INSTITUTE FOR DEFENSE ANALYSES

Analysis of Private Sector Care Reform Authorities and Savings

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December 2016

IDA Paper P-5309
Log: H 15-001154

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About this Publication
This work was conducted by the Institute for Defense Analyses (IDA) under contract HQ0034-14-D-0001, Project Number CA-7-3914, "Analysis of Private Sector Care Reform Authorities and Savings," for the Joint Chiefs of Staff (JCS) J-8 and the Office of the Surgeon General of the Army. The views, opinions, and findings should not be construed as representing the official position of either the Department of Defense or the sponsoring organization.

Acknowledgments
Thank you to Stanley A. Horowitz, Nancy M. Huff, and Julie A. Pechacek for performing technical review of this document.

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Executive Summary

The Military Health System (MHS) is responsible for providing a healthcare benefit to over 9.5 million beneficiaries. This benefit is delivered through direct care (DC) produced by the Department of Defense (DoD) in military treatment facilities (MTFs) and purchased private sector care (PSC) delivered in civilian hospitals and clinics. While the majority of healthcare was once delivered in MTFs, today approximately two-thirds of the workload is purchased from the civilian sector.

Over the last decade, growing budgetary constraints have led DoD to look for ways to reduce spending. The MHS, whose costs increased rapidly over the last decade, has not been immune from these budgetary pressures. For example, the Budget Control Act of 2011,[1] more commonly referred to as "sequester," imposed automatic cuts on most federal spending, including DoD healthcare accounts. When developing its strategy for implementing cuts to the healthcare accounts as well as attempting to reduce the rate of growth in healthcare costs more generally, DoD has focused largely on the following approaches:

- **Raising beneficiary cost shares**. DoD often attempts to shift healthcare costs to beneficiaries by raising or introducing enrollment fees and raising out-of-pocket expenses (e.g., co-pays and deductibles). These proposed increases are usually (although not exclusively) directed at PSC and often target specific beneficiary groups such as retirees.
- **Making proportional cuts to DC**. The three Service medical departments receive proportional cuts to their respective DC systems.

Both of these approaches may have merit and be appropriate as part of an overall solution for containing military healthcare costs, but they are both largely cost-shifting tactics rather than reforms that address underlying inefficiencies in the system. Consequently, the Office of the Surgeon General of the Army asked the Institute for Defense Analyses (IDA) to provide a broader perspective on potential reform approaches for reducing healthcare expenditures and, in particular, to focus on an area that has received little DoD attention—if and how DoD could both reduce costs and improve beneficiary outcomes by adopting value-based private sector management practices. Our analysis provided several key findings:

[1] Budget Control Act of 2011, Pub. L. 112-35, S. 365, 125 Stat. 240 (2011).

- Value-based approaches to purchasing healthcare have been shown to reduce costs while maintaining or improving patient outcomes in the private sector.
- We could not identify any significant statutory impediments that would prevent DoD from modernizing its contracting process to incentivize the adoption of value-based purchasing (VBP) models—especially on an experimental basis, given the Department's pilot authority. Furthermore, Section 705 of the Fiscal Year 2017 National Defense Authorization Act, "Value-based purchasing and acquisition of managed care support contracts for the TRICARE program," directs the Secretary of Defense to develop and implement value-based programs.
- Value-based reforms generate savings by redesigning the incentive structure facing the delivery system in a manner that encourages improved efficiency. Such reforms should be given high priority, as they do not merely shift costs to the beneficiaries or cut military capability.
- Introducing comprehensive VBP approaches into the TRICARE program would likely save between $400 million and $1.5 billion dollars annually, depending on the VBP model selected. These savings are similar in magnitude to the savings estimates DoD has made for raising beneficiary cost shares, but they would be achieved through efficiency gains as opposed to reduced benefits. We also looked at other, more narrow VBP approaches. For example, we estimate that bundling a subset of surgical procedures would save between $5 million and $100 million annually based on the procedures we examined (savings would be larger if expanded to a broader set of procedures).
- TRICARE's current contract structure (five-year, winner-take-all, little substantive contractor risk-bearing) hinders the adoption of evolving private sector management practices, including, but not limited to, VBP.

To better understand how the current TRICARE contract structures might be reformed to incentivize the adoption of VBP practices, our research identifies three key attributes that should guide reform:

- **Contract competitiveness.** Characterized by the number of contractors/carriers offering competing health plans in a given market area. This attribute is key to ensuring the carriers focus on the preferences of beneficiaries.
- **Contract risk-bearing.** The degree to which the contractor is at risk for failing to control cost growth. When properly designed, risk-bearing contracts incentivize the carriers/contractors to manage cost and improve outcomes.
- **Contract flexibility.** The extent to which the contractor is free to design the agreements they enter into with providers and other subcontractors. Flexibility

allows the risk-bearing carrier/contractor to compete and evolve its suite of tools as the market changes and conditions vary across markets.

Many federal (civilian) healthcare programs (e.g., Medicare Part C, Medicare Part D, and the Federal Employees Health Benefit Program) have adopted contracting structures that maximize these attributes. Some have even become pioneers in developing and improving VBP methods. These programs illustrate how reform could be implemented in TRICARE.

TRICARE contract reform to implement VBP would be an ideal opportunity to also reform the PSC-to-DC interface within the contracts to improve readiness. Over three (going on four) successive generations of contracts, the DC and PSC systems have grown increasingly isolated from one another. This has largely eliminated DoD's ability to manage the distribution of care between the two systems. The most important impact of this is that DoD has no substantive ability to direct the type of case mix required to maintain the readiness of the military medical force into the DC system. A variety of mechanisms could be used to give DoD managers the ability to manage the distribution of care, including introducing procedure reimbursement rates in DC and collectivizing per capita funding across the DC and PSC systems.

Contents

1. Introduction

A. Background

The Military Health System (MHS) has two primary missions: supporting the readiness of the military medical force and providing a healthcare benefit to over nine million military beneficiaries. This health benefit, known as TRICARE, is delivered in two ways: direct care (DC), the care produced directly by the Department of Defense (DoD) in military treatment facilities (MTFs); and purchased private sector care (PSC), the care delivered in civilian hospitals and clinics. The DC system exists to support the readiness of military medical personnel to deliver combat casualty care and manage the health of the force in theater. The MTFs, run by the Army, Air Force, and Navy,[1] are meant to serve as skill maintenance/training platforms where military providers can treat their respective beneficiary populations during peacetime. Because the DC system does not have the capacity to perform the entire beneficiary care mission, DoD purchases PSC to augment the DC system. While PSC was initially uncommon, used primarily for recruiters and others located away from military installations, today approximately two-thirds of beneficiary care is delivered as PSC.[2]

Over the last decade, growing budgetary constraints have led DoD to look for ways to reduce spending. The MHS, whose costs have increased rapidly over the last decade, has not been immune from these budgetary pressures. For example, the Budget Control Act of 2011,[3] more commonly referred to as "sequester," imposed automatic cuts on most federal spending, including DoD healthcare accounts. When developing its strategy for implementing cuts to the healthcare accounts as well as attempting to reduce the rate of growth in healthcare costs more generally, DoD has focused largely on the following approaches:

- **Raising beneficiary cost shares**. DoD often attempts to shift healthcare costs to beneficiaries by raising or introducing enrollment fees and raising out-of-pocket expenses such as co-pays and deductibles. These proposed increases are usually

[1] The Navy provides medical personnel and beneficiary care for the Marine Corps.

[2] Workload is measured in intensity-adjusted units. Inpatient workload is measured in relative weighted products (RWPs). Outpatient workload is measured in relative value units (RVUs). Care purchased for Medicare-eligible beneficiaries is not included in these calculations.

[3] Budget Control Act of 2011, Pub. L. 112-35, S. 365, 125 Stat. 240 (2011).

(although not exclusively) directed at PSC and often target specific beneficiary groups such as retirees.

- **Making proportional cuts to DC**. The three Service medical departments receive proportional cuts to their respective DC systems.

Both of these approaches may have merit and be appropriate as part of an overall solution for containing military healthcare costs, but they are both largely cost-shifting tactics rather than reforms that address underlying inefficiencies in the system.

Raising cost shares generates savings by reducing the quantity of healthcare services utilized by beneficiaries and requiring them to pay a higher share of the cost for those that they do use. Beneficiary out-of-pocket costs have not risen significantly since TRICARE's inception, while total costs have increased—causing a gradual decline in cost shares and leaving them widely out of step with civilian healthcare. Reversing this gradual increase in compensation in isolation, however, constitutes a compensation cut to beneficiaries that will have direct effects on force management, including recruitment and retention.

Similarly, proportional cuts to the DC system may appear to save money, but the impacts of making these cuts in the absence of systematic reform are not clear. Two of the largest factors driving DC costs are infrastructure and personnel. Without a systematic approach to addressing infrastructure or personnel, proportional DC cuts may be just as likely to drive further inefficiency and capability loss as to improve the system. In this case, DoD risks shifting care and costs to PSC without seriously addressing DC management challenges. The purpose of the DC system is to provide workload for the military medical force in order to maintain readiness. Its size, structure, and operations should presumably be determined in the context of fulfilling this mission, not as the residual amount of a cost savings target.

Consequently, the Office of the Surgeon General of the Army asked the Institute for Defense Analyses (IDA) to provide a broader perspective on potential reform approaches for reducing healthcare expenditures and to, in particular, focus on an area that has received little DoD attention—if and how DoD could both reduce costs and improve beneficiary outcomes by adopting value-based private sector management practices.

B. Objectives of this Project

The objectives of this project are:

- Develop a more systematic framework for assessing MHS savings options.
- Identify and analyze the current statutes, regulations, and policy that govern the options available to DoD for reforming the methods used to purchase PSC.

- Identify and analyze trends in private and public sector healthcare using both academic literature and industry documentation to evaluate high-payoff options for MHS reform.
- Estimate the range of likely savings resulting from using the available or expanded authorities for reforming the purchase of PSC.
- Compare this savings potential with other reforms that have been considered, e.g., reducing benefits and cutting DC.
- Identify ways that TRICARE contracting reform could also be used to better integrate PSC with the DC system to improve the availability of appropriate case mix for maintaining the readiness of the medical force.

Chapter 2 addresses the first objective. Here we provide an overview of MHS reform options that includes a cost savings framework and a discussion of how the TRICARE program has diverged from civilian healthcare sector practices over time.

Chapter 3 covers the second objective. In this chapter we provide a brief history of the TRICARE Managed Care Support (MCS) contracts and their status today. We then discuss the statutes, regulations, and policy that govern the way healthcare is contracted and delivered and how they have evolved over time. An in-depth look at the contents of the actual MCS contracts is also included. This analysis is crucial for those seeking to understand how DoD arrived at its current method for purchasing healthcare and the sources of impediments that hold TRICARE back from benefiting from the innovation taking place in the broader civilian healthcare sector.

Chapter 4 turns to the third objective. Here we discuss healthcare reforms occurring in both the commercial and public sectors. This includes an overview of the three most common value-based purchasing (VBP) models and a summary of the literature examining the impact of each model on patient outcomes and cost savings.

Chapter 5 provides savings estimates from implementing VBP reforms. We do not provide comprehensive or programming level estimates; instead, we provide ranges of potential savings drawn from experiences in the private and public sectors. We then compare the magnitude of these savings estimates with estimates that have been developed for benefit reductions and the DC cuts proposed in previous budget cycles.

Chapter 6 discusses different methods by which DoD could implement such reforms in the MHS under the existing or expanded authorities. In this chapter, we also identify ways to implement the reforms that would give DoD additional options for channeling the right case mix into the DC system and better integrate the two systems of care delivery.

2. MHS Reform Options

Chapter 1 identified two approaches DoD has taken to control healthcare costs—raising beneficiary cost shares and making proportional cuts to DC. Although potentially valuable steps, neither tactic appears to have been developed as an element of a strategic level assessment of how to reform compensation to control personnel costs, improve efficiency in the DC or PSC delivery systems, or most effectively maintain the readiness of the military medical force. A challenge with implementing the narrowly focused tactical measures in the absence of a strategic approach is that the full impacts of the actions taken may not be well understood—unintended consequences may undermine achievement of the intended results. This chapter provides initial thoughts on how DoD could develop a more systematic framework for assessing MHS savings options.

A. MHS Cost Savings Framework

Developing a strategic framework for assessing MHS reform options should begin with the mission. This creates the first major challenge in making an assessment because the MHS contributes to two different missions—beneficiary healthcare and the readiness of the medical force. Providing high-quality healthcare to the over nine million eligible beneficiaries is part of military compensation. Compensation includes many elements—current cash compensation, in-kind benefits such as healthcare and commissaries, and deferred compensation for veterans and retirees (which can also be cash or in-kind). The strategic framework for assessing health benefits as an element of compensation includes the level of health benefit to be provided as part of the overall compensation package to efficiently meet recruitment and retention goals, as well as how to deliver that benefit (plan management and healthcare services) in the most efficient manner.

The level of health benefit is determined by attributes such as cost shares, choice, networks, access, and healthcare quality. As beneficiary cost shares remained constant at low levels while healthcare costs across the country increased, total military compensation increased.[4] Conversely, raising cost shares cuts compensation. This has been illustrated by the opposition from beneficiary groups to DoD's cost share increase proposals for the last 10 years. The Military Compensation and Retirement Modernization Commission (MCRMC) addressed this problem by raising cost shares and

[4] But the increase in total military compensation was not done in an efficient way; e.g., increasing cash salary could have achieved a larger compensation increase at lower cost.

simultaneously increasing the quality of the health benefit (expanding choice, networks, and access), which provided an offsetting compensation increase, and, for active duty family members, providing a direct cash compensation increase in the form of the Basic Allowance for Healthcare (BAHC).[5] The 2017 National Defense Authorization Act attempts to similarly increase the quality of the benefit concurrently with cost share increases. DoD's approach of raising cost shares without offsetting quality increases may be an approach to consider, but it has been unsuccessful to date and, in the absence of a strategic level compensation reform approach, may introduce risk in force management that has not been evaluated. Other options for saving money by cutting benefits that have been debated (e.g., large changes, such as eliminating TRICARE for Life, and small changes, such as eliminating eligibility for specific services) face similar challenges.

Another approach to saving money in the beneficiary healthcare mission is to deliver the benefit in a more efficient way. A key distinction is separating out cuts to the benefit (e.g., narrowing networks by reducing procedure reimbursement rates) from actual efficiency improvements to the delivery system that are not ultimately based on cutting benefits. An approach that achieves sizable savings without cutting benefits should receive high priority in any MHS reform strategy.

As outlined in Chapter 1, beneficiary healthcare is delivered through the DC and PSC systems. Efficiency-based reforms in the DC system could take several forms, including military-to-civilian conversions for non-military essential personnel[6] and re-invigoration or closing of MTFs with low volume. A challenge with these reforms, however, is that the MTFs are the point of intersection between the two MHS missions, and any reforms have to be considered in the context of their impact on readiness. Such an assessment was beyond the scope of this project. Instead, our primary focus will be on potential efficiency-based reforms in PSC.

Efficiency-based reforms in PSC would target the contracting mechanisms DoD uses to purchase PSC and the incentives within healthcare markets that these contracting mechanisms create. The commercial healthcare sector has placed a great deal of emphasis on these contracting mechanisms and incentives, driving reduced spending and better

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5 Military Compensation and Retirement Modernization Commission (MCRMC), *Report of the Military Compensation and Retirement Modernization Commission: Final Report*, January 29, 2015. On improving benefit quality, the MCRMC recommendation devoted over half of the potential budgetary savings to improved benefit quality (see discussion in Chapter 5 of Sarah K. Burns, Philip M. Lurie, and Stanley A. Horowitz, "Analyses of Military Healthcare Benefit Design and Delivery: Study in Support of the Military Compensation and Retirement Modernization Commission," IDA Paper P-5213 (Alexandria, VA: Institute for Defense Analyses, January 2015). With regard to BAHC, the savings come from the basic economic concept that replacing a per unit subsidy with a lump sum subsidy improves efficiency by removing the distorting effect of the per unit nature of the original subsidy.

6 John E. Whitley et al., "Medical Total Force Management," IDA Paper P-5047 (Alexandria, VA: Institute for Defense Analyses, May 2014).

patient outcomes. The public healthcare sector (e.g., Medicare and Medicaid programs) is also beginning to adapt to these trends. DoD, however, has not pursued contracting in PSC as a reform option. In fact, the methods used by DoD to purchase PSC have become increasingly out of step with those used in the civilian world.

B. TRICARE and its Divergence from Civilian Sector Practices

In the late 1980s, as the Cold War was ending, the DoD healthcare system had over 120 military hospitals and 250,000 military medical personnel, which allowed the Department to deliver the majority of its beneficiary healthcare requirements in-house. The limited method of purchasing PSC—through the Civilian Health and Medical Program of the Uniformed Service (CHAMPUS)—was primarily for recruiters and others located away from military hospitals. By the 1990s, as large-scale post-Cold War rationalization of DoD infrastructure began, it had become clear that DoD healthcare was going to have to shift to a more integrated system with greater reliance on PSC. At the time, CHAMPUS was also suffering from frequent cost overruns and other system shortcomings that led the Congress to authorize demonstrations of alternative healthcare delivery approaches. After several years of demonstrations, TRICARE emerged as the new model.

TRICARE was introduced in 1993 by the Congress. The new program, which was to be fully implemented by May 1997, was named after the three original options offered to beneficiaries—Prime (a Health Maintenance Organization (HMO)-like option), Extra (a Preferred Provider Organization (PPO)-like option), and Standard (a Fee-for-Service (FFS)-like option). For the past two decades, TRICARE has purchased PSC through a series of large MCS contracts. These contracts, which rely on FFS reimbursement to healthcare providers, are five-year, winner-take-all contracts that are pass-through, rather than risk-bearing in nature. These contract features are important because they—individually and collectively—determine the incentives created to control costs and improve patient outcomes and satisfaction.

Under FFS reimbursement models, healthcare providers are paid separately for each service they deliver. If the service is covered, a healthcare provider can deliver that service even if there is a lower cost service that would achieve the same or better expected outcome. While FFS was once the dominant provider reimbursement model, the commercial sector has been moving away from reliance on FFS, particularly in non-risk-bearing situations, because of its tendency to create incentives that reward providers for the volume and intensity of services they deliver instead of the efficiency or quality of the healthcare outcome achieved.

When TRICARE was established, FFS was the primary payment model in commercial healthcare. The primary alternative was a staff model HMO. The two methods formed opposing poles, with various private-sector insurers and other market

participants ranging along the continuum. FFS placed very little risk on the delivery system, and the staff model HMO was a vertically integrated system combining insurance and delivery in a single risk-bearing entity. Modern healthcare no longer fits into this framework. There are very few market participants at these poles, and the continuum between them has been replaced by intense competition in a wide-ranging space of alternative VBP methods, including capitation, bundling, accountable care organizations (ACOs), and many others. The healthcare sector discovered that the FFS model provides poor (and sometimes perverse) incentives for utilization management, care coordination, and promotion of health outcomes—in short, it was not a sustainable business model. FFS purchasing remains an element of an overall strategy for purchasing healthcare, but its use as the only method in a non-risk-bearing contract with a contractor has greatly diminished in the private sector. In the public sector, the traditional FFS Medicare (of which TRICARE is a variant) has already seen one-third of beneficiaries migrate to Medicare Advantage (MA) (risk-based plans), and the government has set targets to have 50 percent of Medicare payments made through alternative (non-FFS) methods by 2018.

While the trend in the civilian healthcare sector has been movement away from FFS, the TRICARE contracts, which started with a broader focus than just pass-through FFS purchasing of healthcare, have devolved to just that. Chapter 3 provides an in-depth discussion of this evolution of the TRICARE contracts and the authorities DoD has to reform them. To understand why TRICARE has fallen behind, it is necessary to look at the other features of the contract structure: five-year, winner-take-all, pass-through contracting.

C. TRICARE Contract Structure

TRICARE's contract structure provides little incentive or ability for the contractor to focus on promoting healthcare outcomes and managing cost. The only competition in contracting occurs every five years, with the award being monopoly rights within wide geographic regions for the next five years. There is little substantive risk-bearing in the contracts; they are largely pass-through with respect to healthcare costs. While Appendix D presents a detailed discussion of the economic challenges with this contract structure, a brief summary of three key factors is provided here. These factors are (1) contract competitiveness, (2) contract risk-bearing, and (3) contract flexibility.

- **Contract competitiveness** is characterized by the number of contractors/carriers offering competing health plans in a given market area. This form of competition is key for ensuring the carriers focus on the preferences of beneficiaries. In the current structure, once awarded, the Managed Care Support Contractor (MCSC) faces almost no competition as the provider of purchased

care in their awarded region.[7] This lack of competition translates into a lack of choice for beneficiaries. When beneficiaries have choice, carriers must compete for their business by offering a desirable benefit at a competitive price. Choice empowers the beneficiary to correct problems with the benefit, and it creates a simpler program design that is self-correcting and monitoring—if a plan fails to offer what the beneficiaries want, it is driven from the market with no DoD intervention required. To effectively implement VBP reform, the TRICARE contracts should ensure robust competition in each market to ensure that the contracts are focused on efficient VBP reforms while providing beneficiaries the benefits they want. Most large federal healthcare programs, such as Medicare Part C, Medicare Part D, and the Federal Employees Health Benefit Program (FEHBP), are based on this principle.

- **Contract risk-bearing** refers to the degree to which the contractor is at risk for failing to control cost growth. When properly designed, risk-bearing contracts incentivize the carriers/contractors to manage cost and improve outcomes. Many risk-bearing contract forms exist, but the general concept they share is that the contractor is rewarded if costs are lower than expected, but penalized if they are higher. The current MCS contracts are essentially pass-through in nature (i.e., little substantive risk-bearing). The contractor builds a network of providers and reimburses them on an FFS basis. They have no incentive to introduce different provider reimbursement schemes that would result in better utilization management and coordination of patient care (VBP) because they simply pass the FFS claim costs back to the government and collect their administration fee. Furthermore, implementing VBP often requires initial investments by the carriers in research, information technology, and customer service that will allow them to achieve cost savings down the road. Carriers will not make these investments without an incentive to do so, and the current MCS contracts provide no such incentive.
- **Contract flexibility** refers to the extent to which the contractor is free to design the agreements they enter into with providers and other subcontractors. Flexibility along this dimension allows the risk-bearing carrier/contractor to

[7] The only competition faced by the regional MCSC comes from the Uniformed Services Family Health Plan (USFHP), which is operated by six organizations that provide the TRICARE Prime benefit on a capitated basis in limited geographic areas: Johns Hopkins Medicine (serving Maryland; Washington, DC; and parts of Pennsylvania, Virginia, and West Virginia), Martin's Point (serving Maine, New Hampshire, Vermont, and northeastern New York), Brighton Marine Health Center (serving Massachusetts and Rhode Island), Saint Vincent Catholic Medical Centers (serving New Jersey; parts of New York, Pennsylvania, and Connecticut), Christus Health (serving southeast Texas and southwest Louisiana), and Pacific Medical Center (serving the Puget Sound area of Washington). The program serves just under 140,000 beneficiaries.

compete and evolve their suite of tools as the market changes and conditions vary across markets. Prescriptive contracts, on the other hand, dictate the form of these contracts, allowing little room for innovation. A carrier/contractor would be unlikely to enter into a risk-bearing contract without the flexibility to control the arrangements with providers because they would have no tools or mechanisms at their disposal to control costs. The current TRICARE contracts are prescriptive in nature and largely restrict the provider to (or provide no incentive to deviate from) the FFS reimbursement models used in the traditional Medicare program. The other large federal programs (Medicare Part C, Medicare Part D, and FEHBP) use much more flexible contracts.

Any potential reform options for the TRICARE MCS contracts can be evaluated based on the degree to which they alter the three contracting parameters discussed above. Reforms that do the most to increase competitiveness, risk-bearing, and flexibility will also do the most to advance the quality of the benefit and the size of the savings to DoD. Figure 1 illustrates how these features of contract structure can be viewed as levers to be set in a reform proposal. TRICARE currently scores very low for each of these features. Chapter 6 discusses in detail how TRICARE reform could be implemented.

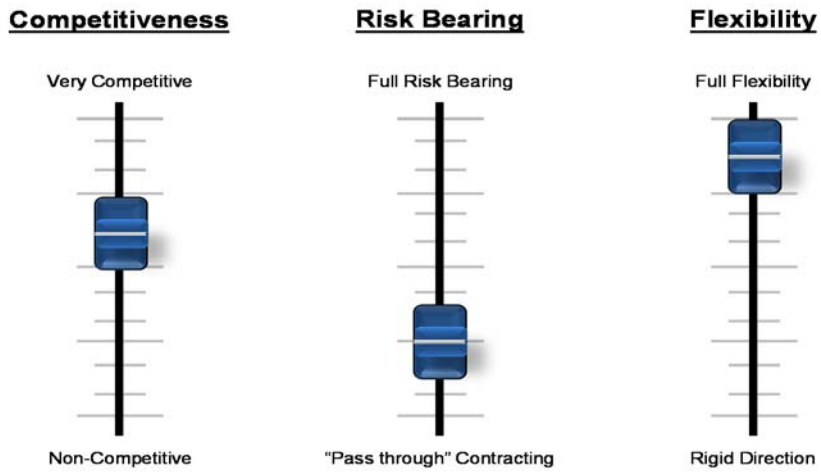

Figure 1. Essential Features of Contract Structure

In developing a strategy for controlling costs in the MHS, options that improve efficiency without cutting benefits should receive high priority. Reforming the way that DoD purchases PSC is one such efficiency improvement. A purpose of this paper is to identify exactly what these VBP reforms are and how much they might save. DoD has not undertaken any serious reform of the TRICARE contracts in over 10 years and has just awarded new (potentially five-year) contracts that will continue to grow the disconnect between DoD and private sector trends.

3. The TRICARE MCS Contracts

Healthcare services are purchased under MCSCs that operate in parallel to the care provided in MTFs. The MCSCs are competitively bid for a given region, with the winning vendor assuming responsibility for the entire region. Each regional MCSC is awarded for a base period, which includes a transition phase, as a fixed price contract. Five option years, structured as cost plus fixed fee, are also included in each contract. Three generations of MCS contracts have been awarded and administered by the TRICARE Management Authority (TMA) since the onset of the program. The fourth generation of contracts was awarded in Fiscal Year (FY) 2016 by the Defense Health Agency (DHA), which took over this responsibility from TMA at the beginning of FY 2014. This chapter begins by providing a brief history of the TRICARE MCS contracts. We then turn to a detailed discussion of the statutes, regulations, and policy that currently govern the MCS contracts.[8]

A. History of the TRICARE MCS Contracts

Since the program's inception, there have been three generations of TRICARE MCS contracts, with a newly awarded fourth generation about to go into effect. The contracts awarded during each generation were very large and complex, making a comprehensive review of their contents beyond the scope of this paper. Instead we provide a basic overview of each generation of TRICARE MCS contracts and how they evolved over time, focusing on three of the most important reform-related elements of the MCS contracts: (1) contractor risk-bearing, (2) contractor flexibility, and (3) contractor integration with the DC system. The importance of risk-bearing and flexibility was introduced in Chapter 2 and is discussed in more detail in this chapter. Chapter 4 discusses all three factors in the context of TRICARE reform. We also discuss some of challenges and criticisms made against each generation of MCS contracts in the subsections below.

[8] See General Accounting Office (GAO), *DEFENSE HEALTH CARE: TRICARE Progressing, but Some Cost and Performance Issues Remain*, Testimony before the Subcommittee on Military Personnel, Committee on National Security, House of Representatives, GAO/T-HEHS-96-100, March 7, 1996, http://www.gao.gov/assets/110/106374.pdf.

1. First Generation Contracts

The first generation TRICARE MCS contracts, known collectively as T1, were phased in, region by region, between 1995 and 1998. Seven MCS contracts were awarded to five vendors to cover eleven different geographic regions. Table 1 lists the seven regional MCS contracts.

Table 1. First Generation Regional MCS Contracts

Vendor	Contract	Effective FY	Region (#)	Estimated Value
Foundation Health Federal Services	MDA906-94-C-0003	1994	Northwest (11)	$500 million
Foundation Health Federal Services	MDA906-95-C-005	1995	Southwest (6)	$1.9 billion
Foundation Health Federal Services	MDA906-95-C-007	1995	So. California (9) Golden Gate (10) Hawaii-Pacific (12)	$2.3 billion
Humana Military Healthcare Services	MDA906-96-C-002	1996	Southeast (3) Gulf South (4)	$2.5 billion
TriWest Healthcare Alliance Corp	MDA906-96-C-004	1996	Central (7/8)	$2.3 billion
Anthem Alliance for Health	MDA906-97-C-005	1997	Mid-Atlantic (2) Heartland (5)	$2.9 billion
Sierra Military Health Services	MDA906-97-C-003	1997	Northeast (1)	$1.3 billion

Note: The estimated contract value assumes all option years are exercised.

Their estimated value at the time of award, or the expected amount the contractor would receive if all option years were exercised, ranged from $500 million in the Northwest to $2.5 billion for the combined Southeast and Gulf South regions. Figure 2 shows the geographic regions.

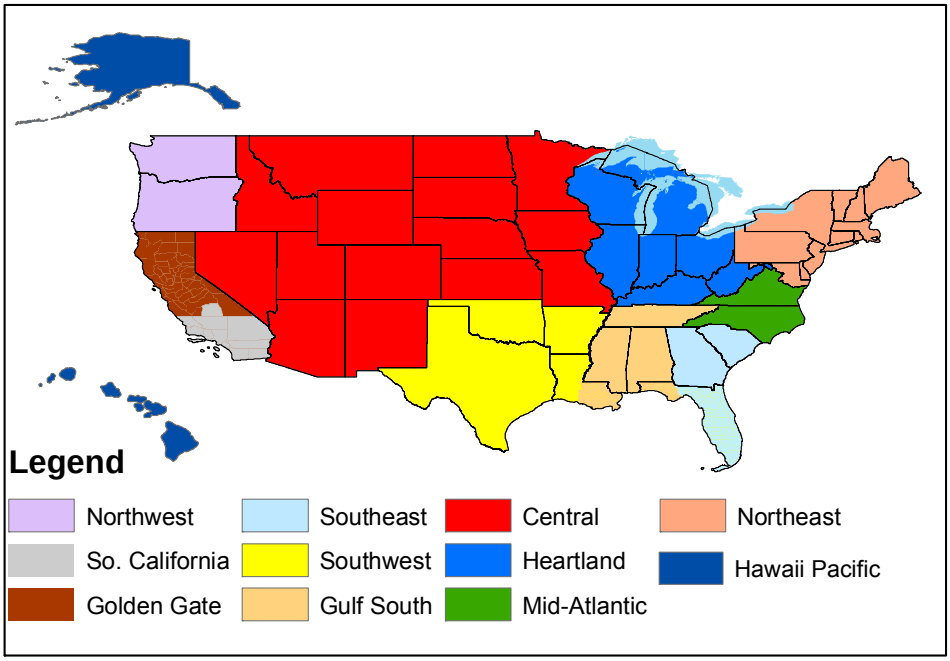

Figure 2. First Generation TRICARE MCS Contract Regions

a. Contractor Risk-Bearing

One key element of the contracts is the extent to which the contractor bears financial risk (or shares this risk with the government). Managing utilization of beneficiary healthcare to promote health outcomes and control cost is a costly activity undertaken by the contractor that can be difficult for the government contract overseer to observe. In economics this is called *moral hazard* and is dealt with in contracting by exposing the contractor to risk so that they earn a benefit from increased effort and suffer a cost if they fail to do so (see Appendix D). The first generation of TRICARE contracts attempted to address this challenge using a Bid Price Adjustment (BPA) mechanism, along with resource-sharing provisions with the MTFs. While there were slight differences in the regional contracts, the operational concepts were similar. The BPA mechanism was designed to adjust the bid price for factors outside the contractor's control while exposing the contractor to some risk based on total utilization and cost. Bids were based on data provided by the government to the contractor, on the estimated number of eligible beneficiaries, cost per eligible beneficiary, MTF utilization, and planned changes in the benefit (new programs that would change costs). The BPA was used to adjust the contractor's initial bid to account for changes in these factors (e.g., if the population was smaller (larger) than expected, the BPA would decrease (increase) the bid price).

After the final cost of healthcare was calculated through the BPA formula, contract risk-sharing was applied. Under the fixed-price, at-risk contract vehicle used in T1, the government and contractors were both at risk for cost overruns (and shared savings from

cost underruns). Losses were placed in a tiered "loss corridor" and split between the contractor and government based on the tier. Likewise, gains were placed into a tiered "gain sharing corridor." The tier structures were based on the size of gain/loss, with each tier specifying a different cost-sharing arrangement (e.g., contractor pays 100 percent of loss, contractor pays 20 percent of loss, etc.).

b. Contractor Flexibility

A second key element of the TRICARE MCS contracts is the extent to which the contractor can exercise flexibility in how they subcontract with and compensate healthcare providers. During the first generation of TRICARE contracts, contractors were allowed a relatively high degree of flexibility in this area. Specifically, the T1 contracts included the following language:

> Institutional Contracts may include payment based on a discount from usual fees, a capitation or lease-type arrangement, a DRG[9] or discounted DRG arrangement, a profit/risk share arrangement; or such other method as is mutually agreed upon, provided such contracts do not violate state or federal laws; e.g. payment that exceeds what would otherwise be paid to an out-of-system provider under the DRG methodology. All claims payments for individual services (whether in system or out-of-system) are subject to the maximum payment methodology set forth by federal law, including the methodologies set forth in Section C-Sk. The contractor may pay network providers (on an annual basis or other arrangement) sums in addition to individual claim payments if it is deemed necessary to entice providers into the network.

This language was not present in the subsequent T2 or T3 generation contracts.

c. Contractor Integration with Direct Care System

A third key element of the TRICARE MCS contracts is the extent to which they incentivize effort to integrate the purchase of healthcare services with the DC delivery system. When each system operates completely independently, opportunities for optimizing the use of healthcare resources across the systems are lost. It is also more challenging to control the distribution of care. Ideally, MTFs would deliver the beneficiary case mix most consistent with the readiness mission (e.g., trauma or complex surgical procedures) and send the non-readiness case mix (e.g., pediatrics or labor and delivery) to PSC, but this requires mechanisms for directing care between the two delivery systems.

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[9] The Diagnosis Related Group (DRG) concept is a system used to classify hospital cases into different groups or "products" for reimbursement purposes.

The T1 contracts attempted to deal with this challenge using contract provisions for resource sharing between the MCSCs and the DC system. Resource-sharing agreements (RSAs) were created to provide a mechanism for the government and MCSCs to share savings generated from optimal resource allocation. There were two forms of RSAs, internal and external. Under internal RSAs, civilian providers could deliver care in the MTFs (allowing the MCSC to avoid institutional charges and pay only the professional services charges). The savings were then shared between the government and MCSC. Under external RSAs, military providers could deliver care in civilian settings (allowing the MCSC to avoid the professional services charges and pay only the institutional charges). Again, the savings generated were to be shared between the government and MCSC.[10] While these mechanisms appeared to be put in place primarily to generate savings, they could be modified to accommodate readiness case mix objectives (i.e., place military providers in emergency departments and trauma centers).

d. Contract Challenges

A variety of criticisms were made with the first generation of contracts. One primary criticism was their complexity. The contracts required proposals that were very large, complex, and costly to prepare. GAO testimony reported that one complete proposal consisted of 33,000 pages and one cost as much as $5 million to prepare.[11] Because of the large costs involved and winner-take-all nature of the competition, losing contractors are incentivized to protest the awards. Not surprisingly, all seven of the original contract awards were protested, resulting in additional costs to DoD.

A second criticism of the contracts was that they were very prescriptive. Although, as will be seen, the first generation of contracts provided for more flexibility than the subsequent generations, even the first generation of contracts provided a relatively narrow range of options within which the contractors had to operate. Offerors claimed they could achieve greater savings with a Request for Proposal (RFP) that emphasized desired healthcare outcomes rather than mandating the process. For instance, GAO testimony stated:

> DOD's proposal required the offerors to perform utilization management functions, such as pre-authorization, concurrent and retrospective reviews, and waiver considerations, for all types of health care in all settings. These activities were to be performed using a uniform set of criteria determined

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[10] For a more detailed discussion of the RSA mechanisms see Robert R. Cox, "The TRICARE Managed Care Support Contracts—An Analysis of the Bid Price Adjustment and Resource Sharing Mechanisms," (Master's Thesis, Naval Postgraduate School, 1996).

[11] GAO, *DEFENSE HEALTH CARE: Lessons Learned from TRICARE Contracts and Implications for the Future*, Testimony before the Subcommittee on Military Personnel, Committee on Armed Services, House of Representatives, GAO-01-742T, May 17, 2001, 5, http://www.gao.gov/assets/110/108854.pdf.

> by DOD. However, offerors have often cited utilization management as the area in which more relaxed DOD requirements would enable them to implement effective techniques with greater savings.[12]

A third issue with the first generation contracts was the large number of adjustments they required. DoD made over 1,000 unscheduled modifications to the contracts via change orders that resulted from new laws, regulations, and DoD initiatives. Change orders involved lengthy and costly settlement negotiations. It was believed that some of these complications could have been avoided with a less prescriptive approach to contracting.

To address these contracting challenges, TMA spent three years developing a new "TRICARE 3.0" contract vehicle for the second round of contracts. The intent was to develop contracts that were less prescriptive, with a shift in focus from process to patient outcomes. The shift was supposed to incentivize contractors to employ their best practices to improve outcomes and cost efficiency. An RFP went out for the Northwest TRICARE region using the TRICARE 3.0 contract vehicle in February 2000. It was withdrawn six months later.

2. Second Generation Contracts

Following the withdrawal of the TRICARE 3.0 RFP, a new RFP process was established for the next generation of contracts. There were substantial changes from T1 to T2. Most visibly, the 11 regions were consolidated to three, and the number of MCSCs was reduced from seven to three. A new management plan was also introduced. This plan included the establishment of three TRICARE regional offices (TROs)—one to manage each newly established region. The second generation contracts are listed in Table 2.

Table 2. Second Generation TRICARE MCS Contracts

Vendor	Contract	Effective FY	Region	Estimated Value
Health Net Federal Services Inc.	MDA906-03-C-0011	2003	North	$16.5 billion
Humana Military Healthcare Services	MDA906-03-C-0010	2003	South	$23.4 billion
TriWest Healthcare Alliance Corp	MDA906-03-C-0009	2003	West	$22 billion

Note: The estimated contract value assumes all option years are exercised.

[12] Ibid., 6.

Contracts ranged from $16.5 billion for the North region to $23.4 billion for the South region. The new consolidated regions are shown in Figure 3.

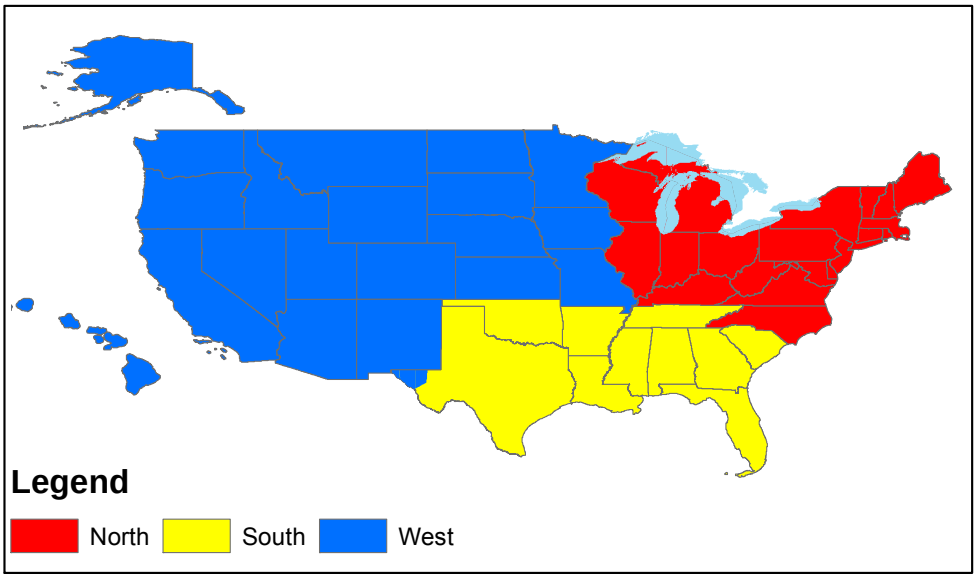

Figure 3. Second Generation MCS Contract Regions

In addition to the changes in the TRICARE regions, the T2 contract vehicle had several important changes to contractor risk-bearing, contractor flexibility, and contractor integration with the DC system.

a. Contractor Risk-Bearing

Contractor risk-bearing was altered substantially between the first and second generation TRICARE contracts. The BPA mechanism and risk corridors that had been key components of the T1 contracts were removed from the T2 contracts. Rather than replacing these mechanisms with a different risk-sharing mechanism, the contract vehicle transitioned to an administrative services only (ASO) contract. ASO contracts are contracts in which a large employer (DoD, in this case) assumes responsibility for risk and purchases only administrative services from the insurer. The TRICARE MCS contracts therefore became largely pass-through in nature, with the contractors building networks and paying claims without assuming any responsibility for controlling costs. Administrative incentives were included in the T2 contracts (as they were in T1), but these were based on meeting pre-specified performance targets (e.g., processing 100 percent of claims to completion within 120 days) and do not constitute risk-bearing for substantive contract outcomes such as utilization levels.

b. Contract Flexibility

Contract flexibility was also altered between the first and second generation TRICARE contracts. The clause cited on page 14 that permitted profit/risk sharing arrangements between the contractor and providers was removed. Capitation, which was allowed under the T1 contracts, was strictly prohibited under T2.

c. Contractor Integration with the Direct Care System

Contract integration with the DC system was reduced between the first and second generation TRICARE contracts. The RSAs between the contractor and the DC system that were utilized during the first generation were removed and no alternative resource-sharing mechanism was put in place. Post T1, the only mechanism for managing resource utilization between the contractor and MTF was the Right of First Refusal (ROFR). By the ROFR, when a beneficiary enrolled in TRICARE Prime is seeking specialty care or treatment, the MTF must first be considered if they have the ability to provide the service. When the MTF exercises the ROFR, the beneficiary must receive care in the MTF.

d. Contracting Challenges

Despite these changes, the T2 contracting process still resulted in large, complex, and costly proposals. Bid protests arose in multiple regions.

3. Third Generation Contracts

TMA expected to award third generation MCS contracts in each of the three regions in 2009, but delays arose due to bid protests. In the North, the final contract was awarded in May 2010 to the incumbent contractor, Health Net Federal Services, after a successful bid protest. The South contract was not awarded until February 2011. This contract went to the incumbent contractor, Humana Military Healthcare Services, after a successful bid protest. In the West, two bid protests were filed. United Health was eventually awarded the contract in July 2012. The third generation contracts are listed in Table 3.

Table 3. Third Generation TRICARE MCS Contracts

Vendor	Contract	Effective FY	Region	Estimated Value
Health Net Federal Services Inc.	HT9402-10-C-0002	2010	North	$17 billion
Humana Military Healthcare Services	HT9402-11-C-0003	2011	South	$23.5 billion
United	HT9402-12-C-0001	2012	West	$20.4 billion

Note: The estimated contract value assumes all option years are exercised.

Contract values ranged from $17 billion in the North region to $23.5 billion in the South. Regional boundaries remained the same as those shown in Figure 3. Between T2 and T3, the TRICARE MCS contracts remained essentially unaltered, especially in terms of our three key contracting elements. We therefore do not provide further discussion on these.

4. Fourth Generation Contracts

The fourth generation contracts, worth an estimated $57 billion, were awarded in July 2016. While the structure of the new MCS contracts will be largely the same as in the third generation, there was one significant difference. Under the new contracts, the North and South regions have been consolidated into a new "East" region, resulting in only two regions, East and West, and thus only two contract awards. Humana Military, which currently manages the South region, was awarded the East region, while Health Net Federal Services, which currently manages the North, was awarded the West. As with the earlier rounds of MCS contract awards, bid protests occurred in all regions. United Health Care, which currently manages the West region, did not win a contract and has protested both the East and West award. Health Net, which won the West region, has also protested the East region award (the West contract has an estimated value of $18 billion—less than half of the estimated value of the East contract, roughly $41 billion). WellPoint Military Care, a division of Anthem, has also challenged the East region award.

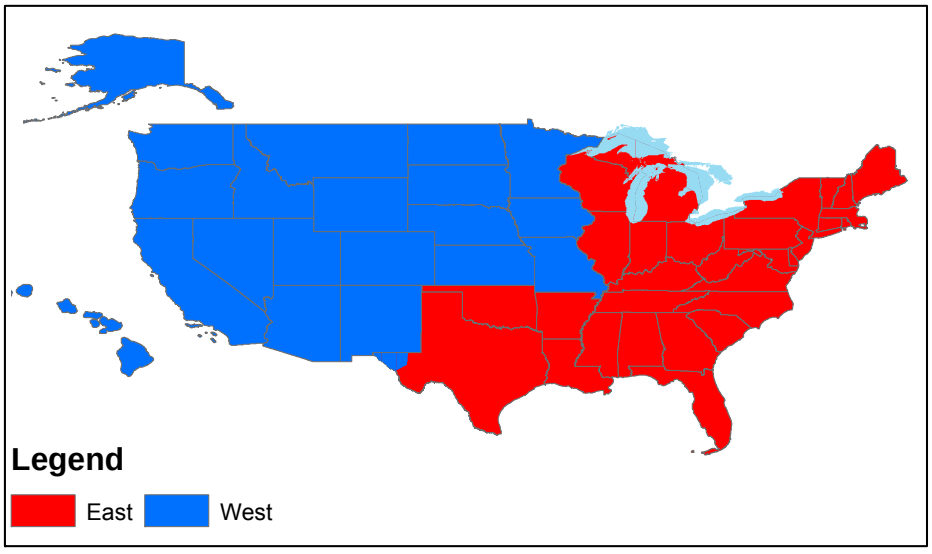

Figure 4. Fourth Generation TRICARE MCS Contract Regions

B. Statutes, Regulations, and Policy Governing TRICARE MCS Contract Reform

The procurement of PSC under the TRICARE program is governed by federal laws and statutes, federal regulations, and DoD policy (most importantly, the TRICARE manuals, discussed below on page 24). To understand the authority DoD has to reform the methods used to procure PSC, we must examine each of these.

Federal laws and statutes represent the law (what is legally authorized), while regulations are policy, standards, and rules adopted by administrative agencies that govern how the law will be implemented. DoD policies are put in place by DoD to provide additional guidance in a given area. They may not contradict laws or regulations or add anything that is not specifically authorized in law or regulations. In addition to these layers of rules, the TRICARE contracts may impose additional stipulations on the reimbursement of providers as long as they do not violate law, regulations, or policy. Figure 5 illustrates the hierarchical relationship of law, regulations, DoD policy, and the TRICARE contracts.

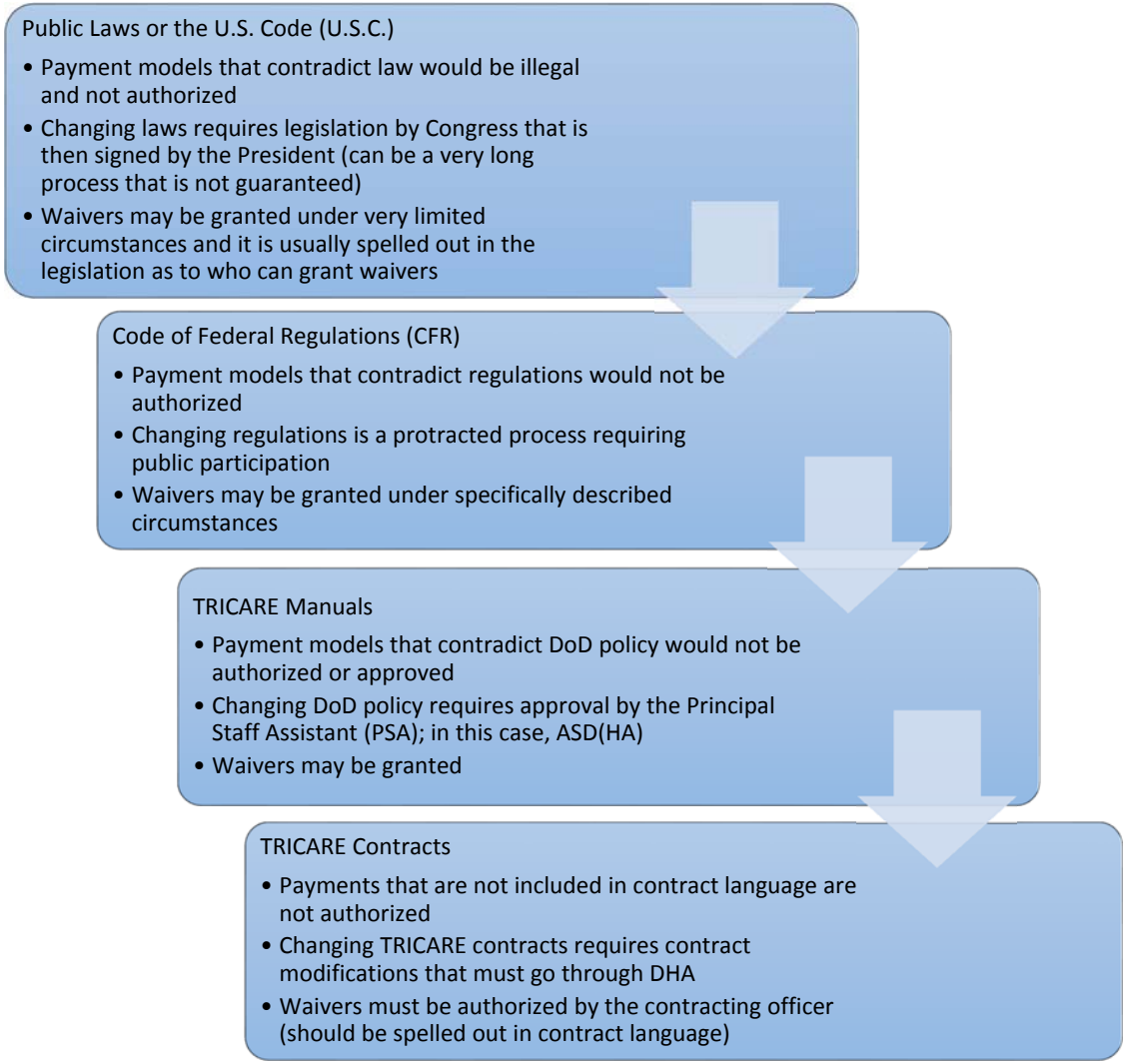

Figure 5. Relationship of Statutes, Regulations, Policy, and Contracts

To better explore DoD's authority to alter the method by which DoD procures PSC, and specifically the manner in which the MCSCs reimburse providers, we examine relevant statutes, regulations, and policy for any content relevant to contracting for healthcare and reimbursement of providers in the TRICARE program.

1. Statutes

The United State Code (U.S.C.) is the official compilation and codification of all federal statutes in the United States. Title 10 pertains to the Armed Forces, and Chapter 55 of Title 10 covers the provision of a medical and dental benefit for active duty service members, military retirees, and the dependents of these groups. The statutory language provides a broad definition of the program, defines categories of beneficiaries, and broadly defines "types of health care" (benefits) that may be provided (e.g., "hospitalization," "outpatient care," "drugs," and "physical examinations"). More importantly, 10 U.S.C. § 1079 contains general language authorizing the Secretary of Defense to "contract…for medical care for [dependents of active duty service members] under such insurance, medical service, or health plans as he considers appropriate." Here, subsection H states that providers shall be reimbursed following the same reimbursement rules that apply to Medicare whenever practical. The specific language is as follows:

> [P]ayment for a charge for services by an individual health care professional (or other non-institutional health care provider) for which a claim is submitted under a plan contracted for under subsection (a) shall be equal to an amount determined to be appropriate, to the extent practicable, in accordance with the same reimbursement rules as apply to payments for similar services under title XVIII of the Social Security Act (42 U.S.C. 1395 et seq.).

However, several forms of exemptions to this requirement are also provided. These include exemptions for:

- Higher payments when required (§ 1097b)
  - Subject to paragraph (2), the Secretary of Defense may reimburse health care providers under the TRICARE program at rates higher than the reimbursement rates otherwise authorized for the providers under that program if the Secretary determines that application of the higher rates is necessary in order to ensure the availability of an adequate number of qualified health care providers under that program.
- Pilots and demonstration projects on alternative methods of payment for health and medical care services (§ 1092)
  - The Secretary of Defense, in consultation with the other administering Secretaries, shall conduct studies and demonstration projects on the health care delivery system of

> the uniformed services with a view to improving the quality, efficiency, convenience, and cost effectiveness of providing health care services (including dental care services) under this title to members and former members and their dependents. Such studies and demonstration projects may include the following:
>
> - Alternative methods of payment for health and medical care services.
> - Cost-sharing by eligible beneficiaries.
> - Methods of encouraging efficient and economical delivery of health and medical care services.
> - Innovative approaches to delivery and financing of health and medical care services.
> - Alternative approaches to reimbursement for the administrative charges of health care plans.
> - Prepayment for medical care services provided to maintain the health of a defined population.[13]

Both of these exemptions could be used to break from the Medicare reimbursement model. In addition, Section 706 of the FY 2017 NDAA, entitled "Value-based purchasing and acquisition of managed care support contracts for the TRICARE program," specifically requests that the Department develop and implement value-based incentive programs as part of any contract awarded under Chapter 55 of Title 10 for the provision of healthcare services.

2. Regulations

The Code of Federal Regulations (CFR) implements the laws covering contracting for healthcare in the TRICARE program through notice-and-comment rulemaking. A very detailed "Provider Reimbursement Methods" section can be found at 32 CFR 199.14. Here, specific methods on how TRICARE should reimburse various types of providers (e.g., hospitals, skilled nursing facilities, birthing centers, and ambulatory surgery) are laid out. These specific methodologies are incorporated into the DoD TRICARE manuals, which provide detailed guidance on the reimbursement of providers. Appendix A provides further detail on these reimbursement methods.

[13] 10 U.S.C. § 1079, Subsection H.

3. Policy

The primary elements of DoD policy governing the TRICARE MCSCs are contained in four manuals—the *TRICARE Operations Manual (TOM)*, the *TRICARE Policy Manual (TPM)*, the *TRICARE Reimbursement Manual (TRM)*, and the *TRICARE Systems Manual (TSM)*. Table 4 describes the content of each manual. We reviewed the TRICARE manuals to understand all policies pertaining to the reimbursement of network providers under TRICARE. The TRM contains the policy most relevant to the adoption of VBP.

Table 4. Description of the TRICARE Manuals

TRICARE Manual	Description
TRICARE Operations Manual (TOM), 6010.56-M, February 2008	Provides operational guidance for TRICARE contractors who are required to follow the provisions and requirements specified in the manual.
TRICARE Policy Manual (TPM), 6010.57-M, February 2008	In conjunction with the TRM, this manual contains operational policy necessary to efficiently implement the rules in 32 CFR 199. The manual augments 32 CFR 199 and must be used in conjunction with it for complete policy information.
TRICARE Reimbursement Manual (TRM), 6010.58-M, February 2008	In conjunction with the TPM, this manual contains operational policy necessary to efficiently implement the rules in 32 CFR 199. This includes detailed instruction for network provider reimbursement.
TRICARE Systems Manual (TSM), 7950.2-M, February 2008	Defines the contractor's responsibilities for automated processing of healthcare information, reporting, and transmission of relevant data between the contractor and DHA. The manual also provides the requirements for the TRICARE contractors to interface with the Defense Enrollment Eligibility Reporting System (DEERS) to obtain beneficiary eligibility verifications from DEERS and perform TRICARE Prime enrollments into DEERS.

Chapter 1 of the TRM addresses how network providers are to be reimbursed under TRICARE. The additional chapters contain greater details on the current reimbursement requirements and practices. However, paragraph 2.2 of Chapter 1, Section 1 states:

> Network provider reimbursement is neither subject to, nor restricted by, amounts that would have otherwise been paid under standard TRICARE reimbursement methodologies outlined in this manual, (i.e., those reimbursement methodologies applicable only to non-network providers). **Managed Care Support Contractors (MCSCs) are free to establish alternative reimbursement systems, except capitation payments, that will ensure adequate beneficiary access to quality network providers.** [emphasis added] These alternative reimbursement systems may include, but are not restricted to:

- Negotiated or discounted fee schedules; usual and customary fees
- Salary, flat fee, global or profit/risk sharing arrangements for non-institutional providers, and
- Per diems for institutional providers[14]

This waiver provision clearly states that MCSCs are free to adopt alternative reimbursement schemes (like those used in VBP). Bundled payments, ACOs, and pay-for-performance (P4P) schemes would be allowable under this provision, while capitation would not. The ban on using capitated arrangements does not trace back to regulation or statute.

Table A-1 in Appendix A contains the specific reimbursement policies outlined in the TRM for hospital reimbursement, inpatient services, outpatient services, and several other areas such as skilled nursing facilities. While these payment systems are generally used to determine provider reimbursement in their respective areas, a similar waiver clause is included in Section 1 of each relevant TRM chapter that states:

> This policy is mandatory for reimbursement of services provided by either network or non-network providers. **However, alternative network reimbursement methodologies are permitted when approved by the Defense Health Agency (DHA) and specifically included in the network provider agreement.** [emphasis added][15]

Again, statements like these suggest TRICARE MCSCs are free to come to alternative value-based reimbursement arrangements with providers that are willing to do so.

Having explored the TRICARE MCS contracts in detail as well as the statutes, regulations, and policy under which they must operate, we next provide in Chapter 4 a discussion of recent trends in VBP used by commercial insurance carriers to contract for healthcare. This will include a summary of each VBP model, a summary of the literature on the impact of each model, and a discussion of how VBP models could be implemented in the TRICARE program.

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[14] *TRICARE Reimbursement Manual (TRM)*, 6010.58-M, Chapter 1, Section 1, paragraph 2.2, February 2008.

[15] Ibid.

4. Healthcare Payment Model Reforms

Over the last decade, insurers have introduced a series of new healthcare payment models designed to address the incentive problems inherent in FFS, by shifting away (at least partially) from the FFS model while simultaneously creating new incentives for better coordination among providers. These new payment models, which are designed to increase provider efficiency while improving patient outcomes, include capitation, ACOs and Patient Centered Medical Homes (PCMHs), bundled payments, and other P4P arrangements. They are being implemented in both the private and public sectors and are generally included under the umbrella of VBP. The impact of these new VBP models on patient outcomes and cost savings is of great interest to providers, insurers, policy makers, and academics alike, and has therefore been widely studied. While much of the research on VBP is still ongoing, a comprehensive review of the materials available to date suggest these programs have achieved moderate success in their goals of improving patient outcomes while lowering costs.

Section A of this chapter describes the most prominent healthcare payment models in use today, including the historic FFS payment model and the four most common VBP models. Section B summarizes the findings produced by the literature examining the impact of VBP models on patient outcomes and healthcare costs. For each VBP model, we report the range of healthcare savings realized across different experimental programs covered in our literature survey.

A. Payment Models

This section discusses five different payment models—the FFS payment model and the four common classes of VBP models (capitation, P4P, PCMHs and ACOs, and bundled payments)—and includes a brief history for each model and its general operational concepts. It should be noted that, within any given VBP payment model, there exists great heterogeneity across programs. These differences take many forms, including, but not limited to, the provider configuration (e.g., primary care group or hospital group), the structure of the reward incentive, and the quality metrics used to assess performance.

1. Fee-for-Service

Under an FFS payment model, healthcare providers are paid separately for each service they deliver. If the service is covered, a healthcare provider can deliver that

service even if there is a lower cost service that would achieve the same or better expected outcome. While FFS was once the dominant provider reimbursement model, the commercial sector has been moving away from reliance on FFS, citing its tendency to create incentives that reward providers for only the volume and intensity of services they deliver without any consideration for quality or efficiency.[16] The other widely cited criticism of the FFS model is that it fails to incentivize strong coordination of patient care among different providers.

As in the commercial sector, FFS is being significantly reduced in the public arena. The Department of Health and Human Services has set a timeline to help facilitate Medicare's movement away from the FFS payment model. The specific target is for 50 percent of Medicare payments to be made through alternative payment models by 2018 (with an interim goal of 30 percent by 2016). To meet these goals, Centers for Medicare & Medicaid Services (CMS) established a payment taxonomy that creates four categories of payment models: (1) FFS with no quality link, (2) FFS with link to quality, (3) alternative payment models built on FFS structure, and (4) population-based payments. Payments falling into Categories 3 and 4 count towards the goals for alternative payment models. Table 5 provides a description of each category and current Medicare programs that fall into each. The TRICARE MCSCs continue to reimburse providers on an FFS basis with no link to quality (Category 1). To our knowledge, no goals to transition to VBP exist within the TRICARE program.

[16] Mark McClellan and Alice Rivlin, "Improving Health While Reducing Cost Growth: What is Possible?" (Washington, DC: The Brookings Institution, April 2014), https://www.brookings.edu /research/health-policy-issue-brief-improving-health-while-reducing-cost-growth-what-is-possible/.

Table 5. CMS Payment Taxonomy Framework

	Category 1: Fee for Service; No Quality Link	Category 2: Fee for Service; Link to Quality	Category 3: Alternative Payment Models w/FFS Structure	Category 4: Population-Based Payment
Description	• Payments based on volume (no link to quality)	• Portion of payments varies based on quality or efficiency of care	• Some payment linked to effective population management or care episodes • Payments still linked to services • Opportunities for shared savings (or losses)—two-sided risk	• Payment not directly based on service volume • Organizations paid and responsible for care of beneficiary population for extended period (i.e., ≥1 yr)
Traditional Medicare (FFS) (programs under each category)	• Limited in Medicare FFS • Most payments now linked to quality	• Hospital VBP • Physician Value-Based Modifier • Readmissions/ Hospital-Acquired Condition Reduction Program	• ACOs and PCMHs • Bundled payments • Comprehensive primary care initiative	• Eligible Pioneer ACOs in year 3–5
Traditional TRICARE	• Current reimbursement methodology used by MCS contractors			• Uniformed Services Family Health Plan (USFHP)

2. Capitation

Capitation first appeared in the mid-to-late 1990s as an instrument used by managed care organizations in an effort to control costs.[17] There are two general types of capitation models, *full* or *global capitation* and *partial capitation*. Full capitation is consistent with the population-based payments, or Category 4 in the CMS payment taxonomy, while partial capitation is more consistent with models falling into Category 3.

a. Full Capitation

Under full capitation, the healthcare delivery system (HDS) assumes the full financial risk. The insurer and HDS agree on a capitated payment that will cover all services for a given patient population. The single payment is designed to facilitate better integration among provider groups and the hospital, thus reducing wasteful spending due to poor coordination. This system incentivizes providers to keep patients healthy (i.e., encourages preventative care) and reduce waste/inefficiency, because any avoidable treatment costs are financial losses the provider may not bill for additional services. The HDS also faces incentives to invest in information technology (IT) infrastructure and technologies that improve their monitoring of patient health and coordination of care.

Today there are several existing models of fully capitated systems, including Kaiser Permanente and Geisinger Health Systems. Most of these systems employ their own physicians and staff their own hospitals to ensure the capacity to coordinate care and resources as efficiently as possible. The TRICARE USFHP is another example of a capitated health plan. The program is operated by six organizations that provide the TRICARE Prime benefit on a capitated basis in limited geographic areas: Johns Hopkins Medicine (serving Maryland; Washington, DC; and parts of Pennsylvania, Virginia, and West Virginia), Martin's Point (serving Maine, New Hampshire, Vermont, and northeastern New York), Brighton Marine Health Center (serving Massachusetts and Rhode Island), Saint Vincent Catholic Medical Centers (serving New Jersey, parts of New York, Pennsylvania, and Connecticut), Christus Health (serving southeast Texas and southwest Louisiana), and Pacific Medical Center (serving the Puget Sound area of Washington state).

While certain well-integrated systems have had considerable success in reducing costs through a fully capitated model, others suffered significant losses under this type of arrangement. There are also concerns about the ability to expand the model across a wider set of provider types and markets. Additionally, some have argued capitation may

[17] A. B. Frakt and R. Mayes, "Beyond Capitation: How New Payment Experiments Seek to Find the 'Sweet Spot' in Amount of Risk Providers and Payers Bear," *Health Affairs (Project Hope)* 31, no. 9 (September 2012): 1951–8, doi: 10.1377/hlthaff.2012.0344.

incentivize negative behaviors among providers, such as cherry picking only the healthiest patient populations and undertreating individuals whose costs have exceeded the capitated payment limit. While these potential unintended consequences should not be overlooked, the outcome-based focus of the newer VBP models should diminish these concerns.

b. Partial Capitation

Under partial capitation, certain services, such as primary care, may be paid on a capitated basis, while others are paid as FFS. Alternatively, some portion of the FFS may be replaced with a flat payment plus a bonus (or penalty), depending on patient outcome. Many of the "Provider-Sponsored Insurers" operate under some form of partial capitation.[18] These plans are increasing their presence in the Affordable Care Act (ACA)'s insurance marketplace and generally offer price-competitive plans.[19] Partial capitation payment models may also be incorporated into ACOs.

3. Pay-for-Performance (P4P)

P4P schemes began to emerge in the late 1990s as the initial wave of interest in capitated models waned and new alternatives for FFS were explored. P4P encompasses a wide range of concepts and programs that have been applied in a variety of provider configurations (e.g., hospitals and physician groups). Generally speaking, under P4P, an insurer's payments to providers depend to some extent on whether the providers meet certain pre-established targets for quality and care efficiency. Under P4P programs, providers will qualify for reward bonuses if they meet certain quality/efficiency score thresholds, have scores in the top tier of scores, or see large improvements in their scores, depending on their contractual arrangement with the payer. Because the P4P movement encompasses such a wide range of incentive structures, performance metrics, and reward systems, we do not include P4P as a potential VBP model for DoD. We do, however, include a set of models which evolved out the P4P movement. These are discussed in the following section.

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[18] Provider Sponsored Insurers or Provider Sponsored Health Plans are health plans financially sponsored by a provider (hospital, physician group, or health system).

[19] Linda J. Blumberg, John Holahan, and Erik Wengle, "Marketplace Price Competition in 2014 and 2015: Does Insurer Type Matter in Early Performance?" (Washington, DC: The Urban Institute, June 2015), http://www.urban.org/research/publication/marketplace-price-competition-2014-and-2015-does-insurer-type-matter-early-performance/view/full_report.

4. Patient Centered Medical Homes (PCMHs) and Accountable Care Organizations (ACOs)

The PCMH and the ACO are two reform models that seek to create more integrated HDSs. These models, which share common features, have been growing in popularity over the last decade and represent an evolution of the P4P movement. They were both set forth as potential strategies to improve the US healthcare system in the ACA, which required the establishment of several PCMH and ACO demonstration projects.

The PCMH model emphasizes a strong primary care foundation. Under this model, an individual's healthcare is headed by a primary care physician, who builds a long-term medical relationship with the patient. The primary physician provides continuous care, serves as the patient's designated primary contact, and refers the patient to quality specialists when required, while taking responsibility for coordinating this care and following up. The National Committee for Quality and Assurance set certification standards for PCMHs in the following specific areas:

- Enhanced access continuity
- The ability to identify and manage patient populations
- Planning and managing care
- The provision of self-care support and community support
- Tracking and coordination of care
- Measurement and improvement of performance

Two challenges can impede the success of the PCMH model. First, while primary care physicians are incentivized to better manage and coordinate the care of their patients, specialists and other providers outside of the home may not be incentivized to work collaboratively with the primary care providers to achieve their goals. Second, when better primary care results in savings (through reductions in unnecessary tests and procedures, Emergency Room (ER) utilization, and hospitalizations that could have been treated in an outpatient setting), most primary care practices do not have arrangements in place that allow them to share these savings.[20] The ACO offers a method to remedy these limitations.

ACOs are provider-led organizations that attempt to manage a patient's full continuum of care while taking responsibility for the overall cost and quality of the care provided. ACOs are flexible and operate under a variety of provider configurations (e.g.,

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[20] Diane R. Rittenhouse, MD, MPH, Stephen M. Shortell, PhD, MPH, MBA, and Elliott S. Fisher, MD, MPH, "Primary Care and Accountable Care—Two Essential Elements of Delivery-System Reform," *New England Journal of Medicine* 361 (December 10, 2009): 2301–3, doi: 10.1056/NEJMp0909327.

independent practice associations, multispecialty practice groups, integrated delivery systems, or even hospital-based systems) and payment models (e.g., FFS with potential for shared savings or penalties, limited capitation, or substantial capitation). Despite many differences, a few core concepts are common across models. McClellan et al. define ACOs as providers who are jointly held accountable for achieving measured quality improvements and reductions in the rate of spending growth.[21] They further describe three defining core ACO principles:

- Provider-led organizations with a strong primary care base are together responsible for the quality of care and per capita costs for the full continuum of care for a given population of patients,
- Payments are linked to quality improvements that also reduce overall costs, and
- There must be reliable performance measurement to support improvement and provide evidence that savings are achieved though improvements in care.

Because PCMHs and ACOs are based on a strong primary care foundation with an emphasis on care coordination and continuity, resources must be invested in improving these capabilities.

5. Bundled or Episode-Based Payments

With payment bundling, a set of providers agree to collectively accept a pre-determined payment equal to the expected cost for a given set of healthcare-related services. The services included in the bundle vary and are typically tied to a defined "episode of care," such as the care surrounding a given surgical procedure. Bundled payments typically include hospital, physician, ancillary services, and any follow-up care required for 30–90 days after discharge. The main aim of bundling payments is to increase coordination across providers engaged in a patient's episode of care, which could potentially reduce inefficiencies and result in cost savings. Patient outcome metrics can be incorporated into the bundled payment arrangement to ensure providers do not reduce services that would benefit the patient.

These arrangements have been in use for more than two decades, but their application has been somewhat limited. Bundling has been most commonly used for organ and bone marrow transplant services, but it has expanded into other areas as well. Transplants were originally selected for bundling for several key reasons. These include the facts that transplants have clearly defined start and end points for the episode of care, they have well-established clinical protocols and outcome measures, and they are high-

[21] Mark McClellan et al., "A National Strategy To Put Accountable Care Into Practice," *Health Affairs* 29, no. 5 (May 2010): 982–90, doi: 10.1377/hlthaff.2010.0194.

cost procedures that increase the potential for large savings.[22] Additional procedures now commonly selected for bundling include bariatric surgery, cardiac bypass surgery and other cardiac interventions, and orthopedic surgery. The Bundled Payment for Care Improvement (BPCI) initiative run by CMS is currently experimenting with bundled payment models that cover 48 different episodes of care. Several private groups have also experimented with bundled payments for certain cancer treatments, and CMS has recently followed this trend with the launch of their Oncology Care Model, which will use episode-based payments surrounding the administration of chemotherapy.[23]

Evidence suggests bundling has the potential to generate real cost savings, but there are hurdles to overcome. Bundling requires a standard definition for an episode of care that can be challenging to develop, especially when a patient has comorbidities. A successful bundling strategy also typically involves the ability to send patients to only the highest quality providers. Achieving this type of selectivity could be difficult for public payers such as Medicare and TRICARE. Additionally, problems arise when trying to establish a single contract with hospitals and physicians—successful arrangements are typically implemented in health systems where there is already some degree of integration (i.e., where the physicians are employees of the hospital). Last, both payers and providers tend to process claims for bundled payments manually due to their complicated structure, which would represent a challenge for high-volume services. Despite these impediments, the trend towards bundling is growing.

B. Evidence on Value-Based Healthcare Savings Generated

The literature on VBP is large and growing quickly. Several reports now provide a survey or "environmental scan" of many VBP programs. The most comprehensive of these is a 2014 survey by the RAND Corporation that examined 129 different VBP programs (91 P4P programs, 27 ACOs, and 11 bundled payment programs).[24] A VBP literature survey produced by the Medicaid and Children's Health Insurance Program (CHIP) (MAC) Learning Collaboratives also provided a large list of studies evaluating VBP programs.[25] While the literature is large, many studies focus only on clinical measures and patient outcomes, making no reference to cost savings. The literature

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22 Government Accountability Office, *Private Sector Initiatives for Bundled Payments*, GAO-11-126R, January 31, 2011, http://www.gao.gov/new.items/d11126r.pdf.

23 "Oncology Care Model Initiative," Centers for Medicare & Medicaid Services, http://innovation.cms.gov/initiatives/oncology-care/.

24 Cheryl L. Damberg et al., *Measuring Success in Health Care Value-Based Purchasing Programs: Findings from an Environmental Scan, Literature Review, and Expert Panel Discussions* (Santa Monica, CA: The RAND Corporation, 2014), http://www.rand.org/pubs/research_reports/RR306.

25 Medicaid and CHIP (MAC) Learning Collaboratives, August 7, 2012, http://www.medicaid.gov/state-resource-center/mac-learning-collaboratives/downloads /vbp_literature_survey_080712.pdf.

review the IDA research team performed for this paper and provides in Appendix B focused on studies that include savings metrics along with reported clinical outcomes.

The following provides an overview of the range of savings (or losses) generated by each of the four VBP models previously discussed: capitation, P4P, ACOs and PCMHs, and bundling. For each VBP model, we present a range for the overall levels of savings found in the reviewed literature. The overall savings range is also disaggregated into the savings ranges found for specific relevant subcategories that vary by model. For capitation, in which payments are population-based, relevant subcategories are beneficiary population types (i.e., Medicare, Medicaid, or beneficiaries in a private health plan). For ACOs, in which the focus is on strong preventative care and continuity of care, subcategories are savings generated from specific types of utilization reduction (e.g., hospital admissions or ER visits). For bundled payments, subcategories are specific types of care episodes (e.g., hip replacements, knee replacements, or coronary artery bypass grafts (CABGs)).

1. Capitation

The literature on capitated payment models covered in our review generally showed healthcare savings through reductions in the overall level of spending. The studies reviewed largely covered state Medicaid plans that transitioned from FFS reimbursement to capitated arrangements, but also covered the Medicare program and a few commercial models such as the Blue Cross Blue Shield (BCBS) of Massachusetts Alternative Quality Contract. The large number of studies on Managed Medicaid stems from the fact that a large trend occurred towards capitated managed care plans and away from FFS in the Medicaid program that began in the 1990s. Under these arrangements, states would pay a managed care organization a set amount, often in the form of a monthly premium, to deliver healthcare services for a beneficiary population. Today, nearly 40 states, as well as Washington, DC, have contracts with managed care organizations.

Another prominent example of capitated arrangements in the public sector is the Medicare Advantage (MA) Plan, sometimes referred to as “Medicare Part C.” Medicare beneficiaries now have the choice of receiving their healthcare through traditional Medicare (FFS) or through private MA plans. MA plans are offered by private companies that receive a fixed amount to provide the same services covered by traditional FFS Medicare for their enrolled beneficiaries. MA plans attract beneficiaries by offering supplemental benefits not included in traditional Medicare or lower cost sharing. The tradeoff is that MA beneficiaries are restricted to providers in their preferred networks. The amount of money the private plans are paid by Medicare is determined through a bidding process. Each plan submits a bid that represents the dollar amount the plan

estimates will cover the benefit package for a beneficiary of average health status. These bids are combined with set benchmarks to determine plan premiums (or rebates).[26] For the last two years, the average plan bid was 94 percent of the projected FFS spending for beneficiaries with similar risk and geographic profiles. This indicates that, on average, these capitated plans believe they can deliver the Medicare health benefit for 6 percent less than the traditional FFS system.

Table 6 aggregates the savings reported from each of the capitation studies included in our review (see Table B-1 in Appendix B) and creates an overall savings range (lower bound (LB), median, and upper bound (UB)). Savings specific to Medicaid programs, Medicare programs, and commercial plans are also reported separately. Overall, the literature indicates capitated payment models can save between 2 and 11 percent.

Table 6. Savings Range from VBP literature, Capitation

	Savings Range			Number of Studies Reporting		
Metric	**LB**	**Median**	**UB**	**Positive Savings**	**Zero Savings**	**Sources**
Total Expenditures	**2%**	**6%**	**11%**	**7**	**1**	**1, 2, 3, 4, 5, 6, 12**
Subcategory:						
Managed Medicaid	3%	5%	11%	5	0	1, 2, 3, 4, 5
Medicare Advantage	6%	6%	6%	1	0	6
Private Plan	2%	6%	10%	1	0	12

Note: Outliers (observations with no cost savings or cost savings greater than 1.5 standard deviation from the mean) are excluded from range presentation, but included in median calculation.

2. Patient Centered Medical Homes (PCMHs) and Accountable Care Organizations (ACOs)

The PCMH and ACO models covered in our review generally resulted in healthcare savings through reductions in the overall level of spending on a given patient population. The reduction in the overall level of expenditures was often traced back to reductions in (1) inpatient hospital stays, (2) the length of hospitalizations, (3) emergency department utilization, and (4) readmissions. These reductions are generally attributed to the strong primary care foundation that emphasizes prevention, enhanced access, and continuity of care (especially for those with chronic conditions).

[26] For a detailed discussion of the MA plan bid process, see "Chapter 12. The Medicare Advantage program: Status report," in Medicare Payment Advisory Commission, *Report to the Congress: Medicare Payment Policy* (Washington, DC, March 2016), 327–65, http://medpac.gov/docs/default-source/reports/march-2016-report-to-the-congress-medicare-payment-policy.pdf?sfvrsn=0.

Table 7 aggregates the savings reported from each of the PCMH and ACO studies included in our review (see Table B-2 in Appendix B) and creates an overall savings range. Utilization savings ranges for the reduction categories mentioned above are also reported, along with the number of studies used to conduct the range and the source studies. Overall, the literature indicates PCMH and ACO healthcare models can save between 0 and 17 percent. Savings were often lower in the initial years of the PCMH/ACO and grew over time.

It should be noted that several years ago, the DC system transformed their MTF primary care clinics into a PCMH model. For beneficiaries enrolled to these homes, DoD reports a two-year, 12 percent reduction in inpatient admissions and a two-year, 11 percent reduction in length of stay (LOS).[27] We include these data points in our analysis. Table 7 provides the savings ranges found in the literature for PCMHs and ACOs.

Table 7. Savings Ranges from VBP Literature, ACOs and PCMHs

	Savings Range			Number of Studies Reporting		
Metric	**LB**	**Median**	**UB**	**Positive Savings**	**Zero Savings**	**Sources**
Total Expenditures	**0%**	**3%**	**17%**	**13**	**2**	**1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14**
Subcategory:						
Reduced Inpatient Admissions	6%	10%	12%	9	0	1, 4, 5, 6, 7, 8, 9, 14, 15
Reduced LOS	6%	11%	11%	5	0	3, 6, 9, 14, 15
Reduced Readmissions	1%	8%	8%	3	0	6, 12, 14
Reduced ER Visits	2%	4%	9%	3	1	1, 4, 8, 9

Note: Outliers (observations with no cost savings or cost savings greater than 1.5 standard deviation from the mean) are excluded from range presentation, but included in median calculation.

3. Bundled Payments

The bundled payment models covered in our review resulted in healthcare savings, which are generally attributed to care coordination and selectivity in providers to increase the likelihood of optimal outcomes (e.g., reduced complications or shorter recovery times). Table 8 aggregates the savings reported from each of the bundled payment studies included in our review (see Table B-3 in Appendix B) and creates an overall savings range. Episode-specific savings are also reported for some of the most widely studied

[27] Office of the Assistant Secretary of Defense (Health Affairs), *Evaluation of the TRICARE Program: Access, Cost, and Quality – Fiscal Year 2015 Report to Congress*, February 28, 2015.

episodes of care. Overall, the literature indicates the bundling of surgical procedures can save between 1 and 10 percent.

Table 8. Savings Range from VBP Literature, Bundled Payments

	Savings Range			Number of Studies Reporting		
Metric	**LB**	**Median**	**UB**	**Positive Savings**	**Zero Savings**	**Sources**
Total Expenditures	**1%**	**3%**	**10%**	**9**	**1**	**1, 2, 3, 4, 5, 6, 12, 13**
Subcategory:						
Cardiac Defibrillator	3%	3%	3%	1	0	11
Cardiac Valve	2%	2%	2%	1	0	11
CABG	2%	5%	10%	5	0	1, 2, 3, 4, 11
Knee/Hip Replacement	2%	2%	2%	1	0	11
Pacemaker	2%	2%	2%	1	0	11
Percutaneous Coronary Intervention	0%	0%	0%	1	0	11

Note: Outliers (observations with no cost savings or cost savings greater than 1.5 SD from the mean) are excluded from range presentation, but included in median calculation.

5. Estimated Cost Savings

Chapter 4 presented a range of healthcare savings that have been generated from various VBP models. In this chapter, we use these savings ranges combined with data on the TRICARE program to estimate the potential magnitude of the savings that could be generated from introducing alternative payment models into the TRICARE program. The estimates are exploratory in nature and represent a first look at what the rough order of magnitude (ROM) of VBP-based savings could be. They are developed through simple cost savings simulations that rely on a set of empirically based assumptions.

In order to create these estimates, it is first necessary to understand the quantity of care purchased through the current program as well as the level and composition of the spending. The following section provides an overview of total TRICARE purchased care utilization and spending. Healthcare delivered overseas is excluded from the analysis. Unless noted, the costs reported are the costs paid by the TRICARE program. They exclude costs covered by beneficiaries (co-pays and deductibles) and other health insurance (OHI) (such as Medicare). It should also be noted that some beneficiaries receive care in both the DC and PSC systems (i.e., primary care in DC and specialist care in PSC). This is not accounted for in this analysis. We discuss this issue further in Section B.4 of this chapter, where we describe some of the shortcomings and caveats that should be understood about these potential savings estimates.

A. Purchased Care Utilization and Total Expenditures

In FY 2015, purchased care accounted for 67 percent of the total inpatient workload and 65 percent of the total outpatient workload in the TRICARE program.[28] Across the Services, the Army purchased a slightly smaller share of care relative to the Air Force and Navy. Figure 6 shows the share of the workload purchased by each Service.

[28] Workload is measured in intensity adjusted units. For inpatient care workload is measured in RWPs. For outpatient care, workload is measured in RVUs. This excludes care purchased for the TRICARE for Life (TFL) population.

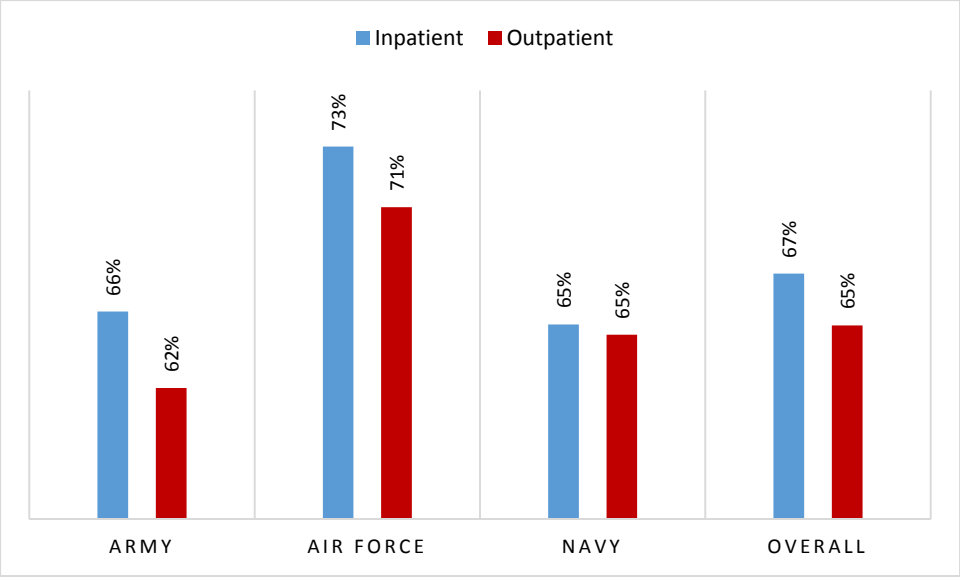

Figure 6. Purchased Care as a Share of Total TRICARE Workload, FY 2015

The cost of the healthcare purchased by TRICARE was just under $19.8 billion in FY 2015. The Army's share of the total purchased care cost was approximately $8 billion. Figure 7 shows what TRICARE paid for the three major components of healthcare spending (inpatient, outpatient, and pharmaceuticals). The amount paid for Army beneficiaries is identified separately, with the remaining Services aggregated together.

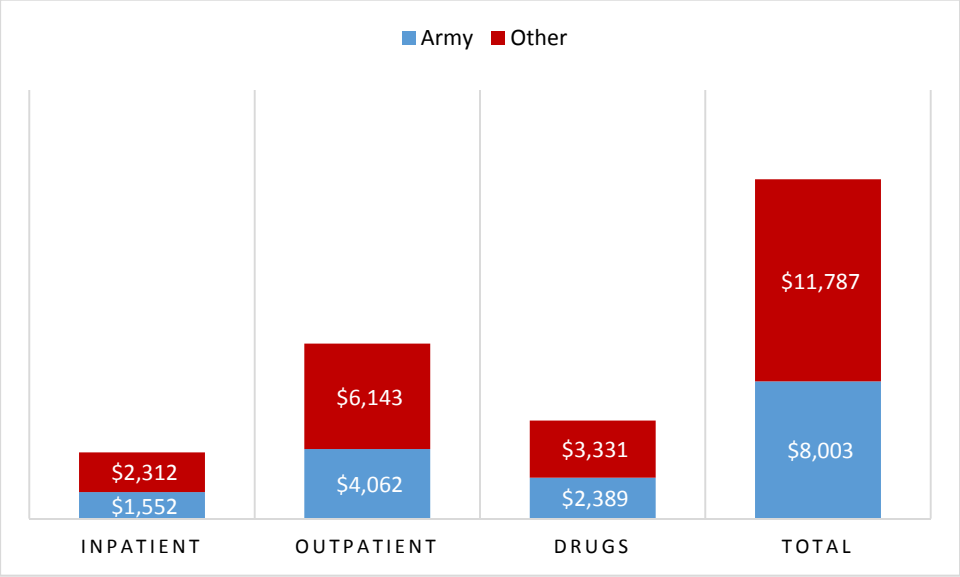

Figure 7. Total Amount Paid by TRICARE, FY 2015 (in Millions)

By beneficiary category, retirees (and their dependents) under age 65 (RET/RETFM (non-TFL)) accounted for the largest share of purchased care spending, followed by active duty family members (ADFMs), including the family members of the Guard and Reserve. TRICARE for Life (TFL)-eligible retirees and dependents (RETFM (TFL)) consume a large quantity of care, but are less costly to DoD, given that Medicare is the first payer for this population. Figure 8 shows the total amount paid by TRICARE for each beneficiary population in FY 2015. For the TFL beneficiaries, we separately include the amount paid by OHI (largely Medicare) to illustrate the full healthcare cost of this population to the government.[29]

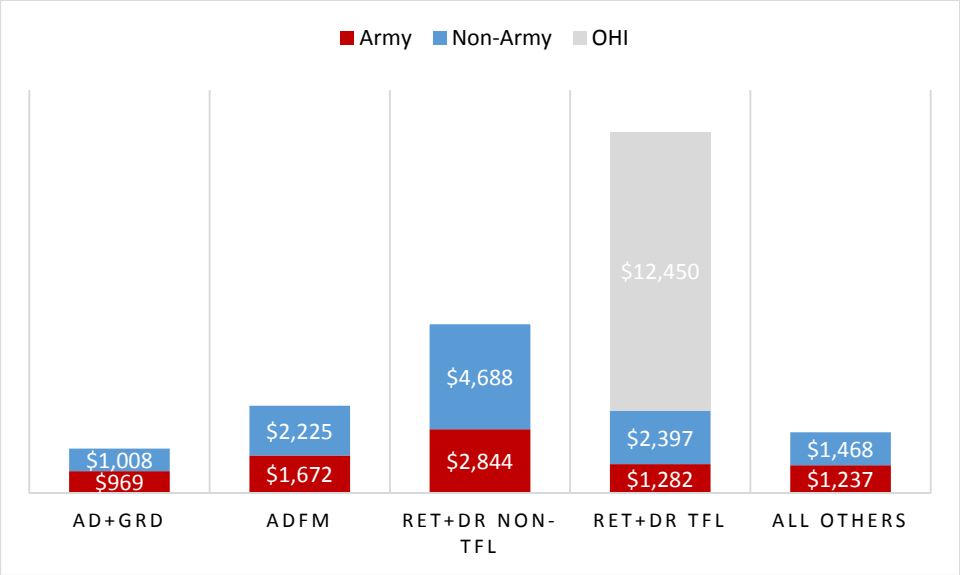

Figure 8. Total Amount Paid by TRICARE by Beneficiary Category, FY 2015 (in Millions)

The fact that DoD purchases more than 65 percent of the workload delivered through the TRICARE program, combined with the level of expenditure, nearly $20 billion a year, suggests that alternative payment models with only a small percentage reduction in total expenditures could still yield a significant level of savings.

To better understand the savings potential for each VBP model, we perform, in Section B of this chapter, a series of cost excursions that use data on FY 2015 TRICARE purchased care utilization and expenditure and the savings ranges reported in the literature. We begin by applying savings ranges to broad expenditure categories like the ones shown above and then perform a more detailed analysis specific to each VBP model

[29] We cannot perfectly identify the amount paid by the Medicare program for TFL beneficiaries. What we can identify is the amount paid by OHI, which includes what Medicare paid but also includes the contributions of any third-party health insurer (such as Aetna, Cigna, or BCBS). In addition, OHI may not capture all care paid for by Medicare if a TRICARE claim is not filed.

using more disaggregated levels of spending and utilization (e.g., acute inpatient admissions, readmissions, emergency room visits, or bundled surgeries).

Because active duty personnel receive the majority of their care from the DC system, we exclude the care purchased for these beneficiaries from our analysis. Care received by the remaining beneficiary population is included and separated into two main categories: care purchased for ADFMs and RET/RETFMs under age 65, and care received by TFL beneficiaries (RET/RETFMs over 65). This distinction is required because Medicare is the first payer for the TFL population, and the TFL benefit is not administered through the regional MCSCs.[30]

For the ADFM and RET/RETFM under 65 population, we present the estimated savings to DoD, which are based on the TRICARE-paid amount. For the TFL population, we present the estimated savings to DoD as well as the potential savings for the overall government (which are based on what TRICARE pays and our best estimate of what Medicare pays). It should be noted that TFL provides wrap-around coverage for beneficiaries enrolled in Medicare Part A and B. Medicare is the first payer for these beneficiaries, and they are free to use whatever providers they like as long as they accept Medicare beneficiaries. Because care is not managed in the traditional FFS Medicare program, it is unlikely the VBP models that rely on care management and coordination could generate savings for the TFL populations under the current setup. To realize savings from this population we would have to assume a new system that permitted care management. For instance, TFL beneficiaries could have to enroll in some form of health plan, like a Medicare Advantage plan, where some restrictions were placed on provider networks. Further discussion of this topic is provided in Section 5.C.

B. Estimated VBP Savings for the non-Medicare-Eligible Population

The following discussion pertains to the current TRICARE expenditure levels and estimated savings that could be generated through using VBP payment models to purchase care for ADFMs and non-Medicare-eligible RET/RETFMs. We begin our analysis with highly aggregated categories of expenditure and then move to more specific categories (e.g., acute hospitalizations, readmissions, or ER visits).

Table 9 reports the total level of PSC expenditure for this beneficiary group by Service (Army, and all) and by two categories: (1) Healthcare Services Only (which includes inpatient and outpatient care but excludes pharmaceuticals); and (2) Total (which includes both healthcare services and pharmaceuticals). The data show that DoD currently spends just over $14 billion purchasing healthcare for this group of beneficiaries.

[30] The TFL benefit is administered through Wisconsin Physicians Service.

Table 9. TRICARE Expenditure for ADFMs and RET/RETFMs<65, FY 2015 (in Millions)

Beneficiaries	Healthcare Services	Total (includes drugs)
Army	$4,193	$5,753
All	$10,399	$14,134

Note: The costs reported in the table are based on the TRICARE-paid amount and represent the costs to DoD.

1. Estimated Savings from Capitation

The estimated healthcare savings reported in the literature for capitated payment models ranged from 2.4 to 10.7 percent for the beneficiary populations involved. Savings were generally attributed to better care coordination and management and were reported in terms of reductions in the overall expenditure level.

If PSC expenditure were to be reduced by a range consistent with the capitation literature, savings to DoD on healthcare services alone could range anywhere from $250 million to $1,113 million annually, as shown in Table 10. Savings consistent with the median savings rate in the literature would be approximately $593 million. If we considered the total expenditure level (inclusive of pharmaceuticals), the savings could range from $339 million to nearly $1,512 million for DoD.

Table 10. Estimated Annual Capitation Savings Ranges (in Millions)

Category	Beneficiaries	LB	Median	UB
Healthcare Services Only	Army	$101	$239	$449
	All	$250	$593	$1,113
Healthcare and Pharmaceuticals	Army	$138	$328	$616
	All	$339	$806	$1,512

Note: The savings shown in the table are based on the TRICARE-paid amount and represent savings to DoD.

2. Estimated Savings from PCMH and ACO Models

The estimated healthcare savings reported in the literature for PCMHs and ACOs ranged from near zero to 16.5 percent for the beneficiary populations involved. Savings generated from PCMHs and ACOs are generally attributed to a strong primary care foundation that emphasizes prevention, improved continuity and coordination of care, and improved access. The healthcare savings realized for a given beneficiary population often come in the form of reduced utilization in areas such as inpatient hospitalization, LOS during inpatient hospitalizations, and ER utilization. In the following savings

analysis, we begin by applying the overall ACO/PCMH savings range to total PSC expenditures as we did for capitation. We then perform a more detailed analysis for the various subcategories of savings generated by utilization reductions.

a. Overall PCMH and ACO Savings

If PSC expenditure were to be reduced by a range consistent with the ACO literature, 0.12 to 16.5 percent, savings to DoD on healthcare services alone could range anywhere from $12 million to $1,716 million annually, as shown in Table 11. Savings consistent with the median savings rate in the literature would be $343 million.

If we considered the total expenditure level (inclusive of pharmaceuticals), the savings would range from $17 million to over $2,300 million. Savings consistent with the median savings rate in the literature would be $466 million for DoD.

Table 11. Estimated Annual ACO Savings Ranges (in Millions)

Category	Beneficiaries	LB	Median	UB
Healthcare Services Only	Army	$5	$138	$692
	All	$12	$343	$1,716
Healthcare and Pharmaceuticals	Army	$7	$190	$949
	All	$17	$466	$2,332

Note: The savings shown in the table are based on the TRICARE-paid amount and represent savings to DoD.

While applying the overall range of savings reported in the ACO literature to aggregate expenditure levels provides a good first look at the potential savings that could be generated from PCMH or ACO payment models, it may be possible to generate more precise savings range estimates by using more disaggregated data and savings ranges specific to certain subcategories of spending. The ACO literature often reports savings generated from reduced utilization of certain types of care episodes, including inpatient hospitalizations, readmissions, a reduction in the average LOS for inpatient hospitalizations, and ER utilization. In the following sections, we estimate savings for each of these categories and then aggregate them.

b. Inpatient Hospitalizations and Readmissions

Inpatient hospitalizations are among the most expensive episodes of care. Many VBP models therefore attempt to reduce hospitalizations through improving the management of their populations' health. This is typically accomplished through improved primary and preventative care as well as aggressively managing the continuity of care for patients with chronic conditions.

In FY 2015, DoD paid for nearly 350,000 inpatient purchased care hospital admissions. Approximately 85 percent of these occurred in acute care hospitals, while the remainder were admissions to longer term care facilities. The average cost of an admission to an acute care facility was $8,368, while the average cost of an admission to a longer term facility was $12,613. Because the care delivered in acute care facilities and non-acute care facilities is very different in nature, the VBP literature commonly separates the two and often focuses on acute inpatient admissions. Table 12 shows the number of inpatient admissions and the average cost of admissions for each category of care.

Table 12. Inpatient Hospitalizations and Average Cost For ADFMs and RET/RETFMs<65, FY 2015

Category	Beneficiaries	Admissions	Average Cost
Acute Care	Army	117,732	$8,554
	All	300,750	$8,386
Non-Acute Care	Army	21,546	$11,739
	All	47,296	$12,613

Note: The average costs shown in the table are based on the TRICARE-paid amount, which represents the cost to DoD.

While we could estimate the savings from a reduction in inpatient hospitalizations using the average inpatient hospitalization costs shown in Table 12, it is possible that such an analysis could overstate the savings if the prevented hospitalizations were of a less serious (and hence less costly) nature. To account for this possibility, we use the potentially preventable admission classification created by the Agency for Healthcare Research and Quality (AHRQ) to identify the subset of acute inpatient admissions that fall into this category.[31] The average cost of the hospitalizations identified as preventable was indeed lower than the average acute care hospitalization cost ($4,855 versus $8,386 for the non-TFL beneficiary population). Table 13 reports the admissions and average costs associated with each category of potentially preventable admissions. We do not break the costs out by Army beneficiaries and all beneficiaries in this table, given the smaller sample size.

For FY 2015, roughly 5 percent of acute inpatient admissions for the ADFM and RET/RETFM under 65 population were classified as potentially preventable. Admissions for congestive heart failure (CHF), pneumonia, and chronic obstructive pulmonary

[31] When an admission is classified as potentially preventable, it does not mean that the particular hospitalization was unnecessary. The classification simply indicates that the admission is for a condition whose risk of hospitalization can be minimized through strong primary care and preventative measures.

disease (COPD) were the top three categories of potentially preventable hospital admissions, collectively accounting for nearly 40 percent.

Table 13. Preventable Inpatient Admissions, FY 2015

Admission Type	Admissions	Average Cost
Not an AHRQ Preventable Admission	285,068	$8,580
Preventable Admissions	15,682	$4,855
Total	**300,750**	**$8,386**
Subcategory:		
Adult Bacterial Pneumonia	2,263	$4,961
Adult COPD	1,778	$4,438
Adult Heart Failure	1,742	$5,828
Dehydration	1,429	$4,470
Adult Short Term Diabetes	1,405	$4,215
Adult Urinary Tract Infection	1,338	$3,715
Adult Asthma	1,231	$4,244
Diabetes Long Term Complications	836	$7,262
Adult Perforated Appendix	486	$10,245
Adult Hypertension	390	$3,648
Angina w/o Procedure	191	$4,620
Adult Uncontrolled Diabetes	133	$3,229
Lower Extremity Amputation for Diabetes	105	$13,806
Pediatric Asthma	833	$2,967
Pediatric Gastroenteritis	687	$2,907
Pediatric Urinary Tract Infection	331	$2,882
Pediatric Short Term Diabetes	269	$4,179
Pediatric Perforated Appendix	235	$10,953

Note: The average costs shown in the table are based on the TRICARE-paid amount and represent the cost to DoD.

If acute inpatient hospitalizations were reduced by the range consistent with the literature, 6.4 to 12 percent, DoD could expect to save somewhere between $93 and $175 million (assuming an average cost equal to the average cost of a preventable admission). Savings consistent with the median reduction in inpatient admissions would be approximately $150 million. If non-acute inpatient hospitalizations were also reduced, the savings would range from $132 to $247 million (i.e., for acute and non-acute care). Table 14 shows the calculated savings for Army beneficiaries and all TRICARE beneficiaries.

Table 14. Estimated Annual Savings Range for Inpatient Admission Reductions (in Millions)

Category	Beneficiaries	LB	Median	UB
Acute Care	Army	$37	$59	$69
	All	$93	$150	$175
Non-Acute Care	Army	$16	$26	$30
	All	$38	$61	$72

Note: The savings shown in the table are based on the TRICARE-paid amount and represent the savings to DoD.

Readmissions, or the rate at which discharged patients return to the hospital within a certain time period, is another metric commonly discussed in the VBP literature. Readmission rates are believed to be an important indicator of the quality of care because they are driven by the actions taken (or not taken) during the initial hospital stay.[32] For instance, readmissions may result if the patient is discharged too early and treatment is incomplete, if the underlying problem is not identified and treated, or if post-discharge care is not coordinated.

To identify the readmission rate in PSC, we must first define which admissions count as readmissions and which admissions should be included in the readmission rate denominator. We define readmissions to be any PSC admission to an acute care facility that occurs within 30 days of discharge from the same (or another non-military) acute care facility. The denominator used to construct the readmission rate is total acute inpatient admissions less admissions that resulted in death or transfer to a hospice facility. By these criteria, we identify just over 22,000 inpatient readmissions in PSC.[33] The readmission rate was approximately 7 percent. Table 15 shows the number of readmissions, the readmission rate, and the average cost of a readmission for Army beneficiaries and all TRICARE beneficiaries.

Table 15. Readmissions, FY 2015

Beneficiaries	Readmissions	Rate	Average Cost
Army	6,682	7.8%	$13,484
All	15,728	7.1%	$13,922

Note: The average costs shown in the table are based on the TRICARE-paid amount, which represents the cost to DoD.

[32] Norbert I. Goldfield, MD, et al., "Identifying Potentially Preventable Readmissions," *Health Care Financing Review* 30, no. 1 (Fall 2008): 75–91, https://www.cms.gov/Research-Statistics-Data-and-Systems/Research/HealthCareFinancingReview/Downloads/08Fallpg75.pdf.

[33] We do not consider an acute PSC admission to be a readmission if the first hospitalization occurs at a military-run hospital.

If all readmissions were reduced by a range consistent with the literature, 0.67 percent to 8.1 percent, DoD could expect to save somewhere between $1.5 and $18 million. Savings consistent with the median reduction in readmissions would be approximately $18 million. Table 16 shows the calculated savings for Army beneficiaries and all TRICARE beneficiaries.

Table 16. Estimated Annual Savings Range from Reduced Readmissions (in Millions)

Beneficiaries	LB	Median	UB
Army	$0.6	$7.3	$7.3
All	$1.5	$17.7	$17.7

Note: The savings shown in the table are based on the TRICARE-paid amount and represent savings to DoD.

c. Length of Inpatient Hospital Stays

LOS is another metric that has received great attention in the VBP literature. Research suggests efficiencies can be gained during inpatient stays without lowering care quality or increasing unnecessary readmissions.[34] This is due in part to the fact that hospitalized patients spend a lot of time waiting for things to happen (e.g., medical tests and doctor consults). This wait can be shortened when hospitalists coordinate efficiently with ancillary services and providers to complete care in a timely manner and facilitate post-discharge care. Table 17 shows the average LOS for inpatient hospitalizations along with the daily average cost. The daily average cost is calculated from the hospital services cost only and does not include physicians' fees. Hospital services costs are more relevant when assessing the marginal cost of an additional day in an inpatient facility.

[34] P. J. Kaboli, MD, MS, et al., "Associations Between Reduced Hospital Length of Stay and 30-Day Readmission Rate and Mortality: 14-Year Experience in 129 Veterans Affairs Hospitals," *Annals of Internal Medicine* 157, no. 12 (December 18, 2012): 837–45, doi: 10.7326/0003-4819-157-12-201212180-00003.

Table 17. Average LOS and Daily Cost, FY 2015

Category	Beneficiaries	LOS (in days)	Daily Cost
Acute Care Hospitals	Army	3.7	$1,863
	All	3.6	$1,890
Non-Acute Care Hospitals	Army	25.2	$466
	All	27.1	$465

Note: The average costs shown in the table are based on the TRICARE-paid amount, which represents the costs to DoD.

If the average LOS for acute hospitalizations were reduced by the range consistent with the literature, 5.7 to 11.1 percent, we could expect healthcare savings to range somewhere between $117 and $228 million, as shown in Table 18. Savings consistent with the median reduction in LOS would be approximately $226 million. Savings would be even larger if we assume that LOS in non-acute facilities were also reduced.

Table 18. Estimated Annual Savings Range from LOS Reduction (in Millions)

Category	Beneficiaries	LB	Median	UB
Acute Care	Army	$47	$90	$91
	All	$117	$226	$228
Non-Acute Care	Army	$14	$28	$28
	All	$34	$66	$66

Note: The savings shown in the table are based on the TRICARE-paid amount and represent total savings to DoD.

d. Emergency Room (ER) Utilization

Many ER visits could be managed in lower cost settings such as urgent care centers or regularly scheduled outpatient visits. For the broader US healthcare economy, researchers have estimated that somewhere between 14 and 27 percent of all ER visits could have been taken care of in such settings, for a potential cost savings of nearly $4.5 billion annually.[35]

In FY 2015, there were nearly 1.4 million ER visits by ADFMs and RET/RETFMs under 65. As shown in Table 19, the average cost of an ER visit was $494, while the average cost of an urgent care (UC) visit was only $79—a difference of $415.

[35] Robin M. Weinick, Rachel M. Burns, and Ateev Mehrotra, "Many Emergency Department Visits Could Be Managed At Urgent Care Centers And Retail Clinics," *Health Affairs* 29, no. 9 (September 2010): 1630–6, doi: 10.1377/hlthaff.2009.0748.

Table 19. ER Utilization and Average Costs, FY 2015

Beneficiaries	ER Visits	Average ER Cost	Average UC Cost
Army	622,994	$471	$77
All	1,396,995	$494	$79

Note: The average costs shown in the table are based on the TRICARE-paid amount and represent the cost to DoD.

If ER utilization were reduced by the range consistent with the literature, 1.6 to 9.3 percent, we could expect savings to range between $11 and $64 million, as shown in Table 20. Savings consistent with the median ER utilization reduction would be approximately $28 million. If we were to make the more conservative assumption that 1.6 to 9.3 percent of ER visits were replaced with UC visits, savings would range between $9 and $54 million, with a median estimate of $23 million. Table 20 shows the calculated savings ranges for Army beneficiaries and all TRICARE beneficiaries.

Table 20. Estimated Annual Savings from Reduced ER Utilization (in Millions)

Category	Beneficiaries	LB	Median	UB
Utilization Reduction	Army	$5	$12	$27
	All	$11	$28	$64
Utilization Offset with Urgent Care	Army	$4	$10	$23
	All	$9	$23	$54

Note: The savings shown in the table are based on the TRICARE-paid amount and represent savings to DoD. Estimated savings to the government (DoD and Medicare) would range from $21 to $125 million for utilization reduction and $18 to $105 million for utilization offset with UC.

e. Combined Savings from ACO-based Utilization Reductions

Taking the savings range generated from the four major sources of ACO-based savings from utilization reduction (inpatient hospitalizations, readmissions, LOS, and ER utilization) and aggregating them creates an estimate of the overall level of ACO savings. Table 21 summarizes the estimated savings ranges for each utilization category and the combined total.

Table 21. Combined Savings from ACO-based Utilization Reduction (in Millions)

Beneficiary Group/ Utilization Category	LB	Median	UB
Army Beneficiaries			
Hospitalizations-Acute	$37	$59	$69
Hospitalizations-Non-Acute	$16	$26	$30
Length of Stay-Acute	$47	$90	$91
Length of Stay-Non-Acute	$14	$28	$28
Readmissions	$1	$7	$7
ER Utilization	$4	$10	$23
Total	**$118**	**$220**	**$248**
All Beneficiaries			
Hospitalizations-Acute	$93	$139	$175
Hospitalizations-Non-Acute	$38	$57	$72
Length of Stay-Acute	$117	$226	$228
Length of Stay-Non-Acute	$34	$66	$66
Readmissions	$1	$18	$18
ER Utilization	$9	$23	$54
Total	**$293**	**$544**	**$612**

Note: The savings shown in the table are based on the TRICARE-paid amount and represent savings to DoD. The reported cost savings for ER utilization are the savings from ER utilization offset with UC.

The combined savings for all beneficiaries range from a low of $293 million to nearly $612 million with a median savings of roughly $544 million. This range is more compressed than the range generated from the aggregate expenditure level. While it is a more precise estimate, it may understate the true savings potential as it only considers savings generated from the four main categories of utilization reduction.

3. Estimated Savings from Bundling Episodes of Care

The estimated healthcare savings reported in the literature for bundling typically ranged from 1 to 10 percent across all episodes of care for the beneficiary populations involved. Bundling has become fairly common for certain surgical procedures such knee and hip replacements and CABG surgery, and its use is quickly expanding. For example, Medicare is currently running a large bundling pilot, the BPCI, which includes 48 different episodes of care. The BPCI is composed of four broadly defined models of care, which link payments for the multiple services beneficiaries receive during an episode of care. Each episode of care is identified by a set of Medical Severity Diagnosis Related

Groups (MS-DRGs).[36] Table 22 provides an example of the MS-DRGs episode grouping using the CABG surgery episode of care.

Table 22. MS-DRG-based Episode of Care

Episode of Care	Anchor MS-DRG	MS-DRG Title
Coronary Artery Bypass Graft (CABG) Surgery	231	Coronary bypass with Percutaneous Transluminal Coronary Angioplasty (balloon) with major complications or comorbidities
	232	Coronary bypass with Percutaneous Transluminal Coronary Angioplasty (balloon) without major complications or comorbidities
	233	Coronary bypass with cardiac catheter with major complications or comorbidities
	234	Coronary bypass with cardiac catheter without major complications or comorbidities
	235	Coronary bypass without cardiac catheter with major complications or comorbidities
	236	Coronary bypass without cardiac catheter without major complications or comorbidities

An individual with any of the included MS-DRGs could be eligible to have their CABG care bundled. The bundle could be limited to the inpatient stay (model 1 in the BPCI) or include all related post-acute care for up to 90 days (model 2 in the BPCI). Using Medicare's MS-DRG episode of care definitions for the 48 covered bundles, we calculate there were 307,910 TRICARE admissions that would have been eligible for bundling in FY 2015. The majority of these, roughly 73 percent, were for TFL beneficiaries. This care will be discussed in Section C of this chapter. Here we discuss the episodes of care that could have been bundled for ADFMs and RET/RETFMs under 65.

Table 23 shows the 46 episodes of care (there were no episodes for two of the Medicare categories) and the corresponding number of admissions for TRICARE beneficiaries. Knee and hip replacements (categorized as major joint replacements) were the most common, with nearly 10,000 episodes.

[36] MS-DRGs are used to classify episodes of care in acute hospitals into one of roughly 750 groups. The MS-DRG grouping is meant to capture resource intensity of hospital care for reimbursement purposes.

Table 23. Admission Counts for 48 Episodes of Care, FY 2015

#	Episode	Admissions	
		Army	All
1	Major joint replacement	4,003	9,673
2	Sepsis	2,253	5,763
3	Esophagitis, gastroenteritis	2,288	5,517
4	Spinal fusion (non-Cervical)	1,903	4,342
5	Cervical spinal fusion	1,852	4,305
6	Simple pneumonia and respiratory infection	1,418	3,427
7	Chronic obstructive pulmonary disease	1,454	3,398
8	Percutaneous coronary intervention	1,264	3,243
9	Other respiratory	1,288	2,999
10	Major bowel	1,084	2,690
11	Diabetes	1,142	2,556
12	Medical non-infectious orthopedic	976	2,480
13	Cardiac arrhythmia	908	2,396
14	Cellulitis	861	2,236
15	Renal failure	897	2,060
16	Gastrointestinal obstruction	766	1,990
17	Gastrointestinal hemorrhage	751	1,879
18	Back and neck except spinal fusion	660	1,699
19	Nutritional and metabolic disorders	611	1,584
20	Urinary tract infection	664	1,575
21	Congestive heart failure	733	1,560
22	Cardiac valve	648	1,490
23	Chest pain	576	1,368
24	Lower extremity and humerus procedure	489	1,259
25	Red blood cell disorders	517	1,110
26	Coronary artery bypass graft surgery	381	1,035
27	Acute myocardial infarction	415	1,019
28	Medical peripheral vascular disorders	340	867
29	Revision of the hip or knee	368	858
30	Syncope and collapse	375	845
31	Hip and femur procedures except major joint	331	829
32	Other vascular surgery	317	766
33	Combined anterior posterior spinal fusion	323	711
34	Major cardiovascular procedure	274	682
35	Major joint upper extremity	246	632
36	Other knee procedures	198	486
37	Removal of orthopedic devices	188	440

#	Episode	Admissions	
		Army	All
38	Complex non-Cervical spinal fusion	165	418
39	Amputation	132	300
40	Double joint replacement of the lower ex	124	292
41	Pacemaker	90	246
42	Cardiac defibrillator	91	213
43	Atherosclerosis	102	211
44	Fractures femur and hip/pelvis	73	186
45	Pacemaker device replacement or revision	28	67
46	Automatic implantable cardiac defibrillator	4	12
Total		**34,571**	**83,714**

To estimate the potential savings from bundling episodes of care, we had to first identify the total cost of each of the 83,714 episodes that would be eligible for bundling. We defined the bundle to include the costs associated with the initial inpatient visit that triggered the bundle, and all relevant post-acute care for 90 days after the initial admission. To do this, we began with the total cost of the inpatient stay for all admissions with an eligible MS-DRG classification. This included all hospital charges and professional services (physicians' fees). These costs were easily identified by the MS-DRGs. They did not, however, represent the full cost of the potential bundle. We still needed to add the cost of post-acute care eligible to be included in the bundle. Identifying those costs was more challenging; the full bundle had to include any additional inpatient stays related to the episode (e.g., stays in skilled nursing facilities, revisions, infections, or complications) and any relevant outpatient care (e.g., physical therapy or doctor appointments to follow up on recovery) that occurred within the 90-day window.

The methodology we employed to develop the full cost of the bundle looked at all care received by patients who were eligible for a given bundle and filtered out care delivered outside of the 90-day period and care unrelated to the bundled care episode. It should be noted that the former filter was easier to apply than the latter. As a filter for unrelated care, we used the Major Diagnostic Categories (MDC) medical grouping, which divides all principal diagnoses into roughly 30 mutually exclusive categories. We determined whether care belonging to each MDC would likely be included in a given episode of care, such as knee or hip replacement, and included or excluded an individual's post-acute care within the 90-day period accordingly. MDCs are very general groupings, making the methodology imperfect, but it provided a reasonable filter for the care that should be included/excluded from a bundle. For instance, for a knee replacement patient, we included post-acute care falling into the MDC "diseases and disorders of the musculoskeletal system and connective tissue" but excluded "diseases

and disorders of the ear, nose, throat," thereby likely including physical therapy and care related to the knee, while excluding doctor visits for common illnesses. Because of the challenges associated with filtering through millions of patient records to identify which care should be included/excluded, we did not perform the exercise for all 48 bundles. Instead, we carried out the complete methodology for six bundles and used the data collected from those episodes to construct cost factors for two categories of additional cost to be added: readmissions (hospital services and professional services from additional inpatient stays related to the initial event), and outpatient care. The six bundles selected were:

- Major joint (knee/hip) replacements
- CABG
- Percutaneous coronary intervention (PCI)
- Pacemaker
- Cardiac defibrillator, and
- Cardiac valve replacement.

For the six bundles examined, readmissions (hospital services and additional professional services for the readmission) added on average an additional 17 percent of the initial hospitalization cost, while outpatient care added an additional 10 percent. See Appendix C for more detail on how we determined which care should be included in the creation of readmission and outpatient factors and a comparison of our cost factors to the literature. We applied these factors to the cost of each initial inpatient stay to estimate the full bundle cost for the remaining 42 episodes of care. Table 24 contains the results. We do not present results for the Army separately, given the small sample sizes for each bundle. The column titled *MS-DRG Cost* contains the costs associated with the initial inpatient stay for the episode that qualified for bundling. These costs are accurately constructed and represent the lower bound for the cost of the complete bundle. The column labeled *Estimated Bundle Cost* applies our cost factors for estimated additional inpatient (hospital services plus professional services) and outpatient care. It should be noted that these total bundle costs are meant to roughly approximate the amount that TRICARE pays for services that could potentially be bundled. While carefully constructed, they should not be viewed as precise.

Table 24. Estimated Bundle Cost

#	Bundle	MS-DRG Cost	Estimated Bundle Cost	Average Bundle Cost
1	Major joint replacement	$95,920,320	$129,492,432	$13,387
2	Sepsis	$54,813,437	$73,998,140	$12,840
3	Pneumonia/respiratory infection	$18,259,926	$24,650,900	$7,193
4	Chronic obstructive pulmonary dis.	$13,749,464	$18,561,777	$5,463
5	Congestive heart failure	$8,910,568	$12,029,267	$7,711
6	Esophagitis, gastroenteritis	$22,137,357	$29,885,431	$5,417
7	Cardiac arrhythmia	$9,046,598	$12,212,907	$5,097
8	Other respiratory	$34,998,127	$47,247,471	$15,754
9	Renal failure	$10,913,774	$14,733,594	$7,152
10	Percutaneous coronary intervention	$46,709,815	$63,058,251	$19,444
11	Gastrointestinal hemorrhage	$9,933,823	$13,410,660	$7,137
12	Urinary tract infection	$6,017,951	$8,124,234	$5,158
13	Spinal fusion (non-cervical)	$100,689,607	$135,930,970	$31,306
14	Medical non-infectious orthopedic	$16,713,566	$22,563,314	$9,098
15	Major bowel	$47,318,220	$63,879,596	$23,747
16	Cellulitis	$8,510,266	$11,488,858	$5,138
17	Cervical spinal fusion	$64,723,473	$87,376,688	$20,297
18	Nutritional and metabolic disorders	$6,987,316	$9,432,876	$5,955
19	Hip and femur procedures except	$10,200,630	$13,770,850	$16,611
20	Gastrointestinal obstruction	$7,454,962	$10,064,199	$5,057
All Other Episodes		$272,374,015	$367,704,921	
Total		$866,383,213	$1,169,617,337	

Note: MS-DRG cost is the cost of the inpatient care for the episode that qualified for bundling.

If episodes of care were bundled and the resulting savings were within the range consistent with the literature, 1 to 10 percent, DoD could expect to save somewhere between $6 and $110 million for all TRICARE beneficiaries. Savings consistent with the median savings from bundling would be approximately $33 million. Table 25 shows the calculated savings for Army beneficiaries and all TRICARE beneficiaries.

Table 25. Estimated Savings Range from Bundling (in Millions)

Beneficiaries	LB	Median	UB
Army	$2	$14	$46
All	$6	$33	$110

Note: The savings shown in the table are based on the TRICARE-paid amount and represent savings to DoD.

4. Discussion of Estimated Savings Ranges

The savings ranges estimated for each of the three VBP models presented in the previous sections are summarized in Table 26.

Table 26. Summary of VBP Savings Estimates

VBP Model	LB	Median	UB
Capitation	$396	$806	$1,512
ACO and PCMH Models	$293	$528	$612
Bundling	$6	$33	$110

Note: The savings shown in the table are based on the TRICARE-paid amount and represent savings to DoD. The capitation savings include pharmaceutical savings, but if they did not include them, the capitation savings would range from $271 million to $1,035 million. All the savings include the costs for both acute and non-acute care.

Implementing a capitated model offered the greatest potential for savings, while bundling offered the smallest. This ranking of savings makes sense, given that capitation represents a full transition to population-based payments and extensive risk-bearing by the health insurer, while bundling is a form of capitation targeted at only a subset of care (certain surgical procedures). It should be noted that some potential also exists for the combination of models. For example, it would be possible to have an ACO model that employed bundling for surgical procedures. We note this potential for additional savings but do not provide an estimate for an ACO/bundling combined model because the savings would probably not be strictly additive. There would be overlap in the savings generated from better care coordination and management (from things such as reduced readmissions and reduced LOS) inherent in the ACO model that would also occur under the bundling strategy.

a. Possible Caveats

The savings estimates presented here are consistent with the savings reported in the literature, which covers the impact of VBP models in both the public sector (Medicare and Medicaid) and the commercial sector. They therefore rely on the inherent assumption that the TRICARE program would have a similar outcome if it were to implement one of these VBP payment models. We therefore must consider whether there are any reasons that the TRICARE population or the beneficiary population it enrolls might be different in a manner that would affect the savings potential of such models.

- **Demographics of DoD population.** The savings ranges reported in the literature were based on various populations (the Medicare population, the Medicaid population, the population enrolled in a private health plan in Massachusetts, etc.). While we do not have detailed demographics on these populations, we do know that they likely vary from the DoD beneficiary

population. For instance, the Medicare population is clearly older than the non-TFL population and likely has more health conditions and comorbidities that could benefit from better care management. However, the younger DoD population has higher than average utilization and many hospitalizations related to childbirth that could also be managed more effectively. The Medicaid population is more similar to the non-TFL group in age but may differ along other health dimensions. For these reasons, the savings rates found in the literature could potentially be lower or higher if the VBP model were applied to the TRICARE population. Without additional information, it is hard to know in which direction these difference may go.

- **Mobility of the TRICARE beneficiary population.** Active duty Service members and their families are, on average, far more mobile than the general civilian population—often relocating every two to three years. This could potentially present challenges for VBP models that put a heavy emphasis on continuity of care. Ensuring that TRICARE network providers are easily available in all market areas can help ensure continuity of care.
- **Direct Care System.** The DC and PSC delivery systems are largely separate. Beneficiaries can, however, receive care in either system. An individual may, for instance, use the DC system for their primary care needs but turn to PSC for specialty care. This would present problems for ACO models in which primary care and coordination of care are central. Capitated arrangements would also be challenging for individuals who move across systems, as a health plan is typically paid to provide all care required by a beneficiary. The USFHP, which provides care to DoD beneficiaries through a capitated arrangement, handles this issue by simply barring USFHP enrollees from accessing the DC system (with a few exceptions, including acute medical emergencies in close proximity to an MTF, and prearranged agreements between USFHP and the MTF). Under an ACO-like model, a similar solution could be put in place.
- **Low co-payments and deductibles.** Under the current system, co-pays and deductibles are very low, which results in overutilization. Co-pays are one of the tools that most insurers have at their disposal when designing VBP models. Savings estimates from the literature could reflect the use of these tools. While it is clearly possible to generate VBP-based savings with other management tools, keeping cost shares extremely low may dampen potential savings. This fact may make the savings reported for managed Medicaid plans (which allow for very little cost sharing) a better fit for TRICARE than those produced by private plans, which are free to employ these tools.

C. Estimated VBP Savings for the TRICARE for Life (TFL) Beneficiary Population

The previous savings estimates focused on the care purchased for ADFMs and RET/RETFMs under 65 (the non-Medicare-eligible population). In this section, we consider whether there is a potential to generate savings from the care purchased for TFL beneficiaries.

Under the current system, Medicare is the first payer for TFL beneficiaries. TFL provides wrap-around coverage for beneficiaries enrolled in Medicare Part A and B. This means that Medicare generally pays the majority of the healthcare bill incurred by these beneficiaries (typically 80 percent of the Medicare approved amount), while TRICARE acts as the second payer (or third if the individual has another health plan), covering what Medicare did not cover, including the beneficiary's cost share and deductibles. More importantly, this means that Medicare is responsible for authorizing the care an individual receives and that TFL beneficiaries enrolled in the traditional FFS Medicare program can seek care from any provider that accepts Medicare patients. Because care is not managed in the traditional FFS Medicare program, it is unlikely the VBP models that rely on care management and coordination could generate savings for the TFL populations under the current setup.

It is conceivable, however, that DoD could modify the TFL health benefit in a manner that would allow for the use of VBP. For instance, DoD could choose to create a set of health plans that operated like Medicare Advantage plans. These "TRICARE Advantage" plans would work the same way as the current Medicare Advantage plans, which require individuals to enroll and submit to having their care managed in exchange for additional benefits or wider provider networks. Medicare and TRICARE could split the capitated amount that the plan required to cover the enrolled beneficiaries. There would obviously be many complexities to establishing such plans, and working through such details is beyond the scope of this analysis. Here we only wish to suggest that the potential does exist for managing the care of the TFL population.

Assuming DoD could create TRICARE Advantage plans, we now explore the potential savings they could generate through VBP. Because Medicare is the first payer, we consider both the savings to DoD and the savings to the Medicare program. Table 27 shows the total purchased care expenditure for the TFL population, including both what TRICARE paid and what OHI paid. Payments by Medicare constitute the large majority of the OHI total due to the fact that Medicare is the first payer and that most beneficiaries do not have coverage other than Medicare and TFL. However, some individuals do have coverage through a third source (i.e., retirees who worked for the government may have a plan through the FEHBP), and the contributions of those policies are also included in OHI. Unfortunately, we are unable to separate the Medicare portion of OHI from the other sources. In FY 2015, TRICARE paid nearly $4 billion for the TFL population,

while OHI paid over $12 billion. Given that OHI (primarily Medicare) covers the majority of the costs, savings to Medicare will be larger than savings to DoD.

Table 27. Expenditure for TRICARE for Life Beneficiaries, FY 2015 (in Millions)

Insurance Program	Healthcare Services	Total (includes Drugs)
TRICARE	$3,024	$3,923
OHI	$12,250	$12,450

Note: The costs reported in the table are based on the TRICARE-paid amount, which represents the costs to DoD, and the OHI paid amount, which represents the cost to other health insurers (primarily Medicare).

1. Estimated Savings from Capitation

If PSC expenditure were to be reduced by a range consistent with the capitation literature, 2.4 to 10.7 percent, savings to DoD on healthcare services alone could range from $73 million to $324 million, as shown in Table 28. Savings consistent with the median savings rate in the literature would be approximately $170 million. Savings to OHI on healthcare services, which would largely be savings to the Medicare program, would range from $294 million to over $1.3 billion. At the median savings rate, savings to the government overall (Medicare and TRICARE) would be approximately $870 million for healthcare services alone.

Table 28. Estimated Capitation Savings Ranges (in Millions)

Category	Payer	LB	Median	UB
Healthcare Services Only	TRICARE	$73	$172	$324
	OHI	$294	$698	$1,311
Healthcare and Pharmaceuticals	TRICARE	$94	$224	$420
	OHI	$299	$710	$1,332

Note: The savings shown in the table are based on the TRICARE-paid amount and the OHI-paid amount, and represent savings to DoD and savings to OHI.

2. Estimated Savings from PCMH and ACO Models

As we did for the non-TFL population in section 5.B, we first present the PCMH and ACO savings for TFL beneficiaries generated from the aggregate expenditure level followed by a more detailed estimate constructed from various utilization categories (e.g., inpatient hospitalizations and readmissions).

a. Overall PCMH and ACO Savings

If PSC expenditure were to be reduced by a range consistent with the ACO literature, 0.12 to 16.5 percent, savings to DoD on healthcare services alone could range from $4 million to $499 million annually, as shown in Table 29. Savings consistent with the median savings rate in the literature would be $100 million. Savings to OHI (largely Medicare) on healthcare services alone could range from $15 million to $2 billion with a median savings estimate of $404 million.

Table 29. Estimated ACO Savings Ranges (in Millions)

Category	Payer	LB	Median	UB
Healthcare Services Only	TRICARE	$4	$100	$499
	OHI	$15	$404	$2,021
Healthcare and Pharmaceuticals	TRICARE	$5	$129	$647
	OHI	$15	$411	$2,054

Note: The savings shown in the table are based on the TRICARE-paid amount and the OHI-paid amount, and represent savings to DoD and savings to OHI.

b. Utilization-based PCMH and ACO Savings

The analysis performed for the inpatient admissions, readmissions, LOS, and ER utilization mirrors the analysis performed for the non-TFL population in Section 5.B.2. For brevity, here we present only the summary savings table. The utilization and average cost data used to construct these estimates can be found in Appendix C.

Taking the savings range generated from the four major sources of ACO-based savings from utilization reduction (inpatient hospitalizations, readmissions, LOS, and ER utilization) and aggregating them creates an estimate of the overall level of ACO savings. Table 30 summarizes the estimated savings ranges for each utilization category and the combined total. The top panel of the table contains the savings to DoD while the bottom panel contains the savings for OHI (mainly Medicare).

Table 30. Combined Savings from ACO-based Utilization Reduction (in Millions)

Payer/Utilization Category	LB	Median	UB
TRICARE			
Hospitalizations-Acute	$31	$49	$57
Hospitalizations-Non-Acute	$25	$41	$47
Length of Stay-Acute	$8	$16	$16
Length of Stay-Non-Acute	$8	$15	$16
Readmissions	$0	$1	$1
ER Utilization	$0	$1	$2
Total	**$73**	**$123**	**$140**
OHI			
Hospitalizations-Acute	$158	$255	$297
Hospitalizations-Non-Acute	$99	$159	$185
Length of Stay-Acute	$195	$376	$380
Length of Stay-Non-Acute	$65	$126	$127
Readmissions	$0	$3	$3
ER Utilization	$1	$3	$7
Total	**$519**	**$922**	**$999**

Note: The savings shown in the table are based on the TRICARE-paid amount and the OHI-paid amount, and represent savings to DoD and savings to OHI. The reported cost savings for ER utilization are the savings from ER utilization offset with UC.

Based on these estimates, DoD could expect to save between $73 to $140 million by purchasing healthcare for the TFL population, while OHI could expect to save between $500 million and $1 billion. Combining the TRICARE and OHI median savings estimates yields just over $1 billion in savings to the government (DoD and the Medicare program combined).

3. Estimated Savings from Bundling Episodes of Care

The majority of care eligible for bundling occurred within the TFL-eligible population. Table 31 shows the admission count for each of the 48 episodes of care eligible for bundling.

Table 31. Admission Counts for 48 Episodes of Care, FY 2015

#	Episode	TFL-Eligible Population
1	Major joint replacement	25,755
2	Sepsis	20,372
3	Simple pneumonia and respiratory infection	16,937
4	Chronic obstructive pulmonary disease	13,354
5	Congestive heart failure	13,541
6	Esophagitis, gastroenteritis	7,498
7	Cardiac arrhythmia	9,977
8	Other respiratory	7,760
9	Renal failure	8,547
10	Percutaneous coronary intervention	6,997
11	Gastrointestinal hemorrhage	8,036
12	Urinary tract infection	8,136
13	Spinal fusion (non-cervical)	4,646
14	Medical non-infectious orthopedic	5,274
15	Major bowel	4,309
16	Cellulitis	4,345
17	Cervical spinal fusion	2,235
18	Nutritional and metabolic disorders	4,759
19	Hip and femur procedures except major joint	5,078
20	Gastrointestinal obstruction	3,901
21	Acute myocardial infarction	4,499
22	Diabetes	1,710
23	Syncope and collapse	3,266
24	Cardiac valve	2,324
25	Back and neck except spinal fusion	2,114
26	Coronary artery bypass graft surgery	2,681
27	Major joint upper extremity	3,057
28	Red blood cell disorders	2,505
29	Chest pain	2,091
30	Other vascular surgery	2,405
31	Major cardiovascular procedure	2,336
32	Pacemaker	2,750
33	Medical peripheral vascular disorders	1,951
34	Revision of the hip or knee	1,868
35	Lower extremity and humerus procedure	1,440
36	Fractures femur and hip/pelvis	1,209
37	Combined anterior posterior spinal fusion	671

#	Episode	TFL-Eligible Population
38	Other knee procedures	505
39	Amputation	616
40	Atherosclerosis	641
41	Cardiac defibrillator	620
42	Removal of orthopedic devices	363
43	Complex non-cervical spinal fusion	331
44	Double joint replacement of the lower ex	411
45	Pacemaker device replacement or revision	317
46	Automatic implantable cardiac defibrillator	58
Total		**224,196**

If episodes of care were bundled and the resulting savings were within the range consistent with the literature, 1 to 10 percent, TRICARE could expect to save somewhere between $2 million and $45 million, as shown in Table 32. Savings consistent with the median savings from bundling would be approximately $13 million. OHI would save more, with a median estimate of nearly $100 million.

Table 32. Estimated Savings Range from Bundling (in Millions)

Payer	LB	Median	UB
TRICARE	$2	$13	$45
OHI	$16	$96	$319

Note: The savings shown in the table are based on the TRICARE-paid amount and the OHI-paid amount and represent savings to DoD and savings to OHI.

D. Summary of Estimated VBP Savings

Section B and C of this chapter presented ROM ranges for the potential savings from replacing TRICARE's FFS reimbursement methodology with VBP payment models. Table 33 summarizes these savings by presenting the median estimate for each of the three VBP models (capitation, PCMH/ACO, and bundling). The first column under "Savings to DoD (TRICARE only)" shows the *median* estimates for the non-TFL population, while the second column shows the *median* estimates for the non-TFL and TFL population combined. These savings estimates are the savings to DoD based on the TRICARE paid amount. The final column shows the overall savings to the government (savings to DoD for all beneficiaries plus the estimated savings to Medicare (based on OHI)). When we consider only the non-Medicare-eligible population, capitation yielded the highest level of savings for DoD (approximately $806 million) followed by ACO models (approximately $544 million). The estimated savings increased when the care

purchased for TFL beneficiaries was included in the analysis. The estimated overall savings to the government (DoD and Medicare combined) exceed $1.5 billion for both capitation and ACOs. For bundling, savings are more modest, as they only apply to a small subset of care (the 48 episodes of care selected for bundling by CMS).

Table 33. Summary of Median VBP Savings Estimates (in Millions)

	Savings to DoD (TRICARE only)		Savings to the Government (TRICARE and Medicare)
VBP Category	**Non-TFL Beneficiaries Only**	**All Beneficiaries**	**All Beneficiaries**
Capitation	$806	$1029	$1,739
PCMH/ACO	$544	$667	$1,590
Bundling	$33	$46	$142

Note: Capitation savings estimates are based on both healthcare services and pharmaceutical spending. The ACO figures are from utilization reduction-based estimates. Savings to the government are the savings to DoD for all beneficiaries plus the savings to OHI for TFL beneficiaries.

E. Comparison to Alternative TRICARE Reform Proposals

As discussed in Chapter 1, introducing VBP methods into the TRICARE contracts is only one option or element of MHS reform. To put these potential VBP savings into perspective, this section provides comparisons with other options or elements of MHS reform. All savings discussed here are converted to 2015 dollars for consistency.

The MHS is a large, complex, interweaving set of missions, delivery systems, benefits, and funding. Reforms aimed at controlling costs can take many approaches. Some reforms, e.g., cost share increases, affect primarily the quantity of healthcare services demanded. Other reforms, e.g., cuts to purchased care reimbursement rates (i.e., narrowing networks), military hospitals, medical force levels, and graduate medical education programs, are primarily focused on the cost (or supply side) of delivering the healthcare services. The reforms examined in this paper (VBP of purchased care) affect both the demand for services (through better utilization management) and the cost of delivering those services.

Ultimately, the magnitude of the potential savings from a given reform proposal will depend largely on how broad the reform is, as discussed in Chapter 2. Some key questions that determine savings magnitude include:

- Does the reform target only the demand side of healthcare expenditure, the supply side, or both sides?
- Does the reform target the DC system, the PSC system or both delivery systems?

- Does the reform target all healthcare spending or just a subset (pharmaceuticals, surgical procedures, primary care, etc.)?
- Does the reform target all beneficiary groups or just a subset (Medicare-eligible retirees, non-Medicare-eligible retirees, etc.)?
- Does the reform cut, increase, or hold constant the value of the benefit as part of compensation received by the beneficiary?

Broad reforms offer the most potential to generate savings.[37] The broadest reform analyzed recently has been the set of MCRMC recommendations published in January 2015.[38] In terms of the questions identified above, the MCRMC recommendations targeted demand and supply, covered DC and PSC, and included all elements of care. It did focus on a subset of beneficiaries—ADFMs and non-Medicare-eligible RET/RETFMs—and excluded active duty and Medicare-eligible beneficiaries. The MCRMC changed the benefit in a number of ways (increasing compensation by improving benefit choice, access, and related quality attributes while decreasing compensation by increasing cost shares).

The MCRMC estimated that its proposal would save about $3.2 billion per year,[39] which likely represents something close to an upper bound of saving estimates for the ADFM and non-Medicare-eligible RET/RETFM population (unless the benefit quality improvements of the MCRMC proposals are limited; see footnote 39). This helps to put the VBP reform estimates from this report into context. The $800 million mid-point estimate for capitation from this paper is about one-fourth of the total MCRMC estimate (but this paper only covers PSC, whereas the MCRMC proposal applied the changes to both DC and PSC). In other words, VBP reforms might constitute about (perhaps over)

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[37] In addition, they may also be more likely to be successfully implemented because the combination of demand- and supply-based tools allows for quality improvements (beneficiaries are more willing to accept cost increases when their benefit improves in exchange). Targeting a large reform base (i.e., more beneficiary groups and both delivery systems) also spreads necessary reductions more evenly rather than concentrating a large cut on one group or system, making them more absorbable. Consider for instance, the most commonly proposed reform by DoD—increasing beneficiary cost shares (often focusing just on retirees and purchased care). These are purely demand-based reforms, which if applied in isolation, unambiguously make beneficiaries worse off. Despite the ability of such reforms to generate potentially large savings, they are unlikely to be successfully implemented, given they simply shift costs to beneficiaries without improving benefit quality or the efficiency of the delivery system.

[38] Military Compensation and Retirement Modernization Commission (MCRMC), *Report of the Military Compensation and Retirement Modernization Commission: Final Report*, January 29, 2015.

[39] If benefit quality attributes such as choice and access had been held constant (instead of improved), the savings would have been about $7.5 billion—the $4.3 billion difference represents re-investment of savings into benefit improvement within the MCRMC recommendation. Of the $7.5 billion, about $2.2 billion of the savings was from increased payments (through cost shares) from beneficiaries and about $5.3 billion was from improved program performance.

one-fourth of the total available savings for the ADFM and non-Medicare-eligible RET/RETFM population.[40]

Another comparison that can be made, to put the VBP estimates into context, is with other individual reforms. The most often proposed reform by DoD is beneficiary cost share increases. These reforms are somewhat narrow in scope because they only affect the demand side of healthcare expenditure and they are often focused on a subset of beneficiaries (typically non-Medicare-eligible retirees or TFL beneficiaries). In addition, they are often also focused on purchased care (raising cost shares to use PSC providers is usually the focus). While they do have the potential to generate large savings if implemented, when proposed in isolation, they are a cut to compensation with no offsetting gains to beneficiaries—potentially causing unintended consequences with regard to recruitment and retention.

DoD included a cost share proposal in its 2017 budget submission to the Congress. By 2021, DoD expected the savings to be about $1,150 million per year.[41] Using the Defense Health Program deflator to put that savings estimate in the same terms as the above VBP estimates, the savings becomes about $940 million per year in 2015 dollars. The median estimate from capitation is very similar, suggesting that VBP reform offers a similar level of savings as cost share changes.[42] The 2017 budget submission also included cost share changes for Medicare-eligible retirees that DoD estimated would save about $570 million (in 2015 dollars, estimated as reductions to accrual fund payments). This compares to $224 million in the median savings estimate from capitation shown on page 60.

The Congressional Budget Office (CBO) has estimated savings from larger cost share increases, finding savings of approximately $1.7 billion annually for non-Medicare-eligible retirees primarily by encouraging people to leave TRICARE in favor of other coverage options.[43] Similarly, for the TFL population, CBO estimates a savings of approximately $2 billion annually. The VBP reform estimates from this paper are significantly less than the CBO estimates.

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[40] Although it is an imperfect comparison, the MCRMC found that cost share increases accounted for about one-third of the total savings. This comparison is imperfect because the one-third is computed under different assumptions about what is held constant than the one-fourth share for VBP.

[41] *Fifth Package of Legislative Proposals Sent to Congress for Inclusion in the National Defense Authorization Act for Fiscal Year 2017 -- Consolidated Section-by-Section Analysis of All Proposals Transmitted to Date*, April 12, 2016, http://www.dod.mil/dodgc/olc/legispro17.html.

[42] It should be noted that these reforms are not mutually exclusive.

[43] Congressional Budget Office (CBO), *Approaches to Reduce Federal Spending on Military Health Care*, January 2014, http://www.cbo.gov/sites/default/files/113th-congress-2013-2014/reports/44993-MilitaryHealthcare.pdf. We use the savings estimate for FY 2016.

On the supply—or cost of delivering services—side, a wide range of proposals have also been offered. These proposals are also often narrowly focused, affecting only the DC delivery system. Some examples include:

- Shifting the Navy and Air Force to a more efficient military-to-civilian force mix similar to the Army in their MTFs, saving about $500 million per year.[44]
- Making greater use of scholarship and enlistment bonuses to recruit medical forces (reducing Graduate Medical Education (GME) programs). CBO estimated a savings of $150 million per year.

While the above discussion is in no way an exhaustive treatment of proposed MHS reform options and potential savings, it does serve to illustrate how the savings potential from the most comprehensive reform proposals (such as the MCRMC proposal) compare with more narrowly focused reforms (i.e., only increasing cost shares or introducing VBP into the TRICARE contracts). By understanding the magnitude of the savings attributed to different reform types, we can gain a better understanding of the reform trade space. Figure 9 summarizes the savings from the various reforms discussed above. Reforms are arranged from largest to smallest estimated savings. The median savings estimates for capitation and ACOs/PCMHs (VBP reforms) produce a level of savings just under DoD's proposals for increased cost sharing. The comprehensive reform proposed by the MCRMC produces the highest estimated savings, while bundling episodes of care (which is narrowly applied to 48 surgical procedures) produces the least.

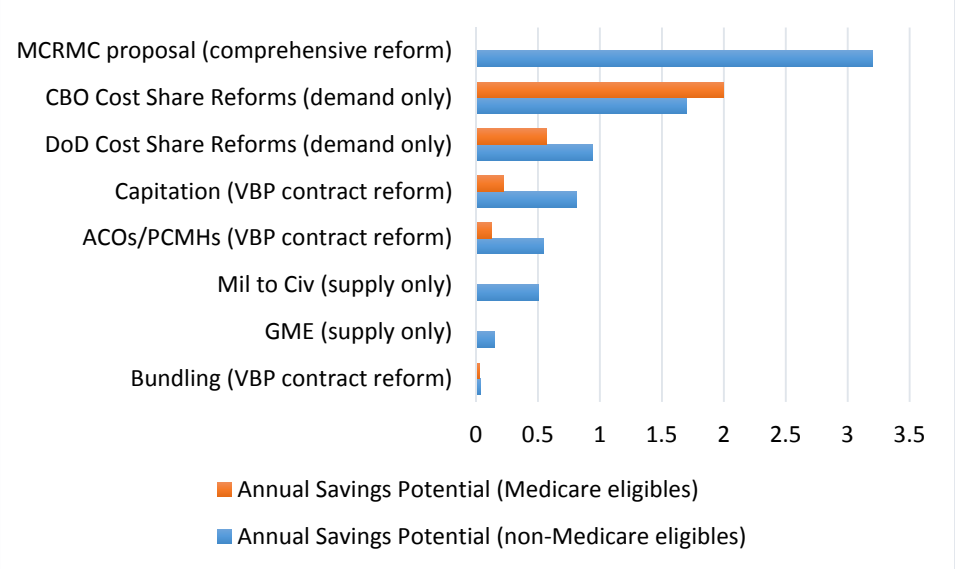

Figure 9. Summary of Estimated Potential Annual Savings (Billions of Dollars)

[44] Whitley et al., "Medical Total Force Management."

6. Reforming TRICARE Contracts for VBP and Readiness

The results presented in Chapter 5 demonstrate that VBP reforms can save money and should be considered as part of MHS reform. This chapter begins by discussing how VBP reforms can be implemented in the TRICARE contracting process to maximize the potential savings. A more detailed discussion of contractor incentives can be found in Appendix D. The chapter also briefly applies this discussion to understanding TRICARE contract award protests. The chapter concludes with a discussion of how to leverage any changes to the TRICARE contracts to promote improved integration of DC and PSC, particularly with respect to attracting readiness-related workload into MTFs.

A. Implementing VBP Reform

The VBP payment models discussed in this paper are primarily focused on the market between the insurance carrier (the MCSC, in the case of the TRICARE program) and the delivery system (healthcare providers). DoD's direct influence, however, is on the transactions between the employer (DoD) and the MCSC. Figure 10 illustrates the structure of the market within which the TRICARE MCSCs operate.

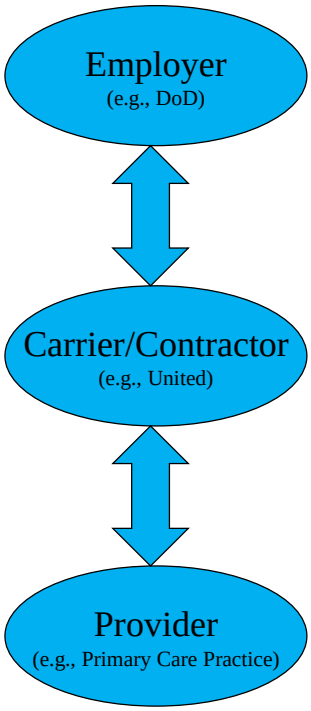

Figure 10. Healthcare Markets and Contracting Environment

1. Two Mechanisms for Reform

If DoD wishes to influence the market between the contractor and the providers (i.e., get the carrier to reimburse providers using VBP methods rather than by FFS), it can do so by one of two general mechanisms: (1) mandate use of VBP, or (2) alter the MCSC incentive structure.

- **Mandate VBP requirements:** Under this mechanism, DoD could simply dictate specific VBP requirements in the MCS contracts (e.g., the contractor will reimburse providers using bundle payments for all knee replacements, or the contractor will create PCMHs).
- **Alter MCS contract incentive structure:** Under this mechanism, rather than dictating the use of specific VBP tools, DoD would alter the MCS contracts to include incentives to incorporate what they believe to be most effective set of VBP tools available in a given market area.

The first approach, mandating VBP as a requirement, is often considered the most obvious approach, but in fact is unlikely to be very successful and yield savings. The more prescriptive the contracts are, the less flexibility the contracts have to keep up with the pace at which VBP best industry practices tend to evolve. This paper reviewed current trends such as bundling and ACOs, but healthcare markets are evolving rapidly and it is very unlikely that anything specified today in a five-year contract would be

optimal and current by the end of the contract. Additionally, healthcare markets vary widely by location in their level of sophistication with VBP. What works with provider groups and hospitals in one market may not be feasible in another. Finally, implementing VBP purchasing is complicated and takes expertise, focus, and investment. Simply telling a contractor to do it is not a good method for getting it done well. The contractor must be directly exposed to financial risk to ensure that VBP arrangements are entered into and executed with the care and attention required for success.

Altering the structure of the MCS contracts to provide incentives and the flexibility to effectively implement VBP arrangements is likely to be more successful and generate greater savings. Currently, the market between DoD and the MCSC consists of five-year, winner-take-all contracts with little substantive risk-bearing by the contractor.[45] In addition, the contracts largely limit or incentivize the contractor to FFS purchasing methods in the downstream market between the contractor and the delivery system. By reforming the contracts to remove these restrictions and provide an improved incentive structure, DoD could motivate the contractors to adopt innovative VBP models without being overly prescriptive.

Chapter 2 introduced three key contract structure factors: (1) contract competitiveness, (2) contract risk-bearing, and (3) contract flexibility. Potential reform options for the TRICARE MCS contracts can be evaluated based on the degree to which they alter the three contracting parameters discussed above. Reforms that do the most to increase competitiveness, risk-bearing, and flexibility will also do the most to advance the quality of the benefit and the size of the savings to DoD.

2. Alternative Contract Structures

There are many ways TRICARE contracts could be reformed to incentivize the adoption of VBP, improve outcomes, and control costs. Most large civilian federal healthcare programs have dealt with these issues in the past, and their experiences provide examples of how DoD might improve its program design and performance. Three particularly relevant examples of these civilian federal programs are:

- **Medicare Part C (Medicare Advantage).** A health insurance program that serves as a substitute for "traditional" Medicare (Part A and B). Each year, plans submit "bids" (per enrollee cost) to cover the standard Medicare Part A and B benefits. Every plan that meets specified requirements is accepted. The bids are

[45] The contracts are awarded for a base period that includes a transition-in period and four option years. The base year is awarded as a fixed fee contract and the option years are cost plus fixed fee contracts. Option years are always executed and contracts are often extended beyond the five-year period, given the significant time and financial costs associated with the current acquisition processes used to award new TRICARE contracts.

compared to formula benchmarks that establish the maximum amount Medicare will pay to a plan in a given area. Plans with bids higher than the benchmark are permitted (enrollees pay the difference as a monthly premium). Plans that bid below the benchmark split the difference between the bid and the benchmark (government savings is one share and the other share is used to provide additional benefits or reduced costs to enrollees). The government maintains direct authority to specify the minimum benefit provided.

- **Medicare Part D (pharmacy benefit).** The pharmacy benefit in Medicare. Each year, plans submit bids to provide a pharmacy benefit meeting minimum benefit requirements. The national average of the bids is then used to develop a government subsidy amount and monthly premiums for beneficiaries.
- **FEHBP.** The health benefit program for federal civilian employees. Health insurers submit their plans each year; the plans must meet minimum requirements set by the government but can vary significantly over benefits above the minimum and cost shares. Beneficiaries choose their plan in each year's open season.

All three programs use annual contracts, have multiple winners per location, allow beneficiary choice across the multiple winners, pass financial risk to the contractor, and allow flexibility to the contractor for how to purchase and manage care. They all score significantly higher than TRICARE on competition, risk bearing, and flexibility and provide examples of how TRICARE reform can be implemented. All would incentivize the adoption of VBP and save money for DoD. Indeed, Medicare Advantage plans have been one of the key incubators of innovative ideas for VBP referred to in the literature cited in Chapter 4.

There are multiple ways that these examples could be adapted to the TRICARE setting. Some options achieve high levels of each attribute, while others make incremental progress but do not move TRICARE all the way to a high grade. Some have gradations within them that could be used to increase or decrease performance in a given attribute. Specific examples include:

- **TRICARE "Advantage".** A reform similar to Medicare Part C could be introduced that allows for alternative capitated plans from which beneficiaries could choose (beneficiaries could also choose to remain in "traditional" TRICARE). This could be done in all markets, or could be introduced in pilot form in selected markets. A more limited approach would direct the incumbent contractor to offer a capitated alternative similar to what they offer in their civilian practices; a more expansive approach would allow multiple plans to be introduced in a market that compete with each other.

- **Contractor Markets.** Each TRICARE contractor could be directed to administer the TRICARE plans, creating their own contractor-operated marketplaces within their regions. The set of plans could be similar to today's plans (a PPO-style plan and an HMO-style plan) or could be expanded to include a wider range of plans. Ideally, contractors would be paid on a per-plan basis (risk-bearing), providing improved incentives for efficient utilization management.
- **TRICARE "Choice".** The best performance would be achieved by implementing the full MCRMC TRICARE Choice proposal (along with a premium support cost share structure). A more limited pilot approach that would move in this direction would be to open FEHBP to TRICARE beneficiaries as an option (either in a limited number of markets as a pilot or in all markets), although this would be costly to DoD, given the older population in FEHBP.

Two important related issues that should be considered in designing a VBP TRICARE reform proposal include:

- **Overhead.** TRICARE overhead costs are substantial. For example, FEHBP (which covers a population similar in size to TRICARE) is administered by approximately 100 people (who are funded from premiums). The number of personnel administering TRICARE is significantly higher. The savings estimates in this paper do not take into account any savings from program overhead, which could be significant.
- **Cost Shares.** Setting cost shares is an important decision, but one that can be separated from TRICARE reform. In most of the options described above, cost shares could largely be maintained at their current level or changed without affecting reform implementation. In some examples (e.g., options similar to Medicare Part C), the entire range of cost shares can be set by policy. In other examples (e.g., the options similar to FEHBP), the premium cost share can be easily set at any level desired (using a premium support mechanism, for example) while copayment cost shares would be determined in the marketplace.

B. TRICARE Award Protests

As mentioned in Chapter 3, the last two generations of TRICARE contract awards have been delayed by protests. These protests can be costly and disruptive; e.g., the transition to T3 in the West region was considered particularly disruptive.[46] An important

[46] "Pentagon seeks smooth transition for Tricare contracts," MilitaryTimes, July 27, 2016, http://www.militarytimes.com/story/military/2016/07/27/pentagon-seeks-smooth-transition-tricare-contracts/87585714/.

contrast is provided by the civilian federal programs described above, e.g., FEHBP, which largely do not have these problems. Part of the reason is based on the contract economics introduced in Chapter 2 and described in more detail in Appendix D.

Every five years, the TRICARE selection authority is required to select a winner from among multiple bidders. To use the new contract for the West region as an example, the selection authority is attempting to pick the best healthcare insurer for:

- A pregnant spouse in Las Vegas in 2018,
- An aging retiree in Phoenix in 2019, and
- A dependent child in Tacoma in 2020.

The selection authority must pick only one winner.

The challenge the selection authority faces is that it is impossible to know in 2016 which bidder will provide the best combination of network size, access, and other quality attributes under the contractor's control for each of the beneficiaries above. In addition, it is likely that it is not a single answer—different bidders would be optimal for different situations or enrollees. In other words, successful bid protests may have little to do with a flawed selection process and instead be driven by a flawed process attempting to contract for an undefinable product.

In all three of the civilian federal healthcare programs described in Section 6.A.2, the contracting process does not create this impossible task. In each of those examples, the geographically defined markets are significantly smaller (representing actual markets) and there are multiple contract winners in every market. In two of the three cases, the beneficiaries themselves pick the contract winner for their family. In all three cases the contracts are annual, allowing the market to evolve over time to meet changing beneficiary needs and market conditions. In none of the cases do we see monopoly rights being awarded in a winner-take-all process.

A common expression is that all healthcare is local. A cause of the frequent protests and transition challenges with TRICARE is its failure to establish a process consistent with this characteristic of healthcare.

C. Readiness

As discussed in Chapter 3, the first generation of TRICARE contracts attempted to create a more integrated healthcare delivery system between DC and PSC. These contracts implemented RSAs that created opportunities for optimizing the use of healthcare resources across the DC and PSC systems to obtain the lowest cost. The system was complicated and discontinued in the second generation of contracts. With the third and fourth generation of contracts continuing this trend of treating DC and PSC as separate (stove-piped) systems, there is now little integration of the systems, hindering

coordination of care between the two systems and resulting in a framework with few tools or options for channeling the case mix required for readiness into the DC system. This section discusses how readiness considerations could be included in revisions to the TRICARE contracts.

A range of options could create more integration between DC and PSC, providing tools for directing care. The most comprehensive option is to completely integrate the design of the benefit across the two systems. The MCRMC proposed this by placing all benefit administration into commercial health insurance plans and making the MTFs an integral part of the plan networks, thereby providing a complete integration of care and specific tools for directing care into MTFs, and including reduced co-payments for beneficiaries and reduced procedure-level reimbursement rates charged to the healthcare plans.

This MCRMC proposal is likely the most flexible and effective way for channeling care, but is also a significant change from current practice. A recent white paper by the RAND Corporation[47] provides an option that could be used to increase integration of care in MTF catchment areas that is more MTF-centric. In the paper, RAND proposes a similar arrangement to the MCRMC recommendation in locations without MTFs, but in locations served by an MTF, the plan administration is an MTF-centered managed care plan. An advantage of this approach is that it provides for significant MTF leadership in plan administration. Disadvantages are that it reduces choices to beneficiaries living near MTFs and that it may provide less flexibility for selective care channeling to the MTFs (i.e., instead of relying on a broad network of the MTF and civilian delivery system to deliver care, allowing the MTF to specialize in attracting the specific types of case mix supportive of readiness, it would likely require the MTF to provide a great deal of non-readiness beneficiary care).

There are also more limited methods that could be attempted that would stop short of integrating care between DC and PSC at a location. Perhaps the most obvious example is variations of the resource-sharing idea used in the first generation of contracts. In this type of arrangement, the risk-bearing contract would include provisions for redirection of care of the required case mix to the MTF. Important considerations in designing such an approach would be how the specific case mix would be identified and updated periodically with the contractor and how the contractor would be rewarded financially. In the context of VBP reform, the reforms could be designed around VBP methods such as bundling (e.g., the contractor is incentivized to transfer bundles of care to the MTF).

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[47] Susan D. Hosek et al., "Introducing Value-Based Purchasing into TRICARE Reform," (Santa Monica, CA: The RAND Corporation, 2016), doi: 10.7249/PE195.

At the minimal end of the spectrum would be administrative allocation processes such as the ROFR approach in current use. This approach could be enhanced in VBP reform by connecting the administrative allocation to value (e.g., bundles or outcome measures in capitated arrangements). The primary challenge with more limited approaches like this is that without changing the incentives for the contractor or MTF, they are unlikely to drive a material change in the distribution of workload between the two systems.

In summary, the TRICARE contracts have evolved to a structure that promotes and perpetuates disconnectedness between DC and PSC, leaving few options for managing the distribution of workload between the two systems for readiness. Reforms to the TRICARE contracting process implemented to save money through VBP would create an ideal opportunity to also improve the management of workload distribution. The Office of the Surgeon General would likely want to have active participation in any contract reform process to ensure that this concept was given appropriate consideration.

7. Conclusion

This paper began with a discussion of a strategic framework for MHS reform. We identified reforming the mechanisms used by DoD to procure PSC as a key area for MHS reform effort, as such reforms can generate savings without reducing the level of beneficiary compensation or cutting the DC system.

To better understand DoD's authority to reform how it contracts for PSC, we provided an analysis of the current statutes, regulations, and DoD policy governing healthcare contracting in the TRICARE program. Our analysis indicated that there are no significant statutory or regulatory impediments that would prevent DoD and the MCSCs from implementing contract reform, including the adoption of the newer VBP payment models discussed at length in Chapter 4.

Having determined DoD would have the necessary authority to implement PSC contract reform, we next explored the potential savings magnitude in Chapter 5. ROM estimates of the potential savings that might be realized under three different VBP payment models were presented. Capitation, which represents the most global approach and transfers the greatest amount of risk from the contractor to the delivery system, was estimated to save somewhere between $400 million and $1.5 billion annually. In contrast, a more narrow approach, such as bundling a subset of surgical procedures, was estimated to save somewhere between $5 and $100 million annually. Implementing PCMH/ACO-like models was estimated to generate savings somewhere in the middle, approximately $300 to $600 million annually.

To put the estimated VBP-based savings into context we compared them with other recent reform proposals, including the comprehensive reform recommended by the MCRMC, DoD and CBO proposals for increased cost sharing with beneficiaries, and potential reforms targeting the DC system. We found VBP contract reform had the potential to generate a level of savings very similar to DoD's proposed beneficiary cost share increases.

Our final chapter discussed how the TRICARE contract could be restructured to better incentive the adoption of VBP, avoid costly bid protests, and improve the level of integration between the DC and PSC systems.

Appendix A.
TRICARE Reimbursement Statues, Regulations, and Policy

Table A-1 outlines the TRICARE reimbursement methodologies for care delivered in different settings, based on Medicare's methods. The "Reimbursement Type" column indicates its chapter number in the *TRICARE Reimbursement Manual* (*TRM*). The applicability statement in the *TRM* that precedes each of these methodologies states:

> This policy is mandatory for reimbursement of services provided by either network or non-network providers. However, alternative network reimbursement methodologies are permitted when approved by the Defense Health Agency (DHA) and specifically included in the network provider agreement.

Table A-1. TRICARE Reimbursement Methodologies

Reimbursement Type	Reimbursement Method	Authority
Hospital Reimbursement- Non Mental Health (Chapter 6)	Inpatient hospital stays are reimbursed based on the TRICARE DRG-based payment system. Under the TRICARE DRG-based payment system, payment for the operating costs of inpatient hospital services furnished by hospitals subject to the system is made on the basis of prospectively determined rates and applied on a per discharge basis using DRGs. The TRICARE DRG-based payment system is modeled on the Medicare Prospective Payment System (PPS).	• 32 CFR 199.14(a)(1)
Hospital Reimbursement- Mental Health (Chapter 7)	The inpatient mental health per diem payment system shall be used to reimburse for inpatient mental health hospital care in specialty psychiatric hospitals and psychiatric units of general acute hospitals that are exempt from the DRG-based payment system. The system uses two sets of per diems. See Chapter 7, section 1 for more detail on the calculation of per diem rates.	• 32 CFR 199.14(a)
Skilled Nursing Facility (SNF) Reimbursement (Chapter 8)	For admissions on or after August 1, 2003: SNF reimbursement shall be based on SNF PPS. For admissions on or after December 1, 2009, Critical Access Hospital (CAH) swing beds will be reimbursed under the reasonable cost method. Refer to Chapter 15, Section 1 for information on CAH reimbursement.	• 32 CFR 199.14(b)
Ambulatory Surgical Centers (ASCs) and other Non-OPPS (Outpatient Prospective Payment System) facilities Reimbursement (Chapter 9)	Ambulatory surgery procedures performed in ASCs will be reimbursed using prospectively determined rates. The rates will be: established on a cost-basis, divided into eleven payment groups representing ranges of costs, and adjusted for area labor costs based on Metropolitan Statistical Areas (MSAs).	• 32 CFR 199.14(d)
Freestanding and Hospital Based Birthing Centers Reimbursement (Chapter 10)	Reimbursement for all-inclusive maternity care and childbirth services furnished by an authorized birthing center shall be limited to the lower of the TRICARE established all-inclusive rate or the billed charge. The all-inclusive rate shall include the following to the extent that they are usually associated with a normal pregnancy and childbirth: laboratory studies, prenatal management, labor management, delivery, postpartum management, newborn care, birth assistant, certified nurse-midwife professional services, physician professional services, and the use of the facility. The rate includes physician services for routine consultation when certified nurse-midwife is the attending professional. The TRICARE maximum allowable all-inclusive rate is equal to the sum of the Class 3 CHAMPUS Maximum Allowable Charge (CMAC) for total obstetrical care for a normal pregnancy and delivery (CPT1 procedure code 59400) plus the TMA supplied nonprofessional price component amount.	• 32 CFR 199.6(b)(4)(xi)(A)(3) • 32 CFR 199.14(e)

Reimbursement Type	Reimbursement Method	Authority
Hospice Care Reimbursement (Chapter 11)	The National Defense Authorization Act (NDAA) for Fiscal Year (FY) 1992-1993, Public Law 102-190, directed TRICARE to provide hospice care in the manner and under the conditions provided in section 1861(dd) of the SSA (42 USC 1395x(dd)). This section of the SSA sets forth coverage/benefit guidelines, along with certification criteria for participation in a hospice program. Since it was Congress' specific intent to establish a benefit identical to that of Medicare, the program has adopted the provisions currently set out in Medicare's hospice coverage/benefit guidelines, reimbursement methodologies (including national hospice rates and wage indices), and certification criteria for participation in the hospice program (42 CFR 418, Hospice Care).	• 32 CFR 199.4(e)(19) • 32 CFR 199.6(b)(4)(iii) • 32 CFR 199.14(g)
Home Health Care (HHC) Reimbursement (Chapter 12)	Section 701 of the National Defense Authorization Act (NDAA) for Fiscal Year 2007 (NDAA FY 2007) (Public Law (PL) 107-107) (December 28, 2001), added a new Section 10 USC 1074j, establishing a comprehensive, part-time or intermittent HHC benefit to be provided in the manner and under the conditions described in Section 1861(m) of the SSA (42 USC 1395x(m)). Based on these statutory provisions, TRICARE will adopt Medicare's benefit structure and Prospective Payment System (PPS) for reimbursement of Home Health Agencies (HHAs) that is currently in effect for the Medicare program as required by Section 4603 of the Balanced Budget Act (BBA) of 1997 (PL 105-33), as amended by Section 5101 of the Omnibus Consolidated and Emergency Supplemental Appropriations Act for FY 1999, and by Sections 302, 305, and 306 of the Medicare, Medicaid, and State Children's Health Insurance Program (SCHIP) Balanced Budget Refinement Act (BBRA) of 1999.	• 32 CFR 199.2 • 32 CFR 199.4(e)(21) • 32 CFR 199.6(a)(8)(i)(B) • 32 CFR 199.6(b)(4)(xv) • 32 CFR 199.14(j)
Hospital Outpatient Reimbursement (Chapter 13)	Based on statutory provisions, TRICARE has adopted Medicare's prospective payment system for reimbursement of hospital outpatient services currently in effect for the Medicare program. The TRICARE system is known as the OPPS. The prospective payment rate for each Ambulatory Payment Classification (APC) is calculated by multiplying the APC's relative weight by the conversion factor. See Chapter 13, Section 3 for the detailed methodology.	• 32 CFR 199.14(a)(5)
Sole Community Hospital (SCH) Reimbursement (Chapter 14)	For admissions on or after January 1, 2014, inpatient services that are provided by SCHs shall be reimbursed using a primary methodology referred to as a Cost-To-Charge Ratio (CCR) methodology. That is, claims shall be reimbursed by multiplying the SCH's specific Medicare overall inpatient CCR obtained from the CMS Inpatient Provider Specific File (PSF) by the hospital's billed charges.	• 32 CFR 199.6(b)(4)(xvii)
Critical Access Hospitals Reimbursement (Chapter 15)	Effective December 1, 2009, TRICARE is exempting CAHs from the DRG-based payment system and adopting a reasonable cost method similar to Medicare principles for reimbursing CAHs.	• 42 CFR 412.103 • 42 CFR Part 485, Subpart F).

Appendix B.
Literature Survey

We group the studies into three categories: Capitation, Accountable Care Organizations (ACOs) and Bundled Payments. Table B-1 through Table B-3 provide the complete list of studies that were used to construct the savings ranges presented in Table 6 through Table 8 in Chapter 4. Following Table B-3, a quick synopsis of each study is provided, including the program covered, the care setting, and a summary of the savings. For the ACO studies, we also recorded certain health outcome metrics; specifically, we are interested in inpatient admission rates, length of stay, readmissions rates, and ER visit rates.

Table B-1. Capitation Studies

Study Number	Citation	Medicaid, Medicare, or Private Plan
1	Barclay, T. "Wisconsin HMOs' Success in Medicaid and BadgerCare: Government Cost Savings and Better Health Care Quality." Milliman. February 22, 2002. Reported by: The Lewin Group. "Medicaid Managed Care Cost Savings - A Synthesis of 24 Studies." March 2009.	Medicaid
2	Milliman. "Kentucky Region 3 Partnership Program." December 2003. Reported by: The Lewin Group. "Medicaid Managed Care Cost Savings - A Synthesis of 24 Studies." March 2009.	Medicaid
3	Mercer Government Human Services Consulting. "Independent Assessment of Cost-Effectiveness for the Ohio Medicaid Managed Care Program." March 2006. Reported by: The Lewin Group. "Medicaid Managed Care Cost Savings - A Synthesis of 24 Studies." March 2009.	Medicaid
4	The Lewin Group. "Independent Assessment of New Mexico's Medicaid Managed Care Program—Salud!" February 2007. Reported by: The Lewin Group. "Medicaid Managed Care Cost Savings - A Synthesis of 24 Studies." March 2009.	Medicaid
5	Hart, S. K, and D. P. Muse. "Texas Medicaid Managed Care Cost Impact Study." Milliman Client Report. February 17, 2015.	Medicaid
6	Medicare Payment Advisory Commission. "Report to the Congress: Medicare Payment Policy." March 2016.	Medicare Advantage

Study Number	Citation	Medicaid, Medicare, or Private Plan
7	McCarthy, D., K. Mueller, and J. Wrenn. "Kaiser Permanente: Bridging the Quality Divide with Integrated Practice, Group Accountability, and Health Information Technology." *The Commonwealth Fund* 17 (June 2009).	Private plan
8	Mongan, J., T. Ferris, and T. Lee. "Options for Slowing the Growth of Health Care Costs." *New England Journal of Medicine* 358, no. 14 (April 3, 2008): 1509–14.	
9	Hillman, A. L., M. V. Pauly, and J. J. Kerstein. "How do financial incentives affect physicians' clinical decisions and the financial performance of health maintenance organizations?" *New England Journal of Medicine* 321 (1989): 86–92.	Private plan
10	Hohlen, M. M., L. M. Manheim, G. V. Fleming, S. M. Davidson, B. K. Yudkowsky, S. M. Werner, and G. M. Wheatley. "Access to Office-Based Physicians under Capitation Reimbursement and Medicaid Case Management: Findings from the Children's Medicaid Program." *Medical Care* 28, no. 1 (January 1990): 59–68. doi: 10.1097/00005650-199001000-00007.	Medicaid
11	Murray, J. P., S. Greenfield, S. H. Kaplan, and E. M. Yano. "Ambulatory Testing for Capitation and Fee-for-Service Patients in the Same Practice Setting: Relationship to Outcomes." *Medical Care* 30, no. 3 (March 1992): 252–261.	Private plan
12	Song, Z., S. Rose, D. G. Safran, B. E. Landon, M. P. Day, and M. E. Chernew. "Changes in Health Care Spending and Quality 4 Years into Global Payment." *New England Journal of Medicine* 371, no. 18 (October 30, 2014): 1704–714. doi: 10.1056/nejmsa1404026.	Private Plan

Table B-2. Accountable Care Organizations/Patient Centered Medical Homes Studies

Study Number	Citation
1	Department of Vermont Health Access. "Vermont Blueprint for Health: 2013 Annual Report." January 30, 2014.
2	Department of Vermont Health Access. "Vermont Blueprint for Health: 2014 Annual Report." January 15, 2015.
3	Jones, C., K. Finison, K. McGraves-Lloyd, T. Tremblay, M. K. Mohlman, B. Tanzman, M. Hazard, S. Maier, and J. Samuelson. "Vermont's Community-Oriented All-Payer Medical Home Model Reduces Expenditures and Utilization While Delivering High-Quality Care." *Population Health Management* 18 (September 2015). doi: 10.1089/pop.2015.0055.
4	Wood, B. A. "Community Care of North Carolina." North Carolina Office of the State Auditor. August 2015.
5	Fillmore, H., C. A. Dubard, G. A. Ritter, and C. T. Jackson. "Health Care Savings with the Patient-Centered Medical Home: Community Care of North Carolina's Experience." *Population Health Management* 17, no. 3 (June 1, 2014): 141–48. doi:10.1089/pop.2013.0055.
6	Landen, R. "CareFirst Reports Major Savings with Medical Home Program." *Modern*

Study Number	Citation
	Healthcare. July 10, 2014.
7	Maeng, D. D., N. Khan, J. Tomcavage, T. R. Graf, D. E. Davis, and G. D. Steele. "Reduced Acute Inpatient Care Was Largest Savings Component Of Geisinger Health System's Patient-Centered Medical Home." *Health Affairs* 34, no. 4 (April 01, 2015): 636–44. doi: 10.1377/hlthaff.2014.0855.
8	Rosenthal, M. B., S. Alidina, M. W. Friedberg, S. J. Singer, D. Eastman, Z. Li, and E. C. Schneider. "A Difference-in-Difference Analysis of Changes in Quality, Utilization, and Cost Following the Colorado Multi-Payer Patient-Centered Medical Home Pilot." *Journal of General Internal Medicine*. October 8, 2015.
9	Anthem Public Policy Institute. "Early Results from the Enhanced Personal Health Care Program: Learnings for the Movement to Value-Based Payment." Report. May 2016.
10	Salmon, R. B., M. I. Sanderson, B. A. Walters, K. Kennedy, R. C. Flores, and A. M. Muney. "A Collaborative Accountable Care Model In Three Practices Showed Promising Early Results On Costs And Quality Of Care." *Health Affairs* 31, no. 11 (November 01, 2012): 2379–387. doi: 10.1377/hlthaff.2012.0354.
11	Kautter, J., G. Pope, M. Leung, M. Trisolini, W. Adamache, and K. Smith. "Financial and Quality Impacts of the Medicare Physician Group Practice Demonstration." *Medicare & Medicaid Research Review* MMRR 4, no. 3 (2014). doi: 10.5600/mmrr.004.03.a01.
12	Colla, C. H., D. E. Wennberg, E. Meara, J. S. Skinner, D. Gottlieb, V. A. Lewis, C. M. Snyder, and E. S. Fisher. "Spending differences associated with the Medicare Physician Group Practice Demonstration." *JAMA* 308, no.10 (September 12, 2012): 1015–23.
13	Sebelius, K. "Physician Group Practice Evaluation: Report to Congress." Washington, DC: Department of Health and Human Services, 2009.
14	Claffey, T. F., J. V. Agostini, L. R. Collet, and R. Krakauer. "Payer-Provider Collaboration In Accountable Care Reduced Use And Improved Quality In Maine Medicare Advantage Plan." *Health Affairs* 31, no. 9 (September 2012): 2074–83.
15	DoD. "Evaluation of the TRICARE Program: Access, Cost and Quality. Fiscal Year 2015 Report to Congress." Transmitted February 28, 2015.

Table B-3. Bundled Payments Studies

Study Number	Citation	Type of Procedure
1	Cooley, D. A. "A Brief History of the Texas Heart Institute." *Texas Heart Institute Journal* 35, no. 3 (2008): 235-39.	Cardiac-CABG
2	Cromwell, J., D. A. Dayhoff, N. T. McCall, S. Subramanian, R. C. Freitas, R. J. Hart, C. Caswell, and W. Stason. "Medicare Participating Heart Bypass Center Demonstration: Executive Summary: Final Report." Waltham, MA: Health Economics Research, Inc., July 24, 1998.	Cardiac-CABG
3	Steele, G. "The Geisinger Innovation Model: Scaling and Generalizing." Presentation at the Health Industry Forum, Brandeis University. April 5, 2012.	Cardiac-CABG

Study Number	Citation	Type of Procedure
4	Casale, A., R. Paulus, M. Selna, M. C. Doll, A. E. Bothe, Jr., K. E. McKinley, S. A. Berry, D. E. Davis, R. J. Gilfillan, B. H. Hamory, and G. D. Steele, Jr. “ProvenCareSM: A Provider-Driven Pay-For-Performance Program for Acute Episodic Cardiac Surgical Care.” *Annals of Surgery* 246, no. 4 (October 2007): 613–23.	Cardiac-CABG
5	Reardon, L., M. Wrobel, L. Olinger, and T. Dorsey. “Medicare Cataract Surgery Alternate Payment Demonstration: Final Evaluation Report.” Cambridge, MA: Abt Associates Inc., 1997.	Cataract
6	Ahlquist, G., M. Javanmarian, S. Saxena, and B. Spencer. "Bundled Care: The Opportunities and Challenges for Providers." Report. April 2, 2013.	Orthopedic and cardiac
7	United States Department of Health and Human Services, Centers for Medicare & Medicaid Services. “Comprehensive Care for Joint Replacement Model.” Fact Sheet, updated December 10, 2015.	Orthopedic
8	Sobczak, A. "Bundled Payments: 28 Things to Know for Spine, Orthopedics & ASCs." *Becker's ASC Review*. January 15, 2016.	Orthopedic
9	Whitcomb, W. F., T. Lagu, R. J. Krushell, A. P. Lehman, J. Greenbaum, J. McGirr, P. S. Pekow, S. Calcasola, E. Benjamin, J. Mayforth, and P. K. Lindenauer. "Experience with Designing and Implementing a Bundled Payment Program for Total Hip Replacement." *The Joint Commission Journal on Quality and Patient Safety* 41, no. 9 (September 2015): 403–13.	Orthopedic
10	Iorio, R., A. J. Clair, I. A. Inneh, J. D. Slover, J. A. Bosco, and J. D. Zuckerman. "Early Results of Medicare's Bundled Payment Initiative for a 90-Day Total Joint Arthroplasty Episode of Care." *The Journal of Arthroplasty* 31, no. 2 (February 2016): 343–50. doi: 10.1016/j.arth.2015.09.004.	Orthopedic
11	Urdapilleta, O., D. Weinberg, S. Pedersen, G. Kim, and S. Cannon-Jones. "Evaluation of the Medicare Acute Care Episode (ACE) Demonstration." IMPAQ International, LLC and the Hilltop Institute, 2013.	Orthopedic and cardiac
14	Johnson, L., and R. Becker. "An Alternative Health-Care Reimbursement System Application of Arthroscopy and Financial Warranty: Results of a 2-Year Pilot Study." *Arthroscopy: The Journal of Arthroscopic and Related Surgery* 10, no. 4 (August 1994): 462–70.	Orthopedic
	Estimates	
12	Actuarial Research Corporation. “Final Scoring Memo: Bundles.” Memo to Third Way. March 11, 2015.	Not specified
13	Eibner, C., P. S. Hussey, M. S. Ridgely, and E. A. McGlynn. “Controlling Health Care Spending in Massachusetts: An Analysis of Options.” TR733. Santa Monica, CA: The RAND Corporation, August 2009.	Various

A. Capitation

Citation: Barclay, T. "Wisconsin HMOs' Success in Medicaid and BadgerCare: Government Cost Savings and Better Health Care Quality." Milliman. February 22, 2002.

Program Name: Medicaid Managed Care

Care Setting/Specialty: Health Maintenance Organizations (HMOs)

Summary: The study's objective was to compare Wisconsin's HMOs with traditional FFS ones in cost and quality. The HMOs' members consisted of non-dually-eligible enrollees in three programs: BadgerCare, Healthy Start, and Aid to Families with Dependent Children (AFDC). The Wisconsin Department of Health and Family Services provided average monthly payment per member data from 13 participating HMOs. It also constructed comparable FFS figures to assess the HMOs' quantitative and qualitative improvements. The physicians' incentive was a set payment for each enrollee assigned to them per period of time, whether or not that person sought care. The study provided results for the years 2001 and 2002.

Reported Savings: *"A comparison of the HMO monthly payment rates to the calculated FFSE amounts yields direct savings to the Medicaid/BadgerCare programs….As indicated by the above tables, the estimated government cost savings as a result of contracting with HMOs in these programs is $35 million [$14 million in state savings] in 2001 and $56 million [$22 million in state savings] in 2002. These savings are shared between the state and federal governments as illustrated in the following chart."*

The following savings rates were reported in the Lewin's Group literature review of 24 Medicaid managed care studies.

Year	Savings Rates
2001	7.9%
2002	10.7%

Citation: Milliman USA, Kentucky Region 3 Partnership Program, December 2003.

Program Name: Region 3 Partnership

Care Setting/Specialty: Medical Care Organizations (MCOs)

Summary: The study's objective was to determine the effectiveness of the Region 3 Partnership in cost, quality, and accessibility. The study started in 1999 and ended in 2003. Largest program cost savings occurred in the Supplemental Security Income (SSI) population. All non-institutionalized Medicaid beneficiaries were enrolled in the partnership, including the dually eligible. The physicians' incentive was a set payment for each enrollee assigned to them per period of time, whether or not that person sought care.

Reported Savings: The following data are from the Lewin Group's literature review.

Fiscal Year	Total Dollar Savings (millions)	Savings as a Percent of Estimated FFS Costs
1999	$7.9	2.8%
2000	$16.1	5.4%
2001	$32.6	9.5%
2002	$35.8	9.5%
2003*	$17.7	4.1%

Note: *Calendar year.

Citation: Mercer Government Human Services Consulting. "Independent Assessment of Cost-Effectiveness for the Ohio Medicaid Managed Care Program." March 2006.

Program Name: Medicaid Managed Care

Care Setting/Specialty: Medical Care Organizations (MCOs)

Summary: The study's objective was to assess the cost effectiveness of the Ohio Medicaid managed care program. The most recent analysis was completed in 2006, which evaluated FY 2004 outcomes. It compared projected FFS costs of the OH Medicaid program in managed care counties (without waiver) to the actual costs under the waiver. As of July 2003, six health plans participated in 15 counties. Their incentive was a set payment for each enrollee assigned to them per period of time, whether or not that person sought care.

Reported Savings: The following quote is from the Lewin Group's literature review: *"The most recent Mercer study, completed in 2006 and evaluating FY2004 outcomes, found that Ohio's capitated programs created $72.4 million in FY2004 savings, a percentage savings of 4.2% relative to expected FFS costs in the absence of the capitation initiative….In an earlier assessment completed in August 2004, Mercer estimated that Ohio's capitation programs achieved Medicaid savings of $26.4 million (4.2%) in FY2002 and $55.1 million (7.0%) in FY2003."*

Citation: The Lewin Group. "Independent Assessment of New Mexico's Medicaid Managed Care Program—Salud!" February 2007.

Program Name: Salud!

Care Setting/Specialty: Medical Care Organizations (MCOs)

Summary: The study's objective was to examine the quality, access, and cost of healthcare services delivered under the New Mexico Medicaid managed care program, Salud! This program utilized the services of three MCOs (Lovelace, Molina, and Presbyterian) that the National Committee for Quality Assurance rated as "excellent"—a distinction only attained by 40 Medicaid managed care plans across the United States. Both the doctors and the patients were incentivized financially: doctors were incentivized to attract more patients and patients were incentivized to undergo cancer screenings and other checkups. The most recent assessment was conducted in February 2007.

Reported Savings: *"Lewin estimates that during FY06 Salud! achieved a savings between 3.0 and 5.0 percent….Lewin [also] estimates that Salud! created savings of $33 million to $56 million with the midpoint estimate being a savings of $44 million. These figures include both the state and federal share of Medicaid expenditures."*

Citation: Hart, S. K., and D. P. Muse. "Texas Medicaid Managed Care Cost Impact Study." Milliman Client Report. February 17, 2015.

Program Name: STAR and STAR-Plus Programs

Care Setting/Specialty: Medical Care Organizations (MCOs)

Summary: The study's objective was to analyze the cost impact that managed care had on the state of Texas. These costs were estimated by comparing actual historical program costs to hypothetical costs under a fee-for-service (FFS) arrangement. Data were gathered for a six-year period from SFY 2010-SFY 2015. Physicians had a financial incentive—if an MCO's costs are significantly below projected value, the provider will share excess gains with the state beginning at 3 percent profit through an experience rebate. If costs exceed projected value, the provider will be responsible for bearing all losses.

Reported Savings: *"For the six year period from SFY2010—SFY2015, we estimate that the managed care capitation payment structure of the STAR and STAR-PLUS programs have resulted in a Medicaid All Funds cost reduction in the range of 5.0% to 10.7% when compared to estimated expenditures on a fee-for-service structure."*

Citation: Medicare Payment Advisory Commission. "Report to the Congress: Medicare Payment Policy." March 2016.

Program Name: Medicare Advantage

Care Setting/Specialty: Not specified

Summary: The Medicare Payment Advisory Commission is an independent congressional agency that advises the US Congress on issues affecting the Medicare program, such as payments to health plans participating in the Medicare Advantage (MA) program and providers in Medicare's traditional FFS program. They are also tasked with analyzing access to care, quality of care, and other issues affecting Medicare. This report is one of two issued each year that present Commission recommendations. In this report, the Commission discusses the market structure of the MA program. They compare the Medicare program's projected MA spending with projected FFS spending on a like set of FFS beneficiaries using plans' bid projections.

Reported Savings: The following figure presents three sets of percentages the Commission calculated: the benchmarks relative to projected FFS spending, the bids relative to projected FFS spending, and the resulting payments to MA plans relative to projected FFS spending. The table reports the average plan bid is 94 percent; this is used to derive the 6 percent savings rate.

Projected payments are at or above FFS spending for all plan types in 2016

	Percent of FFS spending in 2016		
Plan type	**Benchmarks***	**Bids**	**Payments**
All MA plans	**107%**	**94%**	**102%**
HMO	106	90	101
Local PPO	109	105	108
Regional PPO	103	98	101
PFFS	111	108	110
Restricted availability plans included in totals above			
SNP**	105	94	101
Employer group**	108	103	106

Note: FFS (fee-for-service), MA (Medicare Advantage), PPO (preferred provider organization), PFFS (private fee-for-service), SNP (special needs plan). Benchmarks are the maximum Medicare program payments for MA plans and incorporate plan quality bonuses. We estimate FFS spending by county using the 2016 MA rate book. We removed spending related to the remaining double payment for indirect medical education payments made to teaching hospitals.
* Benchmarks include quality bonuses.
** SNPs and employer group plans have restricted availability, and their enrollment is included in the statistics by plan type. We have broken them out separately to provide a more complete picture of the MA program.

Source: MedPAC analysis of data from CMS on plan bids, enrollment, benchmarks, and fee-for-service expenditures.

Source: Copied from Table 12-4 in the Medicare Payment Advisory Commission report.

Citation: McCarthy, D., K. Mueller, and J. Wrenn. "Kaiser Permanente: Bridging the Quality Divide with Integrated Practice, Group Accountability, and Health Information Technology." *The Commonwealth Fund* 17 (June 2009).

Program Name: N/A

Care Setting/Specialty: Primary care practices and hospitals

Summary: Kaiser Permanente is one of the largest commercial health care delivery systems in the US with a capitation component. It is composed of the Kaiser Foundation Health Plan, Kaiser Foundation Hospitals, and Permanente Medical Groups in eight regions. The Permanente Medical Groups are multi-specialty groups of physicians who accept a fixed payment (capitation) to provide medical care exclusively for Kaiser health plan members in Kaiser facilities. Permanente physicians are paid market-competitive salaries; the capitation payment is used to fund a medical group's incentive pool with rewards based on meeting quality and service goals at each organizational level: group, medical center, department, and individual physician. Physicians can earn an annual performance incentive payment of up to 5 percent of salary (on average) based on measures of quality, service and patient satisfaction, workload, and group contribution.

Reported Savings: This case study on Kaiser Permanente provides some cost savings and quality outcomes but they are tied to programming and not specifically to the payment model.

Citation: Mongan, J., T. Ferris, and T. Lee. "Options for Slowing the Growth of Health Care Costs." *New England Journal of Medicine* 358, no. 14 (April 3, 2008): 1509–14.

Program Name: N/A

Care Setting/Specialty: N/A

Summary: The authors review various proposals to contain healthcare costs and assess each proposal's potential for success. They find three proposals to be the most promising: modifications in reimbursement to reward the practice of evidence-based medicine, expansion of the use of electronic medical records, and standardization of billing transactions to reduce administrative costs.

Reported Savings: Specific cost savings are not reported. The authors state that there are cost savings associated with capitation, albeit with some limitations:

"The most potent version of payment reform is budget-based capitation, in which providers receive a fixed amount of money to cover all health care needs of a population of patients. Experiments with capitation in commercially insured populations demonstrate reductions in cost, but they have often resulted in consumer and provider dissatisfaction. Patients have rebelled against limitations on their choices of providers, and providers have rebelled against capped budgets and inadequate risk adjustments to payments. Although capitation is successfully used in some staff-model delivery systems, efforts to extend this payment approach more broadly have had limited success."

Citation: Hillman, A. L., M. V. Pauly, and J. J. Kerstein. "How do financial incentives affect physicians' clinical decisions and the financial performance of health maintenance organizations?" *New England Journal of Medicine* 321 (1989): 86–92.

Program Name: N/A

Care Setting/Specialty: Health Maintenance Organizations (HMOs)

Summary: This study focuses on the impact of financial incentives on physicians' behavior. Using regression analysis, the researchers evaluated data from a survey of HMOs on hospitalization rates, outpatient visit rates, and the achievement of break-even status. The researchers find that a capitation payment model is associated with a lower rate of hospitalization than an FFS payment model. Additionally, holding physicians at financial risk as individuals and imposing penalties for deficits in the HMO's hospital fund beyond the loss of withheld funds were found to be associated with fewer outpatient visits per enrollee, but a higher percentage of HMO patients in a physician's caseload was associated with more frequent visits.

Reported Savings: Specific cost savings are not reported.

Citation: Hohlen, M. M., L. M. Manheim, G. V. Fleming, S. M. Davidson, B. K. Yudkowsky, S. M. Werner, and G. M. Wheatley. "Access to Office-Based Physicians under Capitation Reimbursement and Medicaid Case Management: Findings from the Children's Medicaid Program." *Medical Care* 28, no. 1 (January 1990): 59–68. doi: 10.1097/00005650-199001000-00007.

Program Name: Children's Medicaid Program

Care Setting/Specialty: Primary care practices

Summary: The study examines the impact of capitation reimbursement and Medicaid case management on physician behavior and patients' access to physicians. The primary care physicians who participated were reimbursed at rates higher than the regular Medicaid fee schedule, either through augmented fees for specific services or through monthly capitation payments. Using the claims data, the researchers compared the rates at which children in the treatment group program and children in the control group (i.e., the regular Medicaid program) were seen by a physician during a one-year period. The majority of children in the treatment group received regular and frequent care from physicians during the demonstration. After controlling for race and prior utilization differences, the researchers found that children in the treatment group received more primary care than children in the control group; additionally, children in the treatment group received at least the same amount of primary care as children in control group.

Reported Savings: The study focused on access, not cost, so no cost savings or savings rate are reported.

Citation: Murray, J. P., S. Greenfield, S. H. Kaplan, and E. M. Yano. "Ambulatory Testing for Capitation and Fee-for-Service Patients in the Same Practice Setting: Relationship to Outcomes." *Medical Care* 30, no. 3 (March 1992): 252–261.

Program Name: N/A

Care Setting/Specialty: Not specified

Summary: The study examines the impact of varying reimbursement incentives on physician behavior and patients' health outcomes. The researchers compared physicians' test-ordering behavior and patients' subsequent health outcomes using a group of physicians who provided care for hypertensive patients with either capitation or FFS health insurance plans. The study finds that patients with capitation health insurance plans had fewer laboratory tests and lower charges than the FFS patients, with no difference in health outcomes. They conclude that capitation can result in a decrease in hypertension management charges, without apparent compromise in proximate health outcomes.

Reported Savings: Although they report that cost savings were realized, they did not report specific cost savings or savings rate:

"After controlling for patients' age, severity of hypertension, and level of comorbidity, it was found that patients with capitation health insurance had fewer laboratory tests and lower overall charges than the fee-for-service patients, with no clinical or statistically significant differences in 1-year health outcomes, specifically blood pressure control."

Citation: Song, Z., S. Rose, D. G. Safran, B. E. Landon, M. P. Day, and M. E. Chernew. "Changes in Health Care Spending and Quality 4 Years into Global Payment." *New England Journal of Medicine* 371, no. 18 (October 30, 2014): 1704–714. doi: 10.1056/nejmsa1404026.

Program Name: Alternative Quality Contract (AQC)

Care Setting/Specialty: Primary care practices

Summary: In 2009, Blue Cross Blue Shield (BCBS) of Massachusetts implemented the Alternative Quality Contract (AQC), a model that combines a global budget for a patient population with significant performance incentives based on nationally accepted quality metrics (i.e., 64 measures, including data on processes, outcomes, and patients' experiences in the ambulatory care and hospital settings). This study compares health care quality and spending between a group of BCBS Massachusetts members with a primary care physician in an AQC contract and a control group of commercially insured individuals across eight northeastern states (Connecticut, Maine, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, and Vermont).

Reported Savings:

Changes in Medical Spending and Total Payments Associated with the AQC, According to Cohort and Year.*

Variable	2009		2010		2011		2012		Cohort Average		
	Change	P Value	Change	P Value	Change	P Value	Change	P Value	Change	P Value	Change as Share of Postintervention Cohort Spending
											%
Change in medical spending ($)†											
2009 cohort	−20.95	0.02	−30.06	0.02	−77.07	<0.001	−120.78	<0.001	−62.21	<0.001	−6.8
2010 cohort	—	—	−29.06	0.03	−85.49	<0.001	−131.21	<0.001	−81.92	<0.001	−8.8
2011 cohort	—	—	—	—	−76.96	0.001	−117.24	0.001	−97.10	<0.001	−9.1
2012 cohort	—	—	—	—	—	—	−59.39	0.04	−59.39	0.04	−5.8
Weighted average savings on claims (% of current-yr FFS claims)‡	2.4		3.1		8.4		10.0			NA	
Incentive payments to providers (% of current-yr FFS claims)§	6–9		9–12		10–13		6–9			NA	
Implication	BCBS payments to providers, including shared savings and bonuses for quality and infrastructure, exceeded savings on claims		Payments to providers exceeded savings on claims		Payments exceeded savings on claims, but by a smaller amount than in earlier years		Savings on claims exceeded payments, rendering net savings			NA	
Scope of adoption in Massachusetts (% of BCBS providers in AQC)	Approximately 20		Approximately 25		Approximately 33		Approximately 75			NA	

* BCBS denotes Blue Cross Blue Shield of Massachusetts, and NA not applicable.
† All values are per enrollee per quarter. Changes in spending on claims are from a difference-in-differences regression analysis with adjustment for covariates. Negative values represent savings. Cohort averages were scaled into a percentage by dividing the average savings of the cohort in the AQC by its average spending levels after participation in the AQC. Dollars are inflation-adjusted to 2012 dollars.
‡ Average savings on claims were weighted across cohorts in each year, scaled into percentages by dividing into the weighted average of current-year fee-for-service (FFS) claims spending measured across cohorts in each year. This percentage is directly comparable to incentive payments.
§ Incentive payments are the sum of shared savings under the budget, quality bonuses, and infrastructure bonuses. These values are expressed in percentage ranges owing to the confidentiality of contracts between BCBS and provider organizations.

Note: Copied from Table 2 of Song et al. (2014).

B. Affordable Care Organizations (ACOs)/Patient Centered Medical Homes (PCMHs)

Citation: Department of Vermont Health Access. "Vermont Blueprint for Health: 2013 Annual Report." January 30, 2014.

Program Name: Vermont Blueprint for Health

Care Setting/Specialty: Primary care practices and hospitals

Summary: Vermont Blueprint for Health (Blueprint) is a state-established program that began as a chronic-care prevention and management plan. In 2007, the legislature directed Blueprint to launch a pilot of PCMHs in three communities. By 2011, the program was implemented statewide. This program is characterized by the use of community health teams and multi-insurer payment reform, among other things. The program retains the current FFS payments to providers, but adds two key payment reforms. The first is a variable per member per month (PMPM) payment made by all payers (i.e., Medicaid, Medicare, Blue Cross, MVP, and Cigna) to primary care providers with a qualifying score on a set of quality of care standards; the actual PMPM payment amount depends on the quality of care score. The second reform is a capacity payment to support the salaries and expenses of the community health teams. All major insurers in Vermont participate in these payment reforms. This report measures results for two groups: Blueprint participants who received the majority of their primary care in practices that began operating as PCMHs by December 31, 2012 and a comparison group of Vermont residents who received the majority of their primary care in practices that were not operating as PCMHs by December 31, 2012.

Reported Savings: The report provides the total expenditures per capita of the PCMH group and of the comparison group. IDA computed the following savings rates using these dollar amounts.

Insurer Group	Insured Ages	Savings Rates
Commercial Insurers	1–17	19%
	18–64	11%
Medicaid Insurers (excluding Special Medicaid Services (SMS))	1–17	11%
	18–64	7%
Medicaid Insurers (including SMS)	1–17	1%
	18–64	2%

Health Outcomes: The report provides the reductions in hospitalization and ER rates per 1000 beneficiaries of the PCMH group and of the comparison group. IDA computed the following health outcome rates using the reported rates.

Category	Insured Ages	Health Outcome Rates
2012 Hospitalizations (rate/1000 beneficiaries) for Commercial Insurers	1–17	–12%
	18–64	–12%
2012 ER Visits (rate/1000 beneficiaries) for Commercial Insurers	1–17	–4%
	18–64	–4%

Citation: Department of Vermont Health Access. "Vermont Blueprint for Health: 2014 Annual Report." January 15, 2015.

Program Name: Vermont Blueprint for Health

Care Setting/Specialty: Primary care practices and hospitals

Summary: Vermont Blueprint for Health (Blueprint) is a state-established program that began as a chronic-care prevention and management plan. In 2007, the legislature directed Blueprint to launch a pilot of PCMHs in three communities. By 2011, the program was implemented statewide. This program is characterized by the use of community health teams and multi-insurer payment reform among other things. The program retains the current FFS payments to providers, but adds two key payment reforms. The first is a variable PMPM payment made by all payers (i.e., Medicaid, Medicare, Blue Cross, MVP, and Cigna) to primary care providers with a qualifying score on a set of quality of care standards; the actual PMPM payment amount depends on the quality of care score. The second reform is a capacity payment to support the salaries and expenses of the community health teams. All major insurers in Vermont participate in these payment reforms. This report measures results for two groups: Blueprint participants who received the majority of their primary care in practices that began operating as PCMHs by December 2013 and a comparison group of Vermont residents who received the majority of their primary care in practices that were not operating as PCMHs by December 2013.

Reported Savings: The report provides the total expenditures per capita of the PCMH group and of the comparison group. IDA computed the following savings rates using these dollar amounts.

Insurer Group	Insured Ages	Savings Rates
Commercial Insurers	18–64	10%
Medicaid Insurers (Excluding SMS)	18–64	1%

Health Outcomes: The report does not provide the health outcome metrics of interest to us.

Citation: Jones, C., K. Finison, K. McGraves-Lloyd, T. Tremblay, M. K. Mohlman, B. Tanzman, M. Hazard, S. Maier, and J. Samuelson. "Vermont's Community-Oriented All-Payer Medical Home Model Reduces Expenditures and Utilization While Delivering High-Quality Care." *Population Health Management* 18 (September 2015). doi: 10.1089/pop.2015.0055.

Program Name: Vermont Blueprint for Health

Care Setting/Specialty: Primary care practices and hospitals

Summary: Vermont Blueprint for Health (Blueprint) is a state-established program that began as a chronic-care prevention and management plan. In 2007, the legislature directed Blueprint to launch a pilot of PCMHs in three communities. By 2011, the program was implemented statewide. This program is characterized by the use of community health teams and multi-insurer payment reform among other things. The program retains the current FFS payments to providers, but adds two key payment reforms. The first is a variable PMPM payment made by all payers (i.e., Medicaid, Medicare, Blue Cross, MVP, and Cigna) to primary care providers with a qualifying score on a set of quality of care standards; the actual PMPM payment amount depends on the quality of care score. The second reform is a capacity payment to support the salaries and expenses of the community health teams. All major insurers in Vermont participate in these payment reforms.

Reported Savings: *"The difference-in-differences change from Pre-Year to Post-Year 2 indicated that the participant group's expenditures were reduced by -$482 relative to the comparison (95% CI [Confidence Interval], -$573 to -$391; P < .001)."*

IDA transformed the dollar savings to a savings rate using the raw data in the paper. The resulting savings rate is 6.9 percent.

Health Outcomes: *"Relative to the comparison group, inpatient discharges and days were reduced by 8.8 per 1000 members (P < .001) and by 49.6 per 1000 members (P < .001), respectively."*

The study reports the number of inpatient days per 1,000 members for both the participant group and the comparison group before and after the PCMH model implementation. IDA used the raw data to calculate a rate. Implementing the PCMH model led a to 9.3 percent reduction in inpatient days.

Citation: Wood, B. A. "Community Care of North Carolina." North Carolina Office of the State Auditor. August 2015.

Program Name: Community Care of North Carolina (CCNC)

Care Setting/Specialty: Primary care practices

Summary: Community Care of North Carolina (CCNC) is a managed primary care program; beneficiaries join "medical homes," which coordinate patients' healthcare services. Primary care services are managed through the medical home while specialty care services are managed through the primary care physician. Beneficiaries have access to a case manager to ensure individualized care. This report is an audit of the CCNC model with the purpose of determining whether there were cost savings and improved health outcomes. The study population is limited to non-elderly, non-dual Medicaid beneficiaries.

Reported Savings: *"The researcher's analysis, based on data from July 1, 2003, through December 31, 2012, suggests that the CCNC program saved money among non-elderly, non-dual Medicaid beneficiaries.*

- *Savings of approximately $78 per quarter per beneficiary, approximately $312 a year in 2009 inflation-adjusted dollars (approximately a 9% savings)*
- *Decreased spending in almost all spending categories, with the largest reduction in inpatient services"*

Health Outcomes: *"The researcher's analysis suggests improved health outcomes for CCNC members…*

- *Approximately a 25% reduction in inpatient admissions*
- *Reduction in readmissions, inpatient admissions for diabetes, and emergency department visits for asthma (only the asthma results are statistically significant)*
- *No statistically significant effect on overall emergency department use"*

Citation: Fillmore, H., C. A. Dubard, G. A. Ritter, and C. T. Jackson. "Health Care Savings with the Patient-Centered Medical Home: Community Care of North Carolina's Experience." *Population Health Management* 17, no. 3 (June 1, 2014): 141–48. doi:10.1089/pop.2013.0055.

Program Name: Community Care of North Carolina (CNCC)

Care Setting/Specialty: Primary care practices

Summary: CCNC is a managed primary care program; beneficiaries join "medical homes," which coordinate patients' healthcare services. Primary care services are managed through the medical home while specialty care services are managed through the primary care physician. Beneficiaries have access to a case manager to ensure individualized care.

This study evaluated the cost savings of CNCC. The study population are non-elderly Medicaid recipients with disabilities and the study period is from January 2007 through third quarter 2011. Two models were used to estimate the program's impact on cost, within each year: the first employed a mixed model comparing member experiences in enrolled versus unenrolled months, accounting for regional differences as fixed effects and within physician group experience as random effects, while the second was a pre-post, intervention/comparison group, difference-in-differences mixed model, which directly matched cohort samples of enrolled and unenrolled members on various parameters.

Reported Savings: *"The study team estimated enrollment in CCNC produced a total cost savings of $184,064,611 over the 4.75 years. These savings are net of CCNC program costs and represent a 7.87% relative savings from the average PMPM cost."*

Health Outcomes: *"Consistent with the objectives of the CCNC program model, in every year after the first one, the rate of hospitalizations was significantly* (*P < .001) lower for enrolled members, even though their risk score was higher. Inpatient admission rates declined from 420 per thousand per year (PKPY) in 2007 to 384 PKPY in 2011 among enrolled members, while increasing from 396 PKPY to 552 PKPY among the unenrolled… ER visits that did not result in admissions were higher for the enrolled population initially, but over time the difference narrowed and became insignificant. This occurred despite the higher disease burden among the enrolled. Taken together, this evidence is consistent with the program's logic model and buttresses the conclusions that there were real program effects."*

IDA calculated the decline in inpatient admissions to be 8.6 percent.

Citation: Landen, R. "CareFirst Reports Major Savings with Medical Home Program." Modern Healthcare, July 10, 2014.

Program Name: CareFirst's Patient-Centered Medical Home (PCMH) Program

Care Setting/Specialty: Primary care practices

Summary: CareFirst's PCMH Program, launched in Washington, Maryland, and Virginia in 2011 by CareFirst Blue Cross and Blue Shield, focuses on high-risk and multi-chronic patients through incentivizing their providers. The providers are organized into "panels," teams of five to fifteen physicians whose performance on cost savings and quality metrics is measured as a group. Providers have the opportunity to earn an average of $25,000–$30,000 in additional revenue per provider. The treatment group is just under one-third of the approximately 3.4 million CareFirst members in the region, while the control group is the rest of the population.

Reported Savings: *"In CareFirst PCMH's third year, the company reported overall savings against projected cost of care for the 1.1 million members covered by the program rose to 3.2%, or $130 million. That's up from 2.7% or $98 million in savings during the second year of the program."*

Health Outcomes: *"In 2013, CareFirst members under the care of providers participating in the PCMH program had 6.4% fewer hospital admissions and 8.1% fewer readmissions than CareFirst members not under the care of participating providers. They also experienced 11.1% fewer days in the hospital and 11.3% fewer outpatient health facility visits."*

Citation: Maeng, D. D., N. Khan, J. Tomcavage, T. R. Graf, D. E. Davis, and G. D. Steele. "Reduced Acute Inpatient Care Was Largest Savings Component Of Geisinger Health System's Patient-Centered Medical Home." *Health Affairs* 34, no. 4 (April 01, 2015): 636–44. doi: 10.1377/hlthaff.2014.0855.

Program Name: ProvenHealth Navigator (PHN)

Care Setting/Specialty: Primary care practices

Summary: Geisinger Health System's ProvenHealth Navigator is a PCMH plan that was launched in Harrisburg, PA in 2006 to serve the needs of elderly Medicare patients and that was expanded two years later to include the health system's broader adult commercial population. The researchers estimated cost savings associated with Geisinger Health System's PCMH clinics using longitudinal clinic-level claims data from elderly Medicare patients attending the clinics over a 90-month period (from 2006 through the first half of 2013). The researchers also broke down the savings into four main categories: inpatient, outpatient, professional, and prescription drugs.

Reported Savings: *"During this period, total costs associated with patient-centered medical home exposure declined by approximately 7.9 percent; the largest source of this savings was acute inpatient care ($34, or 19 percent savings per member per month), which accounts for about 64 percent of the total estimated savings. This finding is further supported by the fact that longer exposure was also associated with lower acute inpatient admission rates."*

Health Outcomes: We calculated the inpatient admission rate of 8.6 percent using the raw data from the study.

Citation: Rosenthal, M. B., S. Alidina, M. W. Friedberg, S. J. Singer, D. Eastman, Z. Li, and E. C. Schneider. "A Difference-in-Difference Analysis of Changes in Quality, Utilization, and Cost Following the Colorado Multi-Payer Patient-Centered Medical Home Pilot." *Journal of General Internal Medicine*. October 8, 2015.

Program Name: Colorado Multi-Payer Patient-Centered Medical Home (PCMH) Pilot

Care Setting/Specialty: Primary care practices

Summary: This study evaluated a multi-payer PCMH pilot in Colorado prior to the program's implementation, two years after program implementation, and three years after program implementation. The pilot involved 15 PCMH practices serving approximately 98,000 patients. The researchers analyzed changes in patient care using Healthcare Effectiveness Data and Information Set (HEDIS) measures.

Reported Savings: Although the researchers found cost savings from a reduction in emergency department costs (i.e., nearly $5 million per year), they found *"no overall cost savings for practices or patients"* because of increased spending in other areas.

Health Outcomes:

- *"After two years, the participating PCMH practices reduced their patients' use of the emergency department (ED) by 1.4 visits per thousand member-months, or by approximately 7.9 percent. At the end of three years, they had sustained this improvement—with 1.6 fewer ED visits per thousand member-months, or a 9.3 percent drop from baseline.*
- *Among patients with two or more illnesses, there was a 10.3 percent drop from baseline in the rate of hospital admissions for conditions that could be have been avoided had timely treatment been provided in an ambulatory care setting.*
- *After three years, the program reduced emergency department costs by $3.50 per member per month, a drop of 11.8 percent. For patients with two or more conditions, the reduction was $6.61 per member per month, or 14.5 percent."*

Citation: Anthem Public Policy Institute. "Early Results from the Enhanced Personal Health Care Program: Learnings for the Movement to Value-Based Payment." Report. May 2016.

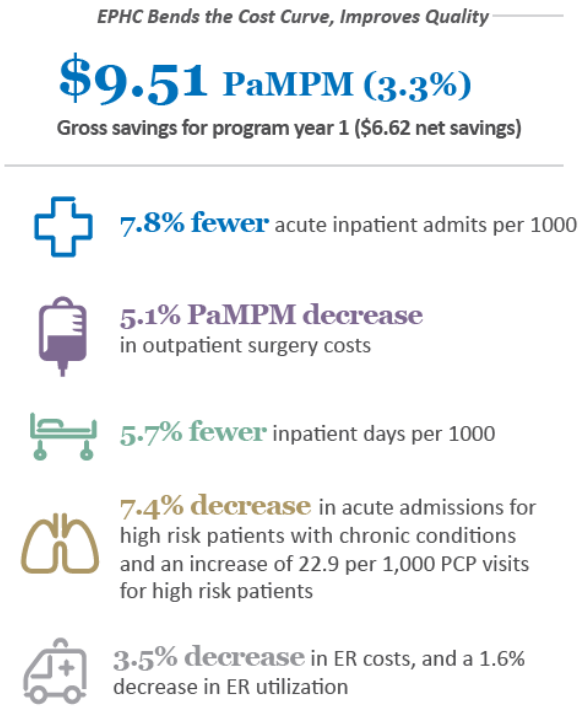
Program Name: Enhanced Personal Health Care (EPHC) Program

Care Setting/Specialty: Primary care practices

Summary: The Enhanced Personal Health Care (EPHC) Program is a collaboration between Anthem's affiliated health plans and their participating providers. It began in 2012 and, as of the end of 2015, includes 54,000 participating providers caring for 4.6 million members. The key feature of the program is a shared savings model with monthly care coordination payments built on FFS architecture. Providers are encouraged to use an electronic medical record and become certified as a PCMH by the National Committee on Quality Assurance. The researchers looked at the results from the first year of the program, which included 744,000 members attributed to 7,794 providers from 422 practices. They compared members attributed to program providers against a matched group of members attributed to non-EPHC providers.

Reported Savings: *"Patients in EPHC had per member per month costs that were $9.51 less – a savings of 3.3 percent - than those of member s seen by non-participating providers. After accounting for care coordination payments and shared savings paid to participating providers, net savings were $6.62 per EPHC-attributed member per month."*

Health Outcomes:



Note: Copied from Figure 1 of Anthem Public Policy Institute 2016 report.

Citation: Salmon, R. B., M. I. Sanderson, B. A. Walters, K. Kennedy, R. C. Flores, and A. M. Muney. "A Collaborative Accountable Care Model In Three Practices Showed Promising Early Results On Costs And Quality Of Care." *Health Affairs* 31, no. 11 (November 01, 2012): 2379–387. doi: 10.1377/hlthaff.2012.0354.

Program Name: Cigna's Collaborative Accountable Care Initiative

Care Setting/Specialty: Primary care practices

Summary: Cigna launched the Collaborative Accountable Care initiative in 2008 to improve quality of care and medical costs. Built on top of the FFS architecture, the initiative is a shared savings accountable care program that also provides practices in their first year of participation with up-front care coordination fees for infrastructure investments. After the first year, if a practice meets and exceeds quality and cost targets, it receives a larger care coordination fee the following year. As of this study's publication date in November 2012, there are 42 participating practices.

The study examined a quality of care index and total medical costs for three participating practices in Arizona, New Hampshire, and Texas. They compare the outcomes of these three practices to the outcomes of other practices in the same geographic area.

Reported Savings: *"In 2010 total medical costs for the Arizona practice were $27.04 per patient per month more favorable than the costs in its comparison group, a difference that is significant ($p < 0.10$). Compared with expected costs, the New Hampshire and Texas practices achieved modest performance improvements in [corresponding] per patient per month costs—$1.78 and $6.56, respectively—although a decrease of $4.94 was evident for the Arizona practice. None of these results were significant. The difference-in-differences method yielded similar results."*

IDA computed a savings rate of 6.7 percent for the Arizona practice. The study states the Arizona practice realized a cost savings of $27.04 a month, or $324.48 a year, compared to the comparison group. In two other papers, "Collaborative Accountable Care: CIGNA's Approach to Accountable Care Organizations" and "Collaborative Accountable Care: Cigna Medical Group 2009 OAP Total Medical Cost," researchers reported a 7 percent savings rate based on realized cost savings of $336 a year. After converting the $324.48 per year savings to 2009 dollars using a Gross Domestic Product deflator ($319.24 per year savings), we use the values from the other two studies to estimate the savings rate for this study.

Participating Practices	Savings Rate
Arizona	6.7%
New Hampshire and Texas	Not statistically significant

Health Outcomes: The study does not provide the health outcome metrics of interest to us.

Citation: Kautter, J., G. Pope, M. Leung, M. Trisolini, W. Adamache, and K. Smith. "Financial and Quality Impacts of the Medicare Physician Group Practice Demonstration." *Medicare & Medicaid Research Review* MMRR 4, no. 3 (2014). doi: 10.5600/mmrr.004.03.a01.

Program Name: Physician Group Practice (PGP) Demonstration

Care Setting/Specialty: Primary care practices

Summary: The Physician Group Practice (PGP) demonstration uses a payment model similar to the Medicare ACO program, in which participating physician groups receive bonus payments if they achieved lower cost growth than local controls and met quality targets. This study examined the impact of the demonstration on expenditure, utilization, and quality outcomes using a pre-post comparison group observation design that compares Medicare claims data from four pre-implementation years and five post-implementation years. The data cover members assigned to the 10 participating provider organizations and members in the corresponding local comparison groups.

Reported Savings: *"The ten demonstration sites combined saved $171 (2.0%) per assigned beneficiary person year (p<0.001) during the five-year demonstration period. Medicare paid performance bonuses to the participating PGPs that averaged $102 per person year. The net savings to the Medicare program were $69 (0.8%) per person year."*

Health Outcomes: The study does not provide the health outcome metrics of interest to us.

Citation: Colla, C. H., D. E. Wennberg, E. Meara, J. S. Skinner, D. Gottlieb, V. A. Lewis, C. M. Snyder, and E. S. Fisher. "Spending differences associated with the Medicare Physician Group Practice Demonstration." *JAMA* 308, no.10 (September 12, 2012): 1015–23.

Program Name: Physician Group Practice (PGP) Demonstration

Care Setting/Specialty: Primary care practices

Summary: The PGP demonstration uses a payment model similar to the Medicare ACO program, in which participating physician groups receive bonus payments if they achieved lower cost growth than local controls and met quality targets. The study compared pre-intervention (2001–2004) and post-intervention (2005–2009) trends in spending of PGP demonstration participants to local non-participants. Its objective was to estimate cost savings associated with the overall PGP demonstration and for beneficiaries dually eligible for Medicare and Medicaid.

Reported Savings: *"Annual savings per beneficiary were modest overall (adjusted mean $114, 95% CI, $12-$216). Annual savings were significant in dually eligible beneficiaries (adjusted mean $532, 95% CI, $277-$786), but were not significant among non-dually eligible beneficiaries (adjusted mean $59, 95% CI, $166 in savings to $47 in additional spending). The adjusted mean spending reductions were concentrated in acute care (overall, $118, 95% CI, $65-$170; dually eligible: $381, 95% CI, $247-$515; non-dually eligible: $85, 95% CI, $32-$138)."*

IDA computed savings rates from the dollar savings using 2009 CMS national Medicare spending per enrollee data.[1]

Savings Rates
0.12% to 2.1% for all beneficiaries
2.7% to 7.6% for the dually eligible
0.45% to 1.6% for the non-dually eligible

Health Outcomes: *"Thirty-day medical readmissions decreased overall (-0.67%, 95% CI, -1.11% to -0.23%) and in the dually eligible (-1.07%, 95% CI, -1.73% to -0.41%), while surgical readmissions decreased only for the dually eligible (-2.21%, 95% CI, -3.07% to -1.34%)."*

[1] "National Health Expenditure Data," Centers for Medicare & Medicaid Services, last modified May 5, 2014, http://www.cms.gov/NationalHealthExpendData/downloads/resident-state-estimates.zip.

Citation: Sebelius, K. "Physician Group Practice Evaluation: Report to Congress." Washington, DC: Department of Health and Human Services, 2009.

Program Name: Physician Group Practice (PGP) Demonstration

Care Setting/Specialty: Primary care practices and hospitals

Summary: The Benefits Improvement and Protection Act of 2000 (BIPA) mandated the PGP demonstration and required four reports to the Congress that assess the impacts of the demonstration on expenditures, access, and quality. This report is the last of these reports and evaluates data from the first two years of the demonstration. The PGP demonstration uses a payment model similar to the Medicare ACO program, in which participating physician groups receive bonus payments if they achieved lower cost growth than local controls and met quality targets.

Reported Savings: *"Ignoring performance payment offsets, Actual Expenditures were $120 per person or 1.2 percent less than Target Expenditures per beneficiary for the combined 10 PGPs in PY2. This reduction is statistically significant ($p < .01$) . . . The majority of the financial savings occurred in outpatient, not inpatient, services. On average, outpatient expenditures were $83 per person year less than expected, while inpatient expenditures were $25 per person year less than expected and not statistically significant."*

Health Outcomes: The study does not provide the health outcome metrics of interest to us.

Citation: Claffey, T. F., J. V. Agostini, L. R. Collet, and R. Krakauer. "Payer-Provider Collaboration In Accountable Care Reduced Use And Improved Quality In Maine Medicare Advantage Plan." *Health Affairs* 31, no. 9 (September 2012): 2074–83.

Program Name: Aetna-NovaHealth Medicare Advantage Program

Care Setting/Specialty: Primary care practices

Summary: This study examines a care model jointly developed by Aetna and NovaHealth, an independent physician association based in Portland, Maine, that approximates an ACO for a Medicare Advantage population. This collaboration focused on shared data, financial incentives, and care management to improve health outcomes for approximately 750 Medicare Advantage members.

Reported Savings: *"These changes are attributable to NovaHealth's decreased avoidable admissions compared with the rates of other providers….NovaHealth's total per member per month costs across all cost categories for Aetna Medicare members were 16.5 percent to 33 percent lower than costs for members not in this provider organization."*

Health Outcomes: *"The patient population in the pilot program had 50 percent fewer hospital days per 1,000 patients, 45 percent fewer admissions, and 56 percent fewer readmissions than statewide unmanaged Medicare populations."*

Citation: DoD. *Evaluation of the TRICARE Program: Access, Cost and Quality. Fiscal Year 2015 Report to Congress*. Transmitted February 28, 2015.

Program Name: TRICARE

Care Setting/Specialty: Not specified

Summary: The DHA, Decision Support Division, in the Office of the Assistant Secretary of Defense (Health Affairs) (OASD[HA]) provides this annual report to the Congress. The report *"presents results trended over at least the most recent three fiscal years, where programs are mature and data permit. MHS cost, quality, and access data are compared with corresponding comparable civilian benchmarks, such as comparing beneficiary-reported access and experience to results from the Consumer Assessment of Healthcare Providers and Systems (CAHPS) survey sponsored by the Agency for Healthcare Research and Quality (AHRQ), comparing our quality measures to the national expectations and results of the Joint Commission, and comparing health risky behavior to Healthy People 2020 objectives."*

Reported Savings: Cost savings are not specified.

Health Outcomes: *"PCMH goals include reducing dispositions (admission) and bed-days per 1,000 MTF enrollees by proactively addressing and managing MTF enrollee comprehensive care in the PCMH setting. PCMH teams are working to reduce the number of times MTF enrollees are admitted to hospitals and medical centers in both the direct and purchased care sectors and the length of time they spend as inpatients if they are admitted, which is measured by bed-days (number of dispositions multiplied by the length of stay). The dispositions per 1,000 MTF enrollees averaged 20.80 in FY 2014, an improvement of 12 percent since FY 2012. The number of bed-days per 1,000 MTF enrollees was 111.51, an improvement of 11 percent over the same period."*

Savings Rates	FY 2012	FY 2013	FY 2014	2-Year Improvement
Dispositions per 1,000 enrollees	23.65	21.80	20.80	-12%
Bed-days per 1,000 enrollees	125.63	117.14	111.51	-11%

Source: Reproduced from DoD Report, 2015.

C. Bundled Payments

Citation: Cooley, D. A. "A Brief History of the Texas Heart Institute." *Texas Heart Institute Journal* 35, no. 3 (2008): 235-39.

Program Name: Not specified

Care Setting/Specialty: Hospital; coronary artery bypass graft (CABG) surgery

Summary: In 1984, Dr. Denton Cooley and the Texas Heart Institute adopted a radically new approach to medical pricing: the first combined price for medical services. The goal was to show how Cooley and his team were improving the quality of care while lowering costs. They set their single fee for a bundle of individual services for CABG at $13,800, while the average Medicare payment for that same surgery was $24,588.

Reported Savings: Cooley and the Texas Heart Institute set their single fee for a bundle of individual services for CABG at $13,800, while the average Medicare payment for that same surgery was $24,588. IDA computed a savings rate of 44 percent using this information.

Citation: Cromwell, J., D. A. Dayhoff, N. T. McCall, S. Subramanian, R. C. Freitas, R. J. Hart, C. Caswell, and W. Stason. "Medicare Participating Heart Bypass Center Demonstration: Executive Summary: Final Report." Waltham, MA: Health Economics Research, Inc., July 24, 1998.

Program Name: Medicare Participating Heart Bypass Center Demonstration

Care Setting/Specialty: Hospital; CABG surgery

Summary: The demonstration, which started May/June 1991 and ended in June 1996, took place in seven hospitals across the country. The incentive was a negotiated global fee, an all-inclusive bundled payment arrangement, covering all Part A (Medicare hospital insurance) and B (Medicare medical insurance) inpatient hospital and physician services for CABG surgery. To compute Medicare savings, the researchers compared negotiated prices with predicted Medicare prospective payment rates and physician inpatient outlays.

Reported Savings: *"From the start of the demonstration in May-June 1991, through its conclusion in June 1996, the Medicare program saved $42.3 million on bypass patients treated in the demonstration hospitals. The average discount amounted to roughly 10% on the $438 million in expected spending on bypass patients, including a 90-day post-discharge period. Eighty-six percent of the savings came from HCFA-negotiated discounts on the Part A and B inpatient expected payments. Another 5% came from lower-than-expected spending on post-discharge care, while 9% came from shifts in market shares in favor of lower-cost demonstration facilities. In addition, beneficiaries (and their insurers) saved another $7.9 million in Part B coinsurance payments. Thus, total Medicare savings are estimated to have been $50.3 million in five years."*

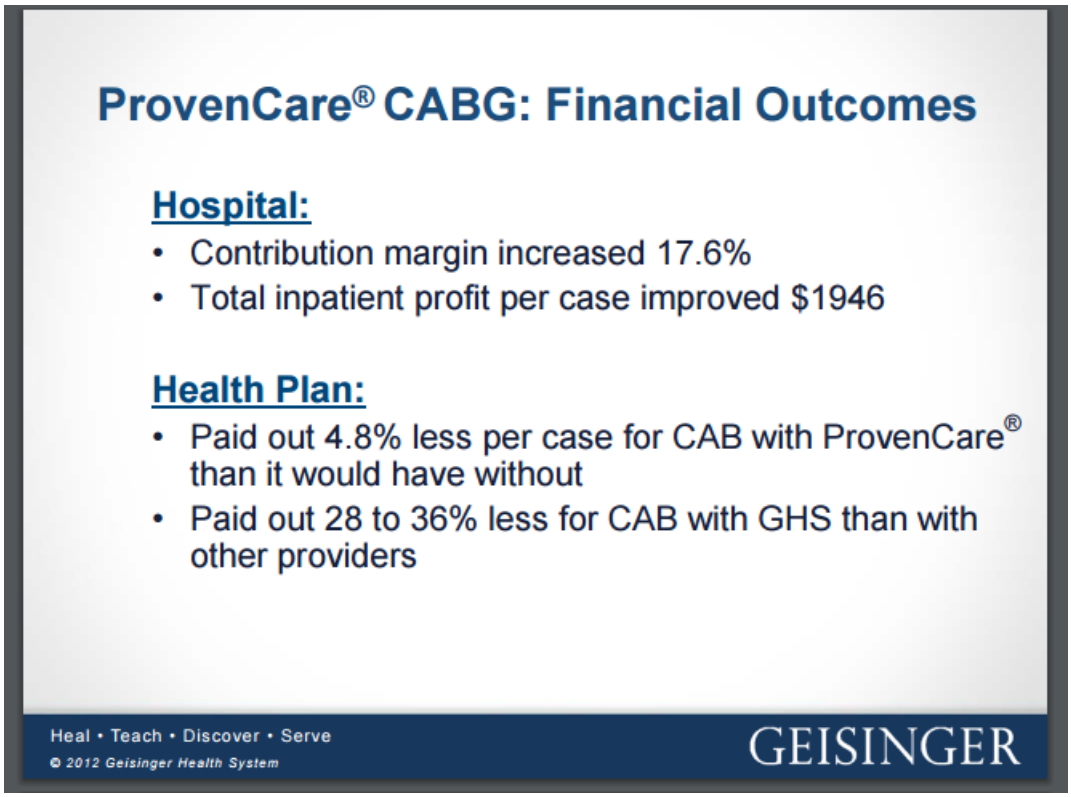
Citation: Steele, G. "The Geisinger Innovation Model: Scaling and Generalizing." Presentation at the Health Industry Forum, Brandeis University. April 5, 2012.

Program Name: ProvenCare for Acute Episodic Care program/ ProvenCare CABG

Care Setting/Specialty: Hospital; CABG surgery

Summary: The ProvenCare for Acute Episodic Care program/ProvenCare CABG was initiated and implemented in 2006 by the Geisinger Health System, a large integrated healthcare delivery system. This Geisinger study evaluated the impact of a bundled payment for services associated with CABG surgery. The bundled payment covered preoperative evaluation and work-up, all inpatient hospital and professional fees, all routine post-discharge care, a 90-day warranty for follow-up care and all related re-hospitalizations, and management of all related complications associated with CABG surgery. The study compared the costs and patient outcomes for two groups: 132 patients treated before the program was implemented and 321 patients treated after the program was implemented.

Reported Savings:



Source: Copied from Steele (2012).

Payer costs decreased about 5 percent relative to pre-ProvenCare costs at Geisinger.

Citation: Casale, A., R. Paulus, M. Selna, M. C. Doll, A. E. Bothe, Jr., K. E. McKinley, S. A. Berry, D. E. Davis, R. J. Gilfillan, B. H. Hamory, and G. D. Steele, Jr. "ProvenCareSM: A Provider-Driven Pay-For-Performance Program for Acute Episodic Cardiac Surgical Care." *Annals of Surgery* 246, no. 4 (October 2007): 613–23.

Program Name: ProvenCareSM

Care Setting/Specialty: Hospital; CABG surgery

Summary: The ProvenCareSM program was initiated and implemented by the Geisinger Health System, a large integrated healthcare delivery system. The study evaluated the impact of two incentive types: pay-for-performance (P4P) incentives for meeting clinical care quality standards and a bundled payment for services. Up to 20 percent of total compensation for physicians was based on meeting the quality standards. The bundled payment covered preoperative evaluation and work-up, all inpatient hospital and professional fees, all routine post-discharge care, a 90-day warranty for follow-up care and all related re-hospitalizations, and management of all related complications associated with CABG surgery. The study compared the costs and patient outcomes for two groups: 117 elective CABG patients treated between February 2006 and February 2007 (ProvenCare Group) and 137 patients treated in 2005 (Conventional Care Group).

Reported Savings: *"Although median postoperative length of stay was the same at 4 days for both groups, average total length of stay fell 16% from 6.3 days in the Conventional Care Group to 5.3 days in the ProvenCare Group and was reflected in a 5% reduction in hospital charges."*

Citation: Reardon, L., M. Wrobel, L. Olinger, and T. Dorsey. "Medicare Cataract Surgery Alternate Payment Demonstration: Final Evaluation Report." Cambridge, MA: Abt Associates Inc., 1997.

Program Name: Medicare Cataract Surgery Alternative Payment Demonstration

Care Setting/Specialty: Outpatient facility; cataract surgery

Summary: This three-year (April 1993 to April 1996) demonstration evaluated the impact of a negotiated global Medicare payment for a bundle of specified preoperative, operative, and postoperative services (up to 120 days after the day of the surgery) associated with outpatient cataract surgery at four provider sites.

Reported Savings: *"HCFA negotiated relatively modest discounts, in the general range of 2% to 5%, compared to what it had paid demonstration providers under the fee-for-service system for the services included in the bundle episodes of the demonstration. The services included in the bundle episode are uniform across all provider sites and price adjustments are not allowed for differences in the ocular or general medical conditions of patients or for complications during or after surgery. During negotiations, HCFA persuaded providers to include the costs of treating complications in their price for the bundle."*

Citation: Ahlquist, G., M. Javanmarian, S. Saxena, and B. Spencer. "Bundled Care: The Opportunities and Challenges for Providers." Chicago: Strategy& (formerly Booz & Company). April 2, 2013.

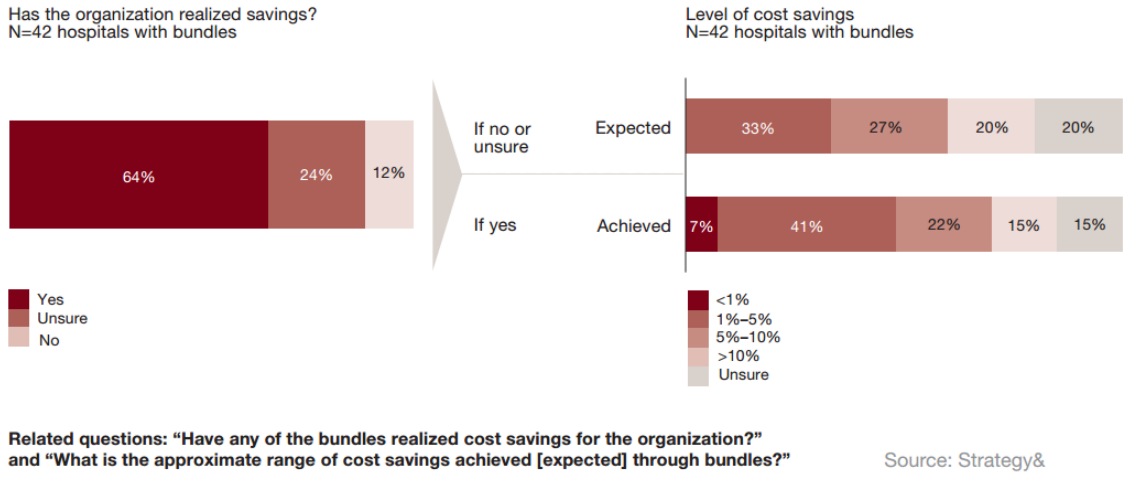
Program Name: Not applicable

Care Setting/Specialty: Hospital; orthopedic and cardiac procedures

Summary: This report presents survey data from providers (i.e., physicians and hospitals) on the topic of bundled care. It is the second in a series of *Strategy&* articles on bundled care. The first report focuses on consumer demand for bundled care while the third report focuses on the attitudes of the payers (i.e., health plans and employers) regarding bundles.

Reported Savings:

Exhibit 10
Cost savings realized by hospitals from care bundle programs



Related questions: "Have any of the bundles realized cost savings for the organization?" and "What is the approximate range of cost savings achieved [expected] through bundles?"

Source: Strategy&

Source: Copied from Exhibit 10 in Ahlquist, et al. (2013) report.

Citation: United States Department of Health and Human Services, Centers for Medicare & Medicaid Services. “Comprehensive Care for Joint Replacement Model.” Fact Sheet, updated December 10, 2015.

Program Name: Comprehensive Care for Joint Replacement (CJR) Demonstration

Care Setting/Specialty: Hospital; orthopedic procedures

Summary: In April 2016, Medicare began trialing the CJR model in 67 metropolitan areas. This demonstration is to last five years. The CJR model is a new payment model for a bundle of medical services associated with hip and knee replacements under Medicare to encourage hospitals, physicians, and post-acute care providers to work together to improve the quality and coordination of care from the initial hospitalization through recovery.

Reported Savings: This is a new study and there are no results yet.

Citation: Sobczak, A. "Bundled Payments: 28 Things to Know for Spine, Orthopedics & ASCs." *Becker's ASC Review*. January 15, 2016.

Program Name: CJR Demonstration

Care Setting/Specialty: Hospital; orthopedic procedures

Summary: In April 2016, Medicare began trialing the CJR model in 67 metropolitan areas. This demonstration is to last five years. The CJR model is a new payment model for a bundle of medical services associated with hip and knee replacements under Medicare to encourage hospitals, physicians, and post-acute care providers to work together to improve the quality and coordination of care from the initial hospitalization through recovery. There are some hospitals that implemented the model before the official April 2016 start date. St. Luke's Medical Center in Phoenix, Arizona is one of these hospitals and they report some findings.

Reported Savings: Although they report that cost savings were realized, they did not report specific cost savings or savings rate.

"The hospital received feedback for patients who participated in the program from July 2014 to June 2015, and found their patients did better than average for hospital length of stay — 1.2 days compared with 4.4 days for the national average — in both knee and hip replacement surgeries.

They also realized cost savings and reduced 30-day unplanned readmissions. The national average for 30-day readmissions is 6.2 percent and St. Luke's achieved 0.7 percent under the bundled program."

Citation: Whitcomb, W. F., T. Lagu, R. J. Krushell, A. P. Lehman, J. Greenbaum, J. McGirr, P. S. Pekow, S. Calcasola, E. Benjamin, J. Mayforth, and P. K. Lindenauer. "Experience with Designing and Implementing a Bundled Payment Program for Total Hip Replacement." *The Joint Commission Journal on Quality and Patient Safety* 41, no. 9 (September 2015): 403–13.

Program Name: N/A

Care Setting/Specialty: Hospital; orthopedic procedures

Summary: This study evaluates the results of a 2011 bundled payment pilot program for total hip replacement that was implemented by an integrated health care delivery system in conjunction with a commercial health plan subsidiary. The pilot program included a clinical model of care encompassing the period from the preoperative evaluation through the third postoperative visit, a pricing model, a program to share savings, and a patient engagement and expectation strategy.

Reported Savings: *"Compared to 32 historical controls-patients treated before bundle implementation-45 post-bundle-implementation patients with total hip replacement had a similar length of hospital stay (3.0 versus 3.4 days, p=.24), higher rates of discharge to home or home with services than to a rehabilitation facility (87% versus 63%), similar adjusted median total payments ($22,272 versus $22,567, p=.43), and lower median post-hospital payments ($704 versus $1,121, p=.002), and were more likely to receive guideline-consistent care (99% versus 95%, p=.05)."*

Citation: Iorio, R., A. J. Clair, I. A. Inneh, J. D. Slover, J. A. Bosco, and J. D. Zuckerman. "Early Results of Medicare's Bundled Payment Initiative for a 90-Day Total Joint Arthroplasty Episode of Care." *The Journal of Arthroplasty* 31, no. 2 (February 2016): 343–50. doi: 10.1016/j.arth.2015.09.004.

Program Name: Medicare Bundled Payment for Care Improvement (BPCI) Model 2 primary TJR program

Care Setting/Specialty: Hospital; orthopedic procedures

Summary: This study evaluated the early results of a Model 2 bundled payment initiative for Total Joint Replacement (TJR) at a large, tertiary, urban academic medical center. The episode of care includes all costs through 90 days following discharge. After one year, the researchers analyzed the data on 721 Medicare primary TJR patients.

Reported Savings: Although they report that cost savings were realized, the researchers did not report specific cost savings or savings rate.

"Average length of stay (LOS) was decreased from 4.27 days to 3.58 days (Median LOS 3 days). Discharges to inpatient facilities decreased from 71% to 44%. Readmissions occurred in 80 patients (11%), which is slightly lower than before implementation. The hospital has seen cost reduction in the inpatient component over baseline."

Citation: Urdapilleta, O., D. Weinberg, S. Pedersen, G. Kim, and S. Cannon-Jones. "Evaluation of the Medicare Acute Care Episode (ACE) Demonstration." IMPAQ International, LLC and the Hilltop Institute, 2013.

Program Name: Medicare Acute Care Episode (ACE) Demonstration

Care Setting/Specialty: Hospital; selected orthopedic and cardiac surgical procedures

Summary: This three-year demonstration project evaluated three types of incentives: a global payment covering both hospital (Medicare Part A) and physician (Medicare Part B) services for an inpatient stay for selected orthopedic and cardiac procedures, sharing of Medicare savings with beneficiaries, and gainsharing between physicians and hospitals. Implementation occurred between April 2009 and November 2010 at five hospitals. Two comparison groups of non-ACE hospitals were identified. The first was the "true comparison group" made up of hospitals located outside of the market areas of the demonstration sites, but within Medicare Administrative Contractor Region No. 4. The second was the "non-demonstration treatment group" made up of hospitals that did not participate in ACE, but were located in the same market areas as the demonstration hospitals.

Reported Savings:

Exhibit F-5: Medicare Savings from the ACE Demonstration, by ACE Site and Procedure Group

	CABG	Defibrillator	Hip/Knee	PCI	Pacemaker	Valve
Baptist Health System (BHS)						
Savings per Episode Bundled Payment	$2,549	$2,337	$284	$1,000	$1,219	$3,750
Effect of ACE on PAC Cost Per Episode[a]	($2,015)	($1,306)	($283)	($923)	($677)	($3,463)
Savings per Episode: Bundled Payment and PAC	**$535**	**$1,030**	**$1**	**$76**	**$542**	**$287**
Total Savings: Bundled Payment	$955,930	$287,424	$817,767	$1,044,961	$467,942	$483,735
Total Savings: Bundled Payment and PAC	**$200,452**	**$126,727**	**$3,020**	**$79,935**	**$208,154**	**$36,973**
Number of Episodes	375	123	2,875	1,045	384	129
Hillcrest Medical Center (HMC)						
Savings per Episode Bundled Payment	$1,479	$1,273	$588	$557	$639	$1,902
Effect of ACE on PAC Cost Per Episode[a]	$984	$0	$0	$0	$0	$0
Savings per Episode: Bundled Payment and PAC	**$2,463**	**$1,273**	**$588**	**$557**	**$639**	**$1,902**
Total Savings: Bundled Payment	$307,655	$277,488	$696,614	$567,785	$171,131	$232,065
Total Savings: Bundled Payment and PAC	**$512,350**	**$277,488**	**$696,614**	**$567,785**	**$171,131**	**$232,065**
Number of Episodes	208	218	1,184	1,020	268	122
Lovelace Medical System (LMS)						
Savings per Episode Bundled Payment			$432			
Effect of ACE on PAC Cost Per Episode[a]			$1,069			
Savings per Episode: Bundled Payment and PAC			**$1,501**			
Total Savings: Bundled Payment			$131,181			
Total Savings: Bundled Payment and PAC			**$456,257**			
Number of Episodes			304			
Oklahoma Heart Hospital (OHH)						
Savings per Episode Bundled Payment	$304	$266		$130	$149	$449
Effect of ACE on PAC Cost Per Episode[a]	$0	$672		($286)	$0	$0
Savings per Episode: Bundled Payment and PAC	**$304**	**$938**		**-$156**	**$149**	**$449**
Total Savings: Bundled Payment	$230,496	$71,333		$286,128	$86,019	$198,105
Total Savings: Bundled Payment and PAC	**$230,496**	**$251,459**		**-$343,953**	**$86,019**	**$198,105**
Number of Episodes	758	268		2,202	577	441

[a] In cases where the post-acute care cost estimate parameter was not statistically significant from zero at p<.05, we set the PAC effect equal to zero. Exempla St. Joseph Hospital was excluded from the estimates due to small sample numbers.

Source: Copied from Exhibit F-5 in Urdapilleta et al. (2013).

IDA transformed the dollar savings into savings rates by computing a weighted average of the dollar savings for each bundle and the average cost of each bundle. Using these data, IDA was able to calculate a savings rate for each procedure.

FY15$	CABG	Defibrillator	Hip/Knee	PCI	Pacemaker	Valve
Average bundle cost	$41,155	$42,778	$12,594	$18,292	$20,046	$34,884
Unweighted	$1,120	$1,099	$709	$162	$410	$231
Weighted	$712	$1,095	$269	$72	$385	$687
Savings Rate	**1.73%**	**2.56%**	**2.14%**	**0.40%**	**1.92%**	**1.97%**

Citation: Johnson, L., and R. Becker. "An Alternative Health-Care Reimbursement System Application of Arthroscopy and Financial Warranty: Results of a 2-Year Pilot Study." *Arthroscopy: The Journal of Arthroscopic and Related Surgery* 10, no. 4 (August 1994): 462–70.

Program Name: Not specified

Care Setting/Specialty: Hospital; orthopedic procedures

Summary: This two-year pilot program (April 1987 to December 1989) was implemented at a single hospital where the orthopedic surgeon collaborated with the hospital to become a single provider. The incentive was a single payment for all care related to orthopedic surgery (knee and shoulder), including repeat surgery, repeat hospitalization, or any other related services rendered by the provider for two years. HMO cost savings were computed by adding up the expenses that were not charged for the patients participating in the program (i.e., 111 surgical referral patients and 49 patients who received surgery). Uncharged expenses include those associated with 111 initial orthopedic consultations ($3,885), 50 radiographic examinations ($3,091), 39 sessions of pre-op physical therapy instruction ($4,167), surgeon's fees ($40,397), anesthesiologist's fees ($14,500), and 4 reoperations ($21,803). The HMO was also not billed for any postoperative management for the two years after the surgery; however, these savings were not calculated.

Reported Savings: The authors reported dollar cost savings. However, IDA was not able to transform them into a savings rate.

"The HMO's savings during this pilot study was $125,538.50. An additional savings was realized, but was not calculated on the 62 surgical candidates who did not incur the expense of surgery. If the patients not having surgery were to have paid hospitalization charges alone, it would have amounted to an additional $291,000.00 savings for the HMO."

Citation: Actuarial Research Corporation. "Final Scoring Memo: Bundles," Memo to Third Way. March 11, 2015.

Program Name: N/A

Care Setting/Specialty: Not specified

Summary: The authors estimate the potential savings of a phased-in approach to implementing bundled payments in Medicare. The savings estimate assumes a cap on FFS payments based only on bundles that cover up to 180 days of care after the day of the surgery. The savings under this approach would come from reducing the regional variation in the costs of a bundled payment.

Reported Savings: *"Fully implemented, the savings would equal 5.4% of Medicare spending for physician and hospital care in traditional fee-for-service Medicare over ten years. Greater savings could be achieved with a faster implementation schedule."*

Medicare Savings Attributable to Bundled Payments, FY 2018–2024

	Current Law		FFS Savings			
FY	Total Medicare Spending	FFS A, B Benefits	Percent	Total	FFS Savings as a Percent of Total Spending	Exhibit: Percent of Current-Law FFS Benefits Affected
2018	755.7	440.0	0.2%	0.7	0.1%	2.5%
2019	811.3	469.9	1.2%	5.6	0.7%	19.7%
2010	874.0	501.7	3.4%	16.9	1.9%	39.8%
2021	941.7	535.5	5.5%	29.6	3.1%	39.8%
2022	1,014.5	572.4	7.5%	43.2	4.3%	39.8%
2023	1,091.8	612.3	8.7%	53.2	4.9%	39.8%
2024	1,172.9	659.9	8.7%	57.3	4.9%	39.8%
2018–2024	**$6,661.9**	**$3,791.7**	**5.4%**	**$206.5**	**3.1%**	

Source: Table copied from Actuarial Research Corporation March 11, 2015 memo. See text for complete description of model parameters.

Citation: Eibner, C., P. S. Hussey, M. S. Ridgely, and E. A. McGlynn. "Controlling Health Care Spending in Massachusetts: An Analysis of Options." TR733. Santa Monica, CA: The RAND Corporation, August 2009.

Program Name: N/A

Care Setting/Specialty: N/A

Summary: In 2006, Massachusetts passed legislation ensuring health insurance to most residents, but rising costs and a weak economy threaten the sustainability of the reform. The RAND Corporation analyzed 21 options for reducing healthcare spending in the state and identified those options that might produce savings over the next decade.

Reported Savings: *"We projected cumulative savings of $685 million to $39 billion (0.1 to 5.9 percent) for 2010 to 2020 compared with the status quo."*

Appendix C.
Healthcare Data and Savings Estimates

A. Bundle Payment Methodology

For each of the 48 episodes of care, we were able to accurately determine the cost of the initial hospitalization (using MS-DRGs). However, the full bundle should include any additional inpatient stays related to the episode (e.g., stays in skilled nursing facilities, revisions, infections, or complications) and any relevant outpatient care (e.g., physical therapy or doctor appointments to follow up on recovery) that occurs within the 90 day window. To filter out care unrelated to the initial episode that coincided with the 90 day window we use the Major Diagnostic Categories (MDC) medical grouping, which divides all principal diagnoses into roughly 30 mutually exclusive categories. We determined whether care belonging to each MDC would likely be included in a given episode of care, such a knee or hip replacement, and include or exclude an individual's post-acute care within the 90-day period accordingly. MDCs are very general groupings, so the methodology is imperfect, but it provides a reasonable filter for the care that should be included/excluded from a bundle. Because of the challenges associated with filtering through millions of patient records to identify which care should be included/excluded, we do not perform the exercise for all 48 bundles. Instead we performed the analysis for six selected procedures and used the results to construct cost factors that could be used to estimate the average readmission costs and outpatient costs for each bundle.

Table C-1 shows Major Diagnostic Category (MDC)-based filters we applied to identify care that should be included in the six bundles of care we examined in detail. The first column contains the MDC code and description. The second column indicates whether readmissions and outpatient care falling into each MDC was included or excluded from the knee/hip replacement bundles. The final column indicates whether readmissions and outpatient care falling into each MDC was included or excluded from the remaining five bundles (which were all cardiac procedures).

Table C-1. Major Diagnostic Category Filters for Episode of Care Bundles

Major Diagnostic Categories		Bundle Type	
Code	**Description**	**Knee/Hip**	**Cardiac**
00	Unknown	**Included**	**Included**
01	Diseases and Disorders of the Nervous System	Excluded	Excluded
02	Diseases and Disorders of the Eye	Excluded	Excluded
03	Diseases and Disorders of the Ear, Nose, Mouth, and Throat	Excluded	Excluded
04	Diseases and Disorders of the Respiratory System	Excluded	**Included**
05	Diseases and Disorders of the Circulatory System	Excluded	**Included**
06	Diseases and Disorders of the Digestive System	Excluded	Excluded
07	Diseases and Disorders of the Hepatobiliary System and Pancreas	Excluded	Excluded
08	Diseases and Disorders of the Musculoskeletal System and Connective Tissue	**Included**	**Included**
09	Diseases and Disorders of the Skin, Subcutaneous Tissue and Breast	**Included**	**Included**
10	Endocrine, Nutritional and Metabolic Diseases and Disorders	Excluded	Excluded
11	Diseases and Disorders of the Kidney and Urinary Tract	Excluded	Excluded
12	Diseases and Disorders of the Male Reproductive System	Excluded	Excluded
13	Diseases and Disorders of the Female Reproductive System	Excluded	Excluded
14	Pregnancy, Childbirth, and the Puerperium	Excluded	Excluded
15	Newborns and Other Neonates with Conditions Originating in Perinatal Period	Excluded	Excluded
16	Diseases and Disorders of the Blood, Blood Forming Organs, Immunological Disorders	Excluded	Excluded
17	Myeloproliferative Diseases and Disorders, Poorly Differentiated Neoplasm	Excluded	Excluded
18	Infectious and Parasitic Diseases, Systemic or Unspecified Sites	**Included**	**Included**
19	Mental Diseases and Disorders	Excluded	Excluded
20	Alcohol/Drug Use and Alcohol/Drug Induced Organic Mental Disorders	Excluded	Excluded
21	Injuries, Poisonings and Toxic Effects of Drugs	Included	Included
22	Burns	Excluded	Excluded
23	Factors Influencing Health Status and Other Contacts with Health Services	**Included**	**Included**
24	Multiple Significant Trauma	Excluded	Excluded
25	Human Immunodeficiency Virus Infections	Excluded	Excluded
28	Outpatient Drug and Adjunctive Dental	Excluded	Excluded
29	Not Classifiable	**Included**	**Included**
98	Diseases and Disorders of the Reproductive System	Excluded	Excluded

Using the above filters, we computed the total cost of readmissions and additional outpatient care for each of the six selected bundles. Table C-2 lists the percentage of the total bundle cost attributed to readmissions and outpatient care for these six bundles. Note, the shares for the sixth procedure, cardiac valve surgery, were excluded from the averages because the readmission share of total costs was very high and it was skewing the overall average. The readmissions share of total costs for the cardiac valve surgery was 61 percent and the outpatient services share was 8 percent. If these were included, the average readmissions factor would be 25 percent and the average outpatient services factor would be 10 percent. Without the cardiac valve procedure, we determined readmissions added, on average, 17 percent of the initial hospitalization cost while outpatient care added an additional 10 percent on average

Table C-2. Readmission Cost Factors for Bundle Analysis

Procedure Type	Readmissions Factor	Outpatient Services Factor
Procedure Bundle		
Coronary Artery Bypass Grafting (CABG)	12%	6%
Defibrillator	22%	2%
Knee	21%	12%
Pacemaker	18%	12%
Percutaneous Coronary Interventions (PCI)	14%	18%
Average Factor	**17%**	**10%**

To ensure our factors were accurate we compared them with average factors found in the academic literature. We found three sources that provided detailed breakdowns of total Medicare spending for various episodes. Figure C-1 is an example of one cost breakdown from a December 2010 Health Services Research study.

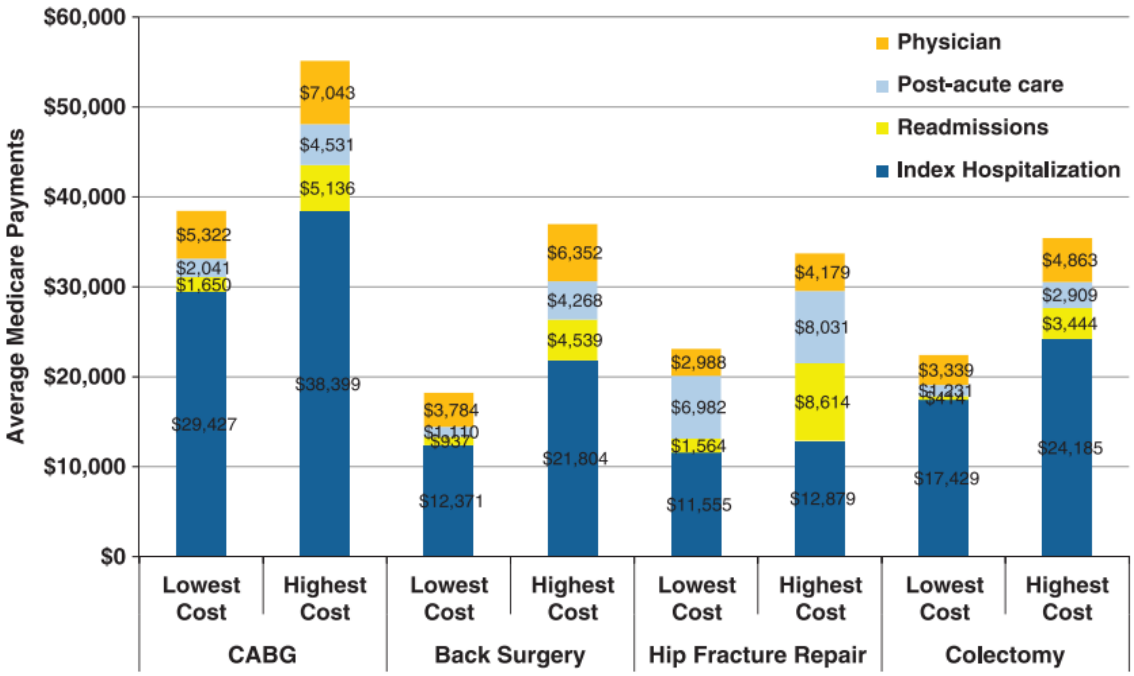


Figure C-1. Average Medicare Bundle Costs, from 2010 Health Services Research Study

Table C-3 presents a comparison between our factors and those found in three different studies (the 2010 Health Research Service study shown above, a 2013 study by the Advisory Board Company, and a 2008 study by the Medicare Payment Advisory Commission). The analysis shows that our factors are consistent with those found in the literature. Note, the 2010 Health Services Research study provided two sets of costs for each of the four procedures they looked at, a lower and upper bound for costs.

Table C-3. Comparison between IDA Factors and Factors in Three Studies

	Procedures												Factors	
	CABG		Back Surgery		Hip Fracture Repair		Colectomy		Major Joint Replacement (Lower Extremity)	Chronic Obstructive Pulmonary Disease	Congestive Heart Failure	CABG with Cardiac Catheterization	Average from Literature	IDA factors
Outpatient Services	5%	8%	6%	12%	24%	30%	5%	8%	29%	20%	21%	6%	15%	17%
Readmissions	4%	9%	5%	12%	7%	26%	2%	10%	13%	13%	15%	5%	10%	10%
Source	Health Service Research, 2010								Advisory Board Company, 2013	Medicare Payment Advisory Commission, 2008				

B. ACO Utilization Data and Savings Estimates

In Section 5.C.2.b, we provide a summary table of the ACO Utilization based savings for the TFL population. Here we present the data used to create the summary table.

Table C-4 shows the number of total acute and non-acute admissions for the TFL population along with their average cost.

Table C-4. Inpatient Hospitalizations and Average Cost for TRICARE for Life Beneficiaries, FY 2015

Category	Insurance Program	Admissions	Average Cost
Acute Care	TRICARE	333,406	$1,850
	OHI		$11,528
Non-Acute Care	TRICARE	60,196	$6,566
	OHI		$25,589

Note: The average costs shown in the table are based on the TRICARE-paid amount, which represents the cost to DoD.

Table C-5 contains further detail on acute inpatient admissions including the count of admissions classified as preventable. For each category of preventable admissions we provide the case count and average cost.

Table C-5. Preventable Inpatient Admissions, FY 2015

	TFL	
Admission Type	**Admissions**	**Average Cost**
Not an AHRQ Preventable Admission	275,300	$1,938
Preventable Admissions	58,106	$1,430
Total	**333,406**	**$1,850**
Adult Bacterial Pneumonia	12,185	$1,441
Adult COPD	10,521	$1,412
Adult Heart Failure	14,754	$1,464
Dehydration	5,882	$1,386
Adult Short Term Diabetes	599	$1,463
Adult Urinary Tract Infection	7,886	$1,367
Adult Asthma	2,114	$1,398
Diabetes Long Term Complications	1,796	$1,515
Adult Perforated Appendix	467	$1,565
Adult Hypertension	1,091	$1,413
Angina w/o Procedure	321	$1,467
Adult Uncontrolled Diabetes	209	$1,372
Lower Extremity Amputation for Diabetes	281	$2,118

Note: Since these are data for the TFL beneficiary population, there are no pediatric cases of preventable admissions.

Table C-6 shows the readmission rate and the average cost of readmissions. The readmission rate is unexpectedly low. This could be due to claims not being filed with TRICARE who acts as a secondary payer.

Table C-6. Readmissions, FY 2015

Insurance Program	Readmissions	Rate	Average Cost
TRICARE	2,784	1.2%	$2,678
OHI			$14,498

Note: The average costs shown in the table are based on the TRICARE-paid which represent the cost to DoD and the OHI paid amount which represents the cost to other insurers such as Medicare.

Table C-7 shows the average LOS for acute and non-acute hospitals along with the average daily cost.

Table C-7. Average Length of Stay and Daily Cost, FY 2015

Category	Payer	LOS (in days)	Daily Cost
Acute Care Hospitals	TRICARE	4.5	$278
	OHI		$2,259
Non-Acute Care Hospitals	TRICARE	42.0	$156
	OHI		$452

Note: The average costs shown in the table are based on the TRICARE-paid which represent the cost to DoD and the OHI paid amount which represents the cost to other insurers such as Medicare.

Emergency room visits for the TFL population are shown in Table C-8. The average cost of these visits is presented along with the average cost of an urgent care visit.

Table C-8. ER Utilization and Average Costs, FY 2015

Insurance Program	ER Visits	Average ER Cost	Average UC Cost
TRICARE	829,471	$183	$32
OHI		$605	$94

Note: The average costs shown in the table are based on the TRICARE-paid which represent the cost to DoD and the OHI paid amount which represents the cost to other insurers such as Medicare.

Appendix D.
Understanding Contract Incentives

In this appendix we describe the economic principles involved in contract incentives to explain DoD's challenges with contracting for private sector care (PSC). In particular, we provide an overview of contracting challenges, provide an analytic foundation for the implementation recommendations in Chapter 5, and then relate these challenges to the evolution of the TRICARE contracts discussed in Chapter 3.

A. Contract Incentives

The relationship between DoD and a TRICARE contractor is an example of what is called a principal-agent relationship in economics. DoD is the principal who has contracted with an agent to produce a service (healthcare delivery, in this case). A challenge that arises in this situation is that the agent makes decisions (e.g., about how much costly effort to exert managing utilization of beneficiaries) but does not experience the full consequences of the decisions (e.g., does not receive the cost savings that result from better utilization management). In other words, the agent may lack incentives to behave in a way that is optimal from the perspective of the principal.

There are many intuitive examples that can be used to illustrate this challenge:

- Contractors decide whether to invest in activities that would reduce the likelihood of costly healthcare procedures. For example, providing transportation services to key medical appointments would facilitate preventative care and monitoring, reducing the likelihood of a major medical event that requires more costly procedures. Beneficiaries would enjoy greater health and DoD would pay for fewer emergencies and expensive operations, but contractors would endure the cost of providing the transportation service without receiving any of the savings. Because the agent (contractor) bears the costs but not the benefits, the service is not provided.[1]

[1] This example was taken from an interview with CareMore conducted in Las Vegas, NV, about things they actually do in their Medicare Advantage plans (which, as fully risk-bearing contracts, provide incentives to undertake these activities). Another example of costly preventative effort taken by CareMore is providing electronic scales in the homes of patients at risk for congestive heart failure. The scales automatically provide the weights to CareMore and provide early warning of sudden weight gain.

- Contractors decide on the specifications of the payment models they employ. VBP purchasing arrangements like, for example, bundling often entail upfront costs but yield even greater savings in the future as total utilization is reduced. Upfront considerations include determining which areas of care may benefit from bundling, how an "episode of care" is defined, how payments depend on patient outcomes, how bundled payments should be processed, etc. All of these implementation decisions are costly to resolve, affect the improvements in outcomes and cost savings ultimately achieved, and can be made with varying levels of analysis and rigor. Without realizing the benefits from setting up these alternative VBP payment methods, the contractors are not incentivized to take costly action to effectively implement a bundling plan.

One potentially intuitive solution to this principal-agent problem is to explicitly impose the optimal actions on the agent in the contract terms, but to implement this, the principal would need to measure every action of the contractor, which is costly in some contexts and impossible in others, and know what the optimal action would be in every potential situation that could arise over the course of contract execution, a completely impossible task. The principal therefore suffers some combination of measurement costs, incomplete contract terms, and suboptimal decision making.

The bundling example from above illustrates these challenges. Bundling has proven to be a useful VBP tool, but it is costly to implement, so the TRICARE contractors do not face the proper incentives to implement bundling. DoD could instead simply mandate that contractors institute bundling arrangements within the existing TRICARE contracts. But in the current pass-through contract structure, the contractor still would not be incentivized to expend the costly time and energy to resolve the long list of questions identified above in the most effective way, and DoD has no way to answer all of those questions in every potential future situation at the time the contract is written. Poor implementation of bundling (driven by poorly incentivized contractors) reduces any potential savings to DoD. The benefit of any VBP payment method is subject to these types of details and the principal-agent problem is not unique to the FFS model, nor is it resolved through the (naïve) adoption of VBP by, as in this example, simply directing an alternative purchase method without altering the incentives of the contract.

The challenge in this example is that the optimal decisions will only be made with a combination of incentives and information. In the principal-agent problem, the principal possesses incentives, while the agent possesses information. To achieve a successful contract result, the agent must have both the incentives and information to make optimal decisions on behalf of the principal. It is also important to note that the principal-agent problem does not end when the contract is signed. Even a hypothetically perfect contract would need to be enforced and, again, properly aligning incentives is a more effective enforcement tool than micromanaging contract execution.

The principal-agent problem is fundamental and pervasive in its influence on contractor behavior. Every contractor decision that the contractor makes is made in the context of incentives and information available to the contractor. Every potential contractor decision that DoD chooses to address through prescriptive contract language extends and complicates the research, negotiation, document preparation, and enforcement processes. This amounts to treating the symptoms of the principal-agent problem. A successful contract addresses the cause of the problem, which is the discrepancy in incentives between the contractor and DoD.

B. Improving TRICARE Contracting

DoD's objective for the TRICARE contracts is to deliver services in a way that improves outcomes and lowers cost. A successful TRICARE contract that effectively deals with the principal-agent problem makes contractors willing and able to do the same. There are three primary factors influencing this alignment of incentives between DoD and the contractor:

- **Competition** makes contractors willing to improve outcomes.

  Competition refers to the extent to which contractors must deliver value to maintain their customers (or "market share"). One element of competition is the number of contractors able to provide the service at a point in time in a specific geographic market. If there are multiple contractors in a market from which beneficiaries have the opportunity to choose, there will be more competition than in the "winner-take-all" arrangement of TRICARE that allows only one contractor per market.

  A second element of competition is who makes the selection among the contractors. A TRICARE design that allows those most affected by the outcome (i.e., beneficiaries) to select their contractor at regular increments (e.g., annual open seasons) is more competitive than one in which a central authority (i.e., DoD) selects for all beneficiaries regardless of their individual circumstances and conditions.

  In a competitive healthcare market, beneficiaries reward carriers they prefer with market share. When beneficiary preferences change over time, carriers are similarly rewarded for adapting to those changes. Contractors that fail to deliver what beneficiaries want lose their customers and either adapt or are driven out of business. In this way, competitive markets are self-correcting. DoD need not prescribe beneficiary preferences in contract language or even know what those preferences are.

- **Risk-bearing** makes contractors willing to lower costs.

Risk-bearing refers to the extent to which contractor compensation depends on costs.

When contractors bear risk, they are rewarded for saving DoD money with a share of the savings. This directly aligns the budgetary incentives of the principal and agent. Contractors are given an incentive to evaluate their own operations using their own proprietary and otherwise exclusive information. DoD need not prescribe in contract what measures it believes will be cost-saving or even know what those measures are.

- **Flexibility** makes contractors able to improve outcomes and lower costs.

  Flexibility refers to the extent to which the contractor is free to design agreements with providers and other subcontractors.

  When contractors are free to choose how they operate, they fully employ the information they possess in order to choose optimally. Healthcare contractors derive their value from deep, up-to-date expertise in healthcare organization and provision. Through flexibility, DoD takes full advantage of this expertise in the service of its own goals. To constrain the contractor's options with contract language, on the other hand, is to constrain the value of this expertise. Lack of flexibility introduces the risk that the contractor would prefer to make a choice in the best interest of DoD, but is contractually prohibited from doing so.

The absence of any of these criteria would diminish the achievement of DoD goals:

- Without competition, risk-bearing could incentivize lowering the quality of the health benefit offered, e.g., a lone contractor is financially rewarded for restricting access and quality. In this scenario, the contractor faces no threat of another firm entering the market, offering superior health care, and thus luring away beneficiaries. The contractor can then maximize profit by specializing in low-cost, low-quality care. TRICARE beneficiaries settle for the only choice they have. The harm to beneficiaries, in terms of the loss in the value of healthcare provided, exceeds the total savings.
- Without risk-bearing, competition would lead to a "medical arms race," whereby contractors spare no expense in catering to beneficiaries because all of that expense is paid by DoD. In this scenario, contractors seek to impress beneficiaries with the most extravagantly skilled and equipped providers. Contractors specialize in high-cost, high-quality care. Beneficiaries overutilize and DoD pays for it entirely.
- Without flexibility, contractors cannot respond to their incentives no matter how closely those incentives are aligned with those of DoD. The optimal VBP model varies by geographic market, beneficiary population, and over time. There is no

one-size-fits-all payment model, and to prescribe one in contract is to limit the ability of a contractor to improve outcomes and lower costs based on actual conditions in execution. Competition and risk-bearing contracts discipline this flexibility more effectively than contract micromanagement. If a new innovative tool provides value to beneficiaries greater than its cost, contractors that adopt it will gain market share and those that do not will be driven from the market. If the innovation is not worth its cost, then contractors that adopt it will be driven from the market instead.

C. Evaluation of TRICARE Contracts

The TRICARE contracts to date have generally failed to grant competition, risk-bearing, and flexibility to the TRICARE system. Instead, they have been winner-take-all, pass-through, and prescriptive. None of the contracts allowed for competitive markets, and only the T1 contracts included appreciable risk-bearing or flexibility.

- **Competition:** The T1 through T3 contracts were each awarded to a single firm per region for a period of five years. While the bidding process was competitive, the prize itself was effectively a five-year ban on competition. Competition improves outcomes because beneficiaries choose carriers according to their preferences. Under T1 through T3, beneficiaries had no choice in the TRICARE system beyond the contractor operating in their respective regions.
- **Risk-bearing:** The T1 contracts introduced risk-bearing in the form of the Bid Price Adjustment (BPA) mechanism and loss and gain corridors. The BPA formula adjusted the bid to account for divergences in expected cost that were outside the contractor's control. If costs exceeded the BPA-adjusted bid, the contractor paid a share of the excess. If costs were less than the BPA-adjusted bid, the contractor received a share of the savings. For all non-administrative services, the T2 and T3 contracts were pass-through. The contractor received no share of any cost savings, paid no share of cost overruns, and therefore was not effectively incentivized to save money for DoD.
- **Flexibility:** The T1 contracts explicitly stated that only state and federal laws limited the nature of payment arrangements between contractors and providers. The T2 and T3 contracts did not contain such language and expressly prohibited capitation. However, even the T1 contracts were highly prescriptive.

As stated in the previous section, these three factors are inter-related. Although the T1 contracts were better in terms of risk-bearing and flexibility, they still lacked competition, and this created what came to be viewed as an unworkable situation. The T1 contracts were convoluted and complex because DoD recognized the potential vulnerabilities from the risk-bearing and flexibility provided in the contracts. But instead

of introducing competition into the contracts to address these vulnerabilities, DoD attempted to protect itself through contract micromanagement, which led to an unexecutable level of complexity. To escape this complexity, DoD sought what it viewed as a simpler solution in the next two contract waves—forsake risk-bearing and flexibility to purchase only administrative services from the contractor. It is that outcome that leads to analyses like the ones in the report finding TRICARE is out of step with evolving healthcare practice and the Military Compensation and Retirement Modernization Commission finding that they deliver low quality at high cost.

Illustrations

Figures

Tables

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10 U.S.C. § 1079, subsection H.

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Abbreviations

ACA	Affordable Care Act
ACE	Acute Care Episode
ACO	Accountable Care Organization
ADFM	Active Duty Family Member
AFDC	Aid to Families with Dependent Children
AHRQ	Agency for Healthcare Research and Quality
AO	Administrative Services Only
APC	Ambulatory Payment Classification
AQC	Alternative Quality Contract
ASC	Ambulatory Surgical Center
ASD(HA)	Assistant Secretary of Defense for Health Affairs
BAHC	Basic Allowance for Healthcare
BBA	Balanced Budget Act
BBRA	Balanced Budget Refinement Act
BCBS	Blue Cross Blue Shield
BIPA	Benefits Improvement and Protection Act
BPA	Bid Price Adjustment
BPCI	Bundled Payment for Care Improvement
CABG	Coronary Artery Bypass Graft
CAH	Critical Access Hospital
CAHPS	Consumer Assessment of Healthcare Providers and Systems
CBO	Congressional Budget Office
CCNC	Community Care of North Carolina
CCR	Cost-to-charge Ratio
CFR	Code of Federal Regulations
CHAMPUS	Civilian Health and Medical Program of the Uniformed Service
CHF	Congestive Heart Failure
CHIP	Children’s Health Insurance Program
CI	Confidence Interval
CJR	Comprehensive Care for Joint Replacement
CMAD	CHAMPUS Maximum Allowable Charge

CMS	Centers for Medicare & Medicaid Services
COPD	Chronic Obstructive Pulmonary Disease
DC	Direct Care
DEERS	Defense Enrollment Eligibility Reporting System
DHA	Defense Health Agency
DoD	Department of Defense
DRG	Diagnosis-Related Group
EPHC	Enhanced Personal Health Care
ER	Emergency Room
FEHBP	Federal Employees Healthcare Benefit Program
FFS	Fee-for-Service
FY	Fiscal Year
GAO	General Accounting Office/Government Accountability Office
GME	Graduate Medical Education
HDS	Healthcare Delivery System
HEDIS	Healthcare Effectiveness Data and Information Set
HHA	Home Health Agency
HHC	Home Health Care
HMO	Health Maintenance Organization
IDA	Institute for Defense Analyses
IT	Information Technology
LB	Lower Bound
LOS	Length of Stay
MA	Medicare Advantage
MAC	Medicaid and CHIP
MCO	Medical Care Organization
MCRMC	Military Compensation and Retirement Modernization Commission
MCS	Managed Care Support
MCSC	Managed Care Support Contractor
MDC	Major Diagnostic Category
MHS	Military Health System
MSA	Metropolitan Statistical Area
MS-DRG	Medical Severity Diagnosis Related Group
MTF	Military Treatment Facility
NDAA	National Defense Authorization Act

OHI	Other Health Insurance
OPPS	Outpatient Prospective Payment System
P4P	Pay for Performance
PCI	Percutaneous Coronary Intervention
PCMH	Patient-Centered Medical Home
PGP	Physician Group Practice
PHN	ProvenHealth Navigator
PKPY	Per Thousand Per Year
PL	Public Law
PMPM	Per Member Per Month
PPO	Preferred Provider Organization
PPS	Prospective Payment System
PSA	Principal Staff Assistant
PSC	Private Sector Care
PSF	Provider-Specific File
RET	Retiree
RETFM	Retiree Family Member
RFP	Request for Proposal
ROFR	Right of First Refusal
ROM	Rough Order of Magnitude
RSA	Resource-Sharing Agreement
RVU	Relative Value Unit
RWP	Relative Weighted Product
SCH	Sole Community Hospital
SCHIP	State Children's Health Insurance Program
SD	Standard Deviation
SMS	Special Medicaid Services
SNF	Skilled Nursing Facility
SSA	Social Security Act
SSI	Supplemental Security Income
TFL	TRICARE for Life
TJR	Total Joint Replacement
TMA	TRICARE Management Authority
TOM	TRICARE Operations Manual
TPM	TRICARE Policy Manual
TRM	TRICARE Reimbursement Manual

TRO	TRICARE Regional Office
TSM	TRICARE Systems Manual
U.S.C.	United States Code
UB	Upper Bound
UC	Urgent Care
USFHP	Uniformed Services Family Health Plan
VBP	Value-Based Purchasing

REPORT DOCUMENTATION PAGE

Form Approved
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PLEASE DO NOT RETURN YOUR FORM TO THE ABOVE ADDRESS.

1. REPORT DATE *(DD-MM-YYYY)*	2. REPORT TYPE	3. DATES COVERED *(From - To)*
xx-12-2016	Final	Aug 2015 - Sept 2016

4. TITLE AND SUBTITLE

Analysis of Private Sector Care Reform Authorities and Savings

5a. CONTRACT NUMBER

HQ0034-14-D-0001

5b. GRANT NUMBER

5c. PROGRAM ELEMENT NUMBER

6. AUTHOR(S)

Bishop, James, M.
Whitley, John, E.
Wu, Linda
Wu, Kevin, Y.
Burns, Sarah, K.

5d. PROJECT NUMBER

5e. TASK NUMBER

CA-7-3914

5f. WORK UNIT NUMBER

7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES)

Institute for Defense Analyses
4850 Mark Center Drive
Alexandria, VA 22311-1882

8. PERFORMING ORGANIZATION REPORT NUMBER

IDA Paper P-5309
H 15-001154

9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)

Headquarters, Department of the Army
Office of the Surgeon General (Army)
7700 Arlington Boulevard, Suite 112
Defense Health Headquarters
Falls Church, VA 22042

10. SPONSOR/MONITOR'S ACRONYM(S)

HQDA/DHHQ

11. SPONSOR/MONITOR'S REPORT NUMBER(S)

12. DISTRIBUTION/AVAILABILITY STATEMENT

Approved for public release; distribution is unlimited.

13. SUPPLEMENTARY NOTES

14. ABSTRACT

Budgetary pressures facing the Military Health System (MHS) have necessitated the consideration of various cost-saving reform options. This paper reviews past savings efforts within a strategic framework for MHS reform, identifying reform of the Department of Defense (DoD)'s contracts for private sector care as a key neglected reform area. Current DoD contracting practice is out of step with civilian trends in healthcare. We estimate that incentivizing the insurance carriers (TRICARE contractors) who administer the program to adopt value-based purchasing (VBP) methods could save somewhere between $400 million and $1.5 billion annually under the most comprehensive approach (savings are larger if also applied to Medicare-eligible population). These savings are similar in magnitude to those achieved by DoD's proposals to raise cost shares, but would be generated by improving efficiency through better incentive structures rather than cutting benefits. We also examine how VBP incentives can be introduced into the contracts. We find that the TRICARE contracts should be restructured in a manner that increases competition between contractors in a given geographic market, increases contractor risk-bearing, and improves the contractor's flexibility in negotiating with the delivery system.

15. SUBJECT TERMS

Value-Based Purchasing; VBP; TRICARE; Managed Care Support Contracts

16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT	18. NUMBER OF PAGES	19a. NAME OF RESPONSIBLE PERSON
a. REPORT	b. ABSTRACT	c. THIS PAGE			Trybula, Col David
Unclassified	Unclassified	Unclassified	Same as Report	158	19b. TELEPHONE NUMBER *(Include area code)* (703) 681-0288

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