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# Placing a Value on the Health Care Benefit for Active-Duty Personnel

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James Hosek, Michael Mattock, Michael Schoenbaum,  
Elizabeth Eiseman

Prepared for the Office of the Secretary of Defense

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## Preface

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The availability of health care for active-duty military personnel and their families is a fundamental component of the services' commitment to support their personnel. However, military health care benefits are not routinely counted as an element of military compensation in reports given to individual members, nor in comparisons of military versus civilian compensation. This may be because military health care benefits are provided in such a way that it is difficult to account for the value accruing to individuals. For many military families, health care is received in-kind, that is, the family pays no health insurance premium and pays nothing for the care and prescriptions received at military treatment facilities. However, unlike some other benefits that are received in-kind, such as housing, there is no corresponding allowance for members who "opt out" of the system; indeed, individual military members are not allowed to opt out of the military health care system. In addition, members are selected to enter the military based on their health, and, as it is for other young adults, the demand for health care is considerably less than it is for the elderly. Thus, younger members may not fully appreciate the value of their health care coverage. Despite these factors, we argue that the military health care system represents a substantial benefit to military members and families, largely freeing them from concern about receiving health care when the need arises.

The purpose of this research is to consider how a reasonable monetary value might be attached to the military health care benefit from the perspective of the active-duty service member and his or her

family. Including the value of the health care benefit as an element of military compensation would make military/civilian pay and benefit comparisons more comprehensive and accurate. The monetary value we compute might then be included in documentation on military compensation, thereby bringing greater visibility to the value of the health care benefits to members.

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## Summary

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The availability of health care for active-duty military personnel and their families is a fundamental component of the services' commitment to support their personnel. It represents a substantial benefit to military members and families, largely freeing them from concern about receiving health care when the need arises. However, despite this clear value, military health care benefits are not routinely counted as an element of military compensation, either in documentation that is provided to individual members or in analyses comparing civilian and military compensation. The end result is that military members may be unaware of the full value of the health care benefits they receive.

Given the extent of the awareness problem among military members, there is a genuine need for the military to find a way to represent the value of health care benefits to military members. This research considers how a reasonable monetary value might be attached to the military health care benefit from the perspective of the individual service member and his or her family. More specifically, it seeks to place a value on the military health care benefit by asking how much similar coverage would cost if it were obtained via civilian employment.

## Project Methodology

Our approach is to estimate the expected out-of-pocket cost for health care under TRICARE—the Department of Defense’s regionally managed health care program for the more than six million active-duty and retired members of the uniformed services, their families, and survivors. TRICARE is administered by private contractors who are selected for participation through a competitive procurement process. TRICARE includes three plans: TRICARE Prime (which provides health care to active-duty personnel and their dependents in military treatment facilities (MTFs) and prescription benefits at MTF pharmacies or, alternatively, at network pharmacies), TRICARE Extra (which provides all care to dependents at in-network providers and all prescriptions at network pharmacies for a small co-payment), and TRICARE Standard (which provides care to dependents at out-of-network providers and all prescriptions at network pharmacies).<sup>1</sup> We then compared such costs with those for health maintenance organization (HMO), preferred provider organization (PPO), and point-of-service (POS) plans that are typical for large (Fortune 500) companies in the private sector.<sup>2</sup>

RAND obtained data on health care claims from Ingenix, a private health information company—specifically from Ingenix’s large (Fortune 500) clients, which give Ingenix access to eligibility data and to the detailed medical, mental health, and pharmacy claims from their sponsored health plans. The dataset used here is for health care use in calendar year 2000 and thus reflects current medical practice. We restricted the Ingenix sample to employees age 18–44 (because active-duty military members—the focus of our analysis—are principally in this age range) and to dependents under age 65, because the

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<sup>1</sup> TRICARE Prime automatically covers all active-duty personnel and is also available to their dependents. TRICARE Extra and TRICARE Standard are alternatives available to dependents only.

<sup>2</sup> “Private-sector” plans include those that serve civilian employees working in government and not-for-profit organizations as well as employees of private businesses.

reference database is less accurate for people after they become eligible for Medicare.

In using the data, we make a number of important assumptions in our analyses: (1) patterns of health care use are held constant across the specific plans examined; (2) chiropractic, dental, and vision care are excluded; (3) the sum of actual patient and plan payments observed in the Ingenix data is used as a proxy for usual and customary charges; (4) all drugs in the Ingenix data are assumed to be obtainable at MTF pharmacies; and (5) the patterns of health care observed in the Ingenix data are assumed to be applicable to military members and their families.

## **Findings by Health Plan and Household Type**

Based on our analysis, we identify a number of components of the value of the military health care benefit.

### **Members' Share of Premiums**

The three TRICARE plans—Prime, Extra, and Standard—do not charge members a premium, whereas the health plan members' share of the premium for the three private-sector plans we study ranges from \$1,600 to \$2,800 per year (calendar year 2003 dollars) for a family with two or more dependents. This is the first component of value from the military health care benefit: A family can expect to pay a premium in the range of \$1,600 to \$2,800 in the private sector, while paying no premium in the military.

### **Distribution of Total and Out-of-Pocket Costs for Health Care**

When we examine the distribution of total and out-of-pocket costs for health care, we find another component of value from the military health care benefit: For a given pattern of health care use, people can expect to pay higher out-of-pocket costs in the private sector than in the military. For about 80 percent of men in this group, this differential is fairly small, because expected yearly out-of-pocket costs are under \$250 even in the private-sector plans. Results for women are



similar, but everything is shifted up a bit because women use more care; similarly, distributions for older men and women (age 35–44) are shifted a bit higher than the corresponding gender group.

When we examine how effective private-sector versus military health insurance is at protecting the family against low-probability, high-cost events, it is evident that families in TRICARE Prime who have all prescriptions filled at MTFs are completely protected against such events: Their out-of-pocket costs are zero. Prime families who fill their prescriptions elsewhere have relatively higher out-of-pocket costs, but those costs are only \$66 a year at the median and \$203 a year at the 90th percentile. Families on TRICARE Extra and Standard have still higher out-of-pocket costs that are comparable to those of the HMO plan. Yearly, median out-of-pocket costs are \$493 for Extra and \$665 for Standard, and yearly 80th percentile out-of-pocket costs for each are \$855 and \$1,280, respectively. Yearly, median and 80th percentile out-of-pocket costs of the HMO plan are \$294 and \$569, respectively. Out-of-pocket costs for POS and PPO plans are generally higher and, in the upper percentiles of out-of-pocket costs, are between several hundred and several thousand dollars higher each year.

### **Total Out-of-Pocket Costs, Including Premiums**

When we combine information on out-of-pocket costs for health care with the health plan member's share of the health insurance premium, we find yet another component of value: Since TRICARE Prime has no premium, single military members would have to pay about \$1,000 a year at the median to attain comparable private-sector coverage; young military families would have to pay about \$3,000 to \$3,500 per year at the median for private-sector plans, while TRICARE Extra and Standard cost them under \$700 and TRICARE Prime costs them nothing.

The estimates of the benefits presented here are also likely to be conservative, since they compare military benefits with those offered by large private-sector employers. The best possible civilian alternative for some military members may be with small employers with lesser health care benefits or in jobs with no health care benefits.

## **Effects on Military Compensation**

What do these premium and out-of-pocket cost numbers mean in the context of military compensation and family income? We use regular military compensation (RMC) as a measure of military compensation. RMC consists of basic pay, basic allowance for subsistence, basic allowance for housing, and the tax advantage derived from the non-taxability of the allowances and accounts for over 90 percent of a member's cash compensation. For single members, the health care benefit discussed above would add about \$20 (after tax) to weekly pay, and for members with dependents, it would add about \$40–\$50 (after tax) per week; as a result, it would move military compensation up a few percentiles in the civilian wage distribution.

## **Effectively Communicating the Value of the Military Health Care Benefit**

Given the military health care benefit, how can its value be best communicated to military members? One way is to provide them with information about the premium for reasonably generous private-sector plans, including expected out-of-pocket costs. With data available on a timely basis, the information can be updated each year.

There are two approaches to communicating such information. The first is to rely on an external source to verify the benefits periodically (e.g., annually), for example, by using a press release, by sponsoring reports that become the source of media stories, and by providing descriptive inserts with military paychecks. A second, complementary, approach would be to provide explicit information about the (expected) dollar value of health insurance premiums and out-of-pocket costs for health care under military plans and under representative private-sector plans. Interactive, computer-based tools are one way to do this.



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## Abbreviations

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DMDC	Defense Manpower Data Center
HMO	Health maintenance organization
MEPS	Medical Expenditure Panel Survey
MTF	Military Treatment Facility
MTF Rx	TRICARE Prime with MTF pharmacy benefits
Network Rx	TRICARE Prime with network pharmacy benefits
POS	Point-of-service
PPO	Preferred provider organization
RMC	Regular military compensation
TMAC	TRICARE maximum allowable charge



# Introduction

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## Background

The availability of health care for active-duty military personnel and their families is a fundamental component of the services' commitment to support their personnel. It represents a substantial benefit to military members and families, largely freeing them from concern about receiving health care when the need arises. However, despite this clear value, military health care benefits are not routinely counted as an element of military compensation, either in documentation that is provided to individual members or in analyses comparing civilian and military benefits. The end result is that military members may be unaware of the full value of the health care benefit they receive.

It should be noted that this awareness problem is not strictly limited to the military: Many civilian employers believe that employees underestimate the value of employer-sponsored health insurance. However, even though civilian employees may underestimate the value of their employer-sponsored health insurance, they are likely to be keenly aware of the amount of money deducted from their paychecks to fund the employees' share of the insurance premium, and of their out-of-pocket costs for health care. This is not the case for military members. Members pay no health insurance premiums, few co-payments, and nothing for the care and prescriptions received at military treatment facilities (MTFs). Thus, military members may be less aware than their civilian counterparts of the value of health care benefits.



Both military members and civilian employees may also be less than fully aware of the value of their compensation because compensation is generally not take-home pay alone; instead, it comes in many pieces: pay, retirement benefits, health care benefits, and so on. However, once again, the awareness problem is further exacerbated for members of the military because of the plethora of pieces that compose their full compensation. In addition to basic pay, military members may receive allowances and accompanying tax advantages (owing to allowances being exempt from federal and state income taxes), special and incentive pays, retirement benefits, Social Security and Medicare contributions, and health care benefits.

There are additional reasons why military members may have more difficulty becoming aware of the full value of their compensation. Some special pays such as Family Separation Allowance and deployment-related pays “turn on” only when the member is away, and other pays such as bonuses may be hard to track because they are paid once a year. Social Security and Medicare taxes are paid wholly by the military; in contrast, civilian employees pay their contributions to Social Security and Medicare via deductions from their paychecks. In addition, while military and, in many cases, civilian compensation includes retirement provisions, military members may be hard pressed to place a value on their retirement benefits—which include comprehensive health insurance—because the benefit will be zero unless the member serves for 20 or more years.

Contributing to the awareness problem is the fact that some parts of military compensation are essentially in-kind, such as military housing. Military health care benefits can also be thought of as in-kind, at least after a fashion. However, unlike housing, there is no corresponding allowance for members who “opt out” of the system; indeed, individual military members are not allowed to opt out.

Also, as with most insurance, in a given year most beneficiaries do not experience the kind of major health needs for which health insurance is particularly critical. This is especially true for military members and their families. Military members are selected based on their health; individuals with poor health are excluded from the military. As a result, the military is primarily composed of young adults,

and, as it is for other young adults and their families, the demand for health care is considerably less than it is for the elderly, again leading many members to not fully appreciate the value of their health care coverage.

Given the extent of the awareness problem among military members, there is a real need for the military to find a way to demonstrate the value of health care benefits to military members. This value might then be included in documentation about military compensation, thereby making the health care benefit more visible to members. Recognizing the health care benefit as an element of military compensation would also make military/civilian pay and benefits comparisons more comprehensive and accurate, which has significant implications for recruiting and retaining personnel.

## Objective

This research considers how a reasonable monetary value might be attached to the military health care benefit from the perspective of the individual service member and his or her family. More specifically, it seeks to place a value on the military health care benefit by asking how much similar coverage would cost if it were obtained via civilian employment. This is different than trying to assign a true value of health care to each family, since the value will depend on the family's preferences and unique conditions (e.g., a child with a rare disease). But cost is not a poor indicator. If we look at health insurance demand in the private sector,<sup>1</sup> we would expect to see that on the margin the cost of health care benefits is equal to the value of the health care benefits. Our approach is to estimate the expected out-of-pocket cost for health care under TRICARE<sup>2</sup> plans compared with health

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<sup>1</sup> "Private-sector" plans include those that serve civilian employees working in government and not-for-profit organizations as well as employees of private businesses.

<sup>2</sup> TRICARE is the Department of Defense's regionally managed health care program for the more than six million active-duty and retired members of the uniformed services, their fami-

maintenance organization (HMO), preferred provider organization (PPO), and point-of-service (POS) plans that are typical for large (Fortune 500) companies in the private sector.<sup>3</sup> Out-of-pocket costs are those costs paid directly by the individual or his or her family—e.g., the employee’s contribution to health insurance premiums, deductibles, co-payments, coinsurance, and other cost-sharing for health care services and products (including prescription drugs).

There are several reasons why it is worthwhile to bring the value of the military health care benefit to the member’s attention. One reason is that members have a “baseline” demand for health care, not just a demand deriving from their military activities. There is no question that intense physical activity, strict training regimens, and risks from dangerous missions in inhospitable locations generate a need for high-quality, rapidly available health care for service members. (For example, the rigors of military training and exercises may create a greater demand for osteopathic care among military members, as compared with individuals in civilian occupations.) But much of a member’s time is spent at home station, and “routine” health conditions would arise even if there were no military activities (e.g., the flu, a broken arm, a rash, heart disease, cancer, and mental illness).

Another reason is that many members have families, and the presence of a spouse and children creates a demand for family health care. The military responds to this demand with care provided through TRICARE. Although TRICARE is not part of military cash compensation, members benefit from the health care services provided through TRICARE. The average number of years in the military has increased since the 1980s, and it is likely that this has led to an increase in the number of years of service during which a member is married. In that case, the role of the family health care benefit has increased as the experience level of the personnel force has increased.

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lies, and survivors. TRICARE is administered by private contractors who are selected for participation through a competitive procurement process.

<sup>3</sup> We will discuss the implications of looking solely at large employers for our analysis later in this document.

One further reason to recognize the value of the health care benefit is its relationship to retention. Members (and their families) may largely take military health care benefits for granted, but if health care benefits for dependents were eliminated, it is likely that members would protest the change and retention would drop. By the same reasoning, if members undervalue the military health care benefit, then increasing their awareness could have a positive effect on retention as members compare military and civilian compensation.

We recognize that other approaches could be taken to attach a value to military health care benefits, but we think the approach we have chosen is appropriate for our purpose. One alternative approach is to ask how much a military member would pay for the health care coverage received through the military. It is possible that some members receive more coverage than they would prefer to have if they had a choice between cash and coverage, but our intent is not to consider the member's willingness to trade off health care coverage for cash compensation. Another alternative approach is to ask how much military health care coverage would cost if the member bought it through the individual insurance market. Typically, large organizations negotiate for insurance rates that are lower than those obtainable by individuals. However, if health coverage were more expensive, the individual might opt for lesser coverage (e.g., a narrower range of health care covered in the plan, or for higher deductibles, higher co-payments, and so forth). While this comparison might be of interest to individuals who could not obtain coverage through a company, we think it is reasonable to assume that most military members, if they were to become civilians, could expect to be working at companies that offered a health care benefit. Still, it is possible the company might offer a menu of plans, and the member could choose lesser (or greater) coverage than offered by the military. Our approach addresses this not by examining an individual's choice of health plans, but by computing the costs under three different, common health plan types: an HMO, a PPO, and a POS, so that comparisons across plan types may be made. This seems appropriate from the perspective of the military member who presumably would be interested in seeing the cost of different plan types. The plans differ in their premi-

ums and co-payments, as discussed below. Overall, we think the expected out-of-pocket costs for health plans at large firms provide a reasonable benchmark for military members to assess what the cost of health care benefits similar to those in the military would be in the civilian world. In interpreting these costs, members can then make their own adjustments, up or down, in what the cost would be for the plan type and benefit scope they would choose given their own preferences and health conditions.

## **Organization of This Document**

In the next chapter, we discuss in more detail the project methodology, including the research approach, the data used, and the underlying assumptions. Chapter Three presents findings by health plan and household type, while Chapter Four provides findings about the effect of the health care benefit on military compensation. Chapter Five describes some ideas about how to include a measure of the military health care benefit into measures of military compensation, as well as some ideas on ways to present that information to military members and their families. The final chapter provides some concluding thoughts.

## Project Methodology

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There are a number of possible ways to achieve our overall goal of valuing the military health care benefit in monetary terms, from the perspective of military members and their families. We choose one specific measure of value in this study: the differential in expected total annual *out-of-pocket* costs for health care between the respective military health plans and analogous health plans sponsored by large private-sector employers. In practice, this differential is consistently negative—i.e., expected out-of-pocket costs are lower under military health plans than under private-sector plans. Under a number of assumptions, which we describe below, the size of this differential represents a standardized estimate of the added “value” of members’ eligibility for military health care benefits.

In this chapter, we discuss the project methodology, starting with a brief overview of the research approach. We then discuss the methods used, data, and underlying assumptions.

### Research Approach

To begin, it is of utmost importance to clarify our particular use of the term “value.” In the context of this monograph, value is inferred from comparisons of the service member’s expected annual out-of-pocket costs for health care under one of the TRICARE options with such costs under a private-sector option—i.e., an HMO, PPO, or POS plan. This comparison is based on an assumption that the cost

of health insurance under a private-sector option would involve cost sharing between the employer and the employee, with the employer covering some fraction of the cost of insurance premiums (perhaps three-fourths of the cost in practice) and the employee covering the remaining share. The cost sharing between employer and employee is assumed to be given; the employee cannot bargain with the employer to change the sharing, and the employee cannot persuade the employer to “monetize” its share into a higher cash wage if the employee opts not to participate in an insurance plan offered by the employer. Further, our use of the term “value” does not refer to the economic concept of consumer surplus—i.e., the value to the consumer of a good or service over and above the amount the consumer has to pay for it. We do not estimate the demand for health care or the demand for health insurance, and so we do not have a basis for inferring consumer surplus. For all but the marginal consumer, consumer surplus will be positive: Health insurance will be worth more (in expectation) than the consumer has to pay for it. This is true assuming the consumer is free to choose whether or not to obtain health insurance, but it is not necessarily true if the consumer’s enrollment in a health insurance plan is mandatory. Finally, one might argue that a more complete measure of value would include both the individual’s expected out-of-pocket cost and the employer’s share of the premium. Although there is merit in recognizing the full cost of the health care benefit, we do not pursue that approach because our perspective is that the individual must consider how much health care costs under TRICARE versus how much it would cost under an HMO, PPO, or POS plan, given the employer’s cost share.

We want to obtain standardized estimates of the individual’s or family’s annual out-of-pocket costs for health care under specific health insurance plans, including the member’s share of the annual premium of that plan. This approach has the advantage of comparing the costs for a given set of health conditions; patterns of illness and health care use are held constant across the plans. As a result, differences in out-of-pocket costs across plans can arise only from differences in the coverage and cost structure of the plans, not because of

differences in the prevalence or type of health conditions or differences in health care use.<sup>1</sup>

We estimate expected out-of-pocket costs for the basic military plan, TRICARE Prime, in which enrollment is required for active-duty personnel and available for their dependents, and for the alternative plans, TRICARE Extra and TRICARE Standard, which are available for active-duty dependents. TRICARE Prime is analogous to a private-sector HMO, while TRICARE Extra and Standard mirror in-network and out-of-network options in a private-sector PPO plan. Under TRICARE Prime, beneficiaries receive care at an MTF or, with appropriate referrals, from civilian providers who participate in TRICARE Prime. Under TRICARE Extra, beneficiaries receive care from a network of civilian providers and pay a percentage of the network-negotiated rate per visit. When using TRICARE Standard, beneficiaries receive care from nonnetwork civilian providers and pay higher coinsurance than under TRICARE Extra; if the nonnetwork provider bills more than the TRICARE maximum allowable charge (TMAC), the family is also responsible for the excess charges (up to 15 percent of TMAC). Families may switch between in-network (TRICARE Extra) providers and out-of-network (TRICARE Standard) providers at any time. In all three plans, beneficiaries can obtain prescription drugs for free at MTF pharmacies, or they can pay a small co-payment to obtain them at a network pharmacy or through mail order.

We estimate expected out-of-pocket costs under four TRICARE scenarios: (1) TRICARE Prime with MTF pharmacy benefits (“MTF Rx”), in which all beneficiaries in a household receive all prescription drugs at an MTF and pay no out-of-pocket costs; (2) TRICARE Prime with network pharmacy benefits (“Network Rx”), in which beneficiaries in a household fill all prescriptions at network pharmacies and incur only pharmacy out-of-pocket costs; (3) TRICARE Ex-

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<sup>1</sup> As we describe further below, all the plans we use are comprehensive employer-sponsored health insurance (as opposed to more limited major medical/catastrophic plans, for instance), but they do not have identical benefit structures (e.g., with respect to annual limits for physical therapy or mental health).



tra, in which dependents receive all care from in-network providers and all prescriptions at network pharmacies for a small co-payment (in this scenario, we apply the TRICARE Prime MTF Rx case to the member); and (4) TRICARE Standard, in which dependents receive all care from out-of-network providers and all prescriptions at network pharmacies (again, with Prime MTF Rx for the member). Because dependents not enrolled in TRICARE Prime can get care through both TRICARE Extra and Standard, the estimates in these two scenarios are the high and low extremes of the costs that a family not in TRICARE Prime might incur. In practice, beneficiaries using TRICARE Extra/Standard might also lower their out-of-pocket costs by filling some or all prescriptions at an MTF.

We also estimate expected out-of-pocket costs for three private-sector plans: an HMO, a PPO, and a POS. The cost estimates depend on the gender and marital status of the military member, the age of the member (in ranges), and the number of children.

## Data

RAND used data on health care claims from Ingenix, a private health information company. Data come from Ingenix's large (Fortune 500) clients, which give Ingenix access to eligibility data and to the detailed medical, mental health, and pharmacy claims from their sponsored health plans; Ingenix, in turn, de-identifies, cleans, and analyzes the data from individual clients, and from their overall client population, and provides reports and other health information tools to its clients. The dataset used here is for health care use in calendar year 2000 and thus reflects current medical practice. The claims come from many different employers, insurance carriers, and health plans, and they include beneficiaries in most U.S. states, although the data are not statistically representative of any particular geographic area.

We restricted the Ingenix sample to employees age 18–44, because active-duty military members are principally in this age range; and to dependents under age 65, because the reference database is less accurate for people after they become eligible for Medicare (in any

case, this restriction affects very few households in our analytic file). After these restrictions, the analytic sample amounts to approximately 1.6 million covered lives per year. We further restrict the data to employees (and their dependents) who were continuously enrolled in a health plan for 12 months (except for newborns, who are included from birth). We exclude households in health insurance plans using encounter data, because Ingenix advised us that their database might not capture all the health care services provided to people in such plans.<sup>2</sup>

Finally, we exclude vision, dental, and chiropractic care from our scope of analysis, although these are included in military health care benefits. Employer-sponsored insurance benefits for such care vary considerably; also, these benefits are often administered separately from employer-sponsored health insurance, and their data are not always available to Ingenix. As a result, we did not think that simulations that included these types of care would be valid or robust. To the extent that military benefits for these types of care are more generous than in the private sector—which we think is typically the case—our simulations will understate the value of the military health care benefit relative to the civilian alternatives.<sup>3</sup>

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<sup>2</sup> Encounter data are data on the care given by a health provider to a patient during a clinical encounter. Encounter data are typically gathered for health plans that do not require submission of claims data (e.g., capitated plans). These plans may choose not to require reports on all services provided by the health provider; thus, encounter data may not include all drugs or care associated with a patient. In addition, encounter data gathered for capitated plans will not, in general, specify a billed charge associated with a particular service. In practice, relatively few plans in the database used encounter data systems.

<sup>3</sup> It is relevant to add that military families do not perceive their health care benefits to be inferior to those they would obtain as civilians. This suggests that they do not perceive military benefits to be worse, on net, when considering factors such as quality of care, accessibility, and cost. More specifically, the *1999 Survey of Active Duty Personnel* asked military members, “How do your opportunities in the military compare to opportunities you would have in the civilian world?” The distribution of responses indicates satisfaction with military benefits; among those responding to the question, the responses were much better in the military, 17.1 percent; somewhat better in the military, 24.1 percent; no difference, 19.5 percent; somewhat better as a civilian, 24.0 percent; don’t know, 15.2 percent (DMDC, 2000, p. G-234).

The data contain the type of service (i.e., Current Procedural Terminology codes) and the clinical diagnosis (i.e., International Classification of Diseases codes). The data also contain the place of service, type of provider, billed charge, actual payment to the provider by the patient, and the actual payment to the provider by the health plan. We used this information to “process” each claim according to the rules for reimbursement of the specific health plans examined here. We note that the claims data do not specify the actual economic cost of production for each unit of care (indeed, such data are rarely available, from any source); instead, we use the sum of actual patient and provider payments observed in the data as a proxy for cost.

## Methods

The way we assess value in this project is by comparing the expected out-of-pocket cost of the military’s health insurance benefits to the service member with that of employer-sponsored health insurance available in the private sector.

We started with the detailed plan designs of TRICARE Prime and TRICARE Standard and Extra, and of representative private-sector employer-sponsored health plans. We work with three private-sector plans: an HMO, a PPO, and a POS; these are based on actual plans offered by large (Fortune 500) employers in 2003.

As we have described, our goal is to estimate expected total annual out-of-pocket costs for health care. Since future health care use and thus health care cost are uncertain for any individual or household, as well as highly variable across individuals and households, we sought an actuarial basis for defining expectations.

For each individual and household in the reference database, we then calculate the out-of-pocket costs for health care that the individuals/households in our reference population would have faced, if they had received their health care under each of the health plans we examine in this study. Specifically, we take the actual observed health care use for each member of the reference population, and we “proc-

ess” each service according to the detailed rules for assessing out-of-pocket costs in each specific health plan. We do these calculations for different types of households: for single people and different types of families, for male and female employees, and for different ages of the employee.

We account for employees’ contributions to health insurance premiums. In particular, private-sector employers typically account for health insurance premiums in two parts, one part that is contributed by employers and another that is contributed by employees. In economic terms, both parts are actually paid by employees: the latter explicitly, typically via payroll deductions, and the latter implicitly, via reduced wages. Standard comparisons of military and civilian salaries already reflect the impact of employers’ contributions to health insurance premiums, so we do not consider those explicitly here. However, such comparisons ignore both employees’ share of health insurance premiums, and differences in the scope and generosity of health insurance benefits.

Finally, as a caution to interpreting the results we obtain, cost comparisons should control for quality of health care. We have no measure of quality in our data, however, and although we have no basis for thinking quality is appreciably better or worse in the military than in the private-sector plans, our estimates could be affected by quality differences—so the reader should interpret our figures as approximate comparisons of cost differences.

## **Assumptions**

We make a number of important assumptions in our analyses. In this section, we describe these assumptions, as well as potential implications of changing particular assumptions.

### **Elasticity of Demand of Health Care**

We hold patterns of health care use constant, across the specific plans we examine here. The chief reasons for this are that all the health plans we use in this study offer comprehensive medical, mental

health, and pharmacy benefits, with minimal differences in the scope of covered services, and that price elasticities of demand for health care are generally small, at least for people with comprehensive insurance benefits. Another reason is ease of computation. To the extent that health care use is affected by health plans' coverage and cost structure, our analytic approach will not capture these differences. But we expect such differences to be minor. The price and income elasticities of demand for health care are small, particularly in populations with comprehensive health insurance (Ringel et al., 2002). Therefore, if a plan is less costly and leaves the family with higher income, the higher income should have a negligible effect on the demand for additional health care or health insurance.<sup>4</sup>

Also, to the extent that TRICARE has higher benefit limits than the private-sector plans under which our reference population incurred their health care use—and if people commonly reach the private-sector plan benefit limits—then the patterns of health care use on which we base our calculations will be biased down, and our estimates of the relative value of TRICARE benefits will be correspondingly conservative. TRICARE plans do have higher benefit limits than typical private-sector plans, particularly for mental health and substance abuse treatment. Empirically, however, such benefit limits are only binding for a very small fraction of privately insured beneficiaries, so the overall impact of such differences on our results is likely to be small (Sturm, 1997; Sturm, Zhang, and Schoenbaum, 1999).

There are several possible options for addressing these limitations empirically, each of which would require new analyses. One is to base the calculations on patterns of health care use that were incurred under particularly generous health care benefits (e.g., data on TRICARE beneficiaries). Because TRICARE benefits are generous

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<sup>4</sup> The literature has generally found small demand elasticities for medical care. While this is true, the demand elasticities for prescription drug expenses are higher. Since prescription drugs are free at MTF pharmacies and almost always require some co-payment in private-sector health plans, one may expect some demand response in this sector. This response would lead to a lower use of prescription drugs in the civilian health care plans versus TRICARE and, hence, to an underestimate of the value of the military health care benefit. Thus, our estimate of the value of the military health care plans would be conservative.

relative to private-sector plans, the absolute difference in out-of-pocket costs between military and private-sector plans is higher for higher levels of health care use. (We note that the increases need not always be proportional, since many private-sector plans have stop-loss provisions.)

We emphasize that there are conceptual reasons to choose private-sector patterns of health care use as the basis for analysis. Our main goal here is to estimate the value of military health care benefits, relative to their *private-sector alternatives*, with the goal of informing active-duty personnel and potential recruits. For this purpose, we think that the appropriate counterfactual comparison is to use private-sector patterns of care, because those are the patterns that would be germane if members or recruits were not in the military. For instance, military members may use more health care than civilians because of the risks of active duty or because formal medical evaluation is a requirement of being excused from duty; neither applies to the same degree in the private sector.

In contrast, if the goal were to estimate the value of the various military health plans, relative to *each other*, then military patterns of care would certainly be the appropriate standard. Such comparisons could be used to help military families choose coverage during the annual open enrollment period.

A second option to overcome the limitations would be to attempt to adjust the private-sector claims data, specifically by inflating the use of services for which TRICARE benefits are substantially more generous than under typical private-sector plans. However, because we are working with detailed, claims-level data, such an approach would require very detailed information on differential rates of use for many specific procedures or at least categories of care, making this option relatively impractical.

### **Data on Health Care Costs**

Cost-sharing requirements for private-sector health care plans are often specified in terms of “usual and customary charges”—i.e., the charge for health care that is consistent with the prevailing fee for a given service in a particular geographical area; this is particularly rele-

vant for out-of-network care in PPO or POS plans, which often make beneficiaries responsible for 100 percent of the excess between “usual and customary” and billed charges. In practice, data on usual and customary charges were not available to us (indeed, they are highly proprietary). We therefore used the sum of actual patient and plan payments observed in the Ingenix data as a proxy for usual and customary charges. This assumption seems innocuous for the present analysis, since our data covers large employer-sponsored plans and since the payments made by such plans are likely to determine usual and customary charges.

Similarly, it was infeasible for us to work with TMAC data in assessing out-of-pocket costs in TRICARE Standard or Extra; here, too, we used the sum of actual patient and plan payments observed in the Ingenix data as a proxy. In TRICARE, if a nonnetwork provider bills more than TMAC, the patient’s responsibility for excess charges cannot exceed 15 percent of TMAC, and we applied this rule in our calculations (using billed charges and our proxy for TMAC).

In the event that TMAC is typically lower than the corresponding rate in the private sector, our calculations may underestimate the relative value of the military health care benefit. (However, we have no empirical basis for comparing TMAC and usual and customary charges in the private sector.)<sup>5</sup>

### **Availability of Prescription Drugs**

We assume that all drugs in the Ingenix data are obtainable at MTF pharmacies. To the extent that this assumption is false—as it certainly is, in general—we are likely to overvalue the TRICARE Prime MTF Rx benefit relative to all the other alternatives.<sup>6</sup>

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<sup>5</sup> TMAC used to be set based on an annual national survey of health care costs and is adjusted for regional variance. This is usually no longer the case. TMAC rates are now directly tied to rates determined by Medicare, except in the small number of cases where Medicare does not pay for those services or the services are significantly different from a Medicare population. Given the restrictions on Medicare rates, the TMAC rate is lower than most private-sector plan rates.

<sup>6</sup> The current TRICARE pharmacy benefit “includes all Food and Drug Administration approved pharmaceutical agents that require an authorized provider’s prescription, unless

### Patterns of Health Care Use

We assume that the patterns of health care observed in the Ingenix data are applicable to military members and their families. For military members, this assumption makes sense for baseline health care, but in general, military activities expose members to health risks well beyond routine, peacetime risks. Members accept these risks and rely on the military medical system for care; hence, the value of the military health care system to the member is probably far greater than the expected out-of-pocket cost based on the Ingenix data (i.e., for the type of care members would expect to need if they were civilians). For military families, the assumption that the Ingenix data are applicable seems reasonable.

However, research also indicates that young workers are more likely than experienced, older workers to opt out of a company's health insurance plan; therefore, their health insurance coverage rates tend to be lower not because health insurance is unavailable, but because they choose not to enroll. To some extent, this is a rational choice. As the Ingenix data show, 35 percent of young, single male workers have no health insurance claims in a year, and for others with a claim, the total paid costs are fairly low. The low prevalence and low cost of claims reflect the high level of health for most of these young people. That said, our analysis is aimed at estimating the expected out-of-pocket cost of TRICARE plans in comparison with private-sector plans; it is not focused on the question of whether a young person or young family would enroll in a plan.

But this does lead to a fine point in interpreting our results. We are estimating the expected out-of-pocket cost given enrollment in the plan, and we are not factoring in the choice of enrollment. If a military family would prefer a less comprehensive, less generous plan in exchange for cash income, the value of the plan to the family will

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otherwise excluded from TRICARE pharmacy benefit coverage by law." The current co-payment for medications is \$3 for generics and \$9 for brand name pharmaceuticals. A third tier for medications designated "nonformulary," with a \$22 co-payment, will be established once the appropriate committee has met in accordance with the Uniform Formulary Rule and final approval has been made (see <http://www.tricare.osd.mil/pharmacy/>, last accessed August 2, 2005).



be less than the cost of the plan. One final point about this: It is in the military's interest to be sure its members are covered by an extensive medical system and also to be sure military families have health coverage. This eliminates concerns and problems that would occur if the families were not covered, and it means that the member does not have to worry about his or her family having access to health care whether the member is on base or deployed.

A potential limitation of the data is that the claims come from large firms. Typically, large firms are more likely than small firms to offer health insurance to their employees, and most employees enroll in a health plan. In contrast, young workers at small firms are less likely to participate in employer-sponsored health plans when they are available. Self-employed workers are also less likely to obtain health insurance than workers at large firms.

Employee contributions to premiums for health insurance do not differ substantially between large and small firms, but insurance plans of smaller firms tend to be less generous (Gabel et al., 2002), so we would expect employees' out-of-pocket costs to be greater on average. Small firms are less likely to offer their employees a choice of medical plans (Crimmel, 2003), further diminishing the value of the health insurance benefit relative to large firms. Both of these factors would cause us to underestimate the actual costs borne by private-sector employees and lead us to a more conservative estimate of the value of the military health care benefit.<sup>7</sup>

We have no reason to believe that health conditions systematically differ between employees of large and small firms. The population of interest in this study, young individuals and families, is generally healthy, so the health conditions arising in the Ingenix data (for workers at large corporations) are probably quite similar to those

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<sup>7</sup> In addition, some employers offer coverage only to employees and not to dependents. Our estimates are for large employer plans that cover the employee and the dependents. Allowing for employers who do not cover dependents would further increase the value of military health benefits relative to civilian alternatives. Therefore, the estimates we present are conservative.

arising among workers at small firms or in the young population at large.

While a fully representative sample would be desirable, the Ingenix database has the advantage of being large and well maintained (including complete records). On net, we think the data do not pose serious problems in regard to obtaining a reasonable estimate of expected out-of-pocket costs under military and private-sector health plans.



## Findings by Health Plan and Household Type

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In discussing our results on out-of-pocket costs, we will begin by describing health plan premiums for TRICARE and private-sector plans. We then discuss the fraction of households with any health care use and the distribution of total annual health care costs. Finally, we describe the distribution of out-of-pocket cost, from which we see the percentage of insured with out-of-pocket costs less than a given amount, and similarly for the distribution of out-of-pocket costs plus premiums.

We note that TRICARE Standard/Extra cost-sharing varies somewhat by sponsors' rank—i.e., for E-4 and below versus E-5 and higher. For ease of exposition, we present results for E-4 and below, unless otherwise noted.

### Members' Share of Premiums

As shown in Table 3.1, the three TRICARE plans do not charge members a premium, whereas the members' share of the premium for the three private-sector plans we study ranges from \$1,600 to \$2,800 per year (in calendar year 2003 dollars) for a family with two or more dependents. So this is one component of value: A family can expect to pay a premium in the range of \$1,600 to \$2,800 in the private sector, while paying no premium in the military.

**Table 3.1**  
**Employee Share of Plan Premiums by Size of Covered Household (annual dollars)**

Plan	Premiums by Marital Status of 18- to 34-Year-Olds	
	Single Coverage (health plan member only)	Health Plan Member Plus Spouse and One Child
TRICARE Prime	0	0
TRICARE Extra	0	0
TRICARE Standard	0	0
HMO	850	1,741
PPO	400	1,676
POS	825	2,801

NOTES: Calculations are based on patterns of health care and use and costs observed in Ingenix data. The private-sector premium is based on sample employer-sponsored plans for the 2003 benefit year.

As discussed above, the total annual health insurance premium for private-sector employer-sponsored plans are typically divided between health plan members and the employer. For example, the employer might pay three-fourths of the total annual premium, and the employer's contribution is not taxable income. We take the employer's share as a given. That is, a worker employed by a large firm would expect the firm to pay a share of the premium as part of the firm's benefit package. However, this is not necessarily true at a small firm; hence, the members' premium might be higher at small firms. In effect, the employer's share is 100 percent under Department of Defense health care plans.

While employees must sometimes pay their contributions to premiums with after-tax dollars, many employers arrange for the premium to be paid in pretax dollars; this reduces the expense in net terms for the family. For this analysis, we assume that premiums are paid with after-tax dollars. This may result in an overestimate of the value of the military health care benefit for employees of firms where premiums are paid in pretax dollars. The percentage overestimate would be the same as the marginal tax rate percentage of the individual employee, or slightly more in those cases where the increased in-

come from the addition of the premium would result in an increase in the marginal tax rate.

## **Distribution of Total and Out-of-Pocket Costs for Health Care**

Table 3.2 shows the distribution of total annual health care costs, where the total includes plan and patient costs for medical, mental health, and pharmacy care. The total excludes vision, dental, and chiropractic care; services not captured by health insurance plans, including over-the-counter products; and annual premiums. We show the distribution for five categories—health plan member without dependents (single) and then health plan member with a spouse and with one, two, or three or more children—and for two age groups—males 18–34 and 35–44.

Single males age 18–34 on average use little health care. Over one-third had no claims at all, and over three-quarters (79 percent) had total annual health care costs of less than \$1,000. Only 8 percent had total annual health care costs above \$3,000. The picture changes for married men. Nine percent of young couples have no health care use; 45 percent have annual health care costs of \$1,000 or less; and 28 percent have total costs above \$3,000.

When children are added in the 18–34 age range, the upper tail increases. Regardless of whether there are one, two, or three children, 32–35 percent of the families could expect total annual health care costs of \$3,001–\$10,000, and 15–16 percent of the families could expect total annual costs above \$10,000.

When we shift to 35- to 44-year-old males, 30 percent of single males have zero use, and 68 percent have total annual costs below \$1,000, as compared with 35 percent and 79 percent for 18- to 34-year-old males. When a spouse is added, the fraction of households with zero use declines. Also, the fraction of households with zero use is somewhat lower than it is for households with an 18- to 34-year-old male health plan member and his spouse. When children are

**Table 3.2**  
**Distribution of Annual Health Care Costs by Dependent Status—Male Health Plan Members (in percentage)**

Total Annual Health Care Costs (2003 \$)	Health Plan Member, No Dependents		Health Plan Member and Spouse, No Children		Health Plan Member and Spouse, 1 Child		Health Plan Member and Spouse, 2 Children		Health Plan Member and Spouse, 3+ Children	
	18–34	35–44	18–34	35–44	18–34	35–44	18–34	35–44	18–34	35–44
	\$0	35	30	9	8	4	4	3	3	2
\$1–1,000	44	38	36	30	20	22	19	20	18	NA
\$1,001–3,000	13	17	28	26	29	29	30	30	29	NA
\$3,001–10,000	6	10	21	25	32	31	33	31	35	NA
> \$10,000	2	7	7	11	15	14	15	14	16	NA
Total	100	100	100	100	100	100	100	100	100	NA

NOTES: Calculations are based on patterns of health care and use and costs observed in Ingenix data. Totals include plan and patient costs, excluding vision, dental, and chiropractic care and services not captured by health insurance plans (including over-the-counter products). NA = not available.

added, there are somewhat more “mid-range” total annual costs (\$1,000–\$10,000) for households with an 18- to 34-year-old male, and the percentage with total annual costs above \$10,000 is a few percentage points lower. All in all, we do not see major differences in the fraction of households with zero use for health plan members between the 18–34 and 35–44 age ranges, although prevalence is somewhat higher in the older group.

Also, the data on the fraction of households with some health care use shows how important it is for a family with children to have health insurance. For example, 74–80 percent of families with children can expect total annual health care costs in excess of \$1,000, and 45–51 percent can expect total costs in excess of \$3,000.

The first columns of Table 3.3 shows the distribution of total health care use for single men and women age 18–34 (data for men corresponds to the information in Table 3.2). Table 3.3 shows that there is a substantial gender difference in the distribution of total annual health care use, with the female distribution being shifted toward higher use. In particular, while 35 percent of single male employees in this age range used no health care at all in a year, only 15 percent of single female employees used no care. In turn, women were more likely than men to incur \$1,000 to \$10,000 in annual health care costs. Notably, however, equivalent—and low—fractions of men and women incurred very high levels of annual health care use, defined here as more than \$10,000 in total costs. Also, *within* the categories of annual health care use presented in the table, estimated annual out-of-pocket costs are broadly comparable between men and women.

The remainder of Table 3.3 shows the distribution of mean annual out-of-pocket costs for health care. Importantly, under TRICARE Prime (which is required of active-duty personnel; TRICARE Standard/Extra are not available), out-of-pocket costs would be zero, because of the benefit design. In the private sector, however, there are out-of-pocket costs for any level of care; for example, for those incurring very high levels of health care (> \$10,000)—



**Table 3.3**  
**Distribution of Mean Out-of-Pocket Costs for Care by Level of Health Use for Single Males and Females Age 18–34**

Level of Total Annual Health Care Costs (2003 \$)	% Group at That Level		Mean Annual Out-of-Pocket Costs for Care (2003 \$)							
	M	F	Prime	Standard/Extra	HMO		PPO		POS	
			M&F	M&F	M	F	M	F	M	F
\$0	35%	15%	\$0	NA	\$0	\$0	\$0	\$0	\$0	\$0
\$1–1,000	44%	45%	\$0	NA	\$62	\$105	\$230	\$316	\$91	\$134
\$1,001–3,000	13%	24%	\$0	NA	\$219	\$290	\$711	\$789	\$346	\$414
\$3,001–10,000	6%	13%	\$0	NA	\$388	\$479	\$1,414	\$1,527	\$808	\$931
> \$10,000	2%	3%	\$0	NA	\$720	\$772	\$2,274	\$2,562	\$1,671	\$1,972

NOTES: Calculations are based on patterns of health care use and costs observed in Ingenix data. Totals include plan and patient costs, excluding vision, dental, and chiropractic care and services not captured by health insurance plans (including over-the-counter products). Out-of-pocket costs exclude health insurance premiums. Private-sector plans assume that all care is provided in network. M = males; F = females.

2 percent of men (3 percent of women)—mean annual out-of-pocket costs would range from \$720 (\$772) in the HMO to \$2,274 (\$2,562) in the PPO.

This, then, is a second component of value from the military health care benefit: For a given pattern of health care use, people can expect to pay higher out-of-pocket costs in the private sector than in the military. For about 80 percent of men in this group, this differential is fairly small, because expected out-of-pocket costs are under \$250 even in the private-sector plans. Results for women are similar, but everything is shifted up a bit because women use more care; similarly, distributions for older men and women—age 35–44—are shifted higher than the corresponding gender group in Table 3.3.

Table 3.4 shows results for men and women in the same age range, 18–34, but with a spouse and one child. The format of the table is the same as for Table 3.3, including the categories of total health care use in the left column. As described for Table 3.2, however, the distribution of use is shifted higher than among single employees/members. Thus, while 35 percent of single men had no use and 80 percent had under \$1,000 of use in a year (Table 3.3), the numbers here are 4 percent and 20 percent, respectively.

Under TRICARE Prime, the expected out-of-pocket cost for a family consisting of an 18- to 34-year-old male, a spouse, and one child is zero. This assumes the family obtains all prescriptions at the MTF and care is provided either at the MTF or by referrals through Prime to non-MTF providers.<sup>1</sup>

For TRICARE Extra/Standard, we assume that the member remains enrolled in TRICARE Prime (which is required for active-duty personnel), while dependents receive care under Extra or Standard. As

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<sup>1</sup> Under TRICARE Prime, each family member may have an MTF-based or a civilian Prime network primary care manager, and all care must be referred by this individual or provided at an MTF to be covered at no out-of-pocket cost. The family typically must obtain care at the MTF if space is available, but if space is not available, the family may obtain care from a private physician in the Prime network. The family has the option of having prescriptions filled at a pharmacy in the Prime network, in which case the family would pay part of the cost of the prescription. In practice, about two-thirds of active-duty families are in Prime.

**Table 3.4**  
**Distribution of Mean Out-of-Pocket Costs for Care by Level of Health Use for Spouse with One Child for Males and Females Age 18–34**

Level of Total Annual Health Care Costs (2003 \$)	% of Group at That Level		Mean Annual Out-of-Pocket Costs for Care (2003 \$)										
			Prime	Extra		Standard		HMO		PPO		POS	
	M	F	M&F	M	F	M	F	M	F	M	F	M	F
\$0	4%	4%	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
\$1–1,000	20%	18%	\$0	\$181	\$157	\$214	\$183	\$115	\$120	\$345	\$351	\$153	\$158
\$1,001–3,000	29%	30%	\$0	\$432	\$366	\$588	\$481	\$319	\$320	\$935	\$950	\$417	\$472
\$3,001–10,000	32%	32%	\$0	\$717	\$560	\$1,080	\$801	\$515	\$515	\$1,915	\$1,925	\$1,113	\$1,118
>\$10,000	15%	16%	\$0	\$913	\$655	\$1,690	\$1,151	\$683	\$666	\$3,345	\$3,333	\$2,228	\$2,220

NOTES: Calculations are based on patterns of health care use and costs observed in Ingenix data. Totals include plan and patient costs, excluding vision, dental, and chiropractic care and services not captured by health insurance plans (including over-the-counter products). Out-of-pocket costs exclude health insurance premiums. Private-sector plans assume that all care is provided in-network. M = males; F = females.

described above, TRICARE Extra/Standard can be viewed as the in-network and out-of-network options of a preferred provider organization. Thus the “Extra” case assumes that dependents receive all their care from TRICARE network providers, while the “Standard” case makes the (somewhat extreme) assumption that dependents receive all their care from nonnetwork providers (as in Extra, the physician must register with TRICARE, a process that assures TRICARE that the physician is licensed). As Table 3.4 illustrates, the out-of-network freedom of choice comes at a higher cost to the family. Thus, for example, the expected cost is \$588 under Standard versus \$432 under Extra for total annual costs in the \$1,001–\$3,000 range, and \$1,690 versus \$913 for total annual health care costs in the over-\$10,000 range (as shown in Table 3.4).

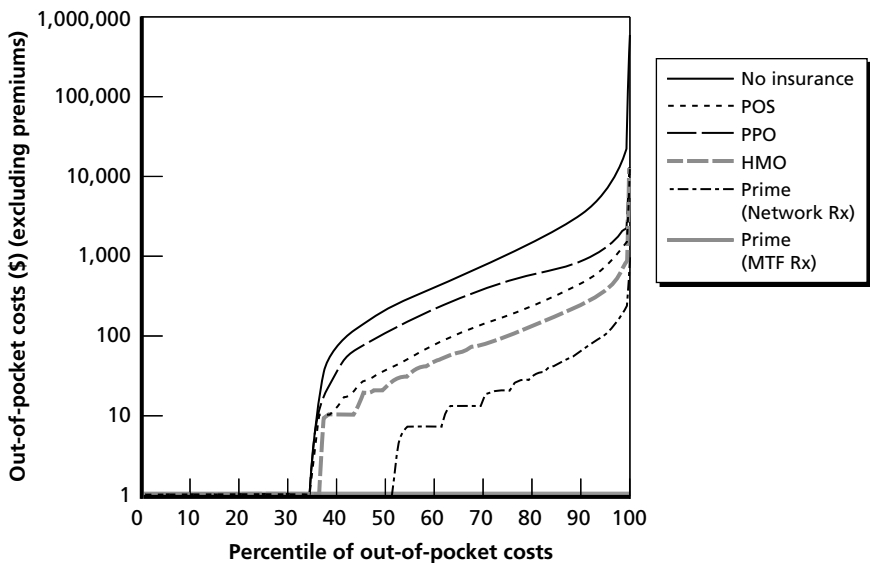
Families in Extra and Standard can obtain care at zero cost at an MTF, but preference for MTF care is given to families in Prime. Also, families can have prescriptions filled at an MTF at zero cost. The cost estimates for Extra and Standard assume the family does not obtain care or fill prescriptions at an MTF. Allowing for MTF care or prescriptions would lower the expected out-of-pocket cost.

The expected out-of-pocket costs for the HMO and PPO “bracket” the costs for Extra and Standard (as shown in Table 3.4). HMO costs are lowest, which is not surprising given that even private-sector HMOs charge a relatively small fixed cost per visit. The PPO has co-payments, which means the insured is responsible for paying a flat amount or a percentage of the paid charge. We note that the PPO results in Table 3.4 assume that all care is provided within the plan’s provider network; out-of-pocket costs are substantially higher for out-of-network care, both because the required coinsurance is higher and because patients are responsible for all charges in excess of “usual and customary” fees (in contrast, under TRICARE Standard, providers can charge no more than 115 percent of TMAC, which limits members’ liability in a way that private-sector PPOs do not).

Finally, expected out-of-pocket costs between TRICARE Standard and the POS plan are very comparable, except at very high levels of health care use (> \$10,000). In Figure 3.1, we summarize the dis-

tributions of out-of-pocket costs graphically, using a log scale to display the distributions of total annual health care costs and expected out-of-pocket costs for a single male, 18–34, E-4 or below. (A log scale is useful because it allows us to see the difference in plans for out-of-pocket costs lower than \$1,000; if the graph used a simple linear scale, the lines for costs under \$1,000 would be almost indistinguishable.) In addition, we add the case of “no health insurance” as a frame of reference, given by the solid black line; this shows total annual health care costs.<sup>2</sup>

**Figure 3.1**  
**Out-of-Pocket Costs for Different Plans for a Single Male, 18–34**



NOTES: Calculations are based on patterns of health care and use and costs observed in Ingenix data. See the text for the definition of “no insurance.”

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<sup>2</sup> We note that our “no insurance” case is actually based on negotiated rates—i.e., it does not account for excess charges above “usual and customary.” In practice, this means that the “no insurance” case presented here is lower than an individual would face if he or she actually did not have health insurance. As described in Chapter Two, this would lead to our estimate of the value of the military health care benefit, relative to “no insurance,” being biased downward.

As before, total annual health care costs are calculated for the insured's claims originating in a year. By definition, at the 50th percentile, or median, of total annual health care costs, half the insured people have lower and half have higher total annual health care costs, and similarly for the median out-of-pocket costs under the plans. At the median, total annual health care costs were \$216 and out-of-pocket costs were \$109 under the PPO, \$37 under POS, \$23 under HMO, \$0 under Prime with prescriptions filled at a pharmacy instead of at the MTF, and \$0 with all prescriptions filled at the MTF. Thus, Prime offers the member total protection against health care costs. At the 90th percentile of total annual health care costs, the cost to the member would still be zero, or, if the member chose to fill prescriptions in the network, only \$67. Under the private-sector plans, out-of-pocket costs would be about \$250–\$850.

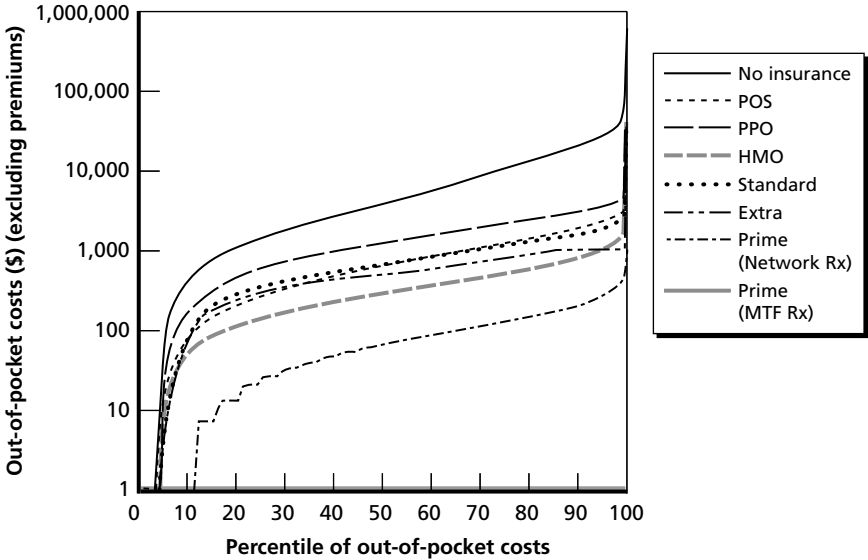
For a male, E-1 to E-4, 18–34, with a spouse and one child, median total annual health care costs are about \$3,800 (as shown in Figure 3.2).<sup>3</sup> However, whatever the level of charges, the order of the plans is the same with respect to expected out-of-pocket costs. The highest out-of-pocket costs are in the PPO and the POS. Next are TRICARE Standard and Extra, followed by the private-sector HMO. Well below the HMO line is TRICARE Prime with all prescriptions filled in the network, where out-of-pocket cost at the median is \$66. TRICARE Prime, of course, has zero out-of-pocket cost.

Although the distributions of out-of-pocket cost appear to be nearly parallel between the 20th and 80th percentiles on the log scale shown, the absolute differences in out-of-pocket cost increase. At the 20th percentile, the out-of-pocket cost range for Extra, Standard, HMO, PPO, and POS is about \$350, whereas at the 80th percentile the range is about \$1,600. Note though that TRICARE has a maximum out-of-pocket limit of \$1,000: TRICARE covers all allowable charges in excess of \$1,000.

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<sup>3</sup> In TRICARE, co-payments are lower for the families of service members in enlisted pay grades E-1 to E-4 than in pay grades E-5 to E-9. Our estimation methodology captures this difference.

**Figure 3.2**  
**Out-of-Pocket Costs for Different Plans for a Male 18–34, E-1–E-4, with a Spouse and One Child**



NOTES: Calculations are based on patterns of health care and use and costs observed in Ingenix data. See the text for the definition of “no insurance.”  
 RAND MG385-3.2

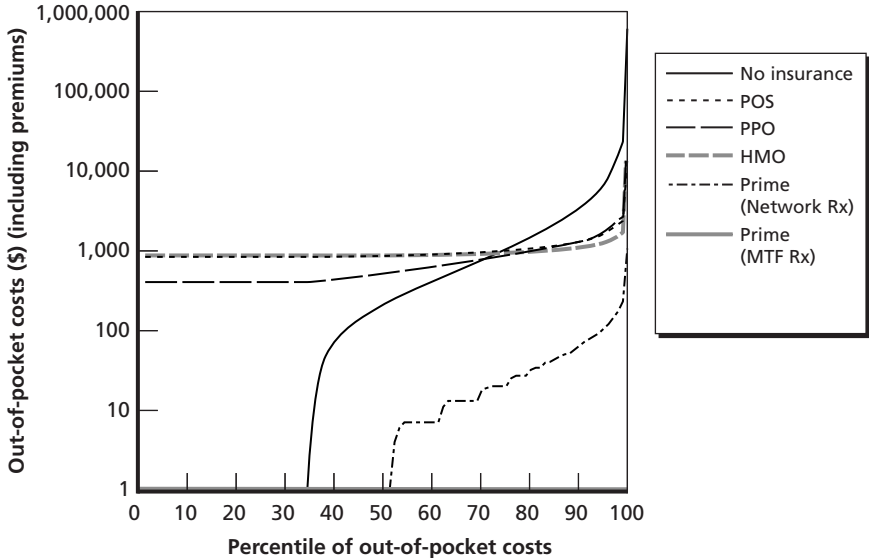
One of the chief advantages of health insurance is protecting the family against low-probability, high-cost events. We can think of families in the high percentiles of total health care costs as having such high-cost events. It is evident that families in TRICARE Prime who have all prescriptions filled at MTFs are completely protected against such events: Their out-of-pocket costs are zero. Prime families who fill their prescriptions elsewhere have relatively higher out-of-pocket costs, but they are only \$66 at the median and \$203 at the 90th percentile. Families on Extra and Standard have still higher out-of-pocket costs that are comparable to those of the HMO. Specifically, median out-of-pocket costs are \$493 on Extra and \$665 on Standard, and 80th percentile costs are \$855 and \$1,280, respectively. Median and 80th percentile costs of the HMO are \$294 and \$559, respectively. Out-of-pocket costs for POS and PPO plans are

generally higher, and, in the upper percentiles of out-of-pockets costs, they are between several hundred and several thousand dollars higher.

## Total Out-of-Pocket Costs, Including Premiums

Finally, we combine information on out-of-pocket costs for health care with the members' share of health insurance premiums. The comparisons between military and private-sector plans change dramatically when premiums are included along with expected out-of-pocket costs from the claims data (as shown in Figure 3.3). The private-sector plans all have premiums, and since out-of-pocket costs for care are small for the group shown, males 18–34, E-1–E-4, the inclu-

**Figure 3.3**  
**Out-of-Pocket Costs for Different Plans for a Single Male, 18–34, E-1–E-4, Including Premiums**



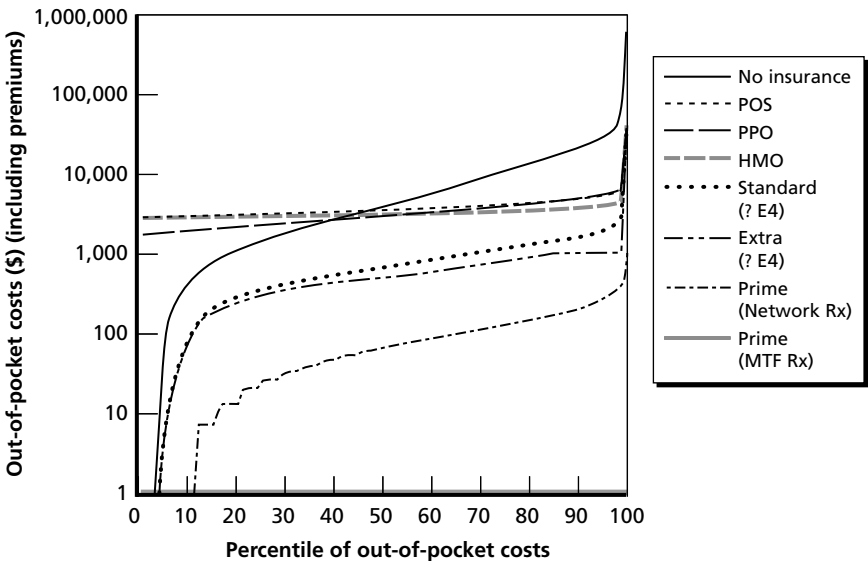
NOTES: Calculations are based on patterns of health care and use and costs observed in Ingenix data. See the text for the definition of "no insurance."



sion of the premium has the effect of bringing the distributions for HMO and POS close together, and the distribution for PPO is not far from them. In contrast, the Prime distributions are the same as before because Prime has no premium. Therefore, the expected cost of private-sector plans is on the order of \$1,000 more than the cost of Prime for most of the range, and several thousand dollars more at the upper tail. The results suggest that single military members could expect to pay about \$1,000 a year, assuming they were covered under a private-sector plan of the sort offered by a large firm and assuming their claims were like those of single civilian workers.

When distributions are computed for young families (shown in Figure 3.4), we again see that the out-of-pocket costs plus premiums are similar for private-sector plans and well above costs under

**Figure 3.4**  
**Out-of-Pocket Costs for Different Plans for a Male 18–34, E-1–E-4, with a Spouse and One Child, Including Premiums**



NOTES: Calculations are based on patterns of health care and use and costs observed in Ingenix data. See the text for the definition of “no insurance.”

TRICARE plans. Costs for private-sector plans are near \$3,000 at the 20th percentile and increase to \$4,000 or so at the 80th percentile. By comparison, Prime costs nothing. Costs under Extra are capped at \$1,000 and equal \$232 at the 20th percentile, \$493 at the median, and \$855 at the 80th percentile. Costs under Standard are \$279 at the 20th percentile, \$665 at the median, and \$1,280 at the 80th percentile. The results suggest that the types of plans offered by large firms would on average cost families over \$2,000 or \$3,000 each year more than their military health plan.

Within the private sector, it is worth noting that including the health plan members' contribution to premiums brings the distributions of out-of-pocket costs for HMO, PPO, and POS plans closer together than when just considering cost sharing for health care use. This is because, in practice, the plans are designed to balance premiums against cost sharing to some extent, to keep the overall actuarial value comparable.<sup>4</sup> Thus, for instance, out-of-pocket costs are higher under the PPO than under the POS or HMO plans (see Table 3.3 and 3.4)—but health plan members' contributions to premiums are lower for the PPO plan (see Table 3.1).

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<sup>4</sup> It is also because we are not showing results for the cases in which people use out-of-network care in the PPO or POS plans (or, for that matter, in the HMO plans, in which members face the full cost of out-of-network care).



## Effects on Military Compensation

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The cost comparisons between TRICARE plans and the HMO, PPO, and POS plans indicate that expected out-of-pocket costs for claims are apt to be in roughly the same range as TRICARE Extra and Standard and will certainly be lower under TRICARE Prime. In addition, premium costs are lower under TRICARE. The private-sector plan yearly premiums ranged from about \$1,600 to \$2,800 for a family of three, which compares with TRICARE having no premium. These comparisons imply that the premiums of the private-sector plans are conservative estimates of what a military member would have to pay for the health care benefit offered by the military, if they were employed by, and received health insurance from, a large private-sector firm. In this chapter, we place the premium and out-of-pocket cost numbers in the context of military compensation and family income.

### Regular Military Compensation

Regular military compensation (RMC) is a useful measure of military compensation. RMC consists of basic pay, basic allowance for subsistence, basic allowance for housing, and the tax advantage deriving from the nontaxability of the allowances. Some members receive special and incentive pays, uniform allowances, and cost-of-living adjustments in addition to RMC, but on average, RMC is over 90 percent of a member's cash compensation. For enlisted members, RMC is about equal to the wage at the 70th percentile of the civilian wage

distribution for males with some college, as shown in Figure 4.1. As the figure shows, RMC is above the 70th percentile in the first few years of service, but with members having to live in barracks quarters during initial training, it is arguable whether their estimate of military compensation should include the full basic allowance for housing. A lower imputed value of housing would bring military compensation down toward the 70th percentile.

Assuming a young single person could expect to pay a premium of \$1,000 a year for a health care benefit similar to that offered by the military for what we have termed baseline care, including the health care benefit in military compensation would add about \$20 per week after tax (and more than \$20 before tax). As mentioned, baseline care

**Figure 4.1**  
**Relationship of Army Enlisted RMC to Civilian Wage Percentiles for Males with Some College**



NOTE: Calculations are based on patterns of health care and use and costs observed in Ingenix data.

refers to what the member would expect to need if the member were a civilian. Also, the premium payment of \$1,000 assumes that an employer would pay the \$3,000 or so for the remainder of the coverage. As we can infer from the chart, adding \$20 to weekly pay would move military compensation up by a few percentiles of the civilian wage distribution (say 70th to 73rd).

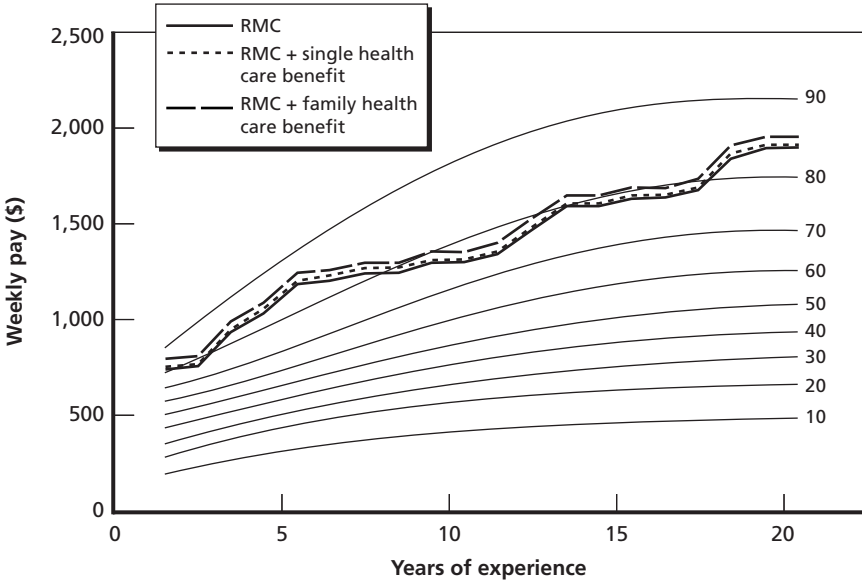
For members with dependents, the implied value of the military health care benefit is greater. A member with dependents might expect to pay a premium of \$2,000–\$2,500 for a similar health care benefit under a private-sector plan, or approximately \$40–\$50 per week (after tax). Accounting for this raises military compensation to about the 76th percentile of the civilian wage distribution. About three-fourths of the enlisted personnel who remain in the military after their first term are married, and most married couples have children.

Officer RMC is near the 80th percentile of civilian wages for males with four or more years of college, as shown in Figure 4.2. Adding an implied health care benefit premium of \$20 per week for a single officer or \$40–\$50 per week for an officer with dependents would move military compensation up by a few percentile points. The relative movement is less for officers than for enlisted personnel because officer pay is higher, whereas the amount of the premium remains the same.

## **Value of the Military Health Care Benefit**

Military families, when surveyed, report lower family income than comparable civilian families (Hosek et al., 2002). In view of the results just shown, which place RMC at the 70th or 80th percentile of civilian wages, it is surprising that reported annual earnings for male military members are about \$5,000 less than the earnings of male civilian workers (comparable in terms of age, education, and race/ethnicity). Perhaps, military families underreport special and incentive pays and allowances and take for granted on-base housing, an income provided in-kind.

**Figure 4.2**  
**Relationship of Army Officer RMC to Civilian Wage Percentiles for Males with Four Years or More of College**



NOTE: Calculations are based on patterns of health care and use and costs observed in Ingenix data.

RAND MG385-4.2

It is also true that military wives, compared with civilian wives, are less likely to work or work fewer weeks per year and receive lower wages when working. Frequent moves are one reason for these differences between military and civilian wives; the military family is three times more likely to move out of county in a given year (e.g., to a different state, region, or country). Also, military wives may be offered, and may be willing to accept, jobs that offer lower wages. A possible factor underlying this willingness is that military wives do not need to enroll in a private-sector employer’s health plan; thus, they do not need a high enough wage to cover the premium and expected out-of-pocket costs. By this reasoning, the value of TRICARE helps to offset the spouse’s lower wage. As we have shown, TRICARE Prime may save the family \$2,000–\$3,000 per year after tax.

## **How to Communicate the Value of Military Health Care Benefits**

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In the preceding chapters, we have described methods for quantifying the value of the military health care benefit for active-duty members and their families. The next task is to consider how a measure of the value of the military health care benefit can be included in measures of military compensation and effectively communicated to military members and their families. We present some ideas on doing that in this chapter.

### **How to Include a Measure of the Value of Military Health Care Benefits in Measures of Military Compensation**

A conservative approach to valuing the military health care benefit is to use information about the premium for reasonably generous private-sector plans, such as those offered by large firms, although a more accurate measure would also include expected out-of-pocket costs. We have seen that these costs can be substantial. Also, as would be expected from the economics of designing a health insurance plan, a lower premium is likely to be accompanied by higher expected out-of-pocket costs, whereas a higher premium goes with lower expected out-of-pocket costs. Therefore, it makes sense to consider both costs together.

Of course, the imputed premium plus out-of-pocket costs for a single member will be less than that for a military family. Because members pay no premium for either single or family coverage, the



imputation means, in effect, that this portion of military compensation is higher for members with dependents. By comparison, private-sector firms compensate workers independent of their dependency status, and workers pay more for family health insurance coverage than for single coverage.

With data available on a timely basis, the health component of military compensation can be updated each year. It is possible to obtain reliable, annual data on health insurance premiums; for example, the Kaiser Family Foundation maintains data on employment-based health insurance premiums (see <http://www.statehealthfacts.kff.org>). However, given the importance of out-of-pocket costs, it seems preferable to have a measure that includes them along with the premium. This more comprehensive measure could be implemented in the same fashion as in our study—i.e., by the use of Ingenix data (or other comparable data), along with detailed information on health conditions and the cost of treatment and prescriptions.

## **How to Present the Value of the Military Health Care Benefit to Members and Their Families**

There are various approaches to presenting information about the value of military health care benefits to active-duty members. The unifying theme of the approaches is basing statements about the value of military health care benefits on an explicit or implicit comparison with health care benefits provided by private-sector employers. This endeavor would supplement an effort that is already being made. Service members receive notification on an annual basis of the value of all their benefits including health care, and the Office of the Secretary of Defense has a military compensation web site with information about pay and allowances, retirement pay, and benefits (<http://www.defenselink.mil/militarypay>).

One approach is to rely on an external source to verify periodically (e.g., annually) that military health care benefits are similar to, and perhaps more generous than, those offered by large private-sector employers; that plans offered by small private-sector employers are

typically less generous; that the cost of health care has been rising rapidly, which is pushing up the cost of health insurance; and that private-sector employers are increasingly seeking to shift more health care costs to the worker by shifting premiums and cost-sharing to employees. In contrast, the approach would argue that the military health care benefit has remained broad in coverage and that the premiums and co-payments remain low (under TRICARE Standard/Extra) or zero (under TRICARE Prime).

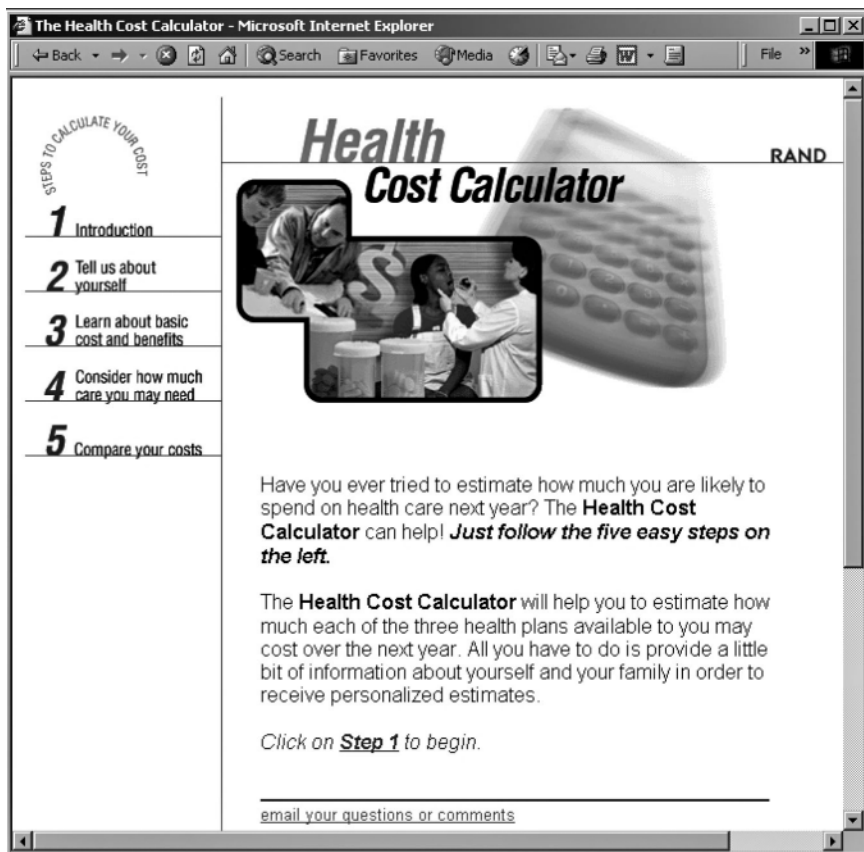
Messages of this sort can be communicated by using a press release, by sponsoring reports that become the source for stories in the media, by providing descriptive inserts with military paychecks, by making leaflets available at MTFs, by advising recruiters and reenlistment counselors to discuss military health care benefits, and by using other such approaches. The effort should be persistent, not one-shot, and lessons from the advertising industry suggest that updates or new thrusts should be done as often as every few months because people need to be regularly reminded. We suggest that such information be based on assessments by an independent third party, which should minimize concern among the target audience about bias and conflict of interest, particularly if the third party is, and is perceived as, objective and well-qualified.

A second, complementary, approach would be to provide explicit information about the (expected) dollar value of health insurance premiums and out-of-pocket costs for health care under military plans and under representative private-sector plans. Such information would be based on calculations, such as those summarized in the tables shown in Chapter Three (plus information on premiums); it could be used to inform military beneficiaries about the value of military health care benefits. Analogous information could also be provided to military families during the annual open enrollment period, to help them choose between TRICARE Prime and Standard/Extra.

RAND has developed interactive, computer-based tools for presenting such information and has fielded them since 2001 for the beneficiaries of several national employers as part of the RAND Health Cost Calculator project (see Figure 5.1; Schoenbaum et al., 2001). Our research in this area suggests that consumers generally

understand, appreciate, and use comparative information on out-of-pocket costs for health care, particularly when the underlying data are perceived to be objective. The Washington, D.C., Consumers' Checkbook offers similar, paper-based information to civilian federal employees covered by the Federal Employees Health Benefit Program (see <http://www.checkbook.org/newhig2/hig.cfm>).

**Figure 5.1**  
**RAND Health Cost Calculator Web Page**



NOTE: The RAND Health Cost Calculator is currently only available to project participants.

## Conclusions

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All stakeholders in the military health system agree that the military health care benefit holds considerable value for active-duty military members and their dependents. However, the value of military health care benefits is not routinely counted as an element of military compensation, either in documentation that is provided to individual members or in analyses comparing civilian and military benefits. In part, this lack may be because of a paucity of standard methods for quantifying the value of military health care benefits.

In this study, we have described methods for quantifying the value of military health care benefits from the perspective of active-duty members and their families. As might be expected, the value can be quite considerable, ranging from hundreds of dollars per year for healthy single members, who use little health care but would face health insurance premiums in the civilian sector that they do not face in the military, to thousands of dollars for military families.

Moreover, the estimates we present here are likely to be somewhat conservative, since they compare military health care benefits to those offered by large civilian employers. In practice, the “best” civilian alternative for some military members (or potential members) may be with smaller employers, whose health care benefits are less comprehensive and/or have higher member contributions to premiums; or in jobs that offer no health insurance. In the latter case, people may purchase nongroup insurance, which is more expensive than group coverage for a given benefit design because of the lack of risk pooling; forgo health insurance, which puts them at risk for consider-

able financial liability in the event that they require care (compare the “no insurance” case in Figures 3.1 and 3.2); or forgo needed health care, which entails considerable welfare and well-being loss.

This study also describes options for reporting information on the value of military health care benefits to military members and potential recruits. Providing such information in accessible and credible form may help promote satisfaction with military benefits and compensation and help facilitate recruiting and retention.

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