Research Report

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Reforming Military Health Care Costs

Issues for Future Research

Funding to cover the Military Health System (MHS) grew 10 percent from fiscal year (FY) 2019 to FY 2023—to $55.8 billion—representing over 7 percent of the total U.S. Department of Defense (DoD) budget requested in 2023 (Mendez, 2022)[1]. Determining how to curb burgeoning military health care costs without compromising (1) access to and quality of care or (2) the readiness of military medical personnel continues to be a priority for the Defense Health Agency (DHA) (U.S. Senate Committee on Armed Services, 2018). The purpose of this report is to describe emerging issues related to reforming military health care costs and policy that could benefit from further investigation by policymakers and researchers.

We first provide a brief overview of the MHS, describe the different categories of military health care costs, and examine historical trends in these costs. We then examine existing literature and policy documents, consulting with military health experts within the RAND Corporation to identify key military health care topics where the evidence base is limited. The key policy areas we identified and outline in this report are: (1) the cost effects of MHS reform, (2) the effects of implementing the military's universal electronic health record (EHR) system (MHS Genesis), (3) military medical force cost effects, and (4) TRICARE cost effects. We then describe the four key policy areas and outline future areas of research and relevant RAND work. We then conclude and summarize our recommendations for future research.

KEY FINDINGS

- The authors found four key policy areas in which further research could be pursued.
- Reforms to the MHS, which are in progress, provide many possibilities for future research.
- Implementing the military's universal health records system, MHS Genesis, could streamline service and provide cost savings.
- The military medical force, which needs to both be ready to deploy and provide regular medical care, should undergo a cost analysis.
- The TRICARE program, which covers existing and former military service members and their dependents, should undergo a cost analysis.

Background

The MHS has two primary purposes (Health.mil, 2023b). The first is to provide medical operational readiness: It ensures that uniformed medical personnel have the ability to care

for military personnel during both wartime and peace time. The second is to provide health care to uniformed service members, military retirees, and their dependents through TRICARE, the military's health care program.

The MHS is administered by three different DoD entities (Mendez, 2021). The first entity is the Office of the Assistant Secretary of Defense for Health Affairs, which sits under the Office of the Under Secretary of Defense for Personnel and Readiness, as shown in Figure 1. The assistant secretary's office oversees health policy and budget and the DHA. The second entity is the DHA, which is a combat support agency that administers TRICARE and oversees military treatment facilities (MTFs). The third entity is service medical departments, including Army Medical Command, the Navy Bureau of Medicine, and Air Force Major Commands. The service medical departments are responsible for maintaining medical operational readiness.

Medical Operational Readiness

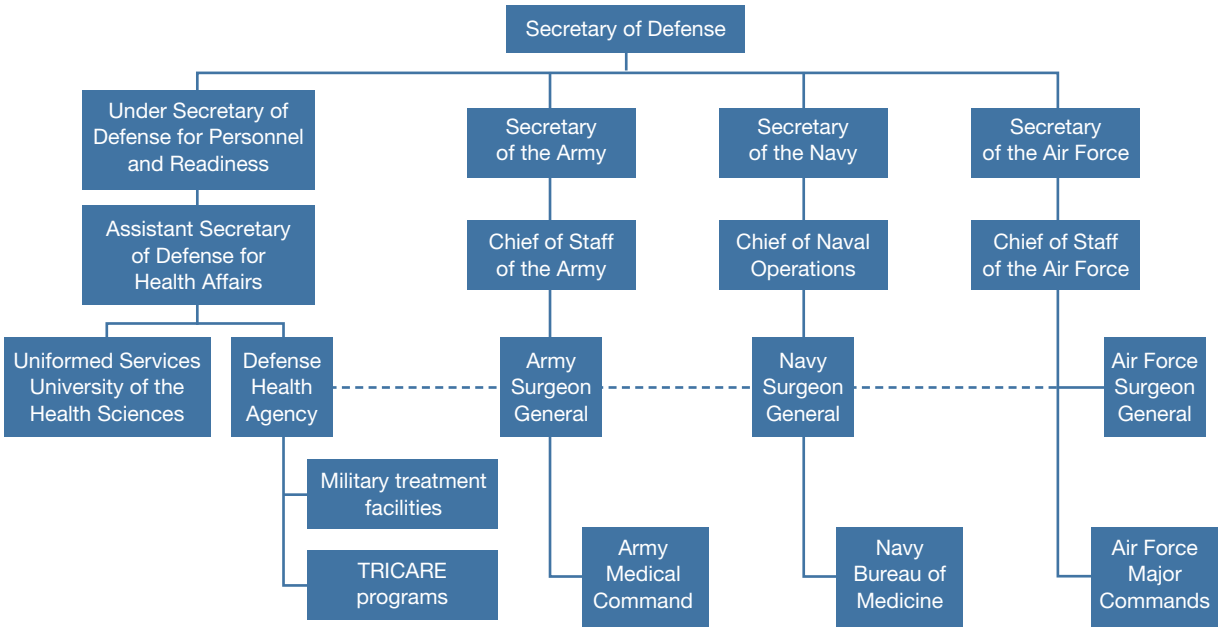
Fulfilling the MHS dual purpose—to provide medical operational readiness and beneficiary care—is complicated because the clinical skills that are required in wartime are not necessarily the same as those needed for day-to-day beneficiary care. Difficulty with maintaining both combat- and trauma-related clinical skills has been documented widely in prior military medical personnel literature (e.g., Chan et al., 2020; Hutter et al., 2019; Military Compensation and Retirement Modernization Commission [MCRMC], 2015). Moreover, one of the most-cited reasons that uniformed physicians leave the military is a deterioration of clinical skills (Holaday and Holaday, 2021). Consequently, it will continue to be important for researchers to study ways for the military medical force to ensure that its staff are clinically proficient in trauma care to meet the mission of medical operational readiness and promote the retention of its physicians.

TRICARE Beneficiary Care

The MHS provides health care benefits and services through the TRICARE insurance program. MTFs

FIGURE 1

Military Health System Governance Structure



SOURCE: Tanielian and Farmer, 2019, exhibit A.

are hospitals and clinics that are operated by DoD and provide health care to TRICARE beneficiaries.[2] Beneficiaries receive care through MTFs (also known as *direct care*) and through private providers (also known as *purchased care*). There were approximately 9.6 million TRICARE beneficiaries in FY 2020 (DHA, 2021). Figure 2 shows that the majority of beneficiaries—57 percent—were retirees and their dependents, which includes beneficiaries of TRICARE for Life, a Medicare wraparound plan for retired TRICARE beneficiaries who are covered by Medicare Parts A and B. Seventeen percent of beneficiaries were active-duty service members or members of the National Guard or reserve component. Twenty-one percent of beneficiaries were family members of service members. The remaining 5 percent of beneficiaries were survivors and inactive National Guard and reserve component members and their families.

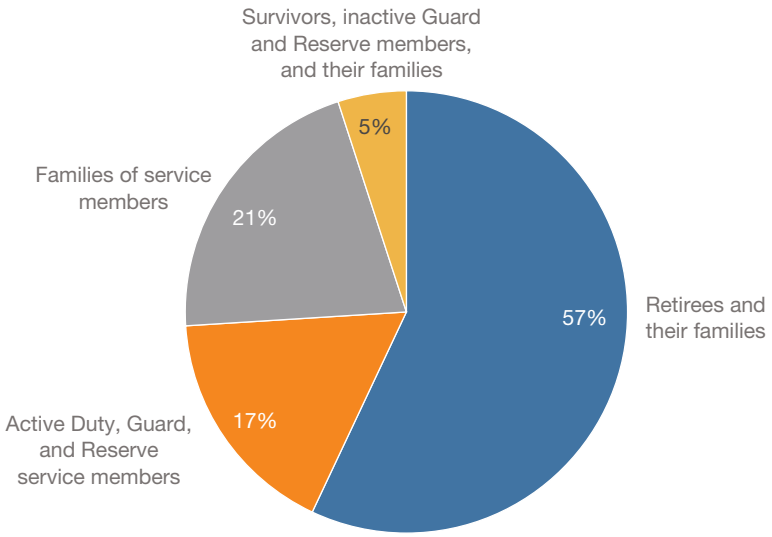
Military Health System Funding

For FY 2023, President Joseph Biden requested $55.8 billion to fund the MHS, representing 7.2 percent of the total DoD budget (Mendez, 2022). MHS funding generally is appropriated into several accounts through the annual defense appropriations bill. The largest amount of funding goes to the Operation and Maintenance (O&M) account, which funds the administration of TRICARE through the Defense Health Program (DHP) O&M subaccount. Table 1 shows that funding for DHP O&M represents 63 percent of total MHS funding requested for FY 2023 at $35.3 billion. Funding for the DHP O&M grew 13 percent between FY 2019 and FY 2023.

The second-largest amount of funding goes to Medicare Eligible Retiree Health Care Fund (MERHCF) contributions, which account for 17 percent of total requested MHS funding for FY 2023 ($9.7 billion). The MERHCF is administered by the Secretary of the Treasury and pays for the health care costs of Medicare-eligible retirees and dependents of uniformed service members, including TRICARE for Life, the Medicare wraparound plan for retired TRICARE beneficiaries who are covered by Medicare Part A and B. DoD contributions to the MERHCF were estimated to increase by 29 percent between FY 2019 and FY 2023.

The third-largest amount of MHS funding pays the compensation for the military medical personnel (MILPERS) who operate MHS, which amounts to $8.7 billion (16 percent) of FY 2023 funding requested. MILPERS funding increased by 4 percent over the five-year period between FY 2019 and FY 2023. The remaining MHS funding categories

FIGURE 2
Summary of TRICARE Beneficiaries, FY 2020



SOURCE: DHA, 2021.

TABLE 1
Military Health System Funding, FYs 2019–2023 (in billions)

Account	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023[a]	5-Year Growth Between FY2019 and FY 2023 (%)	FY 2023 Funding Category Share of Total
O&M							
Defense Health Program operations and maintenance	$31.3	$33.0	$31.1	$34.0	$35.3	13	63
Research, development, testing, and evaluation	$2.2	$3.7	$2.4	$2.6	$0.9	–59	2
Procurement	$0.9	$0.5	$0.5	$0.8	$0.6	–33	1
Software and digital technology pilot program	$0.0	$0.0	$0.0	$0.0	$0.1	N/A	0
Total	$34.4	$37.1	$34.1	$37.4	$36.9	7	66
MILPERS	$8.4	$8.9	$8.3	$8.5	$8.7	4	16
MILCON	$0.4	$0.3	$0.5	$0.5	$0.4	0	1
MERHCF contributions	$7.5	$7.8	$8.4	$9.3	$9.7	29	17
Total	$50.7	$51.4	$51.3	$55.7	$55.8	10	100

SOURCE: Mendez, 2022.
NOTE: N/A = not applicable; MILCON = military construction. Sums may not add up to totals because of rounding.
[a] FY2023 are requested amounts for funding.

make up small shares of total funding and amount to less than 4 percent of the total amount of funding requested in FY 2023.

Next, we examined historical funding in subcategories within the DHP O&M account, which makes up the bulk of MHS expenses, in Table 2. Eighty percent of funding for DHP O&M goes into two accounts: private-sector care and in-house care (i.e., direct care). Over half of funding for the DHP O&M account is attributed to private-sector care: It was 33 percent of total MHS funding requested in FY 2023, at $18.5 billion. Between FY 2019 and FY 2023, private-sector care costs grew 20 percent. In contrast, in-house care costs were flat during this same time period. Although in-house care costs have not grown in recent years, they still make up a sizeable share of the budget. In particular, FY 2023 funding requested for in-house care was $9.9 billion, which was 28 percent of the total DHP O&M request and 18 percent of the total MHS request. Twenty percent of the funding requested for DHP O&M was attributed to the remaining subaccounts: consolidated health support, information management, management activities, and education and training.

The examination of costs reveals that the three largest categories of costs for the MHS are health care delivery to TRICARE beneficiaries, contributions to fund health care costs of Medicare-eligible retirees and dependents of uniformed service members, and costs of salaries and benefits for military medical personnel. Eighty-four percent of requested funding for FY 2023 was attributed to these three categories. Consequently, changes to policy and programs that affect these three areas will have the greatest potential to affect the MHS budget.

Key Policy Areas

In this section, we describe the four key policy areas in which further research to understand and identify potential avenues for reducing MHS costs could be pursued. To identify key policy areas, we conducted a scan of publicly available literature and policy documents using key word searches, such as *military health system* and *military health costs* on Google and

TABLE 2
Defense Health Program Operations and Maintenance Funding, FYs 2019–2023 (in billions)

Account	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023[a]	5-Year Growth Between FY 2019 and FY 2023	FY 2023 Funding Category Shares of Total O&M	FY 2023 Funding Category Share of Total MHS
In-house care	$9.8	$9.6	$9.6	$9.7	$9.9	1	28	18
Private-sector care	$15.4	$15.3	$16.1	$18.1	$18.5	20	52	33
Consolidated health support	$2.1	$2.0	$1.3	$1.5	$1.9	–9	5	3
Information management	$2.0	$2.0	$2.0	$2.2	$2.3	10	6	4
Management activities	$0.3	$0.3	$0.3	$0.3	$0.3	10	1	1
Education and training	$0.8	$0.8	$0.3	$0.3	$0.3	–56	1	1
Base operations/ communications	$2.1	$2.1	$1.9	$1.9	$2.1	1	6	4
Total	$32.5	$32.2	$31.7	$34.2	$35.3	9	100	63

SOURCE: Office of the Under Secretary of Defense (Comptroller), 2018, 2019, 2020, 2021, 2022; Mendez, 2022.
NOTE: Sums may not add up to totals because of rounding.

[a] Fiscal Year 2023 are requested amounts for funding.

Google Scholar, and examined papers and webpages on the official MHS website. Key policy areas were also identified by examining the responses to advance policy questions from Thomas McCaffery, who was the nominee for Assistant Secretary of Defense for Health Affairs in 2018 (U.S. Senate Committee on Armed Services, 2018),[3] and by feedback from several RAND military health experts who have recent and/or ongoing research in military health.[4] Using the literature and policy review and our discussions with RAND military health experts, we identified four key policy areas. These four key policy areas were selected because they directly affect MHS spending through direct linkages to health care delivery, military medical personnel costs, or the MERHCF, which are three of the main drivers of MHS costs.

1. Cost Effects of MHS Reform

Background

After three decades of calls for redesign, Congress mandated MHS reform under the FY 2017 National Defense Authorization Act (NDAA) (Mendez, 2019b). As part of this reform, MTF administration and management were transferred from individual military service departments to the DHA, meaning that the DHA would be responsible for budgetary matters, information technology, health care administration and management, administrative policy and procedure, military medical construction, and any other matters that the Secretary of Defense determines appropriate (Pub. L. 114-328, Sec. 702). The FY 2017 NDAA also required DoD to restructure or realign MTFs to better support military medical readiness and the readiness of medical forces (Pub. L. 114-328, Sec. 703).

These mandated changes to MTFs were meant to "increase overall access to care for beneficiaries; improve coordination, standardization, and dissemination of best practices across the MHS and provide more opportunities for military medical providers to get the training they need to meet readiness goals" (Health.mil, 2023a). In addition to transferring MTF oversight to the DHA, the DHA established market-based structures to manage hospitals and clinics in response to these congressional mandates. The DHA established 20 large health care markets—called *direct reporting markets*—which treat nearly two-thirds of all patient encounters, and 17 small markets centered around inpatient community hospitals (Health.mil,

2022a). We note that reforms to TRICARE that were mandated by the FY 2017 NDAA and subsequent legislation will be described separately.

The civilian health care sector in the United States has witnessed significant policy reforms in recent decades, most notably the passage of the Affordable Care Act (ACA) in 2010. Despite being fundamentally distinct from the military health sector in that it is not a single-payer system, the *triple aims* of the ACA are similar to the goals of the mandated changes to MTFs: improving access to and experience of care, improving health, and reducing costs (Berwick, Nolan, and Whittington, 2008). A review of the more than 900-page ACA legislation is beyond the scope of this report, but a recent review highlighted more than two dozen evaluation studies and found that the ACA reduced the number of individuals without health insurance, expanded Medicaid coverage to more low-income adults, and standardized requirements that insurers cover preventive care (Office of the Assistant Secretary for Planning and Evaluation, 2022). Researchers and policymakers have noted concerns about increasing consolidation in the health care market and its effects on consumer prices, which is relevant to how MTFs are structured and how they coordinate care (Cutler and Scott Morton, 2013; Dafny, 2014). Empirically, this is difficult to study because health care organizations' decisions to consolidate and coordinate care (through, for example, accountable care organizations) are based on prices. Thus, a review of this literature requires careful attention to the causal pathway to determine effects and is beyond the scope of this report.

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Future Research

Because MHS reform efforts began in 2018 and are in progress, to our knowledge, little work has been done to investigate the effects of MHS reform, creating many possibilities for future research. Here, we highlight several potential research questions that could be pursued to study the effect of MHS reform on both costs and other relevant outcomes (e.g., utilization, patient outcomes).

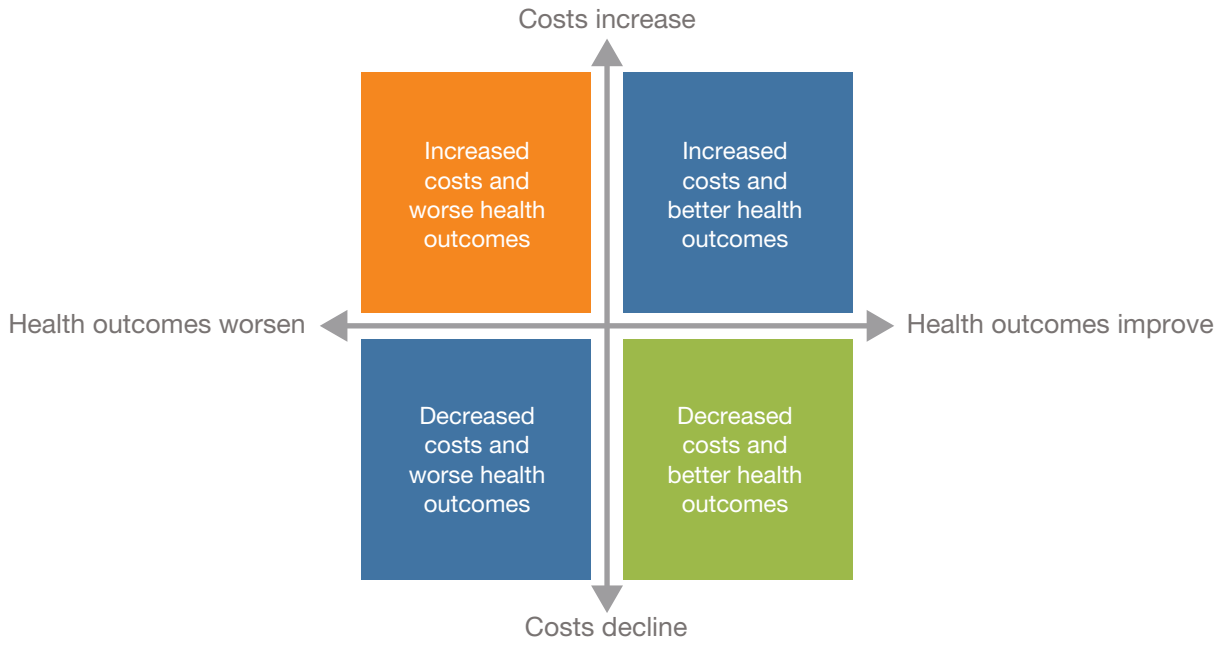
1. Effects on Health Care Costs, Utilization, Outcomes

The first potential research question is: Did the MHS reform affect utilization of direct and private-sector care, as well as military health care delivery costs? If there are demonstrable reductions in costs, these must be weighed against the marginal changes to patient outcomes given DoD's commitment to maintaining a high quality of care. In health care cost-effectiveness analyses, we need to compare the trade-offs with the policy changes, considering both the change in costs and the change in health or patient outcomes (see Figure 3). To test the hypothesis that reforms reduced costs without reducing health care access or worsening health outcomes, a careful cost-effectiveness analysis (or similar) would need to be conducted. The standard metric used in cost-effectiveness calculations is the *incremental cost effectiveness ratio*, which is equal to the change in costs divided by the change in health outcomes, which could be measured as access to or utilization of care, quality of care, or specific improvements in health (e.g., more adherence to preventive care or maintenance of chronic conditions, or improved medical readiness).

In cases in which a policy change saves money and improves outcomes (green box in Figure 3), the effect is beneficial on both dimensions and worth pursuing or continuing. In cases in which a policy change is clearly detrimental for patients and increases costs, the policy might be worth abandon-

FIGURE 3

Understanding Trade-Offs in Health Policy Reform



ing, reversing, or modifying to address the negative effects. The more complicated scenarios arise when a policy change increases costs but with some benefit or improvement in health, or when a policy change decreases costs but also results in worse health outcomes. In these cases, what is optimal is less obvious and depends on the goals and willingness to pay for improvements in health. Consequently, understanding the effects of MHS reform on not only costs but the utilization of direct and private-sector care and health outcomes will be necessary.

2. Effects on Military Medical Personnel Costs

Another important research question is to what extent the MHS reform affected military medical personnel costs, one of the top three costs to MHS. Military medical personnel costs include the costs of recruiting, training, and retaining military medical personnel, as well as basic pay and other sources of compensation (e.g., allowances). Military medical end strength is based on the operational requirement (i.e., fulfilling the need to provide medical care to military personnel during wartime), and there has been pressure to reduce the size of the military medical force, mainly through a reduction in military medical personnel working in MTFs (Office of Personnel and Readiness, 2021). Because the reform restructured MTFs and created new health care markets, the reform may have indirectly affected the mix of care that TRICARE beneficiaries receive through MTFs versus through the private market. A change in the distribution of care between direct care and private-sector care has an ambiguous effect on military medical personnel costs. For example, if the use of private-sector care increases and direct care decreases, then this could reduce the need for military medical personnel to work in MTFs. A shift from direct care to private-sector care could also reduce retention of military medical personnel because research has shown that an inability to maintain clinical skills is a top reason for leaving the military (Holaday and Holaday, 2021). However, the cost associated with recruiting and retaining the smaller military medical force and the costs associated with maintaining clinical skill proficiency when the direct care patient workload decreases could offset or overcome any savings associated with having a smaller force, yielding an ambiguous net effect on overall military medical personnel costs.

3. Health Care Market–Level Effects

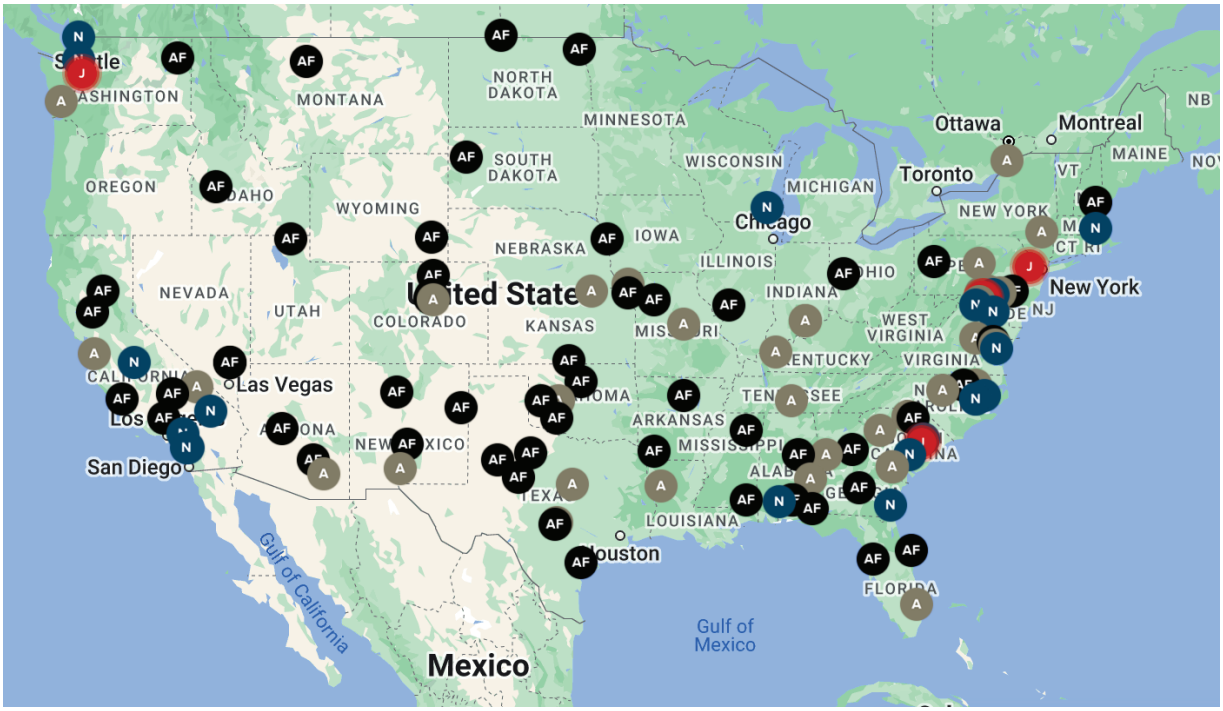
For both of the previous research questions, there could be variation across health care markets or where military personnel and MTFs are located geographically. Thus, these questions could be extended to consider the extent to which the effects vary across health care markets, some of which may have a large supply of other nonmilitary health care providers (e.g., a military hospital near a large metropolitan area) and some of which have no other health care providers. Figure 4 depicts the geographic locations of MTFs within the continental United States and demonstrates that some are close to urban centers while others are in less populated areas. These different markets can generate different opportunities and challenges for optimizing health care delivery in the MHS. If certain health care markets experience better patient outcomes, operate at a lower cost, or do both, then it would be useful to understand why certain markets are performing better or worse than others. Moreover, the high-performing health care markets could be examined to determine whether best practices or standards could be established and applied to all markets to make sure that beneficiaries receive equitable care across geographic locations.

4. Effects of the COVID-19 Pandemic

The final potential research question is how the coronavirus disease 2019 (COVID-19) pandemic affected the MHS, including costs and health care utilization. According to then–Assistant Secretary of Defense for Health Affairs Thomas McCaffery, the COVID-19 pandemic delayed the implementation of MHS reform (Kime, 2020). As the same time, health care utilization changed during the pandemic: There were documented decreases in preventive health care utilization (e.g., childhood immunizations, colonoscopies, mammograms) (Martin et al., 2021), which suggests that individuals might have had lapses in care and might have postponed preventive care. Concerns have been raised about how the new MTF market structure will handle pent-up demand for preventive

FIGURE 4

Map of Military Treatment Facilities Within the Continental United States



SOURCE: Reproduced from Medicine and the Military, undated; map base from Google Maps.
NOTE: *A* denotes an Army facility, *AF* denotes an Air Force facility, *J* denotes a joint base facility, and *N* denotes a Navy facility.

care and treatment for diseases and health conditions that went undetected during the pandemic (Military Health Systems Communication Office, 2021). Relevant to the MHS budget is how accounting for the potential impending increase in health care utilization affects the cost of MHS health care delivery. If pent-up demand is predicted to be met through direct care patient encounters, then this would potentially have implications for military medical personnel costs as well. COVID-19 has also changed the way people obtain medical care, namely increasing the use of telemedicine (Cantor et al., 2021). If the use of telemedicine remains high, then this could have consequences for both quality and cost of care.

2. Effects of Implementing the Military's Universal Electronic Health Records System, MHS GENESIS

Background

The potential benefits of an EHR include improved patient care; increased patient participation; improved care coordination; improved diagnostics and patient outcomes; and practitioner efficiencies and cost savings (HealthIT.gov, undated). An EHR that is portable and can be used across MTFs in different geographic locations could be particularly beneficial for uniformed service members and their dependents because such individuals make frequent moves to different geographic locations. Efforts to create an EHR for the military population date back to 1988 with the development of the Composite Health Care System (CHCS) (Health.mil, 2022b). The CHCS records outpatient care and is a facility-specific EHR system. The Armed Forces Health Longitudinal Technology Application (AHLTA), which was previously called CHCS II, was developed as a portable EHR that could be accessed at any MTF (Mendez, 2019c). AHLTA was deployed worldwide in 2004 (Health.mil, 2022b). Although AHLTA was meant to replace CHCS, there were many problems with the deployment of AHLTA, including issues with functionality, speed, and availability (Melvin, 2010). Essentris, the military's existing inpatient EHR system, was launched in 2007 as a complement to AHLTA (Health.mil, 2022b). There have been attempts to create an EHR that would work between the DoD and VA health systems, including congressional mandates issued between 2008 and 2014 to develop an interoperable EHR (Mendez, 2019c). However, efforts to create an interoperable EHR were eventually abandoned and DoD chose to acquire a commercial EHR, eventually named MHS GENESIS, to replace its legacy systems (Mendez, 2019c). MHS GENESIS will provide a single EHR for service members, veterans, and their dependents (Health.mil, 2022c). MHS GENESIS is scheduled to be fully implemented by the end of 2024 and is meant to replace legacy EHR systems (Mendez, 2019c).

Future Research

1. Understanding How MHS GENESIS Is Being Used

Because MHS GENESIS is a new EHR system, researchers should conduct descriptive analysis to understand how MHS GENESIS is being used by direct care providers and beneficiaries. On the provider side, researchers should study provider uptake of MHS GENESIS, how much time is spent documenting visits and communicating with patients through the EHR, and the extent to which providers

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use the EHR to coordinate care and review patient medical history. On the beneficiary side, researchers should investigate how often beneficiaries access their EHR and how they use their EHR. For example, how often are beneficiaries using MHS GENESIS to communicate with their doctors, request a prescription refill, schedule appointments, or check a lab result? Researchers should also analyze how use of MHS GENESIS varies by provider and beneficiary characteristics, such as service, component, location, and occupational specialty, to determine whether there are potential inequities or barriers to adopting the EHR and if interventions could be made to increase use and functionality of the EHR.

2. Effects of MHS GENESIS on Patient Care and Costs

One of the primary goals of an EHR is to improve patient care in direct care settings. Researchers should continue to study whether MHS GENESIS affects care by measuring how patient outcomes change over time as MHS GENESIS becomes the status quo. Outcomes to consider include measures of care coordination, lapses in care, repeat imaging, medical errors, encounters for evidence-based screenings (e.g., colonoscopies, mammograms) and immunizations, and measures of overtreatment. Researchers should explore leveraging variation in when MHS GENESIS is deployed across MTFs to causally identify the effect of the new EHR on patient outcomes. Moreover, researchers should study how MHS GENESIS's effect on care affects health care delivery costs and military medical personnel costs.

Researchers should also study ways to use MHS GENESIS to implement new health screening to improve patient care. One study investigated the impact of implementing pediatric screening for children who had been exposed to adverse childhood experiences using the MHS GENESIS at a pediatric clinic. Researchers found that 20 percent of children screened were deemed at-risk and were connected to appropriate resources (Polston, Telsey, and Smith, 2022).

3. Expanding MHS GENESIS

In its existing form, MHS GENESIS captures information from only patient care provided at MTFs. Cost-benefit analysis should be conducted to determine whether interoperability with the VA EHR should be pursued. Research could also be pursued to determine whether private-sector care providers should be given access to MHS GENESIS so that beneficiaries, direct care providers, and private-sector care providers have complete information on care received through MTFs and the private market in one EHR.

3. Medical Force Cost Analysis

Background

The military medical force is unique in that it (1) provides health care services to uniformed service members, military retirees,[5] and their dependents, and (2) needs to be ready to deploy and provide medical care in wartime (i.e., operational readiness). The total military medical force includes individuals working in both the active and reserve components, federal civilians, and contractors.[6] Providing care during wartime and providing beneficiary care can require different skillsets that may run counter to each other. During peacetime, routine care does not necessarily provide uniformed clinicians with enough opportunities to practice and maintain combat- and trauma-related skills required for operational medical readiness. Concern about maintaining medical skills needed for wartime is well documented in the literature (e.g., Chan et al., 2020; Hutter et al., 2019; MCRMC, 2015).

Although operational medical readiness is a concern, DoD-sponsored studies have also shown that the military medical force is larger than what is needed to meet military essential requirements identified by each service (Office of Program Analysis and Evaluation, 1994; Office of Program Analysis and Evaluation, 1999; Whitley et al., 2014). Moreover, certain specialties of providers might be insufficiently staffed to meet the needs of the military force. For example, documented difficulties in accessing behavioral health care among remote military populations (Brown et al., 2015; Hepner et al., 2021) and studies analyzing ways to improve the retention of behavioral health care providers (Hosek et al., 2017) and to better integrate behavioral health technicians into clinical practice (Hepner et al., 2022a) demonstrate that the military behavioral health care work-

force is inadequate. Specifically, the military medical force has historically understaffed operational specialties (e.g., surgery) and overstaffed beneficiary care specialties (e.g., pediatrics and obstetrics) (Whitley et al., 2014). Researchers should study whether these historical trends still exist, or if projected shortages of doctors in the civilian sector will also lead to shortages in the military (Robeznieks, 2022).

Reductions to the number of military medical personnel have been proposed to allow the medical force to focus on operational readiness and promote the clinical skills of the remaining medical force through increased workloads (Philpot, 2019). Section 721 of the FY 2017 NDAA gave DoD the authority to convert military medical and dental positions to civilian positions, if the Secretary of Defense determines that the military positions are not necessary to meet operational medical force readiness requirements. In response, DoD originally submitted a request for military departments to reduce active-duty medical end strength by 17,005 in FY 2020 (Office of Personnel and Readiness, 2021). Compared with 2019 active-duty medical end strength, this request would have resulted in a 15 percent reduction in the active-duty medical force (Mendez, 2019a). However, the COVID-19 pandemic and concerns about adversely affecting beneficiary care caused DoD to revise the active-duty medical personnel reduction down to 12,801, with the reductions to be phased in from FY 2023 through FY 2027 (Office of Personnel and Readiness, 2021). The NDAA for FY 2022 further postponed the date when medical billet reductions could begin to December 2022 (Pub. L. 117-81, Section 731).

Future Research

Medical force cost analysis answers a broad variety of questions. Here, we outline two potential research questions that directly affect both military medical personnel and health care delivery costs, two out of the three top cost categories of the MHS budget. The two research areas are (1) the optimal total force mix (i.e., mix of active component, reserve component, civilians, and contractors) and (2) the optimal mix of direct and private-sector care. Research will overlap between these areas, and research in one area will provide insight into the other area.

1. Optimal Total Force Mix

Determining the optimal military medical force mix entails identifying the most cost-effective mix of individuals from the four sectors—active component, reserve component, civilians, and contractors—while ensuring that the military medical force can fulfill its two missions of operational readiness and providing beneficiary care. As part of this research topic, researchers will need to study what the true operational requirement should be and whether there are certain types of medical personnel billets that would be more cost-effectively filled by individuals outside the active component, as prior research suggests. The existing research on the military medical force generally examines the trade-off between the active and reserve components and the trade-off between the active component and federal civilians separately. Prior research on the medical force recommended converting non–operationally relevant positions to positions that could be filled by civilians (Whitley et al., 2014; Whitley et al., 2018) and expanding the

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use of reservists with civilian employment in health care (Whitley et al., 2014; Whitley et al., 2018). Future research should strive to examine the military medical force in a holistic way by including all four workforces to understand the most cost-effective method to employ the force. While most of the military medical workforce comes from the active component, a sizeable share come from the reserve component and federal civilian sector (Whitley et al., 2018). Moreover, replacing uniformed medical positions with civilians and contractors is the main tool proposed to implement the reduction in medical billets directed in the NDAA for FY 2020 (Office of Personnel and Readiness, 2021). Consequently, it will be important to do a comprehensive cost analysis of the total military medical force and estimate the optimal distribution of personnel across the four workforces.

Researchers also could investigate the extent to which there are cost-effective ways to ensure that the uniformed medical force has the clinical skills necessary to be ready to deploy at any time. The main way to promote the operational readiness of the military medical force is to increase its exposure to relevant clinical cases. Studies have proposed assigning uniformed members to civilian settings (Chan et al., 2020; Eibner, 2008; Lurie et al., 2017), increasing the number of MTFs with trauma center designations (Lurie et al., 2017), and forming joint military-civilian trauma centers (Lurie et al., 2017) as possible ways to increase operational readiness of the active component medical force, but studies have yet to empirically evaluate the costs and benefits of these types of arrangements.

2. Optimal Mix of Direct and Private-Sector Care

Thus far, the discussion of the optimal mix of the military medical force involves personnel working in MTFs. However, most TRICARE beneficiary care occurs in the private market. In FY 2020, there were 344,700 private-sector care inpatient visits and 35.1 million private-sector care outpatient encounters, compared with 166,800 direct care inpatient visits and 33.5 million direct care outpatient encounters (DHA, 2021). Medical force cost analysis should determine when it is cost effective to conduct beneficiary care in the private market and the implications for operational readiness and the cost of uniformed medical personnel. There are few studies investigating the cost-effectiveness of direct care versus private-sector care, most of which are quite dated (Goldberg et al., 1994; Goldberg et al., 2003). The most recent study (to our knowledge) that investigates the cost-effectiveness of direct care is an Institute for Defense Analyses study that was published in 2016, prior to the passage of the FY 2017 NDAA (Lurie, 2016). This study examined costs at the MTF level and estimated that shifting inpatient and outpatient workload from MTFs to private care settings would reduce costs by 34 to 49 percent and 35 to 43 percent, respectively (Lurie, 2016). Researchers should conduct analysis to understand the optimal mix of direct and private-sector care in a post–MHS-reform era. Moreover, the optimal direct and private-sector care mix may vary depending on the type of beneficiary. For example, it might make sense to primarily treat uniformed personnel through direct-care MTFs, where staff are trained to assess the medical readiness of personnel and outsource care for dependents and retirees into private-sector care settings. There also is evidence that there are differences in the quality of care provided by direct care and private-sector providers. For instance, private-sector providers were found to be less likely to adhere to opioid prescribing recommendations after dental and ambulatory procedures compared with direct care providers (Hepner at al., 2022b), and follow-up care after a mental health hospitalization was less likely to occur when hospital stays were in private-sector facilities compared with those who were in direct-care facilities (Hepner et al., 2021). Researchers should also analyze the merits of shifting certain types of care from MTFs to private care settings or whether certain types of patient encounters or care of certain types of beneficiaries would be more cost-effective in a private-sector care setting.

4. TRICARE Cost Analysis

Background

TRICARE is the health care program that covers military service members, military retirees, and their dependents. Care provided by private-sector providers is managed through TRICARE contracts, and services obtained through private-sector care are paid on a

fee-for-service basis under most TRICARE contracts, meaning that DoD is responsible for developing cost containment measures (Murray and Bass, 2017).

The following are the three main plans operated through TRICARE:

1. TRICARE Prime is a managed-care plan in which beneficiaries are assigned a primary care manager. Active-duty service members are automatically enrolled in TRICARE Prime and pay no out-of-pocket costs for MTF care or care from a TRICARE network provider in the private market with a referral from their primary care manager.
2. TRICARE Select is a preferred-provider option that provides more flexibility to see providers in private-sector care settings. TRICARE Select charges an annual deductible and copays for care, and out-of-pocket costs are lower for care provided by TRICARE network providers.
3. TRICARE for Life is a Medicare wraparound plan for retired TRICARE beneficiaries who are covered by Medicare Parts A and B.

There were 4.8 million TRICARE Prime beneficiaries, 2.1 million TRICARE Select beneficiaries, and 2.1 million TRICARE for Life beneficiaries in FY 2020 (DHA, 2021).

There have been many changes to the TRICARE program since beneficiaries first enrolled in the 1990s.[7] Major reform to the TRICARE program was most recently mandated by the 2017 NDAA. The 2017 NDAA made numerous changes to TRICARE, including:

- establishing TRICARE Select as a self-managed, preferred provider network option (Pub. L. 114-328, Sec. 701)
- replacing TRICARE Standard and Extra plans with TRICARE Select, effective January 1, 2018 (Pub. L. 114-328, Sec. 701)
- codifying TRICARE Prime and TRICARE Select cost-sharing fees (Pub. L. 114-328, Sec. 701)
- requiring an annual open enrollment period (known as *open season*) for beneficiaries enrolled in or eligible for TRICARE Prime or TRICARE Select (Pub. L. 114-328, Sec. 701)
- requiring DoD to implement a pilot program testing the incorporation of value-based health care in the private-sector care component of the TRICARE program (Pub. L. 114-328, Sec. 701)
- ensuring that TRICARE managed care support contracts include a strategy to lower per-capita health care costs (Pub. L. 114-328, Sec. 705).

Future Research

1. Cost Effects of FY 2017 NDAA TRICARE Reform

Little work has been done that evaluates the effects of changes to TRICARE that stem from the FY 2017 NDAA. It is not necessarily clear how each change to TRICARE or the compilation of changes will affect access and use of care (and subsequently, costs). For example, the requirement for TRICARE managed-care support contracts to include a strategy to lower per capita health care costs and pilot test value-based health care is meant to identify ways to reduce costs, but it remains to be seen whether these strategies will be implemented or are effective. Even less clear is how replacing TRICARE Standard and Extra plans with TRICARE Select and providing an annual open enrollment season will affect costs. Past studies have proposed that TRICARE plans adopt value-based purchasing incentives (Bishop et al., 2016; Hosek et al., 2017). Bishop et al. (2016) estimated a range of savings from $400 million to $1.5 billion annually from implementing value-based purchasing methods

Future research should investigate the effects of value-based health care demonstration projects on costs and access to care.

into TRICARE plans. A 2020 Government Accountability Office study documented that, as of June 2020, preliminary results from the DHA indicated that two of the five value-based initiatives implemented had not resulted in cost savings, one of which had too few observations to draw meaningful conclusions (Anderson et al., 2020). Future research should investigate the effects of value-based health care demonstration projects on costs and access to care.

2. Cost Effects of an Alternative TRICARE Plan Design

After the cost effects of the FY2017 NDAA changes to TRICARE have been evaluated, future research should consider the cost implications from pursuing an alternative TRICARE plan design. Prior studies have outlined different ways to reform TRICARE to provide service members and their dependents access to better care and lower MHS costs, but the extent to which these hypothetical changes would affect beneficiaries' access, health outcomes, and DoD expenditures remains unclear (Hosek et al., 2017; MCRMC, 2015; Murray and Bass, 2017). Furthermore, the existing literature that proposes ways to reform TRICARE did not study the potential impact on beneficiary outcomes.

The 2015 MCRMC proposed creating a new health care program that would offer private insurance plans to active component dependents, reserve component members, military retirees who are not eligible for Medicare, and their dependents. Under this proposal, active-duty members would continue to receive care through MTFs, and their dependents would receive a new basic allowance for health care to cover premiums and out-of-pocket costs associated with purchasing private insurance plans. The MCRMC estimated the proposal would yield a savings of $3.2 billion per year to DoD.

In contrast, Murray and Bass (2017) estimated that the MCRMC's recommendations would result in a small savings of $0.4 billion for the DoD, but only after the program had been implemented for ten years, and costs increased in the intervening years. Murray and Bass (2017) also proposed increasing cost-sharing for most TRICARE beneficiaries and paying fixed amounts per person to TRICARE contractors as ways to reduce TRICARE costs. Assuming an implementation date of January 2020, the study estimated that increasing cost-sharing would save DoD $3.2 billion in 2031. The study did not estimate the potential savings from paying fixed amounts per person to TRICARE contractors.

3. Reform TRICARE for Life

MERHCF is the second-largest MHS funding category after health care delivery. Over 90 percent of MERHCF's outlays are for funding TRICARE for Life (Congressional Budget Office, 2022). Thus, research should consider whether there are aspects of the TRICARE for Life plan design that could be altered to improve efficiency and reduce the costs of administering the plan. To our knowledge, reforming TRICARE for Life has not been discussed among policymakers, suggesting that this may not be a desirable or politically feasible alternative to pursue, even though this is potentially the main way to reduce costs associated with the MERHCF.

Future research should investigate the effects of value-based health care demonstration projects on costs and access to care.

Conclusion

In this report, we briefly described the MHS and used published cost data to show that the three top cost categories of the MHS are (1) health care delivery costs (direct and private-sector care combined), (2) military medical personnel costs, and (3) the MERHCF. We then described four key policy areas of research that could be pursued to learn more about ways to contain costs in these top cost categories. Table 3 maps the key policy areas and sub-areas to

TABLE 3

Mapping Key Policy Areas to Top Three Military Health System Cost Categories

Key Policy Areas	Cost Categories
Cost effects of MHS reform	
Effects on health care costs, utilization, and outcomes	Health care delivery
Effects on military medical personnel costs	Military medical personnel
Health care market–level effects	Health care delivery; military medical personnel
Effects of the COVID-19 pandemic	Health care delivery; military medical personnel
Effects of implementing the military's universal EHR system, MHS GENESIS	
Understanding how MHS GENESIS is being used	Health care delivery
Effects of MHS GENESIS on patient care	Health care delivery
Expanding MHS GENESIS	Health care delivery
Medical force cost analysis	
Optimal total force mix	Health care delivery; military medical personnel
Optimal mix of direct and private-sector care	Health care delivery; military medical personnel
TRICARE cost analysis	
Cost effects of FY 2017 NDAA TRICARE reform	Health care delivery
Cost effects of alternative TRICARE plan design	Health care delivery
Reform TRICARE for Life	MERHCF

cost categories. Many of the future research questions and topics described in the previous section directly link to health care delivery costs and military medical personnel costs. In contrast, only one sub-area provides implications for the MERHCF, reforming TRICARE for Life. Policymakers and researchers can use Table 3 to choose a line of research based on which cost category is most of interest.

This report outlines different areas of research to provide information on ways to reduce or contain MHS costs. However, there are a couple of considerations worth mentioning for researchers and policymakers who are interested in pursuing these areas of research. First, on a national level, health expenditures are also increasing (Centers for Medicare and Medicaid Services, undated). In other words, the problem of rising health care costs is not unique to the military, and an investigation into effective cost-cutting strategies in the United States more broadly might be needed, given that a sizeable share of military beneficiary care is obtained through the civilian market. Second, evaluating the effects of MHS reform could be difficult as a result of the COVID-19 pandemic, which occurred at the same time that changes to the MHS took place. As a result, determining whether changes to outcomes are attributed to changes to the MHS or to the pandemic might not be feasible in some cases.

Notes

[1] The one-year growth in national total health expenditures was 9.7 percent in 2020, suggesting that national health expenditures are growing faster than MHS spending (Centers for Medicare and Medicaid Services, undated).

[2] Note that the MHS system is separate from the Veterans' Affairs (VA) health system. To qualify for VA health benefits, veterans must meet minimum service requirements, and enrollment uses eight different priority categories. Veterans with service-connected disabilities who meet means-tested thresholds receive top priority (Panangala and Sussman, 2020). In contrast, military retirees can choose to continue TRICARE coverage even after retiring from the military.

[3] The Assistant Secretary of Defense for Health Affairs is the principal advisor to the Secretary of Defense and Under Secretary of Defense for Personnel Readiness on topics related to military health. As of this writing, Thomas McCaffery is the most recently confirmed Assistant Secretary of Defense for Health Affairs. Therefore, we interpret his responses to advance policy questions at his confirmation hearing as representative of the priorities of those in charge of military health within DoD. Limitation in project resources prevented us from consulting additional resources, such as hearing testimony from other MHS experts. Seileen Mullen replaced McCaffery and became the Acting Assistant Secretary of Defense for Health Affairs in 2022.

[4] Each expert was a senior researcher who has served as principal investigator on several military personnel and health related projects funded by different federally funded research development centers affiliated with RAND. Feedback on the key policy areas was solicited via email and virtual one-on-one meetings.

[5] Retirement eligibility is contingent on years of creditable service. Generally, 20 years of creditable service is required to retire. The type of TRICARE plan available to a military retiree depends on the individual's age and disability status (TRICARE, 2021).

[6] *Contractors* are private-sector workers who are on contracted to work in MTFs.

[7] See the appendix (pp. 229–236) in Office of Personnel and Readiness, 2021, for additional details.

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Abbreviations

ACA	Affordable Care Act
AHLTA	Armed Forces Health Longitudinal Technology Application
CHCS	Composite Health Care System
COVID-19	coronavirus disease 2019
DHA	Defense Health Agency
DHP	Defense Health Program
DoD	U.S. Department of Defense
EHR	electronic health record
FY	fiscal year
MCRMC	Military Compensation and Retirement Modernization Commission
MERHCF	Medicare Eligible Retiree Health Care Fund
MHS	Military Health System
MILPERS	military personnel
MTF	military treatment facility
NDAA	National Defense Authorization Act
O&M	Operation and Maintenance
VA	Veterans Affairs

About This Report

Determining how to curb burgeoning military health care costs without compromising access to and quality of care or the readiness of military medical personnel continues to be a priority for the Defense Health Agency. The purpose of this report is to describe emerging issues related to military health care costs and policy to provide policymakers and researchers with future research to pursue. This report describes four key policy areas: the cost effects of Military Health System (MHS) reform, the effects of implementing the universal electronic health records program MHS GENESIS, medical force cost analysis, and TRICARE cost analysis.

The research reported here was completed in December 2022 and underwent security review with the sponsor and the Defense Office of Prepublication and Security Review before public release.

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For more information on the RAND Forces and Resources Policy Program, see https://www.rand.org/nsrd/frp or contact the center director (contact information is provided on the webpage).

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