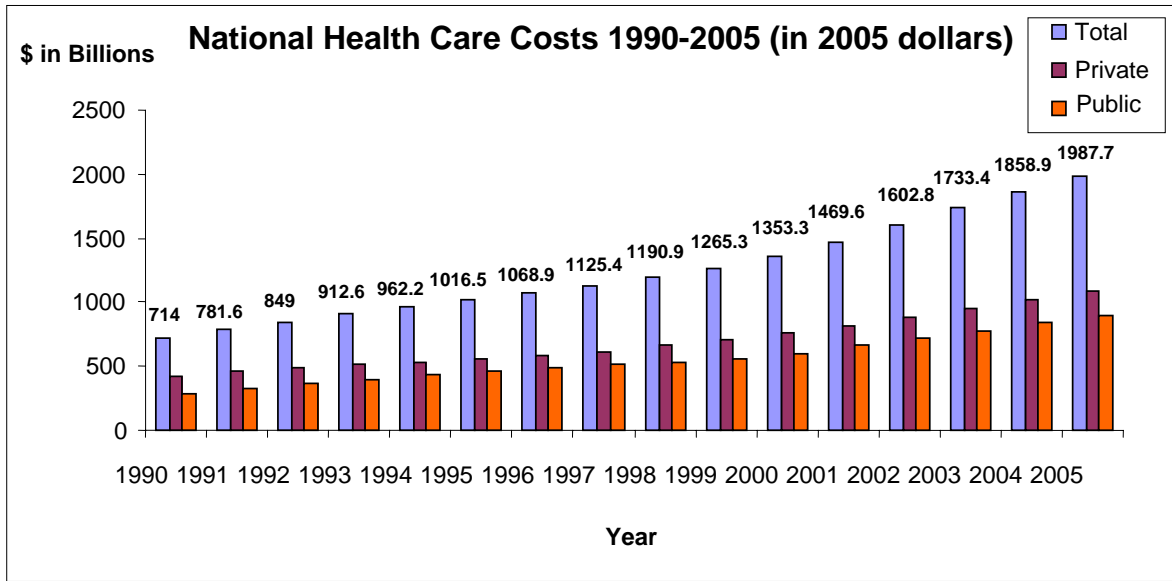


Figure 1. National Health care Costs([Adapted from NHE Summary])

² NHE Summary including share of GDP, CY 1960 – 2005. Centers for Medicare and Medicaid Services. U.S. Department of Health and Human Services. Accessed in May 2007. http://www.cms.hhs.gov/NationalHealthExpendData/02_NationalHealthAccountsHistorical.asp#TopOfPage.

Annual Percent Change

| | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 |
|--------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| Health Costs | 11.8 | 9.5 | 8.6 | 7.5 | 5.4 | 5.6 | 5.2 | 5.3 | 5.8 | 6.2 | 7 | 8.6 | 9.1 | 8.1 | 7.2 | 6.9 |
| Private | 11.7 | 6.7 | 6.4 | 5.6 | 2.7 | 4.8 | 5.2 | 5.8 | 7.9 | 7.2 | 6.6 | 6.8 | 8.9 | 8.5 | 6.8 | 6.3 |
| Public | 12 | 13.5 | 11.7 | 10 | 8.9 | 6.6 | 5.1 | 4.7 | 3.3 | 5 | 7.4 | 10.9 | 9.2 | 7.7 | 7.8 | 7.7 |

Figure 2. Annual Percent Change in Health Care Costs ([Adapted from NHE Summary])

From 1990 to 2005, the U.S. population increased by 43 million or 16.9 percent, with an increase of about 1 percent each year.

U.S. Population Data (1990 – 2005)

| | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 |
|-----------------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| Population (M) | 254 | 257 | 260 | 263 | 266 | 269 | 271 | 274 | 277 | 280 | 283 | 286 | 288 | 291 | 294 | 297 |
| Annual percent Change | 1.2 | 1.2 | 1.2 | 1.2 | 1.1 | 1.1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0.9 |

Figure 3. U.S. Population Data ([Adapted from NHE Summary])

Given the above health care and U.S. population trends, total health expenditures per capita were \$6,697 in 2005, more than doubling (+138 percent) from \$2,813 in 1990. The average annual increase in health expenditures per capita was 5.97 percent from 1990 to 2005.³

³ NHE Summary including share of GDP, CY 1960 – 2005. Centers for Medicare and Medicaid Services. U.S. Department of Health and Human Services. Accessed in May 2007. http://www.cms.hhs.gov/NationalHealthExpendData/02_NationalHealthAccountsHistorical.asp#TopOfPage.

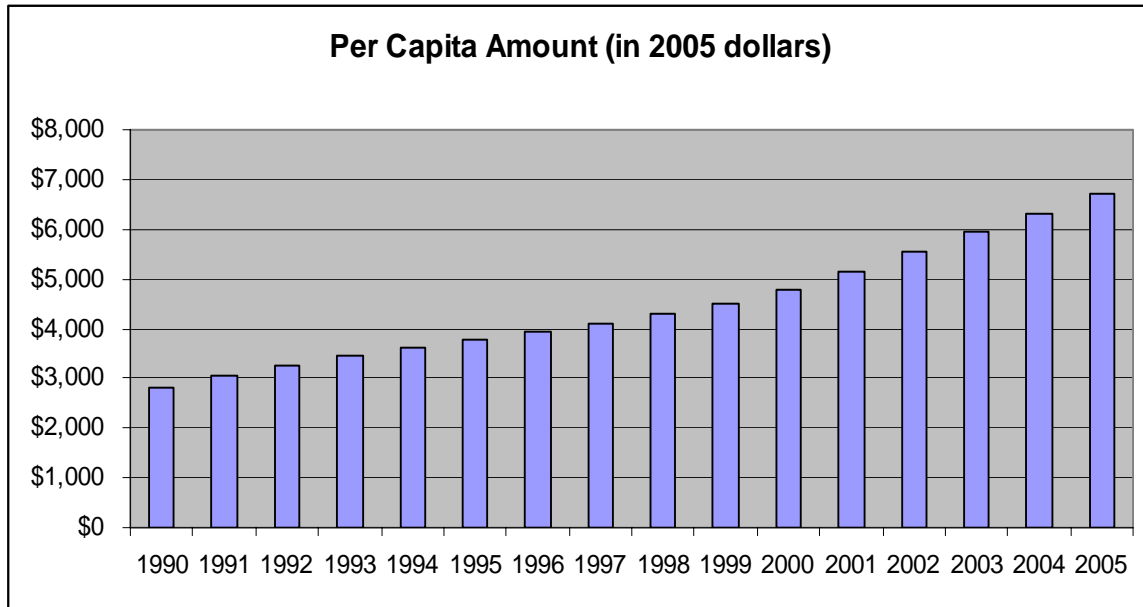


Figure 4. Per Capita Amount of Costs ([Adapted from NHE Summary])

In 2006, the total national health care expenditures were estimated to be \$2.122 trillion⁴. As this cost trend continues, the Federal Government faces the burden of reallocating competing dollars from other major Federal programs to be able to provide increasingly expensive health care to the growing American population.

A. IMPACT ON THE FEDERAL GOVERNMENT

The U.S. spends the largest share of its gross domestic product (GDP) on health care compared to any other industrialized nation in the world.⁵ Expenditures for health care represent one of the highest components of the Federal budget. In 1990, for example, health care expenditures accounted for approximately 12.3 percent of the GDP;

⁴ Allison Bell. "Health Spending: Study Sees \$4 Trillion Tab For Health Care by 2016." National Underwriter Life & Health. 26 February 2007. Accessed on May 2007. <http://web.ebscohost.com.libproxy.nps.edu/ehost/pdf?vid=8&hid=114&sid=12411274-2543-407f-b7b2-51d96faeaaffpercent40sessionmgr106>.

⁵ Joel Cohen & Mike Hagan. "Health Care Costs." Agency for Health care Research and Quality September 2002. U.S. Department of Health and Human Services. Accessed in May 2007. www.ahrq.gov.

by 2006, that figure had grown to over 16 percent. Simply put, health expenditures have grown faster than the overall economy (i.e., medical inflation is higher than GDP inflation).

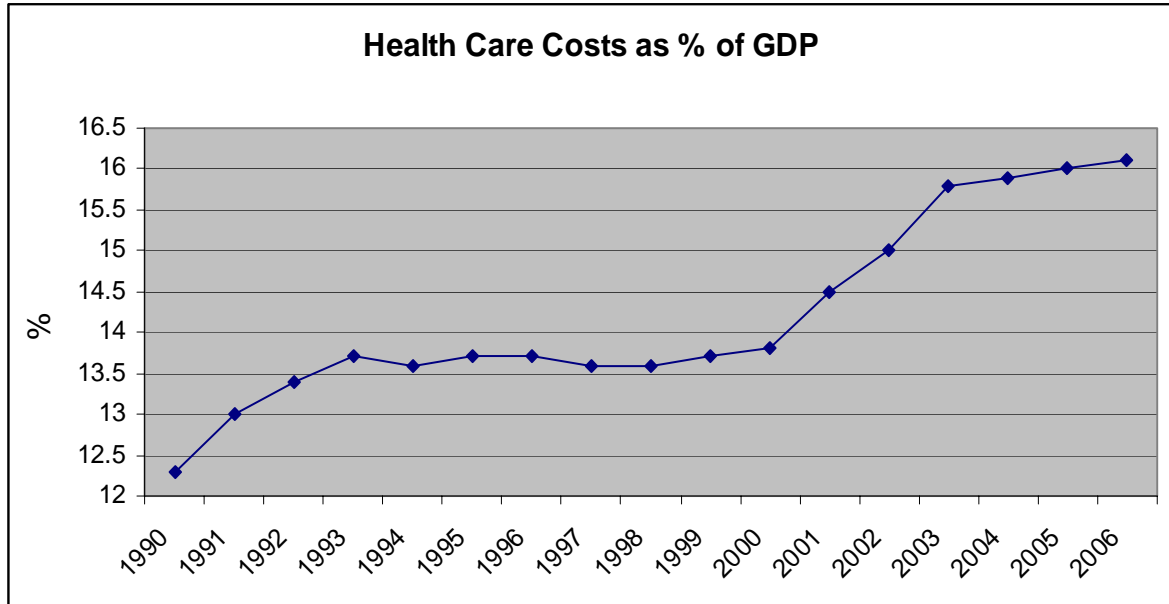


Figure 5. Health care Costs as a percent of GDP ([Adapted from NHE Summary & Cohen and Hagan])

In a constrained funding environment, the increasing cost of health care coupled with cost growths in social security, homeland security, energy, and countless of other crucial Government programs reduce the Government's options to fund other critical investments. These increasing health care costs place a burden on the constrained budget of the U.S. Government due to increasing national debt and the changing and dynamic threats the U.S. faces at home and abroad. The Government must be able to shift funding as necessary, especially in defense budgeting to prepare for the challenges of the future.

B. IMPACT ON THE DEPARTMENT OF DEFENSE

Despite reductions in the size of both the active duty military force and the military's hospital system, the DoD's spending on medical care almost doubled in real terms from 1988 to 2003.⁶

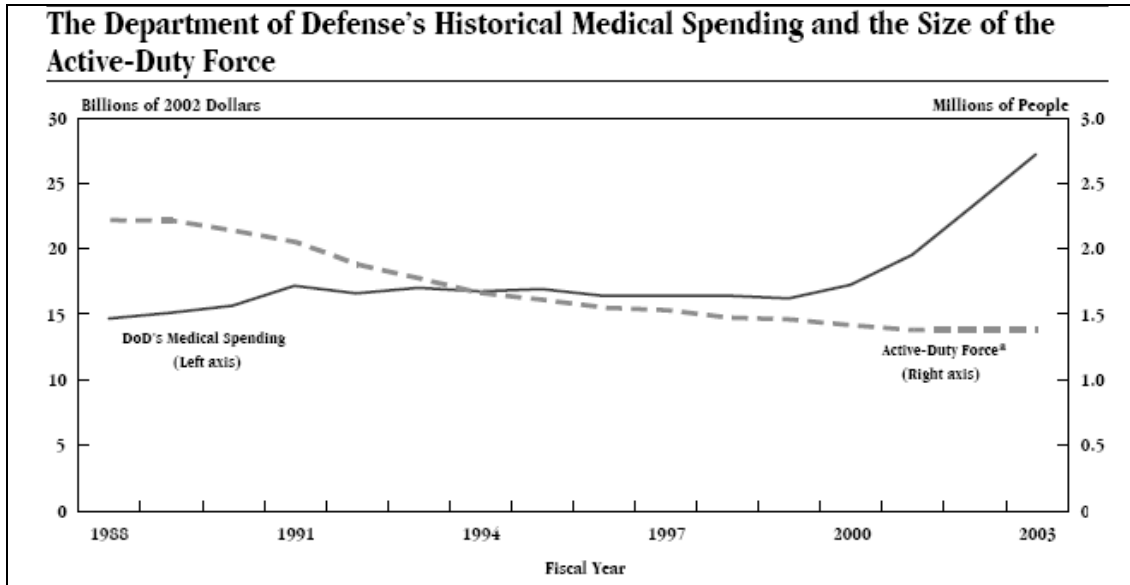


Figure 6. DoD's Historical Medical Spending ([Taken from Congressional Budget Office])⁶

The impact of rising health care costs on the DoD is two-fold. On one hand, the department will have to compete for dollars with the Government's two largest health care programs, Medicare and Medicaid. The more funding that the Government allocates for this mandatory spending, the less funding available to spread over other vital Government programs, such as defense. On the other hand, increasing medical spending in the DoD takes a significant chunk of the department's allocated budget each year for operations and sustainment. As major defense weapon systems continue to be more expensive than ever before to procure and maintain, defense dollars that must be reallocated to the military health care system put the military's readiness level at risk. In addition, as the DoD continues to conduct military operations abroad as part of the on-

⁶ Congressional Budget Office. "Growth in Medical Spending by the Department of Defense." September 2003. Accessed in May 2007. <http://www.cbo.gov/ftpdocs/45xx/doc4521/09-09-DODMedicalBrief.pdf>.

going global war on terrorism, the high demand for medical dollars and resources will potentially lead to further budget constraint decisions and risky funding allocations. Just as procuring capable and effective weapon systems is crucial to strong national defense, providing prompt and effective health care for the ill and injured military men and women is vital to the readiness of the armed forces. Therefore, despite escalating medical costs, the department must continue to provide quality health care to its member to maintain its readiness capability.

C. OUTLOOK FOR THE FUTURE

Although increases in spending on prescription drugs are slowing, Government researchers predict the overall average annual expected growth in U.S. health expenditures to be 6.9 percent over the next ten years to bring total spending in 2016 to \$4.1 trillion.⁷ The DoD will also see significant increases in medical spending. The department projects real growth of \$1.8 billion from 2007 to 2011, increase spending from \$38.4 billion to \$40.1 billion. Furthermore, the department's long-term projections estimate that military medical spending will grow to \$63.3 billion by 2024, for a real increase of \$25 billion from 2007's spending amount (a 65 percent increase). Figure 7 below illustrates the projected costs increase of each component that constitutes the military health care system until 2024.⁸

⁷ Allison Bell. "Health Spending: Study Sees \$4 Trillion Tab For Health Care by 2016." National Underwriter Life & Health. 26 February 2007. Accessed in May 2007. <http://web.ebscohost.com.libproxy.nps.edu/ehost/pdf?vid=8&hid=114&sid=12411274-2543-407f-b7b2-51d96faeaaffpercent40sessionmgr106>.

⁸ Congressional Budget Office. "Long Term Implications of Current Defense Plans: Summary Update for Fiscal Year 2007." Accessed in May 2007. <http://www.cbo.gov/ftpdocs/76xx/doc7671/10-18-LongTermDefense.pdf>.

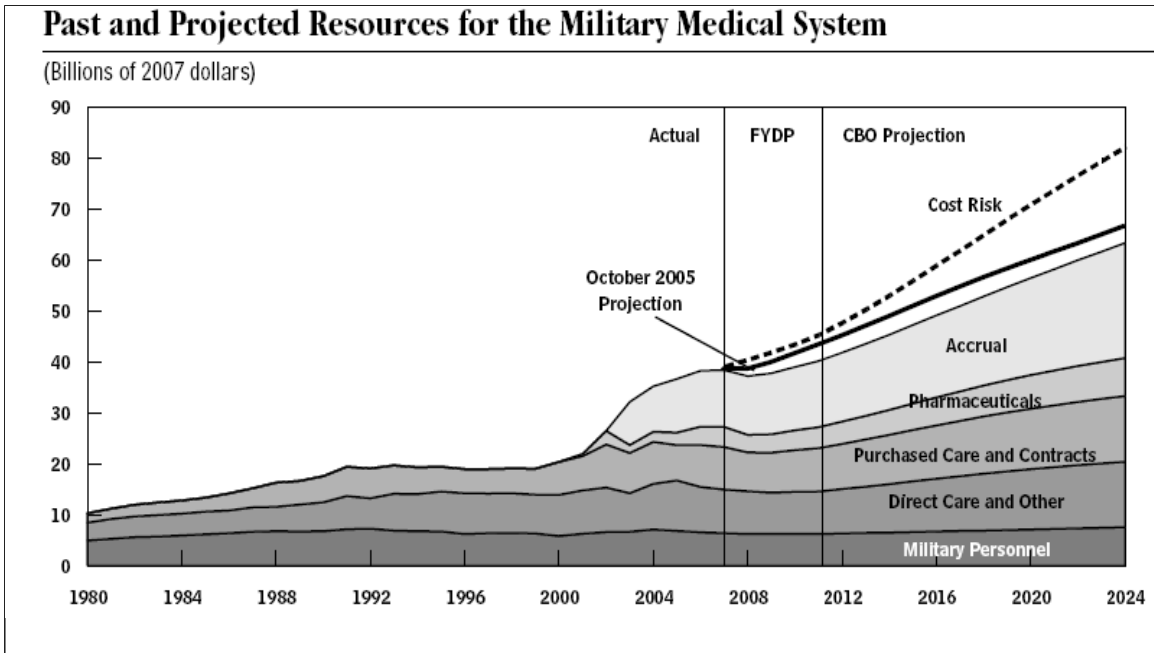


Figure 7. Past and Projected Resources for the Military Medical System ([Taken from Congressional Budget Office])

Due to these escalating figures and their impact on the future of the military health care system, the project’s research objective is to propose a cost-saving strategy that can minimize the negative impact these cost trends will have on the DoD. The goal of this recommended strategy is to decrease the long-term costs of health care expenditures for the military so that the Government and the DoD can focus their spending on military applications that can make Americans and the war fighter safer against America’s adversaries instead of funding increasing health care costs.

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III. CURRENT MILITARY HEALTH CARE STRUCTURE

The Vietnam War was the last time that the U.S. employed a draft to determine the makeup of its armed forces. Since that time, the nation's military has consisted of an all-volunteer force. Although this type of employment is advantageous for military commanders, there are also several disadvantages as well. The greatest disadvantage of an all-volunteer force is that the nation's military now has to compete with the private sector for personnel. Patriotism is arguably the leading driver for individuals joining the military; however, as health care costs rise across the nation, the "free" health care provided by the military is an enticing incentive. This chapter will discuss the history and role of TRICARE in the DoD. It will also look into several areas that contribute to the rising health care costs in the public sector, as a comparison to the private sector. Specifically, this chapter will consider behavioral factors that play a role in the individual decision-making process. Finally, this report will examine the definition of outpatient care and how this care will be handled throughout the remainder of the analysis.

A. HISTORY OF TRICARE

The military has been providing health care to its personnel since the Revolutionary War and although the programs and facilities have changed names over the centuries, the intent is still the same. TRICARE was initially established in the early 1990s in an attempt to foster both cost effective and quality medical care to active duty military members, dependents, and retirees. "In December 1993, DoD submitted a plan to the Congress for establishing a managed care plan nationwide, referred to as TRICARE. The goals of this plan are to ensure that eligible military beneficiaries have access to stable, high-quality health care benefits."⁹ The original design of the TRICARE program involved twelve regions, with subsequent military treatment facilities (MTFs) under the direct control of these regional offices. However, in an attempt to

⁹ Congressional Budget Office Testimony. Reforming the Military Health care System. United States: United States House of Representatives, April 19, 1994. Accessed in May 2007. <http://www.cbo.gov/ftpdoc.cfm?index=4844&type=0>.

centralize the health care process TRICARE executives determined that the best course of action for the program was to move to three regions (in Continental U.S. and one overseas) vice twelve.

Centralizing TRICARE into three regions was a difficult proposition, but one that DoD leadership felt was necessary to control costs and decrease duplicated work. The move is part of an initiative called Tricare Next Generation, or “T-Nex,” which involves collapsing 12 regions and multiple contracts into just three of each, with one managed-care organization responsible for covering beneficiaries in each geographic area. Tricare officials hope the plan will result in better clinical quality, as well as administrative savings for both providers and the Federal Government.¹⁰

The complexity of TRICARE goes well beyond who is eligible and where patients receive health care. TRICARE is the Government’s overseer of military health care, but it is managed by three private organizations in each of the aforementioned regions. TRICARE West is managed by TRIWEST, TRICARE North is managed by Health Net Federal Services, and TRICARE South is managed by Humana Military Health care Services. Each one of these civilian managed-care organizations is responsible for the day to day activities within TRICARE as well as providing a worthy product to its military patients.

B. TRICARE’S STRUCTURE AND ELIGIBILITY

TRICARE consists of four different options for its patients to choose from: TRICARE Prime, TRICARE Extra, TRICARE Standard and TRICARE For Life. TRICARE For Life is the only program that is not available to active duty military and their dependents because it is designed strictly for military retirees over the age of 65. TRICARE Prime is the largest and most encompassing of the remaining programs and it includes most active duty military members. TRICARE Extra and TRICARE Standard are not designed for active duty military and in fact they are not eligible to receive

¹⁰ Jeff Tieman. “Marching orders.” *Modern Health care* 33.20. 9 May 2003: 52. Business Source Complete. EBSCO. [Knox Library, Naval Postgraduate School]. Accessed in May 2007. <http://libproxy.nps.edu/login?url=http://search.ebscohost.com/longin.aspx?direct=true&db=bth&AN=9864804&site=ehost-live&scope=site>.

benefits under these two programs. These programs, which are designed for dependents and retirees, allow them to choose their own health care providers at an additional cost.

| | TRICARE Extra | TRICARE Standard |
|-------------------------------------|---|---|
| Physician/Provider | In network | Not in network, but still an authorized provider |
| Cost share after deductibles | 15 percent active duty families 20 percent retirees and their families | 20 percent active duty families; non-participating providers may also “balance bill” up to 15 percent above the TRICARE allowable charge 25 percent retirees and their families; non-participating providers may also “balance bill” up to 15 percent above the TRICARE allowable charge |

Figure 8. TRICARE Extra and Standard ([From TRICARE Website])¹¹

For the purposes of this project, the analysis will include TRICARE Prime only.

As stated above, TRICARE Prime is the only health care method provided to active duty military members and is provided free of charge to the dependents of active duty military. “TRICARE Prime is a managed care option similar to a civilian health maintenance organization (HMO). This option requires enrollment. Active duty service members are required to enroll in Prime. Moreover, active duty family members, retirees and their family members are encouraged, but not required, to enroll in Prime.”¹² There are certain idiosyncrasies in TRICARE Prime that one will not find in any of the other options. First and foremost it is the entity that provides the primary health care service for each patient. In TRICARE Prime, it is preferred that the care be provided by military treatment facilities and civilian care sought only as a last resort. It is relatively simple to hypothesize that most active duty members and their dependents are stationed near a

¹¹ TRICARE Website’s Fact Sheets informational page. Accessed in April 2007. <http://www.tricare.mil/Factsheets/viewfactsheet.cfm?id=127>.

¹² Ibid.

MTF; however, most retirees are not located near a MTF; therefore, one can postulate that this is the primary reason why retirees don't choose this option.

Given that there are certain physical requirements for being a military member; TRICARE's main responsibility is the well being of its active duty patients. Yet, as it provides services to a multitude of patients, the scheduling process can be both complicated and timely. To help facilitate this process, TRICARE has established certain scheduling guidelines that it strictly follows (the table below outlines TRICARE Primes' procedures).

| | Urgent Care | Routine Care | Referred/Specialty Care | Wellness/ Preventive Care |
|------------------------------|--|-----------------------------|--------------------------------|----------------------------------|
| Appointment wait time | Not to exceed 24 hours | Not to exceed seven days | Not to exceed four weeks | Not to exceed four weeks |
| Drive time | | Within 30 minutes from home | Within 60 minutes from home | |
| Wait time in office | Not to exceed 30 minutes for non-emergency situations. | | | |

Figure 9. TRICARE Waiting Guidelines ([From TRICARE Website])¹³

The above table appears to account for all the possible scenarios, but as most active duty members would likely argue, military health care rarely follows the above structure, especially in regards to wait time.

C. TRICARE'S COST

Unfortunately, there is a perception about health care in the DoD that is not necessarily accurate. Many military members look at health care in terms of opportunity cost. This is definitely a viable argument. Analyzing Figure 9 above, one can sense how cynicism is fostered in military health care. TRICARE, by its own admission, attempts to keep waiting times very low (under 30 minutes); however, any service member who has gone to sick call knows that this time is at the lower realm of reality. "Soldiers have long

¹³ TRICARE Website's Fact Sheets informational page. Accessed in April 2007. <http://www.tricare.mil/Factsheets/viewfactsheet.cfm?id=127>.

joked, ‘if you are really sick or injured, Army medical care is O.K. But if you are hurting only a little, especially if it isn’t visible, you’re in big trouble’. . . The military health system is seriously undermanned and underfinanced. . .”¹⁴ The opportunity cost of time waiting for treatment, combined with the perception of poor treatment, is a barrier that needs to be addressed.

Embedded in the argument above are the cost drivers that are associated with military health care. As discussed in the previous chapter, health care costs in general are skyrocketing and the DoD, more specifically TRICARE, is not immune to these rising costs. There are several factors that drive the costs of health care: growing pharmaceutical expenses, general maintenance and upkeep on health facilities, medical equipment, rising practitioner costs, claims processing, and fraud waste and abuse. All of these factors contribute to the total costs of health care in the DoD and are factored in when looking at the following table comparing inpatient, outpatient, and pharmaceutical costs. Without even investigating thoroughly, one can easily determine from Figure 10 below that the cost of health care in the DoD is growing in every aspect.

¹⁴ Paul D Eaton. “Casualties of the Budget Wars; [Op-Ed].” The New York Times 06 March 2007, Late Edition (East Coast): A21.

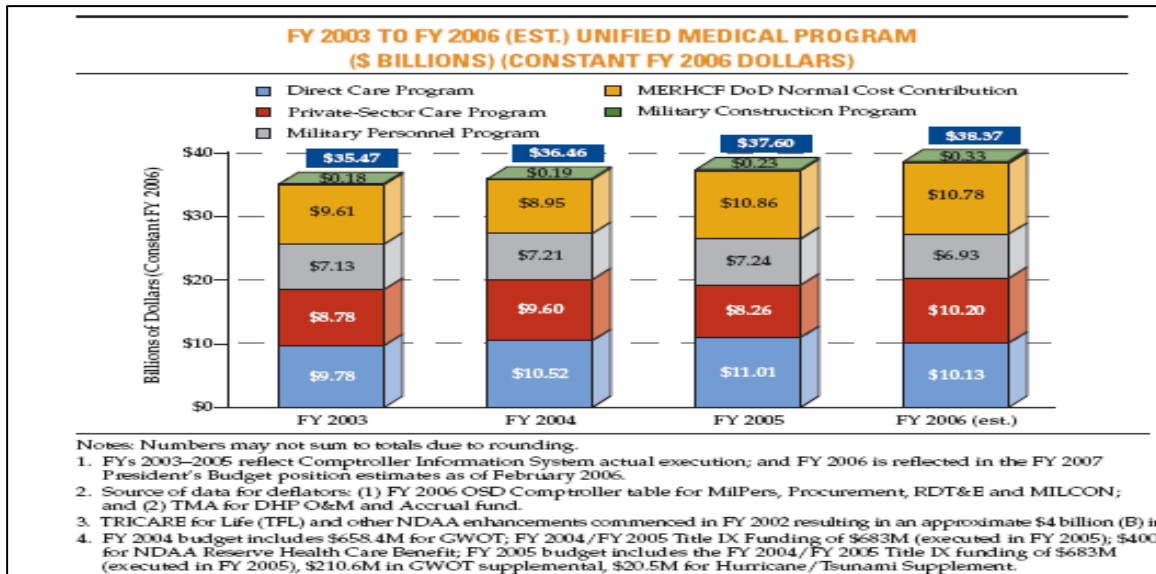


Figure 10. FY 2003 to FY 2006 Medical Spending Distribution ([Taken From TRICARE’s FY 2006 Report to Congress])¹⁵

One of the primary cost drivers affecting TRICARE is the claims processing system. Claims processing can be a very expensive process considering that TRICARE has numerous treatment facilities, both military and civilian, that provide health care to TRICARE patients. “The Army, Navy, and Air Force provide most of the system’s care through their own medical centers, hospitals, and clinics, totaling about 580 treatment facilities worldwide. Civilian providers supply the remaining care.”¹⁶ This is an important factor to consider when examining potential areas for cost reduction in TRICARE. Initially, TRICARE consisted of 12 regions and many of these regional offices produced similar products. Duplication of items, especially claims processing, is not fiscally responsible and was one of the significant factors in TRICARE moving from 12 to 3 regions in the development of T-Nex.

¹⁵ “Evaluation of the TRICARE Program: FY 2006 Report to Congress.” 13 March 2006. Accessed in May 2007. http://www.TRICARE.mil/planning/congress/downloads/FY2006_5.01.06.pdf.

¹⁶ United States General Accounting Office. “Defense Health Care: Opportunities to Reduce TRICARE Claims Processing and Other Costs.” GAO Reports 22 June 2000. Ebscohost. Dudley Knox Library, Naval Postgraduate School, Monterey, CA. Accessed in May 2007. <http://libproxy.nps.edu/login?url=http://search.ebscohost.com/login.aspx?direct=true&db=bth&AN=18208545&site=ehost-live&scope=site>.

This event marks the successful completion by the Department of Defense and our contracted health care partners of a major transition to a more advanced Tricare design and operation, said Winkenwerder (Assistant Secretary of Defense for Health Affairs). For more than a year, we have worked together to implement the next generation of Tricare. This design introduces an even stronger customer service focus, applies best commercial practices, supports our medical treatment facilities, strengthens relationships with network providers, and more. I am excited about the opportunities this milestone enables as we serve our 9.3 million Tricare beneficiaries.¹⁷

An interesting area of comparison for TRICARE's claims processing cost is Medicare. Medicare is the largest Federally mandated health care program, but unlike TRICARE its claims processing costs are relatively low. It is estimated that "TRICARE claims cost an average of \$7.50 per claim to process—double the industry average and more than four times the \$1.78 Medicare claims processing cost."¹⁸ This information is slightly misleading because experts realize that TRICARE is a much smaller program than Medicare; thus, the fixed costs of TRICARE are allocated over many fewer claims.¹⁹ However, it does raise an interesting argument and one can speculate that the claims processing system at TRICARE shouldn't be over four times that of Medicare, and it certainly pinpoints an area where T-Nex can facilitate some cost savings.

D. DIFFERENCES BETWEEN TRICARE AND THE PRIVATE SECTOR THAT CONTRIBUTES TO COST ESCALATION

Given that cost growth appears to escalate at a faster pace in the military than in the private sector, it is worth considering what sets the two systems apart. Obviously, there are certain fundamental differences that seem to contribute to increased costs within military health care.

¹⁷ "US DOD: Tricare transition complete." M2 Presswire. Coventry: 03 Nov 2004. p. 1. Accessed in May 2007.
<http://libproxy.nps.edu/login?url=http://proquest.umi.com/pqdweb?did=728674051&sid=2&Fmt=3&clientId=11969&RQT=309&VName=PQD>.

¹⁸ United States General Accounting Office. "Defense Health Care: Opportunities to Reduce TRICARE Claims Processing and Other Costs." GAO Reports 22 June 2000. Ebscohost. Dudley Knox Library, Naval Postgraduate School, Monterey, CA. Accessed in May 2007.
<http://libproxy.nps.edu/login?url=http://search.ebscohost.com/login.aspx?direct=true&db=bth&AN=18208545&site=ehost-live&scope=site>.

¹⁹ Ibid.

Free care. The most significant disparity between private and public health care is the reason for use. In general, the military provides health care to its service members to ensure that they are healthy in order to perform the rigorous physical tasks that are often required of many military billets. The next potential distinction, increased benefits, is witnessed in both civilian and military treatments, but it is largely more important to the military. As was discussed previously, in the modern era when the nation's military is stretched thin fighting major conflicts on two different fronts, it is imperative that the military offers great benefits to its members in order to continue to meet recruiting goals. This is why military health care, in particular TRICARE Prime, is free of charge. The Government knows that with health care costs rising, free health care is a very enticing incentive, particularly to the lower and middle class individuals that the Government targets for its enlisted billets. In the private sector, the benefits are much less enticing because firms tend to use a cost-sharing arrangement in their health care programs. This seems to be relatively intuitive because the private sector is essentially worried only about profit and health care programs are a draining cost factor on most corporations.

The role of moral hazard in health care seeking behavior. It is very important to discuss the significant role that moral hazard plays in the cost differences between TRICARE and the private sector. The presence of free health care in the military protects the consumer (military health care system beneficiaries) from paying the full cost of medical services. Consequently, the member consumes more medical services than he or she would if the health care were not free. If the member had to pay out of pocket costs for each visit to the doctor, he or she may be reluctant to make a trip to the military clinic during the onset of a cold or a headache. Instead, the member may lean towards purchasing over-the-counter medicine at the local grocery store. Of course, as the out-of-pocket costs to the member fall, he or she bears less of the burden of the health care service received at the clinic. This may be a possible reason that military beneficiaries typically use more health care services than comparable civilians do. To a certain extent, moral hazard also affects the private health care sector in the same way. The presence of

insurance, which guards the individual from paying the full costs of medical services, likely leads to the individual consuming more health care services than he would if he had no insurance at all.²⁰

Moral hazard also increases the number of retirees and active duty spouses, who are eligible for other health insurance through their current employers, to elect not to participate in their employer's insurance. They would rather choose the free or very inexpensive (for retirees) military medical provider over the private provider who, through the employer's insurance, will charge a premium for the visit. Through decision tree analysis (Chapter V), the potential moral hazard will be assigned in the scenarios by a probability associated with each action. Moral hazard is indeed an important factor to consider when looking at public and private health care costs.

Cost saving strategies employed by the private sector. The private sector has used several different strategies to curtail the escalation of costs. The following prominent arrangements are discussed below: high-deductible plans, increasing cost-share burden to employees, and managed care plans.

High-deductible plans. One of the most interesting concepts is high-deductible plans. It is very easy to speculate that this type of plan is primarily designed to defeat moral hazard issues. Individuals would be more likely to seek health care from non-traditional sources (i.e., over-the-counter medications, free clinics, etc.) for less complicated health care problems than to inherit what could be a significant portion of a doctor's bill. Although there are significant fiscal advantages to a high-deductible health plan (HDHP), there are plenty of disadvantages as well. The most significant issue revolving around HDHPs is ethical in nature. "High deductible plans can deter patients from seeking needed care and add to financial burdens, particularly on low-income families and those with chronic illnesses."²¹ One might wonder where these particular problems would apply to the DoD. One important portion to consider is the burden

²⁰ Susan D. Hosek, Sergej Mahanovski, Jeanne R. Ringel, & Ben A. Vollaard. The Elasticity of Demand for Health Care: a Review of the Literature and Its Application to the Military Health System. RAND Corp., 2002. Accessed in April 2007. http://www.rand.org/pubs/monograph_reports/MR1355.

²¹ Karen Davis, Michelle Doty, & Alice Ho. "How High is too High? Implications of High Deductible Health Plans." The Commonwealth Fund. 20 April 2005. Accessed in September 2007. http://www.commonwealthfund.org/publications/publications_show.htm?doc_id=274007.

placed on low-income families. It is well known that junior enlisted members of the Armed Forces, particularly those with dependents, can fall below the poverty level. Does the nation want to place another weight on the backs of its enlisted personnel, especially during a time of war?

Shifting burden to employees. Increasingly expensive provider visits, particularly in the private sector, have also added to the increasing costs of health care. To curtail these rising costs, many private employers have attempted to restrain spending on health benefits for their employees by transferring costs on to them through: reducing or completely removing health insurance coverage, requiring higher contributions from their own employees toward medical premiums, shifting to preferred provider plans (retrospective payment system) from costly fee-for-service plan, and offering health coverage plans with higher deductibles and co-payments.²² All of these trends in the private sector have been necessary due to high medical fees charged by private health care providers as they try to stay ahead of inflation while making a significant profit.

Managed care. Another significant trend in both the public and private sector is the rise of managed care. The DoD's managed care option is TRICARE Prime. As of 2003, the department spends \$5 billion annually on managed care support contracts with private insurers who administer the civilian providers in the TRICARE system. The department has gradually made this managed health care program available for the families of active duty personnel along with retirees and their dependents not eligible for Medicare.

1. Inherent Costs to the Patient

In this subsection, the potential causes for rising health care in the public and private sector have been discussed, but one important issue remains unresolved--the price of TRICARE Prime to the patient. A significant difference between private and public health care is that in the DoD health care is provided free-of-charge to active duty military members and their dependents. This report touches on the idea of moral hazard

²² Congressional Budget Office. "Growth in Medical Spending by the Department of Defense" September 2003. Accessed in May 2007. <http://www.cbo.gov/ftpdocs/45xx/doc4521/09-09-DODMedicalBrief.pdf>.

and the role that it plays in the escalation of medical costs in the DoD, but there are other behavioral factors to consider as well. In particular, how individual spending habits change when they are no longer responsible for the treatment costs.

Significant research has been performed regarding many cost-sharing options for health care from the RAND Health Insurance Experiment which took place from 1971 to 1982. One of the main questions Dr. Newhouse's experiment addressed was: how much more medical care will people use if it is provided free of charge? The experiment discovered a relationship between the amount of initial cost sharing, or a person's out-of-pocket expenses for medical services, and the utilization rate of these services. The more that a person had to pay out of pocket, the fewer the medical services he or she used. All types of services from physician visits to hospital admissions fell within this cost sharing.²³

RAND researchers concluded that outpatient care utilization is affected significantly in relation to different co-payment plans. The largest decrease in the utilization rate occurs between the free and the 25 percent plan. The RAND experiment plays a significant role in why our recommended co-payment plan is 25 percent of the cost for treatment; another contributing factor is that TRICARE already uses a co-payment percentage equal to this for its retirees and other users of TRICARE Standard.²⁴ Outpatient expenses on the free plan are 30.8 percent higher than on the 25 percent plan while outpatient visit rates to doctors and other health care providers are 36.6 percent higher.²⁵ This data suggest that cost sharing affects the number of medical visits which reflect a real variation in the expenditure differences.

In addition, the experiment concluded that expenditures for emergency department service decreases as cost sharing increases. Expenditure on the 25 percent co-payment plan is 85 percent of that on the free-care plan. Thus, the response of emergency room (ER) use to plan is similar to that of outpatient use. "The effect of cost

²³ Joseph P. Newhouse. Free for all? Lessons from the RAND Health Insurance Experiment. Harvard University Press: Cambridge, Massachusetts. 1993.

²⁴ "TRICARE: The Basics." TRICARE Website. 11 June 2003. Accessed in April 2007. <http://www.tricare.mil/Factsheets/viewfactsheet.cfm?id=127>.

²⁵ Joseph P. Newhouse. Free for all? Lessons from the RAND Health Insurance Experiment. Harvard University Press: Cambridge, Massachusetts. 1993.

sharing can be decomposed into the effect on the decision to use any emergency department services and the effect on the amount of services used, given any use.”²⁶

The experiment also suggested meaningful results on the prescription drugs and antibiotic use rates. The data suggest that the number of prescriptions per enrollee does not change as much across different co-payment plans as does the drug expenditure rates. For the 25 percent co-payment plan, the prescription expenditures rate is 76 percent of what they would be under a free care plan while the number of prescriptions is 82 percent of what they would be under a free care plan. Statistical analysis performed by the researchers; however, reveals that a higher co-payment plan does not necessarily mean that people will search neither for generic drugs nor for lower-cost physicians. Antibiotic use research did not offer specific result at the 25 percent co-payment pay, but the researchers concluded that “cost sharing makes a substantial difference. On average, antibiotic use per person in the free care plan is 85 percent greater than in the cost sharing plans.”²⁷ All of the data concludes that in order to see a significant decrease in overall health care expenditures, one must enforce some type of cost saving incentive.

In order to facilitate some form of cost saving measures for the DoD, the analysis will examine two prospective alternatives that will incentivize individual service members to be more fiscally responsible with regards to health care. Taking into consideration the above behavioral factors discussed by Dr. Newhouse, we will analyze a co-payment alternative and an incentive alternative similar to a medical savings account. Both of these alternatives will be discussed in greater detail in Chapter IV, with the analysis to follow in Chapter V.

E. OUTPATIENT CARE

As discussed in this chapter and the previous, military health care is extremely complex and there are numerous factors that contribute to the increasing cost of health care. This report has examined the most important issues and has determined that there is no single panacea that will cure all of the woes of the military health care system. Thus,

²⁶ Joseph P. Newhouse. Free for all? Lessons from the RAND Health Insurance Experiment. Harvard University Press: Cambridge, Massachusetts. 1993.

²⁷ Ibid..

for the scope of this project, the analytical research will focus on outpatient care. Outpatient care is defined as “a patient who is not an inpatient (not hospitalized) but instead is cared for elsewhere – as in a doctor’s office, clinic, or day surgery center. The term outpatient dates back at least to 1715. Outpatient care today is also called ambulatory care.”²⁸ There is an inherent problem with any service that is provided at no charge, like TRICARE Prime, and that is abuse as discussed in previous subsections.

The generosity of the benefit structure may help to explain why, compared with the U.S. population at large, military beneficiaries under the age of 65 make heavy use of health care. In 1992, civilians in the United States under the age of 65 consumed about 530 days of hospital care per 1,000 people and made 4.5 outpatient visits per person. Even after adjusting for differences in use associated with age and sex, comparable military beneficiaries consumed about 676 days of hospital care per 1,000 people and made 7.3 outpatient visits per person. Thus, military beneficiaries used hospital care at a rate about one-fifth higher, and outpatient care at a rate two-fifths higher, than the general population.²⁹

The above citation should be alarming, but hardly unexpected. The nature of human beings is to be greedy and selfish; the greatest good for all becomes the greatest good for one.

TRICARE has recognized that utilization rates are a significant problem; however, Congress to this point has been unwillingly to tamper with the way TRICARE Prime is administered. One can easily correlate increased utilization rates with increased costs and the great irony of this argument is that Congress preaches fiscal responsibility, yet, won’t allow TRICARE to change its policy.

²⁸ Medicine Net. Accessed in May 2007.
<http://www.medterms.com/script/main/art.asp?articlekey=4700>.

²⁹ Congressional Budget Office Testimony. “Reforming the Military Health Care System.” 19 April 1994. Accessed in May 2007 <http://www.cbo.gov/ftpdoc.cfm?index=4844&type=0>.

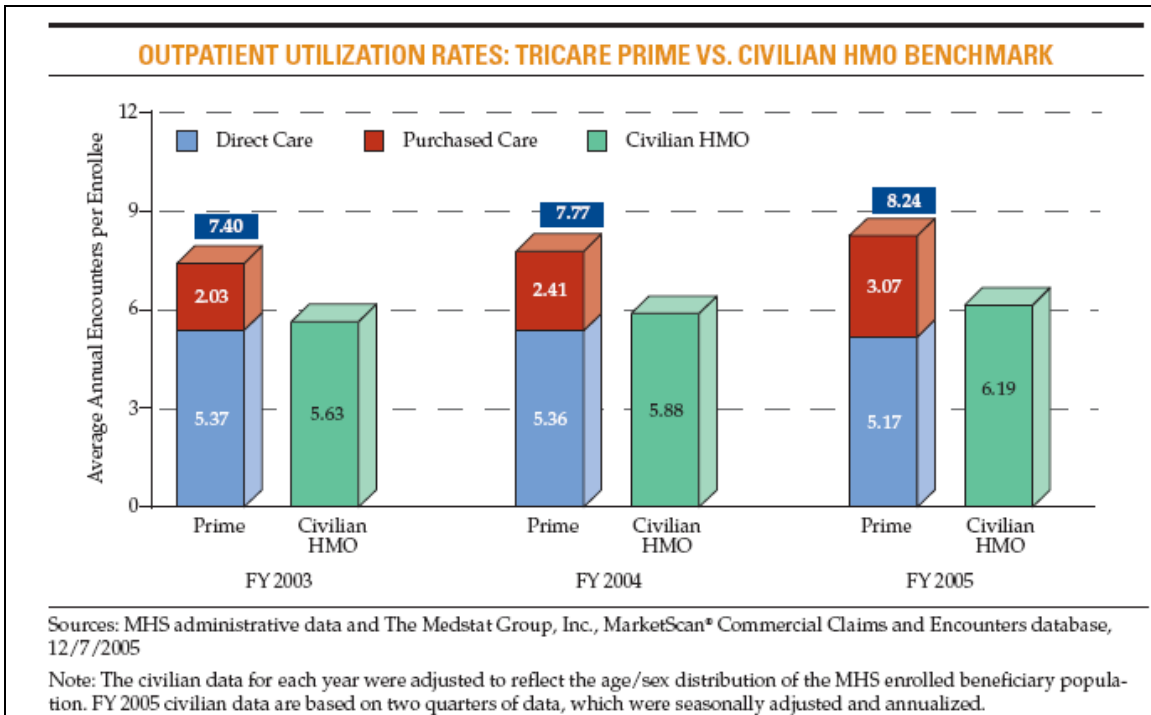


Figure 11. Outpatient Utilization Rates ([Taken From TRICARE’s FY 2006 Report to Congress])

Analyzing Figure 11, one can note that the historic trend in health care usage is rising at a much greater extent than its civilian counterparts. This should conceivably indicate that individuals are using the care when they are only mildly ill; thus, dramatically increasing the costs for outpatient care. This project aims to provide a fiscally responsible alternative for outpatient care in TRICARE Prime.

IV. OVERVIEW OF COST-SAVING ALTERNATIVES

A. CHAPTER OVERVIEW

In this chapter, we will discuss the three alternatives that we will be analyzing. The first alternative (referenced in the rest of the project as alternative 1) is the status quo payment system. We will be using the status quo as the baseline for all of the analyses. The second alternative (referenced in the rest of the project as alternative 2) is a standard co-payment option. In this alternative, we will be instituting a 25 percent co-payment to each out-patient visit. Essentially the individual service member will be required to pay 25 percent of their fee, and the DoD would be charged the remaining 75 percent. As previously discussed, Dr. Newhouse in his book “Free For All” outlines the effects that such a co-payment would have on overall health care usage. In essence, this alternative would reduce the amount of unwarranted treatment; thus, reducing the overall cost to the DoD. Finally, the third alternative (referenced in the rest of the project as alternative 3) is a monthly medical allotment that individuals could use as they see fit. In this alternative, each individual service member has the choice to either allow the money to rollover into subsequent months, or withdraw these funds at the end of month. Like other similar programs in the private sector, there will be a tax penalty for withdrawing the funds, but even with an assessed tax, this alternative provides an incentive for military members to keep their health care costs low. Unlike current military pay plans where increased rank coincides with increased pay, this analysis will offer junior members a greater percentage for their monthly allotment. The baseline allotment amount (no dependents), is purely arbitrary, and is a fixed amount. The amount of money each member receives is also based on how many dependents a military member may have. For instance, a single O-3 will receive significantly less money than an O-3 with two dependents. The total amount that each individual will receive will be their baseline amount plus 10 percent of their base pay for each dependent that they have. The pay structure chart is located in Appendix B.

B. ALTERNATIVE 1: STATUS QUO

1. Baseline for the Overall Analysis

Consistent with the business case analysis, this project will include a baseline that we can use to accurately assess the alternatives. For this report, the status quo will be the baseline and will be used for comparison purposes. Chapter III of this report thoroughly discussed the status quo; therefore, this alternative will not be examined thoroughly. However, this chapter will serve as a guideline for the various quantitative and qualitative analyses that will be accomplished in this report.

In summary, alternative 1 will consist of TRICARE Prime only and its primary recipients: active duty military members and their dependents. All medical care in this alternative is provided to the aforementioned stakeholders free of charge. The DoD is responsible for funding all health care costs and, more importantly, the individual service member assumes little to no financial responsibility for his/her health care.

C. ALTERNATIVE 2: CO-PAYMENTS

1. Definition

Co-payments for medical care are not new and in fact most civilian/private health plans have used a form of co-payments or cost sharing for years. The idea behind this co-payment arrangement is that both the funding organization (i.e., the DoD) and the patients bear the financial risk to the cost of care. TRICARE has already instituted a co-payment policy and uses it for other programs, notably TRICARE For Life and TRICARE Standard. However, for this analysis we are going to institute a co-payment on the group that uses the most health care, active duty military and their dependents.

For the purpose of this analysis, a co-payment or user charge is defined as “fees, charges, and assessments levied on individuals or organizations directly benefiting from, or subject to regulation by, a Government program or activity.”³⁰ In this analysis, the co-payment will be similar to a civilian co-payment. We will enforce a 25 percent cost

³⁰ Office of Management and Budget. “Analytical Perspectives, FY 2008.” p. 272. Accessed in February 2007. <http://www.whitehouse.gov/omb/budget/fy2008/pdf/apers/receipts.pdf>.

sharing program from all of the beneficiaries of TRICARE Prime. This 25 percent co-payment was derived from the current TRICARE Standard policy for retirees and their dependents.³¹ The DoD will be responsible for handling the remaining 75 percent of each visit. As seen in Chapter II, health care costs are rising quickly and this alternative is designed to both reduce the number of outpatient visits and reduce the total cost that is assessed to the DoD for health care.

2. Assumptions

There are several assumptions for this alternative. The first assumption is that the institution of co-payments is a viable hypothesis and something that could in fact be utilized in military health care. The Government is already assessing co-payments for a number of Federal programs, the most obvious being postage stamps.

In general, if the benefits accrue broadly to the public, then the program should be financed by taxes paid by the public; in contrast, if the benefits accrue to a limited number of private individuals or organizations, then the program should be financed by charges paid by the private beneficiaries.³²

The argument against the implementation of co-payments is that military health care is an important incentive for individuals to join the military and we recognize this argument. However, the fact remains that the Government is treading on thin ice with regards to mandatory spending, and the DoD, as one of the largest Federally funded programs, needs to start instituting fiscally responsible programs.

The second assumption for this alternative is that it will only apply to outpatient care, including ER visits. Because of the scope of this analysis, we feel that outpatient care is the most suitable and potentially accurate to determine health care cost savings for the DoD. Lastly, there will be no pharmaceutical coverage included in this alternative.

³¹ "TRICARE: Costs." TRICARE Website. Accessed in July 2007. <http://www.tricare.mil/tricarecost.cfm>.

³² Office of Management and Budget. "Analytical Perspectives, FY 2008." p. 272. Accessed in February 2007. <http://www.whitehouse.gov/omb/budget/fy2008/pdf/apers/receipts.pdf>.

3. Beneficiaries

The primary beneficiary of this alternative is the DoD. We believe that the utilization rate of military health care will decrease if individual service members are required to pay for a portion of their treatment. The intention is not to degrade the effectiveness of the treatments that individuals are receiving or to force them into not using the provided service. However, we are attempting to ensure that these individuals are using the health care services responsibly.

One of the most interesting byproducts of instituting a co-payment is that it is in fact a behavioral deterrent for most customers.

Co-payments for goods and services that do not have special social benefits improve equity, or fairness, by requiring that those who benefit from an activity are the same people who pay for it. The public often perceives co-payments as fair because those who benefit from the good or service pay for it in whole or in part, and those who do not benefit do not pay.³³

This is an important aspect of co-payments to consider. In a free market with no insurance, buyers will only buy a product or a service if their willingness to pay exceeds the price of the good or service. Under the current TRICARE outpatient system, the price of care is essentially zero. Under the co-payment system, individuals will utilize the resources of military health care less because they face a non-zero price. Thus, the equity of the process improves because the collective is not bearing the total impact of the cost. Unfortunately, under the status quo, individuals can abuse the system and use the services provided by TRICARE even when their symptoms are mild. This alternative will hopefully incentivize individuals to use the MTFs only when their condition warrants a visit to the physician. By assessing a 25 percent co-payment to each outpatient visit, a significant cost savings will occur and the DoD will benefit over the long term.

³³ TRICARE: Costs.” [TRICARE Website](http://www.tricare.mil/tricarecost.cfm). Accessed in July 2007.
<http://www.tricare.mil/tricarecost.cfm>.

D. ALTERNATIVE 3: MONTHLY ALLOTMENT/INCENTIVE BASED

1. Definition

One can infer from the name of this subsection that this alternative is an incentive based program that will attempt to entice individuals to keep their health care costs at a minimum by giving them a monthly allotment for health care. The individual stipend will depend on several factors: marital status, number of dependents, and rank. Unlike current DoD programs, junior enlisted personnel will receive more monetary health care assistance (by percentage) than senior enlisted or officers. Similar to a checking account, individuals will be given the opportunity to rollover their health care account to use at a later time, or withdraw the remainder of the monies to spend as they see fit, although there will be a tax penalty for withdrawing the money at the end of the month. The cost savings portion of this alternative is two fold. First, if the individual member spends more than their allotted amount of money then they are financially responsible for the remainder of the bill which is subject to tax since the money will come out of taxable income. Second, this alternative hopes to promote fiscal responsibility by offering a monetary incentive for members to keep their health care costs low. Appendix B shows how we intend to facilitate the amount of money that each individual member will receive. The chart is comprised of multiple sections that include rank, base pay, number of dependents, and time in service. Considering that higher ranks are usually consistent with longer times in service, one can see the distinction in these individual's base pay.

The following example is designed to help clarify the outcome effects of this alternative. A married O-3 with no children will receive \$939.20 a month as a medical stipend. If the military member, or his/her spouse, requires outpatient medical attention during that month, they can spend up to the \$939.20 allotment without incurring any further fiscal responsibility. However, if the member collectively spends \$1,000 in the aforementioned month for various medical reasons, he/she is responsible for the remaining \$60.80 of that monthly bill. Now, if the military family only spends \$500 on medical expenses for that month, the member can either roll the remaining \$378.40 in his/her account to the following month or withdraw the \$439.20 to spend (with a slight

reduction due to tax implications). As mentioned in previous chapters, on average military families make 7.3 outpatient visits per year compared to 4.5 for their civilian counterparts.³⁴ This alternative is designed to reduce the number of military visits to at least that of their civilian counterparts while still providing the service member with above average medical care.

This plan is similar in many ways to a Medical Savings Account (MSA) in the private sector. Although Medical Savings Accounts are still in their infancy, there have been significant benefits outlined from many experts in the medical field. “HSAs tend to be attractive to employees because these accounts give them both choice and control.”³⁵ We hope to garner the same type of response from active duty service members about the alternative as they have seen in the private sector. If nothing else, this evidence helps to solidify the validity of this type of alternative.

2. Assumptions

The primary assumption is that this is an alternative that Congress and the DoD could both agree on. Recently, Congress was approached with a cost savings proposal from the DoD that they turned down immediately. The primary difference between that plan and this alternative is that the above program was essentially a cost-shifting initiative that realized most of its savings through a reduction of users. With the current conflicts in both Afghanistan and Iraq, most members of Congress are unwilling to attach themselves to any bill that appears to damage the wellbeing of the nation’s troops.

Meanwhile, unlike the private sector, which has shifted more of the burden to employees, Congress seems unwilling to allow the Pentagon to raise premiums on military health plans. “The Pentagon has tried before to raise the cost of health care for our servicemen and women, and Congress has soundly rejected it,” said Senator Edward M. Kennedy,

³⁴ Congressional Budget Office Testimony. “Reforming the Military Health Care System.” 19 April 1994. Accessed in May 2007. <http://www.cbo.gov/ftpdoc.cfm?index=4844&type=0>.

³⁵ Nav Ranajee. “Consumer Directed Health care: An Effective Cure for Rising Costs.” Treasury & Risk 16 (Dec 2006/Jan 2007): 64. Business Source Complete. EBSCOhost. Naval Postgraduate School, CA. Accessed in September 2007. <http://libproxy.nps.edu/login?url=http://search.ebscohost.com/login.aspx?direct=true&db=bth&AN=25776857&site=ehost-live&scope=site>.

Democrat of Massachusetts and a member of the Senate Armed Services Committee. “Our forces have dedicated their lives to our country, and we shouldn’t ask them to pay more.”³⁶

Senator Kennedy makes a viable argument, but what he doesn’t account for in that statement is the absolute necessity for lower health care costs. However, this alternative assumes that it will be acceptable to those members of Congress who want health care reform with little to no impact on the Armed Forces.

The second assumption for this alternative is that it will only apply to outpatient care, including ER visits. Because of the scope of this analysis, we feel that outpatient care is the most suitable and potentially accurate to determine health care cost savings for the DoD. Lastly, there will be no pharmaceutical coverage included in this alternative.

3. Beneficiaries

There are multiple beneficiaries within this alternative; therefore, one may postulate that this is the best of the three alternatives. However, we will withhold judgment until we have completed further analysis. The primary beneficiary of this alternative is the DoD. The most important issue for the DoD and the entire Government is competent health care for the service members at a reasonable cost. This alternative succeeds in both of these areas. Quantitatively speaking, one can argue that this incentive based program won’t accrue as much savings as a cost sharing program, but in reality that depends on the frequency and types of visits.

The service member also receives a significant benefit from participating in this alternative. What this alternative provides to the individual stakeholder is options. If the military member feels that he/she, or his/her family, requires extra medical attention, the member has the ability to allow the allotment to rollover into future months. However, if the family is relatively healthy and the member is willing to accept the risk of an extraordinary month, he/she can withdraw the money and spend it as he/she wishes. Most military members will argue that their lives are too controlled and they are forced to

³⁶ Laura M .Colarusso, & Bryan Bender. “Pentagon Fears Health care Costs Will Erode Readiness: Aging Population is Driving up Fees.” The Boston Globe. 05 March 2007. Accessed in March 2007. http://www.boston.com/news/nation/articles/2007/03/05/pentagon_fears_health_care_costs_will_erode_readiness.

live under the constraints of continuous military structure. This alternative provides an additional means for military members to add a bit more control to their own lives.

E. TRICARE OUTPATIENT PROSPECTIVE PAYMENT SYSTEM

Although this project focuses solely on the demand-side of health care coverage, we felt that it was important to address a newly instituted program that will take effect in October or November 2007 that deals with the supply-side of TRICARE, and mention the effect, if any, this will have on the alternatives. This new program that TRICARE will initiate is entitled Outpatient Prospective Payment System (OPPS). OPPS was not something driven by TRICARE management; instead it was construed by the U.S. Congress. “Under 10 U.S.C. 1079(h) and 1079(j) (2), TRICARE was mandated to adopt Medicare’s reimbursement rules when practicable. Based on these statutory provisions, TRICARE will adopt Medicare’s prospective payment system for reimbursement of hospital outpatient services.”³⁷ The new program will essentially ensure that payments for hospital services rendered to TRICARE participants be on a service rate basis.³⁸ Although the program is modeled after the current Medicare program, there are some significant differences. TRICARE’s model will continue to have a partial co-payment required for hospital visits, particularly emergency rooms. In this analysis, this current patient liability has been accounted for through the percentages factored into the decision trees (this will be discussed further in subsequent chapters). The above factors from the new plan could significantly affect the alternatives. Given that the fees paid to civilian treatment providers will be on a prospective basis, there is the potential that current civilian members in the TRICARE Network will opt to be removed.

³⁷ “TRICARE Outpatient Prospective Payment Fact Sheet.” Health Net Federal Services Website. Accessed in September 2007. <https://www.hnfs.net/NR/rdonlyres/BC928C5E-F0CC-4B39-B9EF-0EBB9C6EF5B0/0/OPPSFactSheetapprovedbyTMA090506.pdf>.

³⁸ Ibid.

V. ANALYSES OF ALTERNATIVES

A. CHAPTER OVERVIEW

This chapter will provide an in-depth cost and benefit analysis for each alternative outlined in Chapter IV using a set of assumptions for treatment possibilities based on three likely scenarios. It will attempt to provide both quantitative and qualitative data to help facilitate the decision to which alternative has the overall best utility for both the DoD and its active duty members.

To facilitate an academic experience, the analysis will include three case studies. The case studies include treatments at home (through over the counter medications), appointments with a health care provider; and ER visits. Each one of these treatments will be assigned with a monetary value based on various sources and independent online market research. With this data, the analysis will include three likely health care scenarios that an active duty military member may be faced with. These scenarios are 1) A dependent (child) with flu-like symptoms, 2) An active duty member with a bone fracture after hours, and 3) Active duty member with chronic allergies.

With the above information, the analysis will include various qualitative means of discovering the best alternative for the various scenarios. The methodologies used are the decision tree analysis, probabilities/cost estimation, and a visitation vs. cost analysis. These various methodologies should facilitate the analysis to determine the most effective cost saving alternative for the DoD. The possibility exists that different alternatives may be more effective for various scenarios. If this is determined to be true, the analysis and implications will be discussed in subsequent chapters. In all of the following scenarios, the analysis will not include various recurring and unavoidable costs that would occur from trips to and from the drugstore, hospital or ER. Specifically, the fuel costs will not be accounted for. These costs will be excluded from all of the follow-on analysis.

B. ASSUMPTIONS

1. Types of Treatments in Low Cost Order

a. Treat at Home

This option consists of treatment through the purchase of over-the-counter medications. Through pharmaceutical research and development, major drug firms are revolutionizing the way people take care of colds, headaches, fevers, stomach bugs, etc. Whereas in the past, a person suffering from a migraine headache had to seek immediate care from a provider, now a powerful dose of Tylenol or Aleve may quickly relieve his/her symptoms. Naturally, this is the fastest and least expensive method of treatment. A family member can quickly drive to the local drug store to purchase the necessary over-the-counter drugs for his/her ill relative. These drugs do not require a provider's prescription and are also available through the internet. Some of the more common drugs are Tylenol, Aleve, and Advil. The following exhibit illustrates the most common over-the-counter medications that treat the most common health care problems. These pharmaceuticals are listed below with their associated prices, and an average cost allocation across the various products will be used to obtain an overall value to use in the analysis.

| Products | Symptoms | Price |
|-------------------------|------------------------------|----------------|
| Children's Tylenol | Common Flu | \$ 9.49 |
| Tylenol Cold | Common Cold | \$ 6.40 |
| Tylenol Allergy | Allergies | \$ 6.59 |
| Aleve Sinus & Headache | Cold, Sinus, Flu | \$ 5.29 |
| Aleve Pain Reliever | Headaches | \$ 9.49 |
| Advil Cold & Sinus | Cold, Sinus, Flu | \$ 9.99 |
| Benadryl Allergy & Cold | Allergy & Cold | \$ 5.71 |
| Children's Benadryl | Allergy | \$ 6.42 |
| Sudafed | 24 Hr Allergy | \$ 9.34 |
| | | \$ 7.64 |
| | Sales Tax (CA) ³⁹ | 0.0725 |
| | | \$ 0.55 |
| | Total Cost | \$ 8.19 |

Figure 12. Pharmaceutical Cost Chart: Created Using Pharmaceutical Data from Following Sources⁴⁰

In order to account for miscellaneous expenses in this option and the belief that the individual will purchase multiple medications, a \$20 cost will be used as the overall cost for each treatment at home.

b. Appointment with Provider

The second option to be analyzed is an appointment with a provider. As annotated in the above exhibit, administering health care from home is by far the cheapest of the various options, but often this type of treatment alone is not enough. When the symptoms are not dire, individuals may choose to seek help from a physician, and in the case of active duty members and their dependents, this care is often from a MTF. In the unfortunate case that the member may not be stationed near a MTF, or the facility is closed, the military member is authorized to receive treatment from a civilian

³⁹ State Sales Tax Rates: January 1, 2007. Accessed in July 2007. <http://www.taxadmin.org/FTA/rate/sales.html>.

⁴⁰ Drugstore.Com The Uncommon Drugstore. Accessed in July 2007. <http://www.drugstore.com>.

provider. Obviously the patient will allocate these costs to TRICARE, and through an arduous process, TRICARE should pay his/her bill. In this analysis, the care will be offered from a MTF and this care will be outpatient only.

The costs for a physician's visit are not cheap, yet when compared to other alternatives, the prices are reasonable. In order to properly analyze the correct variables, the average provider cost-per-outpatient visit for individuals who are covered by private insurance was determined from market research. The Medical Expenditure Panel Survey's analytical tool was used with several factors that mirrored the service members. The analysis included employment status, health conditions, and insurance status. The value discovered for outpatient physician's visit for private insurance carriers was \$159.88.⁴¹ In order to completely justify the value, the \$159.88 in 2004 was converted to an applicable value in 2007. The inflation calculator from the Naval Center for Cost Analysis yields a 2007 value of \$173.70.

For the purposes of this analysis, other various costs were withheld in order to keep the complexity of the data to a minimum. The opportunity costs associated with visits to the doctor's office are numerous. The most obvious are time spent waiting in the lobby and fuel expenses getting to and from the appointment. The rationale behind the exclusion of these costs was not to imply that they were insignificant. To the contrary, these are valuable costs and will play a significant role in follow-on discussions.

Often times when an individual goes to a doctor, he/she is not healed immediately, thus he/she has to return later to receive more treatment. This analysis includes a "penalty" cost for subsequent visits to either the physician or the emergency room. This "penalty" cost will hopefully encapsulate some of the opportunity loss mentioned above, but it will also account for the missed time at work while the military member or his/her dependent is receiving treatment. Another factor that needs to be considered within this "penalty" cost is the time spent waiting for an appointment. If the time waiting is greater than 24 hours, the additional "penalty" cost will be assessed. The penalty cost for Officers and Enlisted respectively is outlined in the exhibit below.

⁴¹ Agency for Health care Research and Quality: Medical Expenditure Panel Survey. March 2007. Accessed in July 2007. http://www.meps.ahrq.gov/mepsweb/data_files/publications/st166/stat166.pdf.

| Penalty Cost (for subsequent visits) | Amt (in \$) |
|---|--------------------|
| 1 Month's Base Pay (E-1) | 1301.40 |
| Daily Pay (E-1) | 43.38 |
| Hourly Pay (E-1) | 5.42 |
| Penalty Cost for Enlisted (1/2 Day's Pay) | 21.69 |
| <i>Penalty Cost (Adjusted for Analysis)</i> | 20.00 |
| | |
| 1 Month's Base Pay (O-1) | 2469.30 |
| Daily Pay (O-1) | 82.31 |
| Hourly Pay (O-1) | 10.29 |
| Penalty Cost for Officers (1/2 Day's Pay) | 41.16 |
| <i>Penalty Cost (Adjusted for Analysis)</i> | 40.00 |

Figure 13. Penalty Cost Chart: Created by Students From DoD Pay Chart

c. Emergency Room Visit

The third and final treatment option that will be explored in this analysis is ER visits. Receiving health care from an ER is beneficial in many ways. The most obvious benefit provided by ER care is that it is open 24 hours a day, seven days a week. With this continuous coverage come significant costs. “In general, an emergency room visit is more expensive than comparable care received in other ambulatory settings, such as hospital outpatient departments or physician offices.”⁴² The increased cost of ER care seems intuitive, but one would assume that cost drivers would preclude individuals from seeking care in ERs, yet it has not.⁴³ Insurance programs, like TRICARE Prime, promote even greater ER abuse because their members are not required to pay for any or most of the treatment provided from an ER. This obviously has great implications on the rising costs of military health care, in particular TRICARE.

To fully capture the cost effects of a visit to an ER in this analysis, a baseline value was determined. For consistency, an average value was determined using the Medical Expenditure Panel Survey, which provided the value for the physician visit costs. Once again, the same variables for the analysis were used. In this analysis;

⁴² Agency for Health care Research and Quality: Medical Expenditure Panel Survey. January 2006. Accessed in July 2007. http://www.meps.ahrq.gov/mepsweb/data_files/publications/st111/stat111.pdf.

⁴³ Ibid.

however, an individual's health will be assumed as fair, considering he/she would be going to an ER. Thus, given all the factors in the analysis, the value derived for ER visits for private insurers was \$596.55⁴⁴ Similar to the calculations above; the \$596.55 value from 2004 was converted to \$648.10 per visit in 2007 dollars.

Dr. Newhouse's insinuation in "Free for All" was that if individuals were alleviated of the cost burden, they were more likely to seek excessive physician treatment. This assumption is also applicable to ER care. "Medicaid patients were four times (81 visits per 100 people) more likely to seek treatment from an ED (Emergency Department) than those with private insurance (22 visits per 100 people)."⁴⁵ Medicaid is easily a justifiable comparison for TRICARE if for no other reason than TRICARE will be adopting OPSS (discussed previously), which was modeled after Medicare and Medicaid. Thus, through transitivity, individuals using TRICARE Prime are more likely to seek more ER care than their civilian counterparts. To completely account for the associated costs with the perceived multiple visits to the ER, a "penalty" cost (from Figure 13 above) will be issued again to the ER visits. Because this "penalty" includes the opportunity loss outlined in the above subsection, the cost will be instituted regardless of whether the first and second visits are synonymous. For example, if an active duty member chooses to seek treatment from a physician initially and he/she requires follow-on care from an ER, the "penalty" cost will be assessed to the ER visit. For each alternative and scenario, the analysis concludes when either the individual's health has improved or he/she has completed two iterations of treatment through the physician or the ER. The intent of including additional costs in the analysis is a behavioral change in the individual users. If the visit is warranted, ERs often provide the most timely and accurate care; however, if ERs are abused, the cost can be extensive.

It is important to note that the "penalty" costs associated with physician and ER visits are instilled to accomplish different things. As stated in the above section

⁴⁴ Agency for Health care Research and Quality: Medical Expenditure Panel Survey. January 2006. Accessed in July 2007. http://www.meps.ahrq.gov/mepsweb/data_files/publications/st111/stat111.pdf.

⁴⁵ "Visits to U.S. Emergency Departments at All Time High; Number of Departments Shrinking." Center for Disease Control Website. 26 May 2005. Accessed in September 2007. <http://www.cdc.gov/od/oc/media/pressrel/r050526.htm>.

about physician's treatments, the "penalty" cost for this option occurs because of the potential waiting time of greater than 24 hours to get an appointment. During this time, if the individual is ill, it is highly unlikely that he/she can be useful either at work or home. Thus, the more time the member spends without treatment, the worse it is for his/her ability to be productive. The "penalty" cost for the ER is based on another waiting time factor that is different than in the physician's scenario. "On average patients spend 3.2 hours in the ED which includes time with the physician as well as other clinical services."⁴⁶ It is imperative that the analysis includes some factor for the waiting time in the ER. In the scenarios, individuals are not in catastrophic conditions; however, they are ill and they will likely have to wait longer in the ER than if they had made an appointment with their personal physician. Therefore, they will be penalized for their time waiting on ER treatment. The actual "penalty" costs amounts the same because they are actually based on similar ideas that don't have a cumulative effect.

C. SCENARIOS

1. A Dependant with Flu-Like Symptoms

Under this hypothesized scenario, a 13-year-old girl has typical flu symptoms of fever, headache, chills, body aches, and fatigue⁴⁷. Her symptoms have worsened in the past 24 hours. Her father is a Master Sergeant (E-7) serving proudly in the active duty Air Force, and has a total of two dependents. This scenario was selected because of how common it is in the U.S. population. In fact, from 1979 to 2001, the estimated cases of flu-related hospitalizations in the U.S. ranged from 54,000 to approximately 430,000.⁴⁸ Although rare, deaths have occurred for children and young adults. The most common treatment is an antiviral drug treatment.

⁴⁶ "Visits to U.S. Emergency Departments at All Time High; Number of Departments Shrinking." Center for Disease Control Website. 26 May 2005. Accessed in September 2007. <http://www.cdc.gov/od/oc/media/pressrel/r050526.htm>.

⁴⁷ U.S. Department of Health and Human Services. Sept 2005. Accessed in July 2007. <http://www.hhs.gov/flu/sick.pdf>.

⁴⁸ Clinical Signs and Symptoms of Influenza. Department of Health and Human Services: Center for Disease Control and Prevention. 25 July 05. Accessed in August 2007. <http://www.cdc.gov/flu/professionals/diagnosis/>.

2. An Active Duty Member with a Bone Fracture (After Hours)

Under the second hypothesized scenario, a single Navy Lieutenant (O-3) falls down the stairs at midnight when returning to his apartment. At first, it seems that he has badly twisted his right ankle, but after further self-examination, he realized that he may have fractured his right foot. After all, he is a former corpsman in a Navy seal team so he understands the symptoms and characteristics of a potential bone fracture. Bone fractures are not as rare as one may think. According to the U.S. Department of Health and Human Services, approximately 1.5 million Americans suffer a bone fracture each year.⁴⁹ Although the majority of these cases occur in the elderly population, the possibility of bone fractures among the military population is significant considering the active life styles mandated by each service. That is, in order to stay fit to deploy, military members around the world constantly take part in physical activities, such as intramural basketball, football, and soccer as ways to build camaraderie and stay in shape. Of course, these activities also increase the risk for an injury. In this situation, the most common approach for the Lieutenant would be to go to the nearest treatment facility and assess the fracture through radiology use.

3. Active Duty Member with Chronic Allergies

The third hypothesized scenario involves a junior enlisted member (E-2) in the Marine Corps with one dependent. She has been struggling with severe seasonal allergies for two weeks. Her symptoms are coughing, sneezing, watery eyes, and a runny nose. She is not alone. An estimated 35 million people suffer from seasonal allergies in the U.S.⁵⁰ If they are not controlled or treated, there is a possibility that severe allergies may lead to more serious conditions, such as asthma, which could be a potentially fatal lung disease. While there is no cure for allergies, the best approach to reduce the symptoms of

⁴⁹ Bone Health and Osteoporosis: A Surgeon General's Report Myths and Realities of Bone Health. 4 January 07. Accessed in August 2007. United States Department of Health and Human Services. <http://www.surgeongeneral.gov/library/bonehealth/factsheet2.html> 26 Jul 07.

⁵⁰ Fighting seasonal allergies. Word on Health. June 2002. National Institute on Health. Accessed in July 2007. <http://www.nih.gov/news/WordonHealth/jun2002/seasonalallergies.htm>.

allergies is to stay indoors during sunny, dry, and windy days (for people with pollen allergies). Another alternative is to seek antihistamines or nasal decongestants from the drugstore or from a doctor.

D. PRODUCTS

1. Decision Tree Analysis

The purpose of using the decision trees in the analysis was two fold. The decision tree analysis is a model that encompasses all of the costs that were mentioned above. Also, the decision trees allow the analysis to assign a likely probability based on qualitative factors discussed in Chapter IV. The decision tree analysis was based on the three scenarios outlined above, the three treatment options (treat at home, physicians visit, and ER visits), and the two cost savings alternatives versus the status quo.

In the decision tree models, the first branch begins with the three treatment options. Once the individual in the scenario has determined a course of action, he/she is assigned a cost for that action. For example, in Scenario 1 (E-7 has a child with flu-like symptoms) for alternative 1 (status quo), if the individual's initial decision was to treat at home, he is assigned a cost of \$20 (outlined in section B, subsection 1 above). The next sequential step in the analysis was to determine the effectiveness of the home remedy. If it is successful, the tree ends and the overall cost for the decision is \$20. If the treatment was not successful, the next logical decision is to call for an appointment with the local physician or seek help from the ER. If the individual chooses to make an appointment with a physician, the individual is assessed the \$173.70 for the doctor's visit and the decision tree analysis continues with time spent waiting for the appointment. If the wait time is less than 24 hours, no "penalty" cost is assessed, but if the appointment is more than a day later, he/she would be assigned the \$20 cost for enlisted members discussed above. Continuing with the analysis, the next step is again to assess the success of the treatment. If the treatment was effective, the analysis ends, but if follow-on care is required, the individual is again given the \$20 "penalty" cost. This continues until the individual is either cured or two iterations of ambulatory assistance are given.

Alternatives 2 and 3 follow the same basic logic and the only exceptions deal with the amount of money the individual service members are required to pay. For instance, in alternative 2, the costs associated with the decision trees reflect only the 25 percent co-payment that the individual is assessed. Given that alternative 3 provides a potential monetary benefit if individuals do not use their monthly allotment of medical funds, the analysis also includes probabilities based on the belief that individuals would try to seek the cheapest treatment first and only accept follow-on treatments in the likelihood that the first treatment was unsuccessful. The initial probabilities in alternative 3 were 60 percent (treatment at home), 30 percent (physicians visit) and 10 percent (ER visits). The follow-on probabilities are essentially a derivation of Bayes Theorem. Given that the initial treatments are unsuccessful, what is the probability that the individual would seek care from a physician or an ER? It was determined that since the individual wants to keep costs to a minimum, there was a 70 percent probability of a physician's visit and a 30 percent probability of an ER visit. With this same philosophy, follow-on visits to either the doctor's office or the ER accrued an 80 percent and 20 percent probability, respectively.

2. Probabilities of Treatments

a. Assumptions

Since it is practically impossible to predict what every person would do in each situation, the probabilities of each alternative are completely subjective estimates based on the authors' experiences and common sense. After all, people likely react differently based on their own experiences, attitudes, personalities, and risk acceptance. As the figure depicts below, probabilities were assigned to each of the alternatives that the active duty member has in order to treat his or her particular medical situation. The advantages and disadvantages of each alternative given the medical condition were considered and these are also depicted in each of the exhibits below under each of the scenarios. The analysis considered this assessment of the advantages and disadvantages into the probability estimates. Furthermore, probabilities of outcome are determined for the status quo, the co-payment plan, and the medical monthly allotment approaches.

Finally, the analysis includes estimated probabilities for a second iteration given a specific outcome after the first iteration. Specifically, the possibility of the condition not improving was accounted for, thereby requiring the member to seek additional treatment. For the second iteration; however, the “treat at home” option was not included as an alternative.

b. Scenario 1: A Dependent with Flu-Like Symptoms

Given the circumstances that the active duty member faces in this situation, he will seek the best option to take care of his daughter. He knows that driving to the local grocery store and purchasing flu-related over-the-counter medicine may be the quickest and most cost-effective option (for status quo only). After all, based on his personal experiences, he likely believes that his daughter has the flu, but he will not rule out the possibility of a more serious condition that may yield the same symptoms, such as strep throat. Under the status quo, he is more likely to treat at home even if he has to pay a minimal amount of money at the drug store (compared to free care for doctor and ER visit) because he thinks that the over-the-counter medicine should work and he wants to avoid the waiting time for an appointment or at the ER waiting room. Under the co-payment plan and medical allotment approaches, his probability of treating at home is higher since now the doctor and ER options cost money. For the second iteration; however, he may be more concerned about the situation since his daughter has been ill for a long time and still has the same symptoms even after the first chosen treatment. For this reason, he may likely seek the treatment that best treats his daughter even if it is time consuming (status quo) or if it is more expensive (co-payment and medical allotment). The figure below depicts the probabilities of the second treatment given each possibility for the first treatment.

| Treatments | Advantages/Disadvantages | Prob of Selection under status quo | Prob of Selection under co-pay | Prob of Selection under savings account |
|---------------------|---|------------------------------------|--------------------------------|---|
| Treat at Home | Adv: Quickest, most cost-effective Dis: May not treat symptoms if condition is not a flu | 50 percent | 60 percent | 60 percent |
| Visit with provider | Adv: Accurate assessment of condition, proper treatment Dis: May not be immediate option | 20 percent | 25 percent | 30 percent |
| ER Visit | Adv: Fastest care Dis: Least cost effective, time in ER waiting room | 30 percent | 15 percent | 10 percent |

Figure 14. Scenario 1 (flu) First Iteration

| Outcome of first treatment | Possible Treatment for 2nd iteration | Prob of Selection under status quo | Prob of Selection under co-pay | Prob of Selection under savings account |
|---|--------------------------------------|------------------------------------|--------------------------------|---|
| If 1st treatment was "treat at home" | Visit with provider | 60 percent | 70 percent | 70 percent |
| If first treatment was "treat at home" | ER Visit | 40 percent | 30 percent | 30 percent |
| If 1st treatment was "visit w/provider" | Visit with provider | 60 percent | 55 percent | 80 percent |
| If 1st treatment was "visit w/provider" | ER Visit | 40 percent | 45 percent | 20 percent |
| If first treatment was "ER Visit" | Visit with provider | 30 percent | 65 percent | 80 percent |
| If 1st treatment was "ER Visit" | ER Visit | 70 percent | 35 percent | 20 percent |

Figure 15. Scenario 1 (flu) Second Iteration

c. Scenario2: Active Duty Member Suffers a Bone Fracture after Hours

Since the injury to the Navy Lieutenant occurred after hours, he will have to consider how long he is willing to wait until his condition is analyzed by a professional. That is, he can either go to a 24-hour pharmacy and buy much-needed pain relievers for immediate relief, he can go to the ER immediately and possibly be seen as soon as possible (most likely option), or he can wait until the next day and try to make an

appointment to see a provider within the next 48 hours. Under the status quo, he is more likely to go to the ER to take care of the situation immediately (despite waiting room time) since he has minimal out-of-pocket costs. He may choose to pay a small amount of money for pain reliever medicine if the waiting time at the ER is long. Under the co-payment plan and medical allotment approaches, his probability of treating at home is higher than under the status quo since now the doctor and ER options cost money. However, he is still more likely to go to the ER or the doctor since a broken bone is a condition that should be taken care of by a professional. For the second iteration; however, he may be more concerned about the situation since his bone may potentially be more damaged than originally diagnosed after the first treatment. For this reason, he may like go to the treatment that best treats his condition even if it is time consuming (status quo) or if it is more expensive (co-payment and medical allotment). Figure 17 below depicts the probabilities of the second treatment given each possibility for the first treatment.

| Treatments | Advantages/Disadvantages | Prob of Selection under status quo | Prob of Selection under co-pay | Prob of Selection under savings account |
|---------------------|---|---|---------------------------------------|--|
| Treat at Home | Adv: Pain reliever; inflammation control Dis: Does not help treat a broken bone | 10 percent | 25 percent | 60 percent |
| Visit with provider | Adv: Accurate assessment of condition, proper treatment Dis: May not be immediate option | 15 percent | 35 percent | 30 percent |
| ER Visit | Adv: Fastest care Dis: Least cost effective, time in ER waiting room | 75 percent | 40 percent | 10 percent |

Figure 16. Scenario 2 (broken bone) First Iteration

| Outcome of first treatment | Possible Treatment for 2nd iteration | Prob of Selection under status quo | Prob of Selection under co-pay | Prob of Selection under savings account |
|---|--------------------------------------|------------------------------------|--------------------------------|---|
| If 1st treatment was "treat at home" | Visit with provider | 20 percent | 45 percent | 70 percent |
| If first treatment was "treat at home" | ER Visit | 80 percent | 55 percent | 30 percent |
| If 1st treatment was "visit w/provider" | Visit with provider | 75 percent | 80 percent | 80 percent |
| If 1st treatment was "visit w/provider" | ER Visit | 25 percent | 20 percent | 20 percent |
| If first treatment was "ER Visit" | Visit with provider | 85 percent | 90 percent | 80 percent |
| If 1st treatment was "ER Visit" | ER Visit | 15 percent | 10 percent | 20 percent |

Figure 17. Scenario 2 (broken bone) Second Iteration

d. Scenario 3: Active Duty Member with Chronic Allergies

The dilemma for the young Marine is to determine whether her symptoms are from chronic allergies and not from a common cold. She; however, has done enough research online to assume that her symptoms are likely from seasonal allergies. Even though the status quo approach lets her receive free care from a doctor or ER visit, she is still very likely to buy some over-the-counter medicine to treat her symptoms at home. Her time is valuable so she believes that she can treat her symptoms with this medicine rather than wait for a doctor's appointment or at the ER waiting room. Under the co-payment and medical allotment plans, her probability of treating at home is higher since now the doctor and ER options cost money. For the second iteration under all approaches, the visit with a provider option is still the most likely option over the ER visit regardless of her first treatment choice, but there are minor differences in the probabilities between each approach. That is, she is more likely to go to the doctor than to the ER in the co-payment and medical allotment approaches than in the status quo

approach since an ER visit would be more costly for her. Figure 19 below depicts the probabilities of the second treatment given each possibility for the first treatment.

| Treatments | Advantages/Disadvantages | Prob of Selection under status quo | Prob of Selection Under co-pay | Prob of Selection under savings account |
|---------------------|--|---|---------------------------------------|--|
| Treat at Home | Adv: Quickest, most cost-effective Dis: May not treat symptoms if condition isn't allergies | 70 percent | 80 percent | 60 percent |
| Visit with provider | Adv: Accurate assessment of condition, proper treatment Dis: May not be immediate option | 25 percent | 17 percent | 30 percent |
| ER Visit | Adv: Fastest care Dis: Least cost effective, time in ER waiting room | 5 percent | 3 percent | 10 percent |

Figure 18. Scenario 3 (allergies) First Iteration

| Outcome of first treatment | Possible Treatment for 2nd iteration | Prob of Selection under status quo | Prob of Selection under co-pay | Prob of Selection under savings account |
|---|---|---|---------------------------------------|--|
| If 1 st treatment was "treat at home" | Visit with provider | 80 percent | 90 percent | 70 percent |
| If first treatment was "treat at home" | ER Visit | 20 percent | 10 percent | 30 percent |
| If 1 st treatment was "visit w/provider" | Visit with provider | 85 percent | 87 percent | 80 percent |
| If 1 st treatment was "visit w/provider" | ER Visit | 15 percent | 13 percent | 20 percent |
| If first treatment was "ER Visit" | Visit with provider | 70 percent | 80 percent | 80 percent |
| If 1st treatment was "ER Visit" | ER Visit | 30 percent | 20 percent | 20 percent |

Figure 19. Scenario 3 (allergies) Second Iteration

3. Cost versus Number of Visits Analysis

In order to properly account for the effects of the alternatives over the long-run, the best course of action would be an analysis of the costs versus the visits. The analysis

concludes that numbers of visits are indeed an important cost driver in the overall effects for military health care. Although the analysis is focused on reducing costs for the DoD as a whole, it also focuses on the economic impact on the individual service members given the two alternatives. What the analysis will determine is at what point, if any, does the decision to use alternatives 2 or 3 change. For example, if an individual has a dependent with chronic health problems and he/she expects to make multiple visits for treatment within that month, the individual may prefer alternative 2 because over the long-run the assumption is that the co-payment option will provide the most cost savings to individuals.

For each scenario, the analysis also considered the overall effects the respective alternatives would have on the DoD. It is likely that alternative 3 would offer the most cost savings to the Department initially until behavior patterns changed and people stopped utilizing services for unnecessary reasons. This is because after individuals have spent their monthly allotment of health care monies, they are responsible for the remaining costs. Over the long run, alternative 2 will probably realize the most cost savings because it is purely based on usage and does not require the mandatory monthly stipend that is realized in alternative 3 regardless of use.

E. OUTCOMES

All of the data that will be discussed in the sub-sections below is located in Appendix A.

1. A Dependent with Flu-Like Symptoms

An analysis of the data applied to the first decision tree concludes that the cheapest of the three treatments was at home. Home treatment under the status quo was \$560.84 compared to \$577.16 for physician care and \$1173.88 for an ER visit. This seemed to follow the logical pattern of expectations based on the probabilities of treatments discussed previously.

Alternative 2, or co-payments, followed the authors' logical guesstimate of what would likely occur. Given that the individual was required to pay for 25 percent of his/her costs, it was assumed through the probabilities that the individual's behavior

would follow the analysis of Dr. Newhouse--and they did. The treat at home option was again the low cost option at \$156.71, but physician's treatment was a close second at \$180.23. The ER visit was again the most costly option in this model with an overall cost of \$266.97. All of the aforementioned costs reflect what the individual would pay for this treatment. The DoD would be responsible for the remaining 75 percent of the overall costs for these treatments.

Finally, the scenario was analyzed using alternative 3 (the monthly allotment incentive). Prior to this analysis, it was hypothesized that since individuals would be given the opportunity to receive any of the monies that they did not spend in that month, or get the option to roll it over, they would likely migrate towards the stay at home option because it was significantly cheaper. This hypothesis was correct. Cost at home was \$450.59 while costs for the physician and ER were \$482.28 and \$936.68, respectively.

These values obviously only accounted for one visit, thus the analysis accounted for subsequent visits to determine the long-run effects of the alternatives. To the individual member, alternative 3 would be the most effective choice until the third visit at which time alternative 2 is more beneficial. The data reveals that if the service member had a family that was relatively healthy, alternative 3 is the best option for this scenario because the remaining money could be rolled over and possibly applied to a month when they were sick. For the DoD, the data was exactly what had been expected. The DoD was responsible for \$560.84 worth of treatments under the status quo, but only \$470.13 for alternative 2. The \$1103.45 that the DoD would have to pay to this member under alternative 3 is more expensive until the 3rd visit when it becomes the best alternative to the DoD as well. The extensive overall analysis concludes that alternative 3 is the most effective alternative for both the service member and the DoD in this scenario.

2. An Active Duty Member with a Bone Fracture (After Hours)

The answers provided from this scenario were unlike any of the others. Overall in this scenario, alternative 2, the co-payment, was actually more expensive than the status quo in the long run. Given the likelihood of the injury, this was only slightly surprising

and would be the only time this would occur in this analysis. This does, however, point to an interesting belief that regardless of the cost saving method, health care will continue to be expensive.

Scenario 2 was interesting because the behavioral probabilities played an interesting role in the outcome of this analysis. Because the injury occurred off-duty and at night, it was assumed that the individual would not be able to schedule an immediate appointment with a physician nor treat at home because of the severity of the injury. Therefore the ER option held the highest usage probability for this scenario; however, because of its significant cost it was not the most effective option for treatment. Under the status quo, the most cost effective option for the DoD was the physician's treatment at \$546.00. The differences in probability and cost nearly equaled out the total costs for at home treatment (\$817.11) and the ER (\$932.96).

Alternative 2 found similar results to the status quo as the physicians visit was still the low cost leader. However, because the individual was now responsible for 25 percent of the cost, the probability that he/she would choose to go to the ER was significantly decreased. The costs to the service member under this alternative were as follows: physician's visit \$190.58; treat at home \$217.07; and emergency room \$257.32. An analysis of this scenario through alternative 3 yielded similar results to those found in Scenario 1. Because of the inherent desire for the individual to keep costs low this time, one can assume they would forgo the logic and attempt to treat at home. The costs for treatment at home were \$484.59 while the costs for the physician were \$522.58 while the ER costs were \$956.68.

Because the likelihood of this type of event occurring more than once a month is extremely small, the best alternative for the individual service member would be alternative 3. Although the amount that the member would pay is actually greater than his monthly allotment, he would pay only \$45.39 of out of pocket costs compared to \$190.58 for alternative 2. For the DoD, alternative 3 is again the best option for this scenario. Under the monthly allotment alternative, the DoD would be responsible for the \$439.20 that it pays to this member for monthly medical coverage. However, since the

costs for this procedure were more expensive than the allotment, the Department is saving money. Given the above analysis, alternative 3 is the best solution for this alternative.

3. Active Duty Member with Chronic Allergies

The answers gathered from running this scenario through the decision tree analysis was nearly exactly what was expected would occur prior to the model. Because allergies generally are not a life or death situation and they can sometimes be controlled through over-the-counter medications, the treatment at home would be the preferred option. In fact, the data supported this hypothesis for the status quo: treatment at home cost \$378.30; physician's visit \$458.56; and ER visit \$984.12. The results were the same for the two incentive based alternatives. Under the co-payments and allotment alternatives, the low-cost option was treating at home followed by the physician visit and ER visit.

Although the best treatment option was straightforward to determine, the overall best cost savings alternative for the active duty member was more difficult to conclude. Because allergies are an affliction that most likely can not be cured through a single appointment, one has to look at the best alternative over an extended period of time. For a person afflicted with severe allergies, alternative 2 appears to provide the most cost savings opportunities to the service member. For the DoD, alternative 3 is the most beneficial in this scenario as it provides the most significant cost savings over the long run.

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VI. IMPLICATIONS OF IMPLEMENTING AN ALTERNATIVE

A. CHAPTER OVERVIEW

This chapter will discuss the implications of implementing the proposed alternative. It will initially examine the positive and negative impacts of implementing various cost savings alternatives in both the short and long run to both the service member and the DoD. As stated in Chapter V, alternative 3 (monthly allocation incentive) is the best alternative for both the member and the DoD; however, there are many factors that could sway that decision including the authors' own miscalculations. To attempt to alleviate the potential error within the subjective probabilities, a sensitivity analysis was performed on Scenario 1 (the dependent with flu-like symptoms) for alternatives 2 and 3. The probabilities of treatment for the physician visit and the ER were set to the lowest possible threshold to observe how the output data changed. If there was a significant change in the values, the analysis could be skewed. The sensitivity analysis revealed that even with the established probabilities, the outcomes were fairly accurate.

Both of the cost savings alternatives, if implemented, would require a little adjusting on the part of the service member. Obviously, many individuals joined the military, at least partially, for the medical benefits. If those benefits are reduced, some military members may likely be very unhappy. The reality of it is that if alternative 2 were implemented, people would struggle with this alternative because the benefit is utilitarian in nature--the greatest good for the greatest number. However, if alternative 3 is chosen, most military members would likely be very satisfied, especially those who are healthy or have healthy families. If not used, alternative 3 is eerily similar to a cash bonus because individuals can choose to withdraw their allotment at the end of the month.

There are significant political issues one would have to consider if trying to implement any of the alternatives. Currently, Washington D.C. is in the midst of a power struggle. Public opinion is waning on the President's war and it appears that the

Democratic-led Congress will do anything to remove the troops from Iraq. With the growing pressure inside the walls of Congress, no politician wants to sign a bill that appears to negatively impact the nation's armed forces. However, as discussed in Chapter I, the nation's mandatory spending programs are growing at an alarming rate and if Congress continues to spend the taxpayer's dollar at the current rate, the nation will be in an even greater debt.

B. IMPACT ON THE ACTIVE DUTY MEMBER

1. Advantages of Implementing Alternative 2

a. Effects on the Overall Force Structure

The overarching positive implication to the active duty member is simple. If the DoD is able to save money, the individual service member can benefit with new and updated equipment. Often in the daily battles for Federal funds, Research and Development programs as well as upgrades to existing platforms are the first to feel the crunch when mandatory spending rises. With the current engagements in Iraq and Afghanistan stretching the military, the nation needs to find a way to reduce the growing health care expenses to alleviate the negative current effects on the force structure. Both cost savings alternatives address this big picture issue; however, the effect on force structure is embedded in alternative 2 because of its inherent utilitarian approach. In alternative 2, the health care savings are provided by the member themselves. It is imperative for the leaders of the DoD to portray to the members the overall importance of health care cost reductions. They may need to focus on the belief that personnel restructuring may occur if health care costs are not controlled. Alternative 2's benefits rely on the individual member realizing the big picture and the benefits to the whole.

2. Advantages of Implementing Alternative 3

a. Increased Personal Freedoms

Alternative 3 is littered with positive implications to the individual armed forces member. First and foremost, it gives the member more personal freedom in his/her health care needs. For example, today under the status quo an individual knows exactly what his/her treatment options are and that the Federal Government will be paying for all health expenses if needed. However, under this plan we nearly remove big brother's hand from the process. The service member now has an intrinsic motivation to keep his/her personal health care costs low because the member can elect to withdraw the monthly allotment if there is a balance in the account.

b. Promotes a Healthier Lifestyle

Perhaps the most important element of alternative 3 is that it promotes a healthier lifestyle for military members and their family. As examined in Chapter V, the monetary benefits provided to the member in this alternative are directly related to the number of visits that an individual, or his/her dependents, have during that month. For instance, in scenario 1 (the dependent with flu-like symptoms), the military member realizes a balance in the monthly account through two visits (\$204.36); however, after the second visit, the member will be paying the remaining costs out of pocket. These costs are still below alternative 2 until the fourth visit, but after the fourth visit, the member will be responsible for all the costs of this treatment. What does this information mean? Obviously it proves that for a person to realize a positive account balance, he/she must show some restraint in his/her health care treatment. The objective is not to condone individuals not seeking treatment in a catastrophic case; however, this alternative will hopefully promote responsibility in those cases that are not as severe. Alternative 3 promotes a healthier lifestyle because individuals will be able to directly correlate their potential monthly allotment with a limited number of trips for health care treatment.

3. Disadvantages of Implementing Alternatives 2 and 3

a. Potential Reduction in Benefits

There is little to no argument to the fact that many individuals choose to enter the armed forces because of the generous health care benefits. Both of the cost-saving alternatives ultimately place a cost burden onto the individual and their treatments would no longer be free. This change in health care benefits could lead to reduced enlistments. Currently, the armed forces as a whole are finding it very difficult meeting their recruiting goals for the year. Obviously a correlation exists between reduced recruiting numbers and the Global War on Terror, but personnel numbers may look significantly different if the DoD takes away one of the recruiter's greatest tools--free health care. There is no doubt that it would play a role.

There is an interesting twist to this argument however. With the growing costs of health care to the DoD, one of the first elements to be likely affected would be personnel in the form of cuts. Therefore, the argument that recruiting would be severely impacted loses some luster. If the Department can not even afford to keep the troops that it currently has, recruiting new troops does not make much sense. Reducing health care costs can also have a potential benefit to the recruiting process in the long run. As costs stabilize and there is a surplus of funds, the military can begin to transfer those funds in the forms of enlistment and re-enlistment bonuses to all of its members. However, as the wars in Iraq and Afghanistan wage on, it is important that the nation keeps its armed forces strong. Furthermore, if health care cost burdens are placed on the service member, the potential exists that soldiers, sailors, airmen, and marines may choose to find employment elsewhere.

b. Reduced Utilization of Services

The most harmful impact of the cost savings alternatives is the possibility that it will reduce the utilization of the health care service. Utilization is a double-edged sword because the DoD must reduce the number of visits, particularly to the MTFs and the ER for those illnesses that are not dire. However, the possibility exists that

individuals will be so focused on either the money they will have to spend through co-payments (alternative 2) or the money that they would like to collect from withdrawals from their monthly allotment (alternative 3), they choose to not seek treatment at all.

This is an important factor to consider because inpatient care, and more specifically hospitalization, is very expensive. If individuals do not seek care for symptoms that are potentially harmful because they do not want to overburden their own pocketbooks, the DoD would bear the consequences in the long run. Dr. Newhouse's hypothesis about utilization rates discussed in Chapter IV is important and proves that we have to be very careful in the implementation of either of the alternatives because utilization rates will inherently decrease. The goal of this project is to reduce health care costs for the DoD, not health care treatments in cases where they are absolutely required.

4. Disadvantages of Implementing Alternative 3

a. Coverage for Chronic Illness

As stated throughout this chapter, alternative 3 is the best choice for the both the service member and the DoD. There is; however, one significant area where alternative 3 is not the best option--chronic illness. If a military member has a dependent, spouse or a child, who suffers from illnesses such as diabetes, downs syndrome, or mental illness, alternative 2 would be a better choice. It is clearly apparent from the decision tree analyses that over the long run, alternative 2 is much better than alternative 3 for the active duty member. The reason is actually simple: although initially the potential exists that the DoD may pick up 100 percent of the cost of the medical bill for one or two visits, as the number of visits goes up (as would be the case for a chronic illness), the entire fiscal burden is placed on the patient or the family. For any chronic illness, this would likely be the case. This is a significant disadvantage for alternative 3.

C. IMPACT ON THE DEPARTMENT OF DEFENSE

According to the data, the implementation of either alternative 2, a co-payment plan, or alternative 3, a medical allotment plan, would significantly impact both the fiscal

responsibilities of the DoD. The implication of implementing the alternatives would certainly reduce the yearly budgets of the military health care system.

1. Advantages of Implementing the Alternatives

a. Reduced Costs to the Department of Defense

The data analysis suggests that alternative 3, a medical allotment account plan, provides the largest financial savings to the defense department. This is evident for each of the hypothesized scenarios. The monthly savings of alternative 3 compared to the status quo for scenarios 1, 2, and 3 assuming 20 visits per month are \$116,670.86; \$114,160.00; and \$78,897.11, respectively. Of course, the likelihood that a member seeks treatment 20 visits per month is very unlikely, but the least likely scenario was considered as a possibility. After all, a member with five or six dependents could very well seek this many treatments if his or her family members have a certain medical condition. On the contrary, a member seeking little treatment may obviously not lead to such high medical savings to the DoD. In order for the department to have lower costs under the status quo approach compared to both alternatives 2 and 3, the number of treatments per month in scenario 1 must be at least three, the number of treatments per month in scenario 2 must be at least one, and the number of treatments per month in scenario 3 must be at least two. Under these more likely and realistic numbers of treatments, the defense department would still save money.

b. Behavioral Change

As mentioned above, because of the fixed monthly costs to the defense department under alternative 3, this alternative is the most cost effective for the department. However, one should also consider the behavioral change that will occur in the active duty member under alternatives 2 and 3. As described in Chapter IV, a cost-sharing alternative 2 will likely decrease the utilization rate of medical services for the member. Under alternative 3, although it likely decreases people's incentive to seek too much care compared to the status quo approach, the incentive is different from that of

alternative 2. People will have an incentive to use less care under alternative 3, but this incentive is not as “powerful” as the incentive in alternative 2 since people receive a Government allotment in alternative 3 to help them offset the medical costs. Under alternative 2; however, the money they have to spend is their true out-of-pocket expense even if it just 25 percent of the total cost. Therefore, alternative 3’s structure makes it easier for people to seek treatment since it is not their true out-of-pocket expense. The higher the number of visits required per month; however, will negatively affect their incentive since their medical savings account balance shrinks with every visit.

With the above information in mind, one can conclude that the possibility exists of behavioral change under alternative 3. For example, a junior member is relatively healthy for a long period (i.e., a year) and seeks little to no treatment. The defense department still pays his medical allotment which he saves in his savings account. This becomes his money and he may be incentivized to either use all or part of this money for another reason or to save as much as possible. His incentive is to avoid seeking treatment to avoid spending money from this medical savings account. Under this scenario, alternative 2 is actually better than alternative 3 since the DoD would avoid the monthly fixed costs of alternative 3. Even if the member seeks medical treatment once or twice in a month, in the long term, the defense department would benefit from using alternative 2 since its 75 percent share of the costs for the few visits during this long period would be lower than the total amount spent on the member’s medical allotments. Therefore; alternative three is more beneficial for the DoD in the short run and alternative 2 is more beneficial in the long run only if there is behavioral change occurring under alternative 3.

Another significant data point is that for scenario 2 (bone fracture), alternative 1’s cost (status quo) for the department was lower than alternative 2’s cost (co-payment plan). This is the only scenario where the status quo yielded lowers costs to the department than the other two alternatives. We believe that this is not a likely outcome under a broader case of scenarios; thus, it does not affect the conclusion that alternative 2 and 3 are more cost beneficial to the department.

2. Disadvantages of Implementing the Alternatives

a. Excessive Reduction in Health Care Utilization

As mentioned above, implementing alternatives 2 or 3 may change the behavior of people in their utilization of health care. One of the downsides of these alternatives is that people may actually end up seeking too little care. There is likelihood that people may avoid using the military health care system as much as possible in order to save money. In this case of the healthy junior member above, he didn't seek care because he has been healthy and did not need it. On the other hand, the possibility exists that even a person who actually is not healthy and does need medical care may avoid it all together to avoid his or her own medical expenditures. The implications of this possible scenario are potentially very serious for the DoD. First, the readiness of the military would be jeopardized if military members are not healthy and fit to deploy. The military could not afford to deploy members with serious or even mild medical conditions because they would put the military mission at risk. For instance, a person who has not received dental cleaning or a dental inspection in more than a year to avoid the costs could jeopardize the capability of a tactical unit on the ground in Iraq. Specifically, if during his or her deployment, a cavity develops or the member gets a potential dental infection, the member would be unable to be 100 percent ready to carry out his or her role during the mission. Second, if preventive medical care or yearly checkups are avoided to forgo out-of-pocket expenses, the DoD could potentially spend a significantly amount of money to treat a condition that could have been either diagnosed early during the checkups or prevented completely. By the time the condition worsens, the member may require inpatient care and the department would incur all costs. This behavior by the member could likely increase the long term costs for the department. To decrease the likelihood that this may happen, each military command should establish policies for each unit that requires all members to have yearly medical, vision, and dental checkups. The military already has a similar policy under the status quo and it should continue to be enforced under alternatives 2 and 3.

Civilian providers already institute a program that could potentially mitigate the problems discussed above. In some civilian health care programs, the members receive 100 percent free coverage for catastrophic injuries. Consequently, the DoD could implement a similar system where catastrophic events are covered, specifically in the line of duty, and then use the incentive-based alternatives for the remaining type of care. This hybrid system could significantly impact the way that medical coverage is provided in the DoD.

b. Actual Implementation of Legislation

Another possible drawback of implementing these alternatives is that it would be very difficult for them to be implemented to begin with. One of the biggest obstacles that this implementation plan must overcome is the passing of legislation that would support the necessary changes in the alternatives. That is, while Congress and the DoD would both like to see military health care costs decrease, Congress may likely reject a plan that asks for less benefits for military members. Members of Congress have increased their support of American service members due to their sacrifices in Iraq, Afghanistan, and other corners of the world in support of the Global War on Terror. Not only would it be difficult to get one Congressman or Congresswoman to attach him or herself to legislation reducing benefits to military members, it would be nearly impossible to get the necessary majority votes to send such legislation to the President's desk to be signed into law. As mentioned in Chapter IV, Congress recently did not consider legislation on a cost savings proposal from the DoD. That proposal; however, assumed the cost savings would come from a reduction of beneficiaries. Under the two alternatives; however, the military member does not incur unreasonable costs. Under the co-payment plan, the military member incurs 25 percent of the total outpatient costs while under the medical savings approach; the member receives an allotment for the

possible medical costs. In addition, the behavioral impacts of each alternative can lead to less medical utilization which reduces the costs to both the DoD and the individual member. To Congress; however, any minimal premium raise to military health plans for all U.S. military members may put too much of the burden on the members. If the DoD wants to pursue this implementation, it would have to formulate a decisive strategy and convincing argument to win the hearts and minds of the U.S. Congress.

VII. IMPLEMENTATION OF PROPOSED ALTERNATIVE

A. PURPOSE OF USING DEFENSE ACQUISITION PRINCIPLES

For years, the DoD has used appropriate acquisition principles and techniques to procure weapon systems, spare parts, and goods and services. The department uses these principles to deploy supportable systems while reducing total ownership costs and improving affordability. Similarly, using these principles effectively to implement the proposed health care cost-saving alternative can possibly allow this strategy to be easily supported, maintained, and sustained for years to come. Furthermore, using a well-managed procurement plan to implement a change in the military health care system can also reduce both the short-term and long-term costs of making the change.

Using procurement guidelines can also help the military health care system put the right people in the right place to provide the necessary support for a successful transition and implementation period. Specifically, the health care system may benefit from the use of defense contracting mechanisms to ensure the necessary additional workload and services that would be required to support the strategy can be performed at the most cost effective points possible. The management team can implement their vision or direction for the new payment system using milestones during the implementation process to make informed decisions about the cost and schedule issues that may arise during the transition period. Using a defined set of structured guidelines can help those in charge of the program to better plan, execute, and oversee this significant change in the military health care system. It can also help them identify the risks of vulnerabilities to fraud, waste, abuse, and mismanagement early on. Finally, since technology will play a significant role on the implementation and execution of the new strategy, solid acquisition principles will help manage the information technology upgrades and changes that will likely be necessary.

B. BRIEF OVERVIEW OF THE DEFENSE ACQUISITION FRAMEWORK

Since the implementation of a modified payment financial process for the military health care system is not actually the acquisition or procurement of a new weapon

system, there are certain components and principles of the acquisition management framework that are not applicable in this case. Therefore, this brief overview will only cover the elements of the management framework that are relevant to the implementation of the strategy.

The acquisition management framework is a tool that program managers try to model to provide new weapon systems to the war fighter as quickly and as efficiently as possible.⁵¹ Depending on the maturity of the program, its technology, its requirements, or its funding, the process provides for multiple entry points. These can occur during different periods of time called phases separated by decision points called milestones. Before Milestone A, the contracting mechanisms, the preliminary integrated architecture, and the supportability objectives are defined. These three are relevant for the implementation of the strategy and will be discussed later in this chapter. Advanced technology demonstrators are used early in the life cycle to demonstrate the technical maturity and the potential for enhanced capability or cost effectiveness later on. This will be relevant for the implementation since modifications of upgrades will be required to information technology systems in order to support the changes in the payment tracking and accountability processes. During the concept refinement phase, a study called an Analysis of Alternatives is conducted to refine the concept in order to achieve the best possible solution.

Program initiation normally occurs at Milestone B as it can be noted in Figure 1 below. To be prepared for the systems integration and systems demonstration stages, the programs entering this milestone must have both a system architecture (set of subsystems) and an operational architecture (how the system will interact with other systems). The successful completion of the systems demonstration phase, which occurs to demonstrate the ability of the system to operate in a useful way consistent with given performance parameters, leads to the production and deployment phase beginning at Milestone C. The main purpose of the production and deployment phase is to achieve an

⁵¹ Introduction to Defense Acquisition Management. 6th Edition. Defense Acquisition University Press, Fort Belvoir, VA. 2003.

operational capability that satisfies mission needs.⁵² The low-rate initial production stage allows for the production of the minimum quantity necessary to provide production-representative articles. Under full rate production and deployment, the system is produced and delivered to the user. Program managers must ensure that systems delivered to the user are produced at an economical rate and that they meet user requirements. In addition, they must ensure that during the next phase of the life cycle, the operations and support phase, the system can be maintained through training, technical support, and technical data.

The Defense Acquisition Management Framework

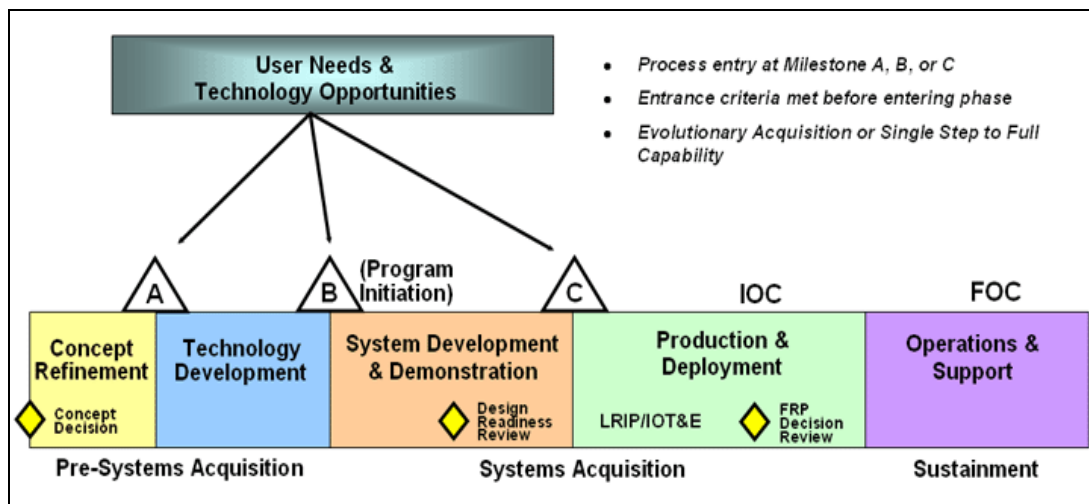


Figure 20. DoD Acquisition 5000 Series (taken from the Defense Acquisition University)⁵³

⁵² Introduction to Defense Acquisition Management. 6th Edition. Defense Acquisition University Press, Fort Belvoir, VA.2003.

⁵³ The Defense Acquisition University. Accessed in June 2007. <https://akss.dau.mil/dag/DoD5002/Figure1.asp>.

C. IMPLEMENTATION GUIDANCE

1. Contracting Mechanisms

The DoD must use its assets and the tax payers' dollars in the most efficient way possible. First, it must decide if the implementation of new payment systems at every military health care facility should be performed by the Government or by an outside contractor. The department must consider all factors contributing to the best overall value, including schedule, cost, quality, and performance. To ease this decision, conducting a source selection should determine the best overall path for the military care health care system. Regardless of who implements the strategy, the Government or a contractor will have to manage financial data, handle high volume customer-service requests, determine financial allowances for each family size (for alternative 3 only), handle monthly payments, distribute electronic and hardcopy monthly statements, etc. All of these objectives should be achieved in the most cost effective and fastest way possible during the testing period (discussed in detail below) as well as during the full-blown implementation process across all of the DoD medical treatment facilities.

The military health care system will also benefit if the DoD maximizes the use of commercial items and practices to take advantage of the innovation offered by the commercial marketplace. For instance, the department should invest time and dollars to understand how private health care providers use technology to track financial accounts and payments. Using the same technologies, methods, and practices already being used in the corporate world can potentially reduce the Government's long term costs.

2. Preliminary Integrated Architecture

Although concept definition for this strategy has already taken place in Chapter III, managers in charge of the implementation should have a basic understanding of the integrated architecture before performing a source selection or committing dollars or manpower to the implementation. For instance, they must decide whether each active duty member's health care account will be monitored via DFAS (Defense Finance and Accounting Service), the accounting firm of the DoD. Moreover, managers should determine whether doctors and physician assistants should have access to each member's

health care financial data when considering a recommendation for the patient. Furthermore, they must determine the feasibility of each facility having physical documentation of each patient's financial accounts to mirror how they maintain the medical records for each patient versus the feasibility of making each financial record accessible only by electronic means. Whatever the means the Government uses to maintain each service member's medical financial records, it must prioritize the security of the data and information.

3. Supportability

During the transition and testing periods early on, those managing the implementation must plan for the long-term supportability of the technologies being used as well as for future customer service needs. That is, the military health care computer systems must be flexible, reliable, and agile enough to deliver high amounts of data across multiple servers on demand to satisfy the requirements of health care facilities across each of the different TRICARE geographical regions. Managers should use analytical tools to determine how to most cost effectively support all systems, from computer systems to manpower and personnel, throughout their life cycle. Furthermore, managers of a new payment structure in the military health care system must verify on a timely basis whether the new system meets the threshold and objectives for cost, performance, and quality established early on. There must be specific plans in place for continuous improvements as well as for corrective actions when flaws are discovered in any part of the system.

4. Test Plan

a. Initial Test and Evaluation Strategy

To ensure that the full implementation of the payment strategy will go smoothly, those in charge of managing the transition process must develop a testing plan that focuses on the overall structure, major elements, and objectives of the implementation strategy. During the initial test and evaluation period, the new payment system should be tested at one major health care facility of each of the three TRICARE

regional areas in the U.S. But before it can be tested at a major hospital, a solid approach would be to test the system at a small and medium sized facility, such as a clinic, before testing it at a large health facility, such as the Wilford Hall Medical Center in San Antonio, the Naval Medical Center in San Diego, or the Walter Reed Army Medical Center in Washington D.C. The purpose of this slow transition would be to evaluate the impact of the changes that would be incorporated on the current manpower capabilities and computer systems. A specific evaluation strategy containing assessment criteria would be used to validate the transition and implementation at each particular medical facility. The evaluation process would assess the facility's ability to: handle an increasing number of financial and personal data in its computer network and databases, handle increasing financial account data exchanges with the TRICARE regional offices, support increasing customer service inquiries (in person, electronically, through the mail, and/or the phone), and maintain all personal data private and secure. The testing and evaluation strategy should also include the integration of the systems across multiple facilities in one region. To be a successful system, all facilities as well as the TRICARE offices should have immediate access to a military member's medical financial data in the event the member changes his/her duty station or has to receive treatment from a different facility during a business trip (TDY--Temporary Duty) to a different location. It is critical for all facilities providing health care to a member to have up-to-date information of the member's account balance for the month as well as his or her payment summary.

b. Demonstration and Validation

Before the strategy for either alternative can be fully implemented across every military health care facility, it should be fully tested, demonstrated, and validated under operational circumstances to determine vulnerabilities and to reveal system readiness. Demonstration and validation should last as long as is needed to ensure that they system is ready to be deployed across the DoD. During this stage, the TRICARE financial accounting system would be fully tested within and between all regional areas within the U.S. and overseas. This system should be ready for the additional data of the

thousands of active duty personnel entering the system since it's already used to supporting over a million customers (dependents, retirees, etc.).

D. BENEFITS

Surely, managing a major program or project requires tenacious discipline and a specific strategic plan that allows for oversight of the performance, cost, schedule, and quality of the program. Applying effective program management principles to any project allows the managers to have flexibility when facing unforeseen obstacles and to apply corrective actions as necessary. Although the implementation of the strategy may not be a full-blown program acquisition or procurement, it must be approached with a strategic mindset to ensure all the necessary steps take place and the transition is smooth. In addition, the circumstances surrounding the transition demand a well-planned approach. Specifically, active duty members of the armed forces endure tremendous sacrifices day in and day out, especially those deployed in support on the global war on terrorism. An effective transition and implementation may likely prevent challenges or obstacles for these members. The last thing a deployed member should have to worry about is having his/her personal data at risk, being overcharged for a spouse's medical appointment, or having a son/daughter be denied service because of a financial data error.

Using the acquisition principles and recommendations outlined in this chapter would honor active service members with a smooth transition in their financial situations. Similarly, these principles and guidelines can also prevent excessive long-term costs for the defense department.

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VIII. CONCLUSION

A. THE NEED FOR A COST-SAVINGS STRATEGY

The purpose of this study was to generate methods that can reduce the economic burden that health care costs may put on the DoD in the future. While the proposed alternatives have significant limitations (discussed later in this chapter), it discusses many important factors that should be considered in a full-blown strategy that the military could implement. The goal of this study is for decision makers to at least begin to consider these factors as they strategize a plan that may reduce the considerable burden that rising health care costs have on the Government and DoD resources. As the steady rise in health care costs continues to lead to increased competition for Federal dollars, the department will be forced to increase its health care budget allocation in the future, thereby reducing funding for other major vital programs and thus affecting the overall readiness and future force structure of the military.

In efforts to reduce or contain the costs of the military health care system, this report proposed two cost alternatives for providing outpatient care to active duty personnel and their dependents. These strategies are primarily designed to reduce DoD costs by influencing the attitudes of beneficiaries toward outpatient health care, restricting their access to options with higher costs, and shifting a portion of outpatient care costs through co-payments. This project provided an in-depth analysis for each alternative using a set of assumptions for treatment possibilities based on three likely scenarios, and provides quantitative and qualitative data to arrive at a recommendation. This project concludes that these cost-saving strategies (or variations thereof) should be considered by the DoD to generate long-term savings.

This study also provided an implementation process for the proposed alternative that should minimize disruption in the current military health care system by following a set of DoD acquisition guidelines. This implementation methodology should be considered to provide a smooth, effective transition to a new payment system for military health care.

B. LIMITATIONS OF THIS STUDY

One of the most significant limitations of this study is the probability assignment that drives the outcomes for each alternative under each scenario. Because of the authors' limited ability to find reliable and actual probability quantitative data, the authors determined the probabilities based on their intuition and common sense, thus the probabilities are completely subjective. Since the probability estimates are not based on actual data, one could argue that the outcomes derived under each alternative and scenario are flawed or inaccurate. Still, even if we have historical probability data, we are well aware that the past does not determine the future. For instance, individual differences and specific circumstances drive people's likelihood and frequency of receiving each type of care based on their own experiences with health care, their own perception of their condition, how they value time, their ability to deal with pain or a temporary illness, etc. Therefore, using probabilities to determine the alternative recommended under each scenario is more or less a "best guess" of what a person is likely to do when faced with a health crisis. However, basing the probabilities on past data will likely lead to more accurate results than the subjective estimates.

Another limitation of this study is a fundamental difference between the co-payment alternative (alternative 2) and the incentive based monthly allotment alternative (alternative 3). Under alternative 3, the member receives a monthly allotment for outpatient health care costs. Each individual service member has the choice to either allow the money to rollover into subsequent months, or withdraw these funds at the end of month. Therefore, under alternative 2, the member pays money while he/she receives money under alternative 3, hence creating a discrepancy in the comparison. Natural human behavior would lead us to believe that a person would always choose alternative 3 (receive and keep money) over alternative 2 (pay money) under the same health care scenario. Perhaps a more fair comparison is to alter the proposed alternative 3. That is, instead of giving the member the choice to withdraw these funds if they are not spent, the member would have to take the monthly allotment amount from the salary and store it in the medical savings account in the beginning of the month with certain restrictions on how the allotment can be rolled over. Withdrawals from this account would lead to

certain tax implications if the member wants to withdraw the money for other usage at the end of defined expiration date. This change may lead to a more comparable behavioral change between alternative 1 and both alternatives 2 and 3.

Another shortcoming of this study is the fact that the three health care-seeking scenarios only represent a small portion of the endless health care possibilities that an active duty member or his/her family members could face. Although the scenarios in this study are likely possibilities, the member could receive outpatient care under many other situations. Furthermore, this study only focuses on three different ranks and family sizes, thus there are many more possibilities. Therefore, the probabilities for the type of health care chosen under all possible scenarios and possibilities are probably different than the ones determined for the three scenarios in this study. Since probabilities are a driving factor in the outcomes for each alternative and on the overall cost-saving alternative recommended to the DoD, this project conclude that expanding the scenarios to a more comprehensive possibility list may change the alternative recommended to the DoD if the variance between the probabilities in this study and the probabilities in a more comprehensive scenario list is large.

Yet another setback of this study is the subjectivity of the penalty costs assigned under each scenario for the second and third iterations. Like the probability assignments, the penalty costs also influence the outcomes for each scenario. Although the penalty costs were based from the member's hourly pay data, the assessed lost time was based on the average time the member would miss time at work and the average time spent waiting for an appointment. Since this is the average time, there are likely variations on the penalty costs since the lost time will likely vary under difference circumstances.

Another setback of this study is the implementation process through the use of DoD acquisition principles. That is, since the defense acquisition management framework is tailored for defense weapon systems, using this methodology requires extensive flexibility, assumptions, and exceptions since a significant number of events and processes in this methodology do not apply to this case. This may lead the managers in charge of the implementation to have to use their judgment and common sense rather than the defined processes and methods that are recommended by the defense acquisition

management framework. If they are not careful, they may fall into the trap of implementing their own determined processes without the discipline of the framework which may be counter productive.

Finally, a significant limitation of this study involves the link established between the monthly allotment amount for alternative 3 and the health expenditure of each member, depending on his/her rank. Specifically, if a member or his/her dependent has a significant chronic illness, alternative 3 and its monthly allotment option would not be adequate for the member because he/she would be responsible for the remainder of the likely expensive medical bill. For a member with a serious chronic illness, such as a mental health problem or diabetes, either alternative would be financially detrimental because of the expected high health expenditures. The limitation; therefore, occurs when the monthly allotments amount are not tied to expected health expenditure of the relevant population. They, in fact, should be tied to the expected health expenditure of each member and should be adjusted based on risk analysis. Furthermore, the subjective nature of this allotment leads to no back-end protection (i.e., no catastrophic coverage), and even with back-end protection, he/she still might end up paying more out of pocket than alternative 2.

Because this work is a case study and because of its limitations highlighted above, the study's results cannot be generalized to affect DoD policies. Much further research is necessary before military health care policies are influenced.

C. PROPOSED AREAS FOR FURTHER RESEARCH

To increase the accuracy of the results under each alternative and scenario, a future study should base the probability assignments on objective historical data on the probabilities of seeking ER or outpatient health care. For instance, the data could be based on the probability that a given person would make at least one physician visit or an ER visit in a 12-month period. If the data is not widely available or reliable, future researchers could gather this data by conducting surveys at military clinics or hospitals, by conducting telephone surveys, or by sending mail questionnaires to military households. Of course, the DoD would need to authorize this research. Future research

should also expand the study to include more possible scenarios to include a wider range of likely possibilities. The analysis of each cost-saving alternative would, therefore, be based on many more representative scenarios.

Another area of future research deals with one of the implications to the DoD if military health care changes from the current system to a more civilian equivalent health plan with cost sharing features. Specifically, the research should focus on the impact that this change would have on military recruitment. Future researchers should focus their efforts on obtaining reliable survey data on the percentage of armed forces members who join the military because of the free health care provided under the current system. If the data is not available, future researchers could potentially conduct surveys among random populations within all branches of the military to gather the data. The purpose of this exercise would be to determine the likely reduction, if any, in the military recruitment rate if free military health care is no longer a benefit of joining the military. If free health care is a major reason people join the military, the alternatives should be slightly altered to be less costly to the member since the military could face a double-edge sword: lower recruitment or higher health care costs.

As stated above in section B, a limitation of this study is a fundamental difference between the co-payment alternative (alternative 2) and the incentive based monthly allotment alternative (alternative 3). Future research should alter alternative 3 by ensuring the member takes the monthly allotment amount from the salary and store it in the medical savings account in the beginning of the month with certain restrictions on how the allotment can be rolled over. Withdrawals from this account would lead to certain tax implications if the member wants to withdraw the money for other usage at the end of defined expiration date. This change may lead to a more comparable behavioral change between alternative 1 and both alternatives 2 and 3.

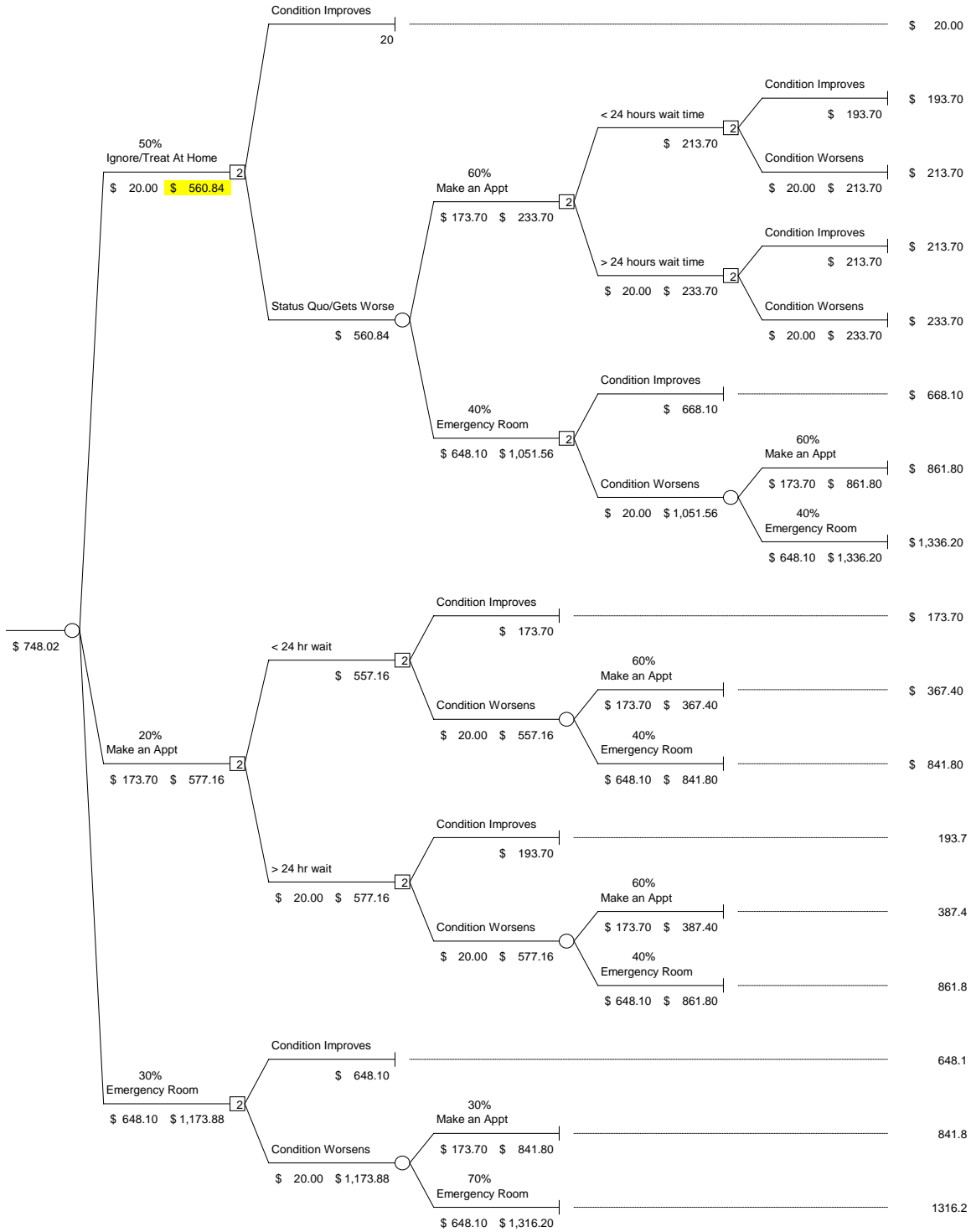
Yet another suggestion for future research is to expand the cost-saving alternatives to include some inpatient services in order to further reduce the DoD health care costs. The alternatives would need to be altered since inpatient services are more costly than outpatient care so the member does not bear a huge financial burden. Future research can also focus on pharmaceutical costs or mental health care. The purpose of

this research would be to help the DoD determine the best cost-saving strategies that reduce the long-term spending trend on health care costs while still offering military members and their family's high-quality health care benefits. The DoD could potentially alter certain elements of all types of care (i.e., outpatient, inpatient, pharmaceutical, etc.) to reach its cost-savings goals and maintain a health care system that members still consider a significant advantage of being a part of the United States military.

APPENDIX A DECISION TREE/STATISTICAL ANALYSIS

Alternative 1: Status Quo
(Cost to the DoD)

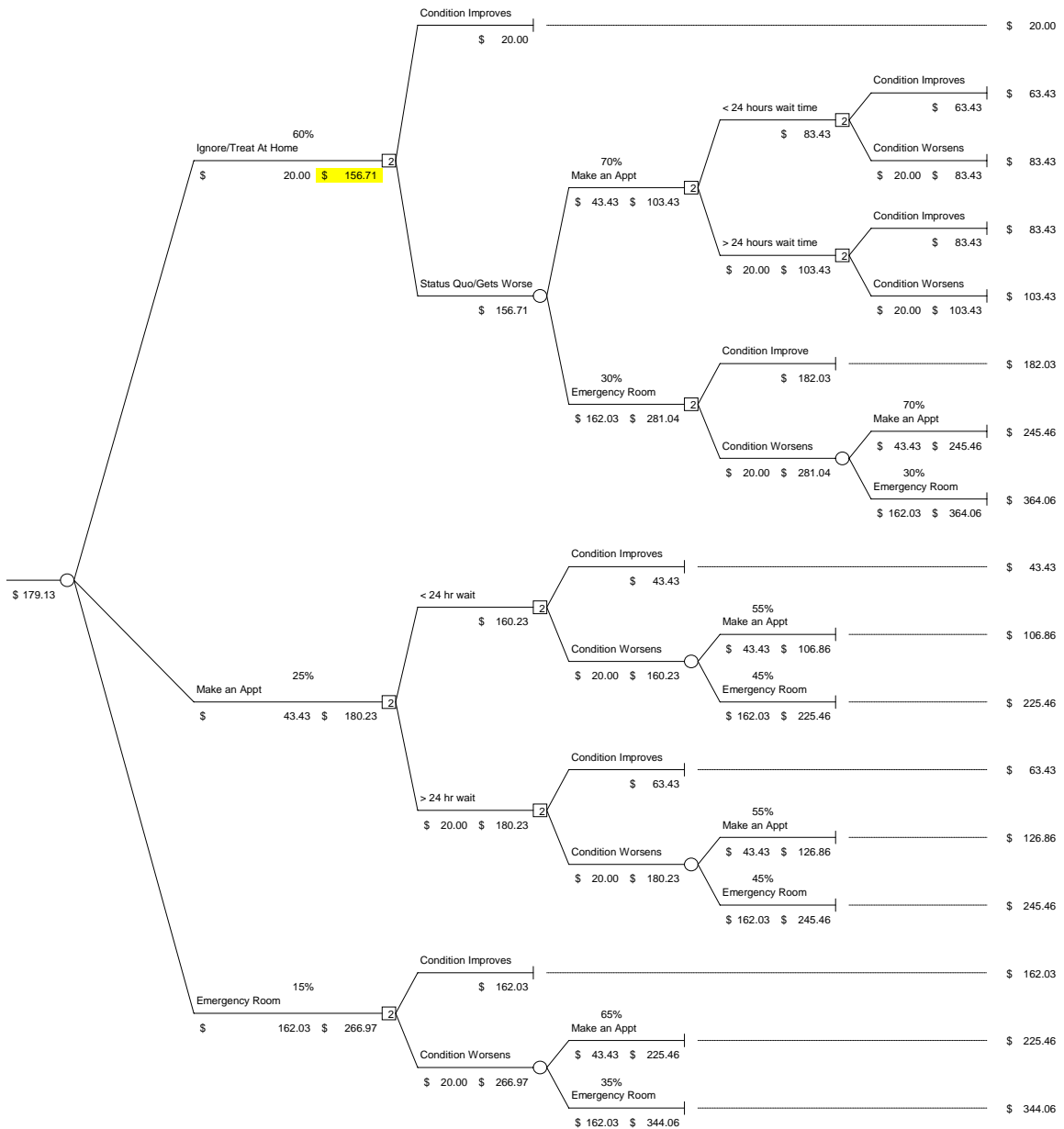
SCENARIO ONE



Alternative 2: Co-Pay
(Cost to Member)

| | Total Cost of Treatment | Co-Payment |
|----------------|-------------------------|------------|
| Doctor's Visit | \$ 173.70 | \$ 43.43 |
| Emergency Room | \$ 648.10 | \$ 162.03 |

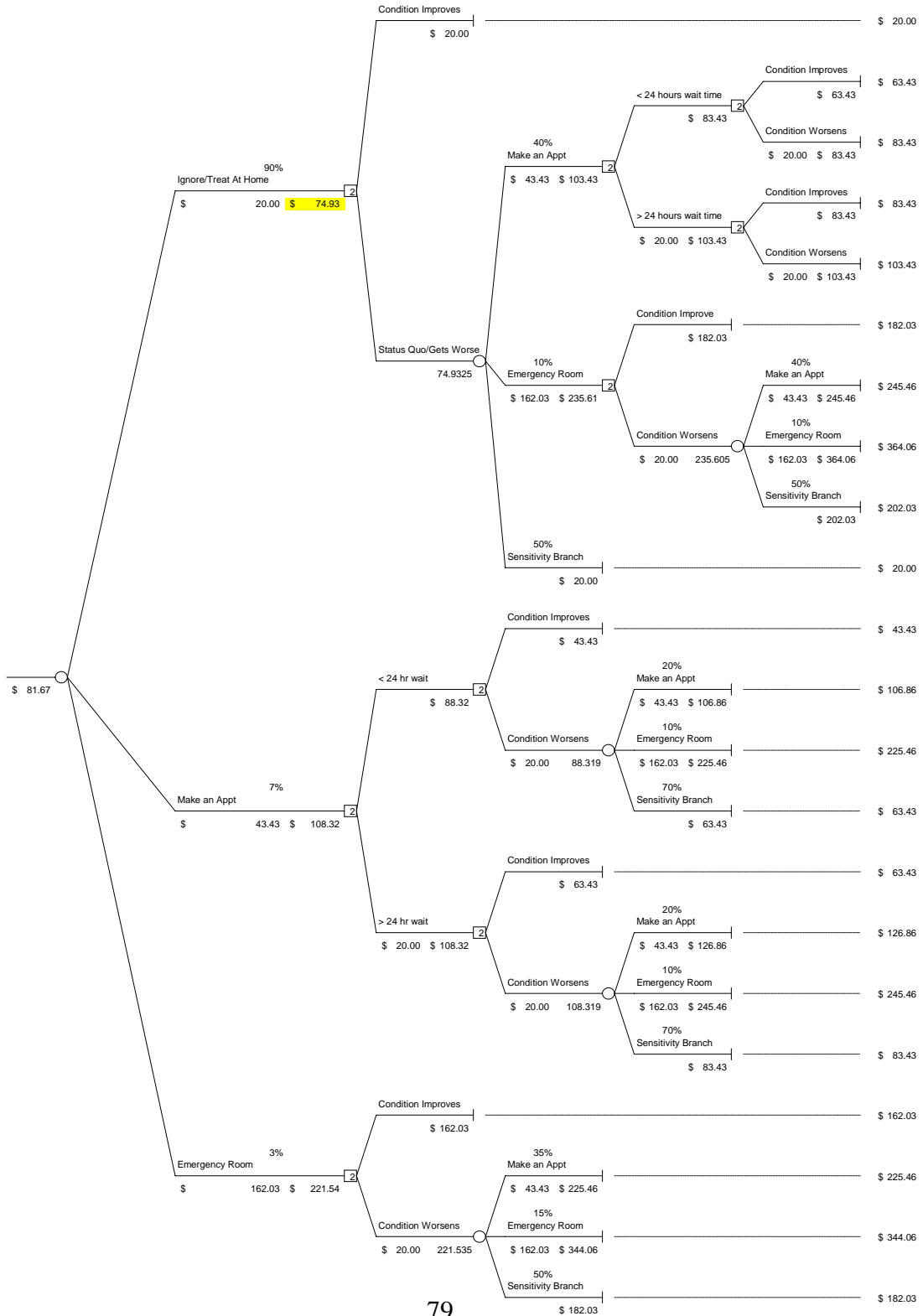
SCENARIO ONE



Alternative 2: Co-Pay
(Cost to Member)

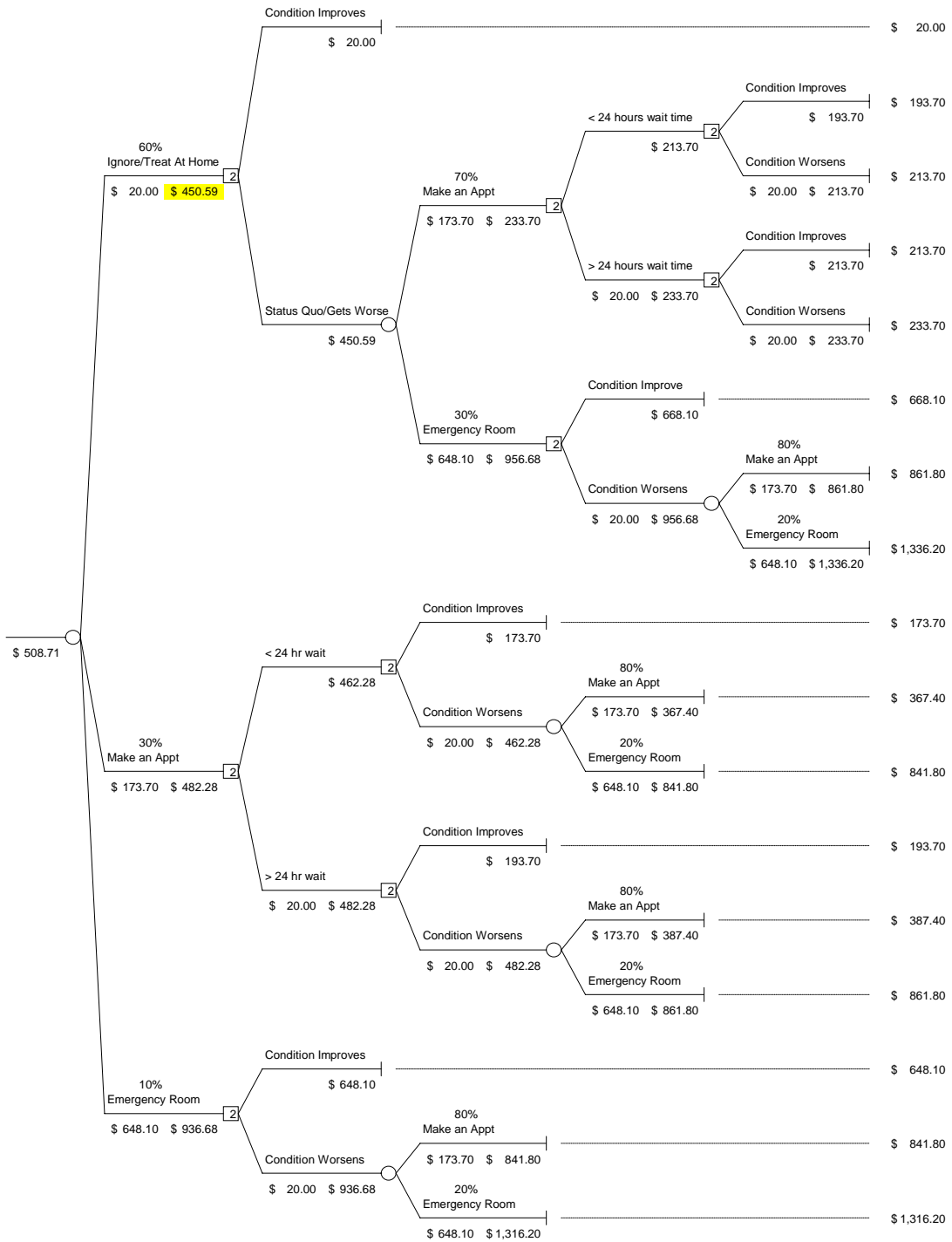
| | Total Cost of Treatment | Co-Payment |
|----------------|-------------------------|------------|
| Doctor's Visit | \$ 173.70 | \$ 43.43 |
| Emergency Room | \$ 648.10 | \$ 162.03 |

SCENARIO ONE
Sensitivity Analysis



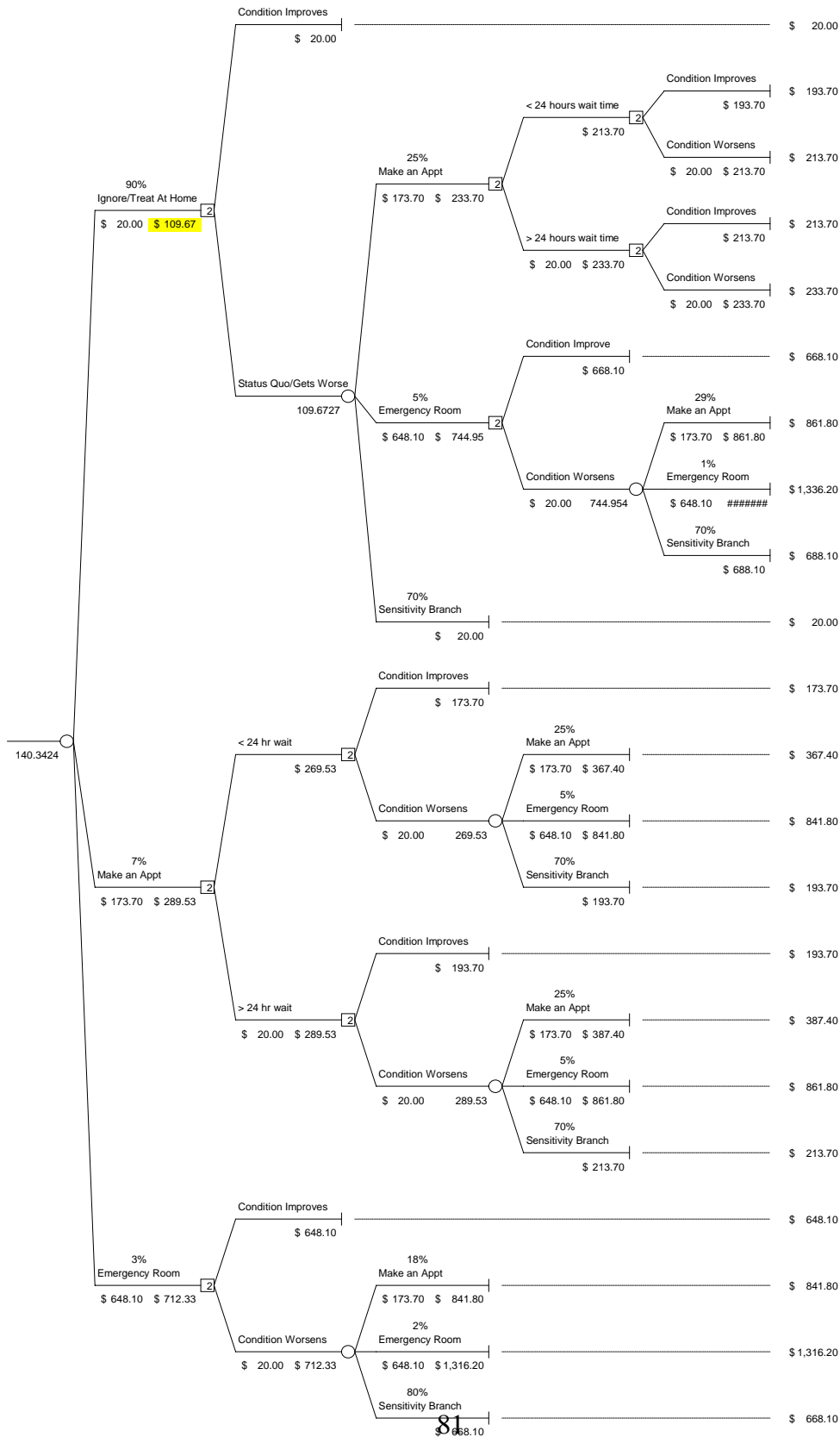
ALT 3-Allotment
(Cost to Member)

SCENARIO ONE

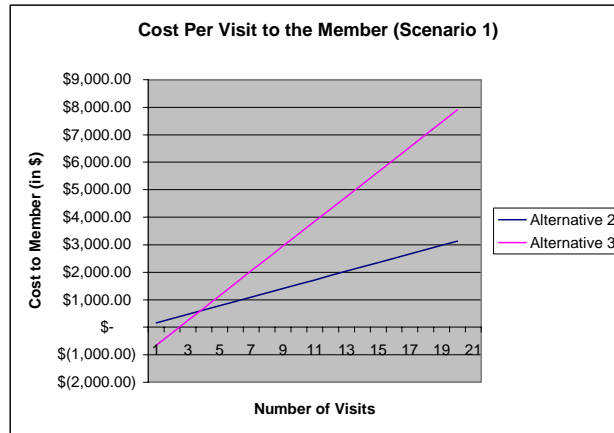


ALT 3-Allotment
(Cost to Member)

SCENARIO ONE
Sensitivity Analysis

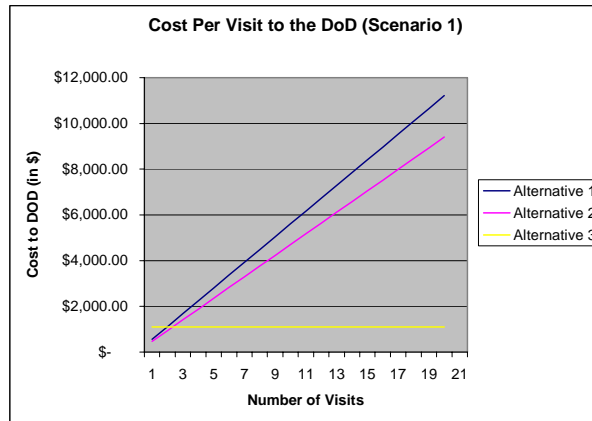


| Costs Per Visit to the Member | | |
|-------------------------------|---------------|---------------|
| Number of Visits | Alternative 2 | Alternative 3 |
| 1 | \$ 156.71 | \$ (654.95) |
| 2 | \$ 313.42 | \$ (204.36) |
| 3 | \$ 470.13 | \$ 246.23 |
| 4 | \$ 626.84 | \$ 696.82 |
| 5 | \$ 783.55 | \$ 1,147.41 |
| 6 | \$ 940.26 | \$ 1,598.00 |
| 7 | \$ 1,096.97 | \$ 2,048.59 |
| 8 | \$ 1,253.68 | \$ 2,499.18 |
| 9 | \$ 1,410.39 | \$ 2,949.77 |
| 10 | \$ 1,567.10 | \$ 3,400.36 |
| 11 | \$ 1,723.81 | \$ 3,850.95 |
| 12 | \$ 1,880.52 | \$ 4,301.54 |
| 13 | \$ 2,037.23 | \$ 4,752.13 |
| 14 | \$ 2,193.94 | \$ 5,202.72 |
| 15 | \$ 2,350.65 | \$ 5,653.31 |
| 16 | \$ 2,507.36 | \$ 6,103.90 |
| 17 | \$ 2,664.07 | \$ 6,554.49 |
| 18 | \$ 2,820.78 | \$ 7,005.08 |
| 19 | \$ 2,977.49 | \$ 7,455.67 |
| 20 | \$ 3,134.20 | \$ 7,906.26 |
| Total | \$ 32,909.10 | \$ 72,513.10 |



This is an analysis of cost per visit to the individual service member. Alternative 2 is the 25% co-payment that the service member is required to pay. Under the label "Alternative 3" is the effect on the military member based on the medical allotment (\$1103.45) they will receive during that month. What this analysis shows is that Alternative 3 is the most beneficial option for the service member up to four visits. This analysis is valid for either this type of illness, or any treatment that has similar cost effects.

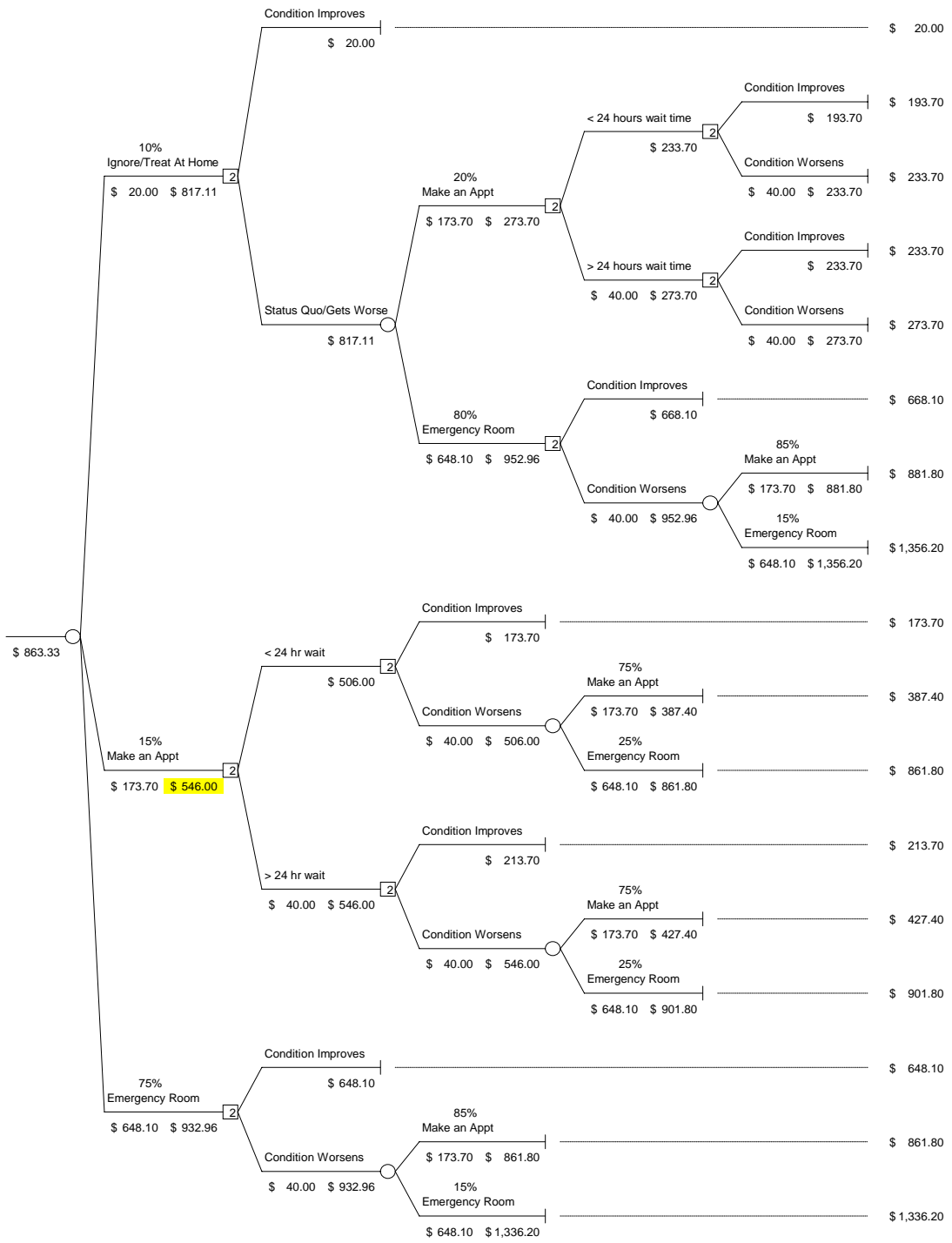
| Costs Per Visit to the Department of Defense | | | |
|--|---------------|---------------|---------------|
| Number of Visits | Alternative 1 | Alternative 2 | Alternative 3 |
| 1 | \$ 560.84 | \$ 470.13 | \$ 1,105.54 |
| 2 | \$ 1,121.68 | \$ 940.26 | \$ 1,105.54 |
| 3 | \$ 1,682.52 | \$ 1,410.39 | \$ 1,105.54 |
| 4 | \$ 2,243.36 | \$ 1,880.52 | \$ 1,105.54 |
| 5 | \$ 2,804.20 | \$ 2,350.65 | \$ 1,105.54 |
| 6 | \$ 3,365.04 | \$ 2,820.78 | \$ 1,105.54 |
| 7 | \$ 3,925.88 | \$ 3,290.91 | \$ 1,105.54 |
| 8 | \$ 4,486.72 | \$ 3,761.04 | \$ 1,105.54 |
| 9 | \$ 5,047.56 | \$ 4,231.17 | \$ 1,105.54 |
| 10 | \$ 5,608.40 | \$ 4,701.30 | \$ 1,105.54 |
| 11 | \$ 6,169.24 | \$ 5,171.43 | \$ 1,105.54 |
| 12 | \$ 6,730.08 | \$ 5,641.56 | \$ 1,105.54 |
| 13 | \$ 7,290.92 | \$ 6,111.69 | \$ 1,105.54 |
| 14 | \$ 7,851.76 | \$ 6,581.82 | \$ 1,105.54 |
| 15 | \$ 8,412.60 | \$ 7,051.95 | \$ 1,105.54 |
| 16 | \$ 8,973.44 | \$ 7,522.08 | \$ 1,105.54 |
| 17 | \$ 9,534.28 | \$ 7,992.21 | \$ 1,105.54 |
| 18 | \$ 10,095.12 | \$ 8,462.34 | \$ 1,105.54 |
| 19 | \$ 10,655.96 | \$ 8,932.47 | \$ 1,105.54 |
| 20 | \$ 11,216.80 | \$ 9,402.60 | \$ 1,105.54 |
| Total | \$ 117,776.40 | \$ 98,727.30 | \$ 1,105.54 |



This is an analysis of costs per visit for the Department of Defense. One can see that Alternative 1 (Status Quo) is clearly the loss leader in this scenario. A thorough analysis of Alternatives 2 (co-payment) and 3 (monthly allotment) shows that for two visits or less the DoD realizes a better cost savings using Alternative 2; however, in the long run Alternative 3 is clearly the best option for the Department of Defense. After 20 visits you can see that the savings is well over \$100,000 against the Status Quo and nearly \$98,000 compared to Alternative 2.

Alternative 1: Status Quo
(Cost to the DoD)

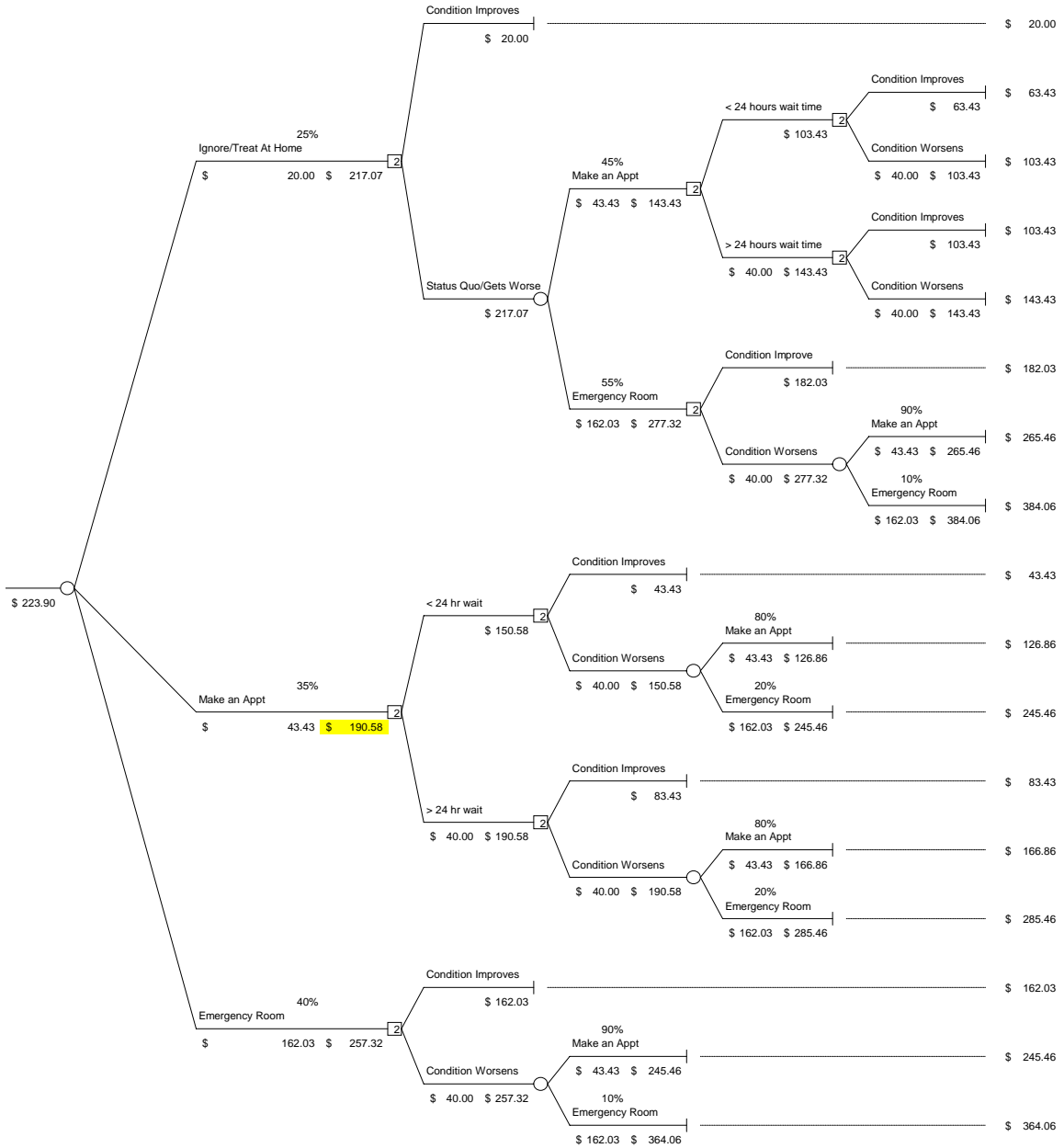
SCENARIO TWO



Alternative 2: Co-Pay
(Cost to Member)

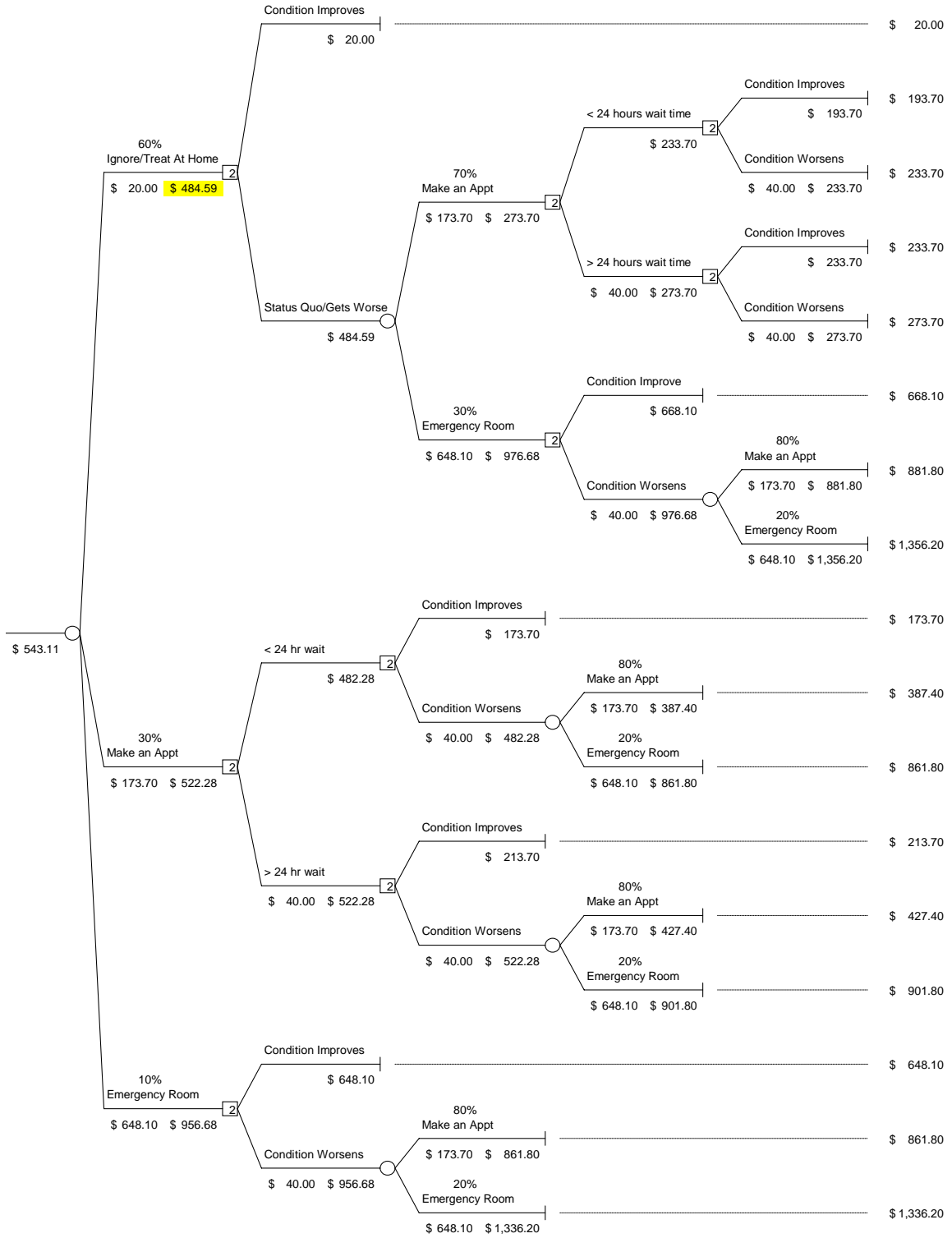
| | Total Cost of Treatment | Co-Payment |
|----------------|-------------------------|------------|
| Doctor's Visit | \$ 173.70 | \$ 43.43 |
| Emergency Room | \$ 648.10 | \$ 162.03 |

SCENARIO TWO

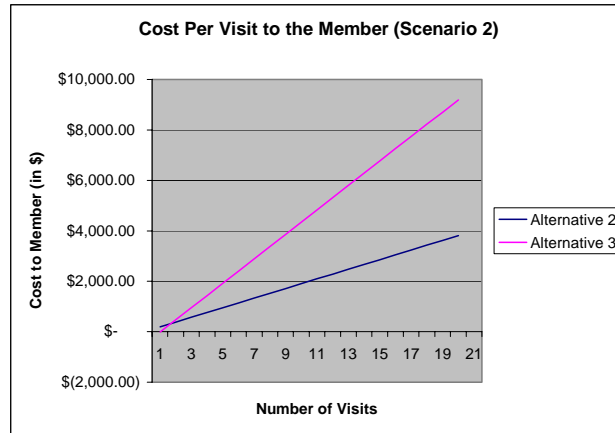


ALT 3-Allotment
(Cost to Member)

SCENARIO TWO

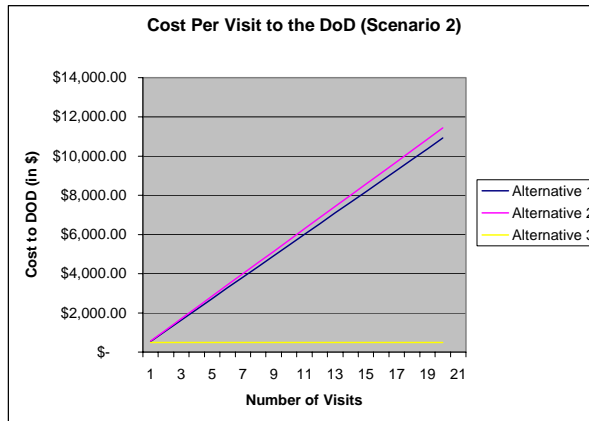


| Costs Per Visit to the Member | | |
|-------------------------------|---------------|---------------|
| Number of Visits | Alternative 2 | Alternative 3 |
| 1 | \$ 190.58 | \$ (15.41) |
| 2 | \$ 381.16 | \$ 469.18 |
| 3 | \$ 571.74 | \$ 953.77 |
| 4 | \$ 762.32 | \$ 1,438.36 |
| 5 | \$ 952.90 | \$ 1,922.95 |
| 6 | \$ 1,143.48 | \$ 2,407.54 |
| 7 | \$ 1,334.06 | \$ 2,892.13 |
| 8 | \$ 1,524.64 | \$ 3,376.72 |
| 9 | \$ 1,715.22 | \$ 3,861.31 |
| 10 | \$ 1,905.80 | \$ 4,345.90 |
| 11 | \$ 2,096.38 | \$ 4,830.49 |
| 12 | \$ 2,286.96 | \$ 5,315.08 |
| 13 | \$ 2,477.54 | \$ 5,799.67 |
| 14 | \$ 2,668.12 | \$ 6,284.26 |
| 15 | \$ 2,858.70 | \$ 6,768.85 |
| 16 | \$ 3,049.28 | \$ 7,253.44 |
| 17 | \$ 3,239.86 | \$ 7,738.03 |
| 18 | \$ 3,430.44 | \$ 8,222.62 |
| 19 | \$ 3,621.02 | \$ 8,707.21 |
| 20 | \$ 3,811.60 | \$ 9,191.80 |
| Total | \$ 40,021.80 | \$ 91,763.90 |



This is an analysis of cost per visit to the individual service member. Alternative 2 is the 25% co-payment that the service member is required to pay. Under the label "Alternative 3" is the effect on the military member based on the medical allotment (\$439.20) they will receive during that month. What this analysis shows is that Alternative 3 is the most beneficial option for the service member for one visit. This analysis is valid for either this type of illness, or any treatment that has similar cost effects. Because of the likelihood of this type of injury, once again Alternative 3 would seem to be the most beneficial; however, if the member gets ill during the month they will be required to pay all of their medical bills. Therefore, if the member is "accident prone" then Alternative 2 might be the most effective option for the service member.

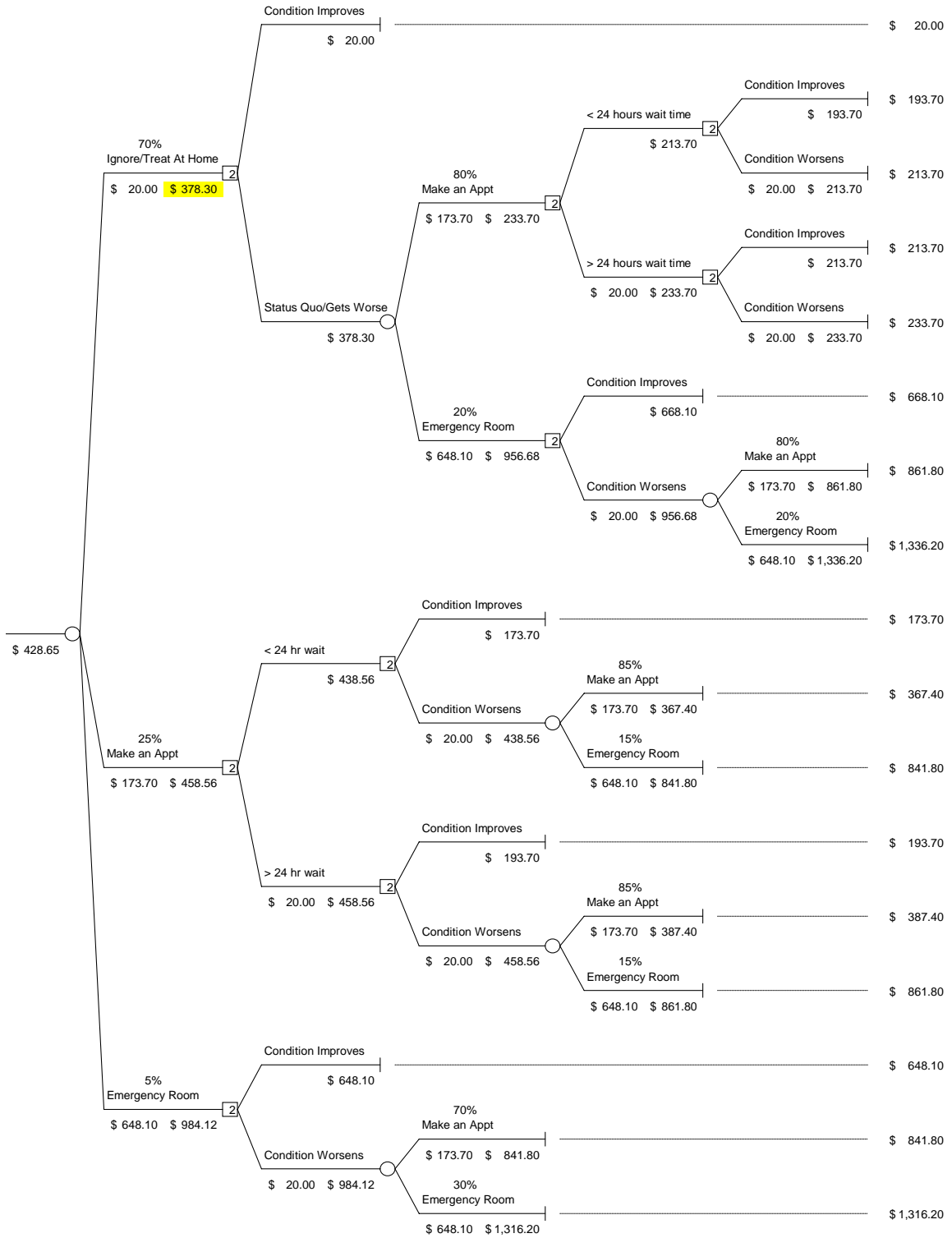
| Costs Per Visit to the Department of Defense | | | |
|--|---------------|---------------|---------------|
| Number of Visits | Alternative 1 | Alternative 2 | Alternative 3 |
| 1 | \$ 546.00 | \$ 571.74 | \$ 500.00 |
| 2 | \$ 1,092.00 | \$ 1,143.48 | \$ 500.00 |
| 3 | \$ 1,638.00 | \$ 1,715.22 | \$ 500.00 |
| 4 | \$ 2,184.00 | \$ 2,286.96 | \$ 500.00 |
| 5 | \$ 2,730.00 | \$ 2,858.70 | \$ 500.00 |
| 6 | \$ 3,276.00 | \$ 3,430.44 | \$ 500.00 |
| 7 | \$ 3,822.00 | \$ 4,002.18 | \$ 500.00 |
| 8 | \$ 4,368.00 | \$ 4,573.92 | \$ 500.00 |
| 9 | \$ 4,914.00 | \$ 5,145.66 | \$ 500.00 |
| 10 | \$ 5,460.00 | \$ 5,717.40 | \$ 500.00 |
| 11 | \$ 6,006.00 | \$ 6,289.14 | \$ 500.00 |
| 12 | \$ 6,552.00 | \$ 6,860.88 | \$ 500.00 |
| 13 | \$ 7,098.00 | \$ 7,432.62 | \$ 500.00 |
| 14 | \$ 7,644.00 | \$ 8,004.36 | \$ 500.00 |
| 15 | \$ 8,190.00 | \$ 8,576.10 | \$ 500.00 |
| 16 | \$ 8,736.00 | \$ 9,147.84 | \$ 500.00 |
| 17 | \$ 9,282.00 | \$ 9,719.58 | \$ 500.00 |
| 18 | \$ 9,828.00 | \$ 10,291.32 | \$ 500.00 |
| 19 | \$ 10,374.00 | \$ 10,863.06 | \$ 500.00 |
| 20 | \$ 10,920.00 | \$ 11,434.80 | \$ 500.00 |
| Total | \$ 114,660.00 | \$ 120,065.40 | \$ 500.00 |



This is an analysis of costs per visit for the Department of Defense. This scenario was unlike any of the others in that the Status Quo was not the loss leader. In fact, Alternative 2 was the most expensive to the DoD over the long run, although the difference per visit is only \$25 between the Status Quo and Alternative 2. This should seem logical given the extent of the injury (broken limb), and the likelihood that this injury would occur more than once. Once again Alternative 3 is clearly the best overall option for the DoD, with a cost savings well over \$110,000 against the Status Quo and nearly \$120,000 compared to Alternative 2.

Alternative 1: Status Quo
(Cost to the DoD)

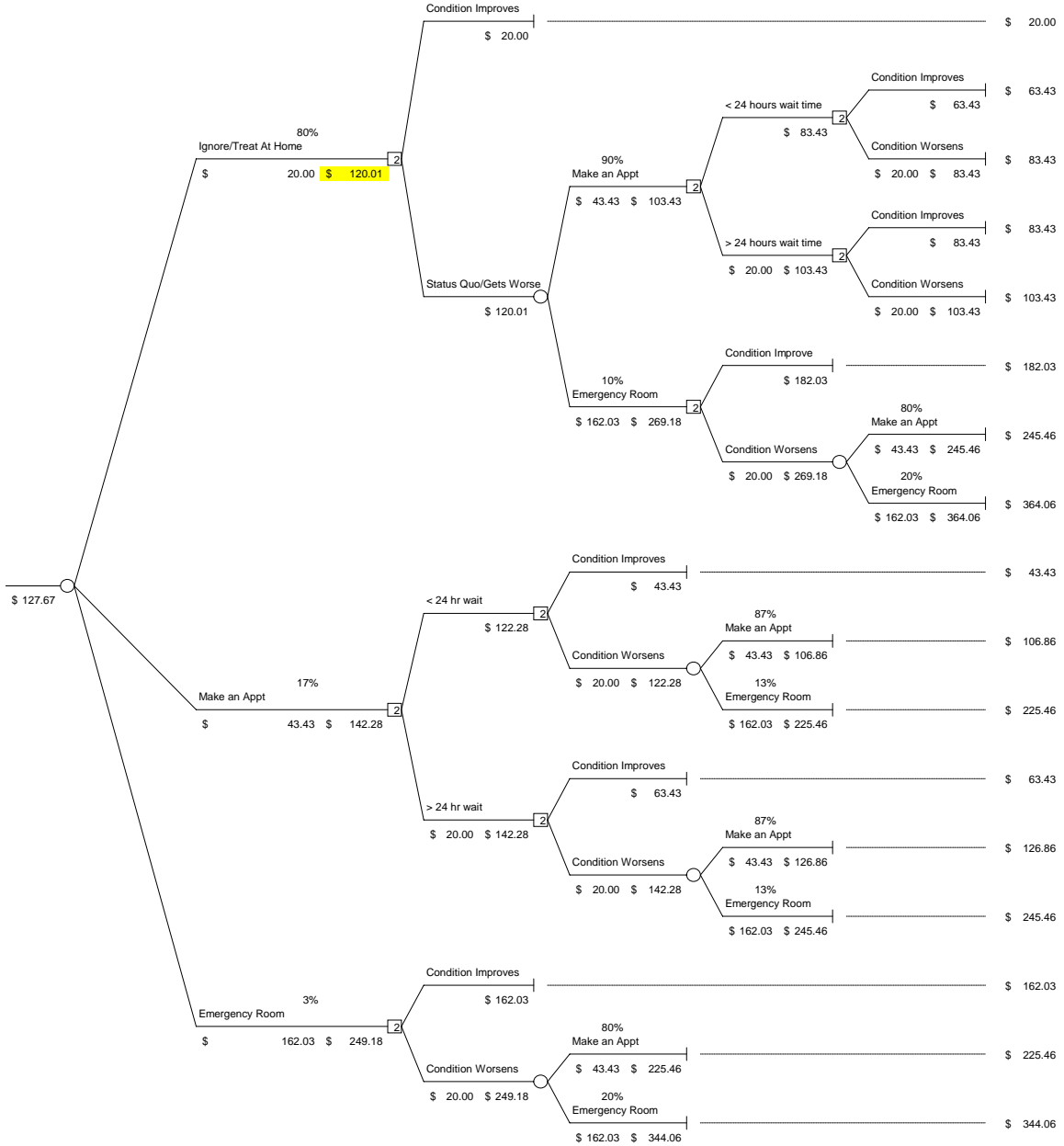
SCENARIO THREE



Alternative 2: Co-Pay
(Cost to Member)

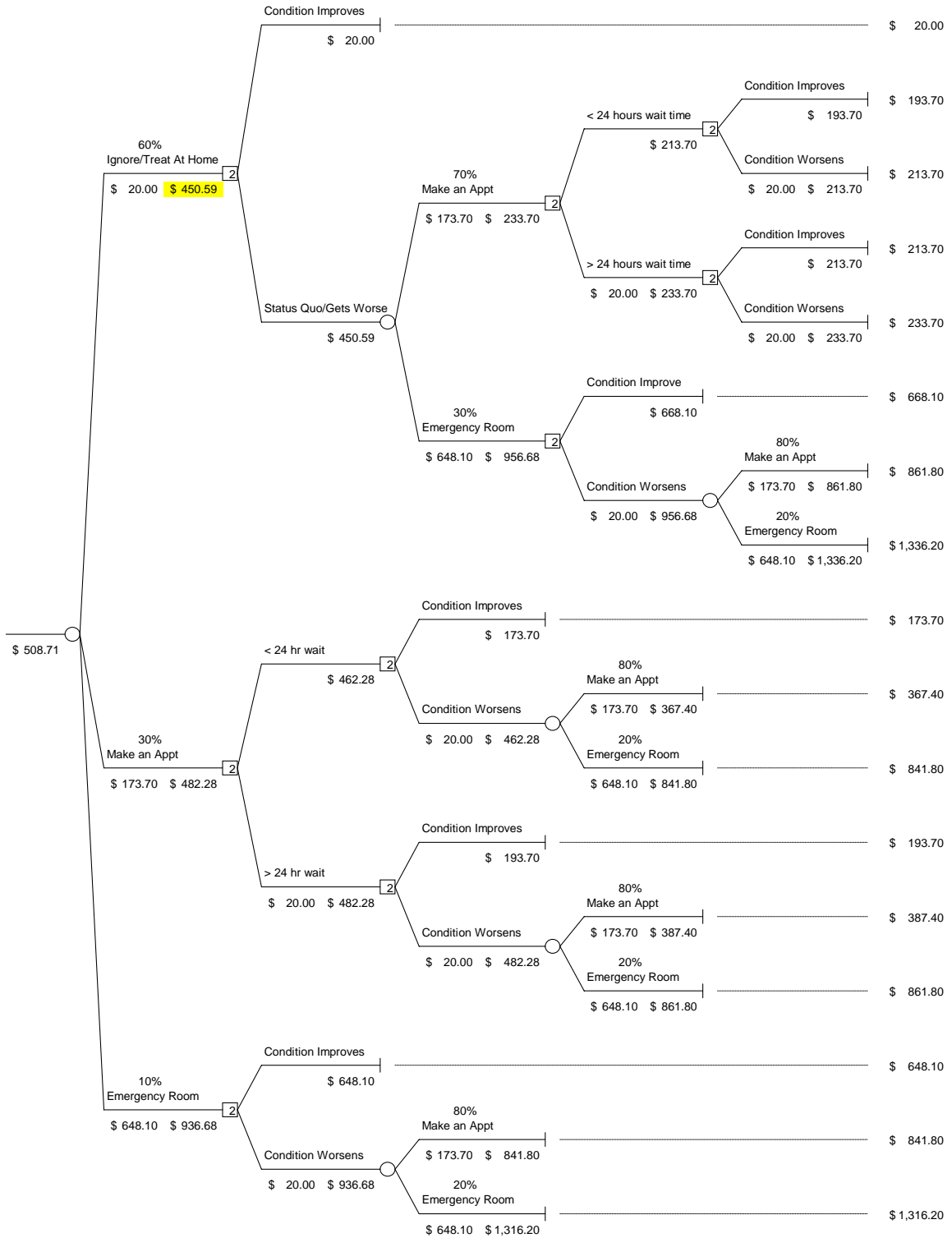
| | Total Cost of Treatment | Co-Payment |
|----------------|-------------------------|------------|
| Doctor's Visit | \$ 173.70 | \$ -43.43 |
| Emergency Room | \$ 648.10 | \$ 162.03 |

SCENARIO THREE

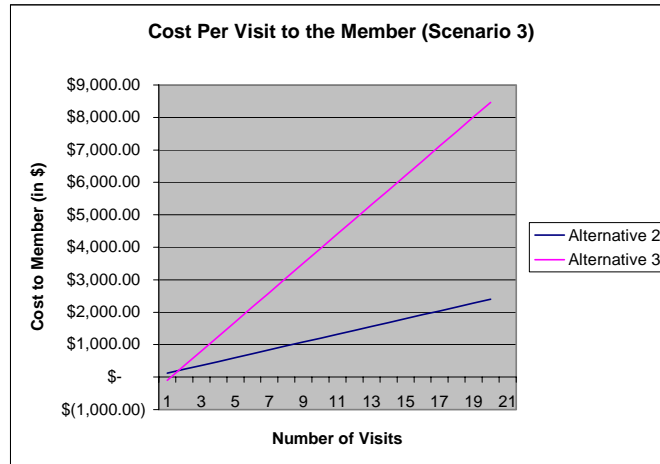


ALT 3-Allotment
(Cost to Member)

SCENARIO THREE

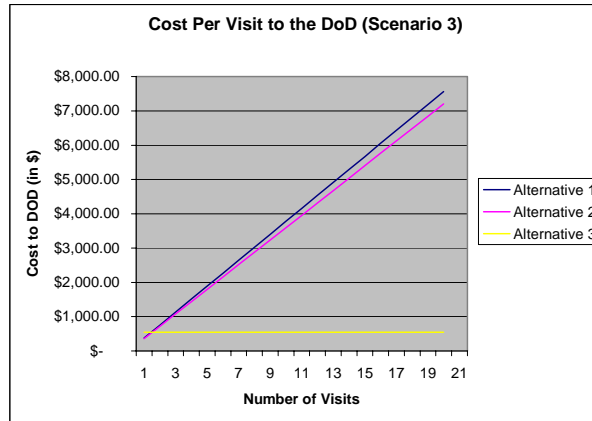


| Costs Per Visit to the Member | | |
|-------------------------------|---------------|---------------|
| Number of Visits | Alternative 2 | Alternative 3 |
| 1 | \$ 120.01 | \$ (95.30) |
| 2 | \$ 240.02 | \$ 355.29 |
| 3 | \$ 360.03 | \$ 805.88 |
| 4 | \$ 480.04 | \$ 1,256.47 |
| 5 | \$ 600.05 | \$ 1,707.06 |
| 6 | \$ 720.06 | \$ 2,157.65 |
| 7 | \$ 840.07 | \$ 2,608.24 |
| 8 | \$ 960.08 | \$ 3,058.83 |
| 9 | \$ 1,080.09 | \$ 3,509.42 |
| 10 | \$ 1,200.10 | \$ 3,960.01 |
| 11 | \$ 1,320.11 | \$ 4,410.60 |
| 12 | \$ 1,440.12 | \$ 4,861.19 |
| 13 | \$ 1,560.13 | \$ 5,311.78 |
| 14 | \$ 1,680.14 | \$ 5,762.37 |
| 15 | \$ 1,800.15 | \$ 6,212.96 |
| 16 | \$ 1,920.16 | \$ 6,663.55 |
| 17 | \$ 2,040.17 | \$ 7,114.14 |
| 18 | \$ 2,160.18 | \$ 7,564.73 |
| 19 | \$ 2,280.19 | \$ 8,015.32 |
| 20 | \$ 2,400.20 | \$ 8,465.91 |
| Total | \$ 25,202.10 | \$ 83,706.10 |



This is an analysis of cost per visit to the individual service member. Alternative 2 is the 25% co-payment that the service member is required to pay. Under the label "Alternative 3" is the effect on the military member based on the medical allotment (\$547.09) they will receive during that month. What this analysis shows is that Alternative 3 is the most beneficial option for the service member for one visit. This analysis is valid for either this type of illness, or any treatment that has similar cost effects. Because allergies are a very common occurrence and usually don't only occur once a month, Alternative 2 might be the most efficient option.

| Costs Per Visit to the Department of Defense | | | |
|--|---------------|---------------|---------------|
| Number of Visits | Alternative 1 | Alternative 2 | Alternative 3 |
| 1 | \$ 378.30 | \$ 360.03 | \$ 545.89 |
| 2 | \$ 756.60 | \$ 720.06 | \$ 545.89 |
| 3 | \$ 1,134.90 | \$ 1,080.09 | \$ 545.89 |
| 4 | \$ 1,513.20 | \$ 1,440.12 | \$ 545.89 |
| 5 | \$ 1,891.50 | \$ 1,800.15 | \$ 545.89 |
| 6 | \$ 2,269.80 | \$ 2,160.18 | \$ 545.89 |
| 7 | \$ 2,648.10 | \$ 2,520.21 | \$ 545.89 |
| 8 | \$ 3,026.40 | \$ 2,880.24 | \$ 545.89 |
| 9 | \$ 3,404.70 | \$ 3,240.27 | \$ 545.89 |
| 10 | \$ 3,783.00 | \$ 3,600.30 | \$ 545.89 |
| 11 | \$ 4,161.30 | \$ 3,960.33 | \$ 545.89 |
| 12 | \$ 4,539.60 | \$ 4,320.36 | \$ 545.89 |
| 13 | \$ 4,917.90 | \$ 4,680.39 | \$ 545.89 |
| 14 | \$ 5,296.20 | \$ 5,040.42 | \$ 545.89 |
| 15 | \$ 5,674.50 | \$ 5,400.45 | \$ 545.89 |
| 16 | \$ 6,052.80 | \$ 5,760.48 | \$ 545.89 |
| 17 | \$ 6,431.10 | \$ 6,120.51 | \$ 545.89 |
| 18 | \$ 6,809.40 | \$ 6,480.54 | \$ 545.89 |
| 19 | \$ 7,187.70 | \$ 6,840.57 | \$ 545.89 |
| 20 | \$ 7,566.00 | \$ 7,200.60 | \$ 545.89 |
| Total | \$ 79,443.00 | \$ 75,606.30 | \$ 545.89 |



This is an analysis of costs per visit for the Department of Defense. One can see that Alternative 1 (Status Quo) is the loss leader in this scenario. A thorough analysis of Alternatives 2 (co-payment) and 3 (monthly allotment) shows that for one visit the DoD realizes a better cost savings using Alternative 2; however, in the long run Alternative 3 is clearly the best option for the Department of Defense. After 20 visits you can see that the savings is nearly \$79,000 against the Status Quo and over \$75,000 compared to Alternative 2.

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APPENDIX B ALTERNATIVE 3 PAY-CHARTS

| Pay Grade | Dependents | Time in Service (years) | Base Pay | Total Monthly Allotment | Total Affected Salary |
|-----------|------------|-------------------------|-------------|-------------------------|-----------------------|
| E-2 | 0 | 4 | \$ 1,458.90 | \$ 400.00 | \$ 1,858.90 |
| E-4 | 0 | 4 | \$ 1,978.50 | \$ 450.00 | \$ 2,428.50 |
| E-7 | 0 | 10 | \$ 3,152.70 | \$ 475.00 | \$ 3,627.70 |
| O-1 | 0 | 4 | \$ 3,106.50 | \$ 470.00 | \$ 3,576.50 |
| O-3 | 0 | 4 | \$ 4,392.00 | \$ 500.00 | \$ 4,892.00 |
| O-5 | 0 | 12 | \$ 6,110.10 | \$ 550.00 | \$ 6,660.10 |

| Pay Grade | Dependents | Time in Service (years) | Base Pay | Total Monthly Allotment | Total Affected Salary |
|-----------|------------|-------------------------|-------------|-------------------------|-----------------------|
| E-2 | 1 | 4 | \$ 1,458.90 | \$ 545.89 | \$ 2,004.79 |
| E-4 | 1 | 4 | \$ 1,978.50 | \$ 647.85 | \$ 2,626.35 |
| E-7 | 1 | 10 | \$ 3,152.70 | \$ 790.27 | \$ 3,942.97 |
| O-1 | 1 | 4 | \$ 3,106.50 | \$ 780.65 | \$ 3,887.15 |
| O-3 | 1 | 4 | \$ 4,392.00 | \$ 939.20 | \$ 5,331.20 |
| O-5 | 1 | 12 | \$ 6,110.10 | \$ 1,161.01 | \$ 7,271.11 |

| Pay Grade | Dependents | Time in Service (years) | Base Pay | Total Monthly Allotment | Total Affected Salary |
|-----------|------------|-------------------------|-------------|-------------------------|-----------------------|
| E-2 | 2 | 4 | \$ 1,458.90 | \$ 691.78 | \$ 2,150.68 |
| E-4 | 2 | 4 | \$ 1,978.50 | \$ 845.70 | \$ 2,824.20 |
| E-7 | 2 | 10 | \$ 3,152.70 | \$ 1,105.54 | \$ 4,258.24 |
| O-1 | 2 | 4 | \$ 3,106.50 | \$ 1,091.30 | \$ 4,197.80 |
| O-3 | 2 | 4 | \$ 4,392.00 | \$ 1,378.40 | \$ 5,770.40 |
| O-5 | 2 | 12 | \$ 6,110.10 | \$ 1,772.02 | \$ 7,882.12 |

| Pay Grade | Dependents | Time in Service (years) | Base Pay | Total Monthly Allotment | Total Affected Salary |
|-----------|------------|-------------------------|-------------|-------------------------|-----------------------|
| E-2 | 3 | 4 | \$ 1,458.90 | \$ 837.67 | \$ 2,296.57 |
| E-4 | 3 | 4 | \$ 1,978.50 | \$ 1,043.55 | \$ 3,022.05 |
| E-7 | 3 | 10 | \$ 3,152.70 | \$ 1,420.81 | \$ 4,573.51 |
| O-1 | 3 | 4 | \$ 3,106.50 | \$ 1,401.95 | \$ 4,508.45 |
| O-3 | 3 | 4 | \$ 4,392.00 | \$ 1,817.60 | \$ 6,209.60 |
| O-5 | 3 | 12 | \$ 6,110.10 | \$ 2,383.03 | \$ 8,493.13 |

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LIST OF REFERENCES

- Agency for Health care Research and Quality: Medical Expenditure Panel Survey.
March 2007. Accessed in July 2007.
http://www.meps.ahrq.gov/mepsweb/data_files/publications/st166/stat166.pdf.
- Agency for Health care Research and Quality: Medical Expenditure Panel Survey.
January 2006. Accessed in July 2007.
http://www.meps.ahrq.gov/mepsweb/data_files/publications/st111/stat111.pdf.
- Allison Bell. "Health Spending: Study Sees \$4 Trillion Tab For Health Care by 2016."
National Underwriter Life & Health. 26 February 2007. Accessed in May 2007.
<http://web.ebscohost.com.libproxy.nps.edu/ehost/pdf?vid=8&hid=114&sid=12411274-2543-407f-b7b2-51d96faeaaffpercent40sessionmgr106>.
- Bone Health and Osteoporosis: A Surgeon General's Report Myths and Realities of Bone Health. 4 January 07. United States Department of Health and Human Services.
Accessed in August 2007.
<http://www.surgeongeneral.gov/library/bonehealth/factsheet2.html> 26 July 07.
- Clinical Signs and Symptoms of Influenza. Department of Health and Human Services: Center for Disease Control and Prevention. 25 July 05. Accessed in August 2007.
<http://www.cdc.gov/flu/professionals/diagnosis/>.
- Congressional Budget Office Testimony. "Reforming the Military Health Care System."
19 April 1994. Accessed in May 2007.
<http://www.cbo.gov/ftpdocs/48xx/doc4844&type=0>.
- Congressional Budget Office. "Long Term Implications of Current Defense Plans: Summary Update for Fiscal Year 2007." Accessed in May 2007.
<http://www.cbo.gov/ftpdocs/76xx/doc7671/10-18-LongTermDefense.pdf>.
- Congressional Budget Office. "Growth in Medical Spending by the Department of Defense" September 2003. Accessed in May 2007.
<http://www.cbo.gov/ftpdocs/45xx/doc4521/09-09-DODMedicalBrief.pdf>.
- Congressional Budget Office. "Growth in Medical Spending by the Department of Defense." September 2003. Accessed in May 2007.
<http://www.cbo.gov/ftpdocs/45xx/doc4521/09-09-DODMedicalBrief.pdf>.
- Drugstore.Com. The Uncommon Drugstore. Accessed in July 2007.
<http://www.drugstore.com>.

“Evaluation of the TRICARE Program: FY 2006 Report to Congress.” 13 March 2006.
Accessed in May 2007.
http://www.TRICARE.mil/planning/congress/downloads/FY2006_5.01.06.pdf.

Fighting seasonal allergies. Word on Health. June 2002. National Institute on Health.
Accessed in July 2007.
<http://www.nih.gov/news/WordonHealth/jun2002/seasonalallergies.htm>.

Introduction to Defense Acquisition Management. 6th Edition. Defense Acquisition
University Press, Fort Belvoir, VA. 2003.

Jeff Tieman. “Marching orders.” Modern Health care 33.20 (19 May 2003): 52.
Business Source Complete. EBSCO. [Knox Library, Naval Postgraduate School].
Accessed in May 2007.
<http://libproxy.nps.edu/login?url=http://search.ebscohost.com/login.aspx?direct=true&db=bth&AN=9864804&site=ehost-live&scope=site>.

Joel Cohen & Mike Hagan. “Health Care Costs.” Agency for Health care Research and Quality.
September 2002. U.S. Department of Health and Human Services.
Accessed in May 2007. www.ahrq.gov.

Joseph P. Newhouse. Free for all? Lessons from the RAND Health Insurance Experiment.
Harvard University Press: Cambridge, Massachusetts. 1993.

Karen Davis, Michelle Doty, & Alice Ho. “How High is too High? Implications of High
Deductible Health Plans.” The Commonwealth Fund. 20 April 2005. Accessed in
September 2007.
http://www.commonwealthfund.org/publications/publications_show.htm?doc_id=274007

Laura M. Colarusso & Bryan Bender. “Pentagon Fears Health care Costs Will Erode
Readiness: Aging Population is Driving up Fees.” The Boston Globe. 05 March
2007. Accessed in March 2007.
http://www.boston.com/news/nation/articles/2007/03/05/pentagon_fears_health_care_costs_will_erode_readiness.

Medicine Net. Accessed in May 2007.
<http://www.medterms.com/script/main/art.asp?articlekey=4700>.

Nav Ranajee. “Consumer Directed Health care: An Effective Cure for Rising Costs.”
Treasury & Risk 16 (Dec 2006/Jan 2007): 64. Business Source Complete.
EBSCOhost. Naval Postgraduate School, CA. Accessed in September 2007.
<http://libproxy.nps.edu/login?url=http://search.ebscohost.com/login.aspx?direct=true&db=bth&AN=25776857&site=ehost-live&scope=site>.

- NHE Summary including share of GDP, CY 1960 – 2005. Centers for Medicare and Medicaid Services. U.S. Department of Health and Human Services. Accessed in May 2007.
http://www.cms.hhs.gov/NationalHealthExpendData/02_NationalHealthAccountsHistorical.asp#TopOfPage.
- Office of Management and Budget. “Analytical Perspectives, FY 2008.” p. 272. Accessed in February 2007.
<http://www.whitehouse.gov/omb/budget/fy2008/pdf/apers/receipts.pdf>.
- Paul D Eaton. “Casualties of the Budget Wars; [Op-Ed].” The New York Times 06 March 2007. Late Edition (East Coast): A21.
- State Sales Tax Rates: January 1, 2007. Accessed in July 2007.
<http://www.taxadmin.org/FTA/rate/sales.html>
- Susan D Hosek, Sergej Mahanovski, Ben A. Vollaard, & Jeanne R. Ringel. The Elasticity of Demand for Health Care: a Review of the Literature and Its Application to the Military Health System. RAND Corp., 2002. Accessed in April 2007.
http://www.rand.org/pubs/monograph_reports/MR1355.
- The Defense Acquisition University. Accessed in June 2007.
<https://akss.dau.mil/dag/DoD5002/Figure1.asp>.
- “TRICARE: Costs.” TRICARE Website. Accessed in July 2007.
<http://www.tricare.mil/tricarecost.cfm>.
- “TRICARE Outpatient Prospective Payment Fact Sheet.” Health Net Federal Services Website. Accessed in September 2007.
<https://www.hnfs.net/NR/rdonlyres/BC928C5E-F0CC-4B39-B9EF-0EBB9C6EF5B0/0/OPPSFactSheetapprovedbyTMA090506.pdf>.
- “TRICARE: The Basics.” TRICARE Website. 11 June 2003. Accessed in April 2007
<http://www.tricare.mil/Factsheets/viewfactsheet.cfm?id=127>.
- United States General Accounting Office. “Defense Health Care: Opportunities to Reduce TRICARE Claims Processing and Other Costs.” GAO Reports. 22 June 2000. Ebscohost. Dudley Knox Library, Naval Postgraduate School, Monterey, CA. Accessed in May 2007.
<http://libproxy.nps.edu/login?url=http://search.ebscohost.com/login.aspx?direct=true&db=bth&AN=18208545&site=ehost-live&scope=site>.
- U.S. Department of Health and Human Services. September 2005. Accessed in July 2007.
<http://www.hhs.gov/flu/sick.pdf>.

“US DOD: Tricare transition complete.” M2 Presswire. Coventry: 03 Nov 2004. p.1.
Accessed in May 2007.
<http://libproxy.nps.edu/login?url=http://proquest.umi.com/pqdweb?did=728674051&sid=2&Fmt=3&clientld=11969&RQT=309&VName=PQD>.

“Visits to U.S. Emergency Departments at All Time High; Number of Departments Shrinking.” Center for Disease Control Website. 26 May 2005. Accessed in September 2007. <http://www.cdc.gov/od/oc/media/pressrel/r050526.htm>.

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