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Using Geographic Variations to Improve Quality and Reduce Costs in the Military Health System (Conference Posters)

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About This Publication

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Executive Summary

The objective of this project is to conduct analyses to understand variations in low back pain incidence, its treatment, and outcomes of its treatment within the Military Health System. The results of our analysis are intended to inform clinical policy and resource allocation. We find evidence of large variations in both spending for and treatment of low back pain that have implications for health system reform. Reducing spending to the lowest-spending, highest performing regions could result in up to 30 percent savings across the enterprise. Similarly, adopting enterprise standards of care for physical therapy, such as direct access to services without a referral, can encourage adoption of high-value services and decrease unwarranted variations in utilization and outcomes.

To quantify the variation in per capita expenditures across the Military Health System's network of military hospitals and civilian contract providers through market-level analysis.

Introduction

The integrated health care delivery system of the Military Health System (MHS) consists of roughly 60 inpatient acute care hospitals, 385 stand-alone medical clinics, 350 stand-alone dental clinics, and a complementary network of contracted civilian providers organized into 144 catchment areas.

Within the MHS, policymakers have undertaken sweeping market reforms to optimize health care delivery and address rising costs. Understanding variations in costs across the system can help policymakers better understand policy options.

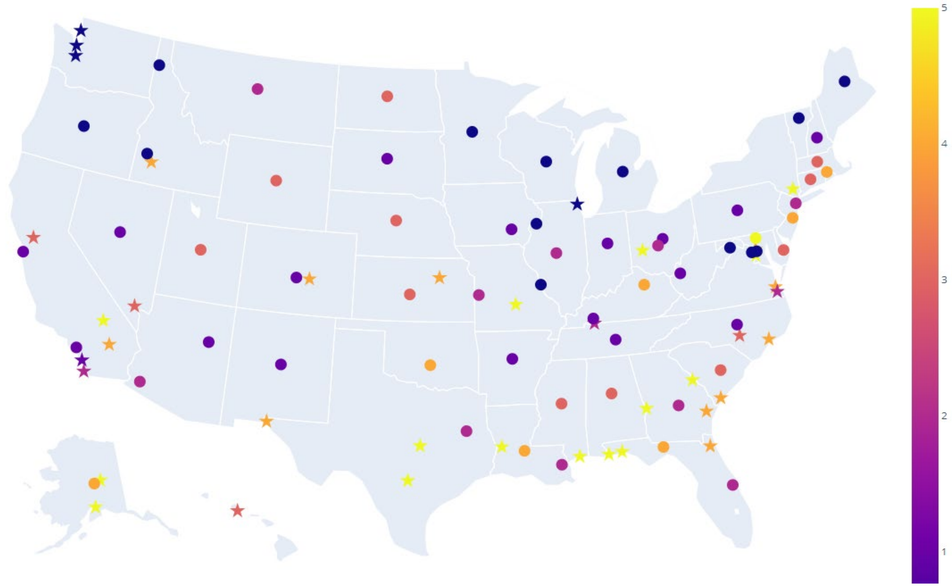
Methods

We used data from the Military Health System Data Repository covering some 138 million health encounters and claims to quantify patient spending. We followed a retrospective cohort consisting of 905,000 continuously enrolled TRICARE Prime beneficiaries from 2015 to 2019. We excluded patients who were eligible for Medicare or other health insurance, or received care overseas.

Costs include all inpatient, outpatient, and pharmacy spending for both direct and purchased care. Annual per capita costs were calculated for each individual; adjusted for age, sex, and race; and aggregated to geographic regions. Both TRICARE catchment areas and hospital referral regions (HRRs) were used to summarize local health care spending.

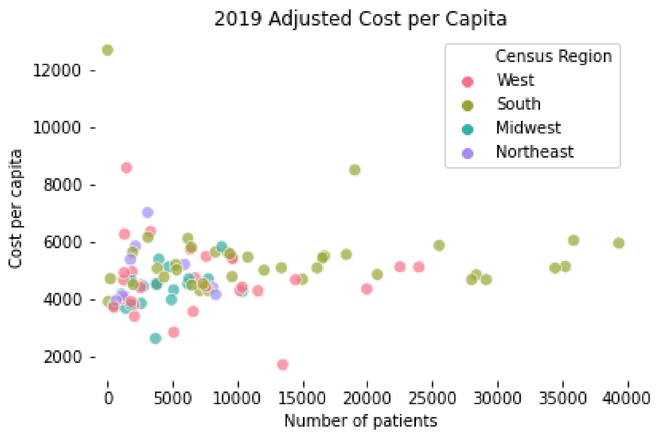
Results

Figure 1. Per capita spending quintiles by catchments.



The above map shows the different catchment areas by spending quintile, with 5 having the highest rate of spending and 1 having the lowest rate of spending. A star indicates that the catchment is anchored by a military treatment facility (MTF).

Figure 2. Adjusted per capita spending by catchment area.



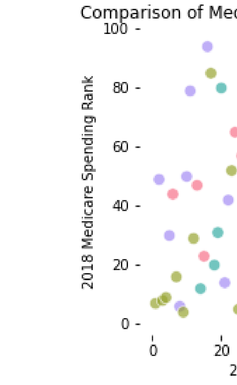
The above scatter plot contains a point for each catchment where patients received treatment in 2019. Each patient in the study population was assigned a catchment at the beginning of fiscal year 2019, and cost per catchment was the sum of all patient costs assigned to the catchment. The cost was then adjusted for demographics.

Table 1. Demographics by spending quintile.

		Spending Quintile				
		1	2	3	4	5
Mean Age		43.05	42.63	42.56	42.69	43.31
Gender						
	Male	55.09	54.48	51.65	48.15	45.31
	Female	44.91	45.52	48.35	51.85	54.68
Race						
	White	43.26	43.75	43.59	42.61	41.68
	Black	9.88	11.31	12.23	12.98	13.41
	Asian or Pacific Islander	2.26	2.88	3.08	3.15	3.27
	Other	1.91	1.86	1.99	2.15	2.20
	Unknown	42.68	40.20	39.11	39.11	39.45
Beneficiary Category						
	Dependents	44.63	46.32	47.97	49.61	49.58
	Retirees	31.56	31.11	28.62	25.90	24.73
	Active Duty	23.57	22.30	23.14	24.23	25.48
	Other	0.24	0.27	0.27	0.25	0.21
Service of Sponsor						
	Army	34.44	37.59	37.64	37.64	39.16
	Air Force	28.84	32.72	34.48	34.91	30.66
	Navy	20.31	19.62	19.06	19.62	21.59
	Marines	6.81	6.26	5.86	5.53	5.79
	Coast Guard	9.00	3.15	2.36	2.05	2.05
	Other	0.80	0.66	0.60	0.62	0.76
Rank/Sponsor Rank						
	Junior Officer (O1-O3)	5.42	5.44	5.57	5.38	4.60
	Senior Officer (O4-O9)	14.43	14.75	14.72	14.59	14.00
	Junior Enlisted (E1-E4)	5.87	5.74	6.02	6.07	6.07
	Senior Enlisted (E5-E9)	70.77	70.59	70.14	70.48	72.02
	Cadet	0.33	0.38	0.45	0.50	0.33
	Other	3.19	3.10	3.09	2.97	2.97

The above table shows the demographics of the study population divided into 5 spending quintiles, with 1 being the lowest spending group and 5 being the highest spending group. This analysis is prior to adjustment of costs for age, sex, and race.

Among the study population, there was a large variation in per capita health spending, with a **coefficient of variation of 114%** across catchment areas and HRRs. To better understand the patterns of variation, we looked at Medicare spending in comparable HRRs as well as the purchased care market share in catchment regions.



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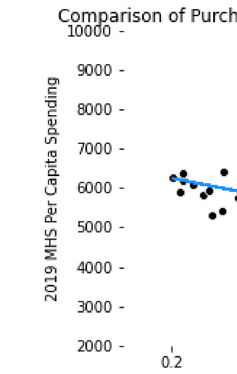

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One of the current problems facing the MHS is the lack of a standardized approach to treatment of low back pain.

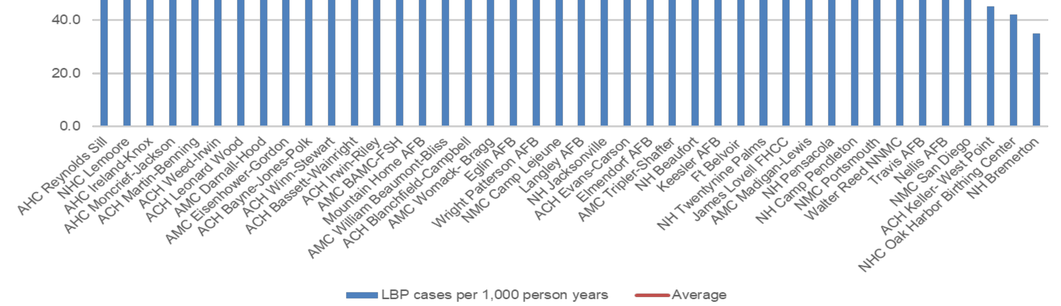
Methods

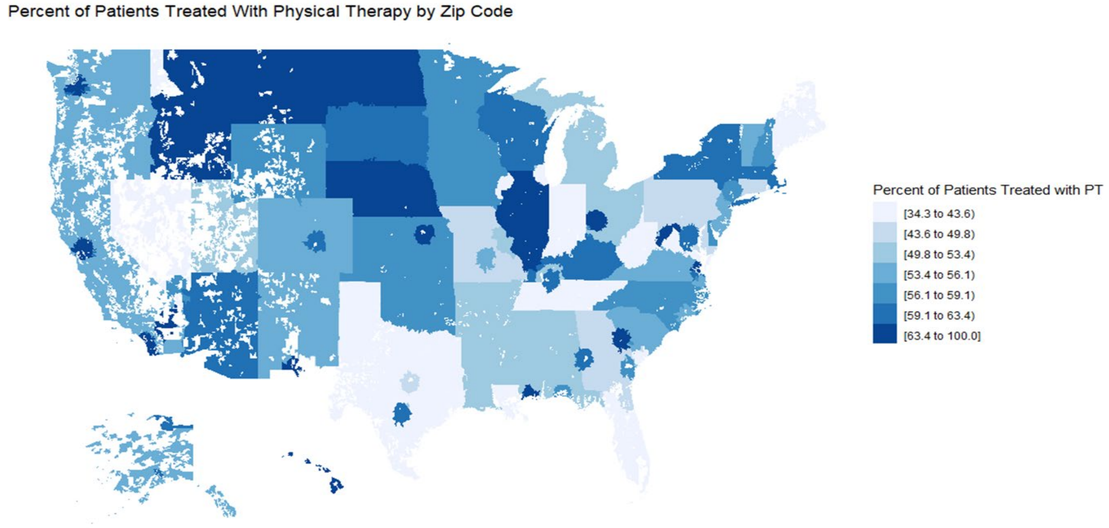
Data source/Analytic Sample: Data comes from the Military Health System Data Repository (MDR) for the years 2015–2019. Our cohort consisted of TRICARE Prime beneficiaries who were treated with physical therapy (PT) as the primary course of treatment (n=160,000). We excluded patients who were eligible for Medicare, other health insurance, or were stationed overseas to avoid any bias resulting from unobserved care.

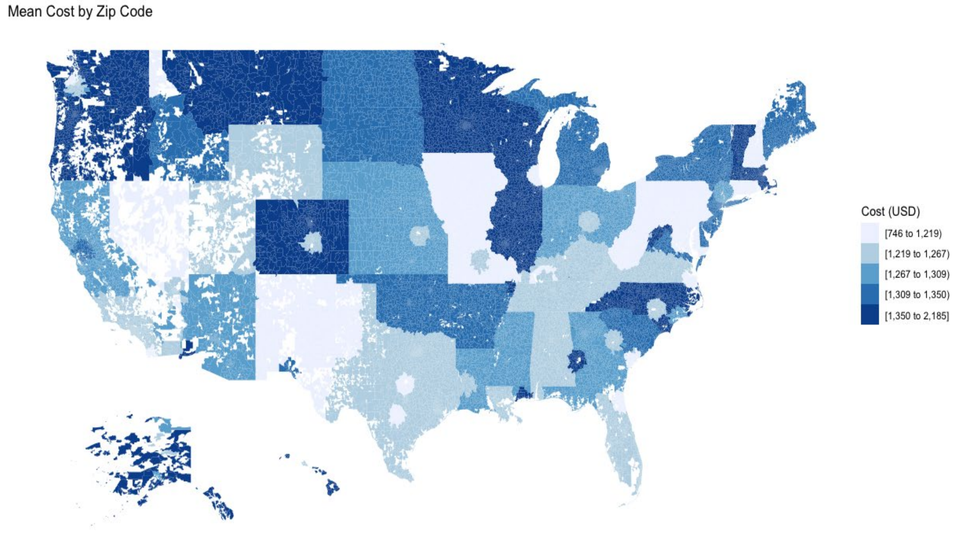
Analysis: We use multivariable logistic models where the dependent variables are either 1) length of each patient's low back pain episode or 2) costs associated with treating each patient's low back Both models include the patient's age, sex, race, beneficiary category, marital status, care type, geographic location, and treatment options utilized as covariates. For our modeling of episode length, we used an indicator variable as a dependent variable to determine whether each low back pain episode lasted less than 6 months, as a proxy for recovery within this time. Graphs are adjusted for age, sex, race, and beneficiary category.

Table 1: Patient Demographics

Characteristic	Number, (%)
Sex	
Male	198,337 (73%)
Female	72,393 (27%)
Race	
White	177,844 (65%)
Asian	15,614 (6%)
African-American	59,753 (22%)
Native American	668 (0.2%)
Other	8,468 (4%)
Unknown	8,383 (3%)
Age Group	
18 – 24	9,232 (3%)
25 – 34	74,240 (27%)
35 – 44	86,191 (32%)
45 – 64	101,067 (38%)
Beneficiary Category	
Active Duty	148,185 (54%)
Dependent of Active Duty	16,500 (6%)
Retired	62,844 (23%)
Dependent of Retired	29,933 (11%)
Guard / Reserve	9,300 (3%)
Other	3,968 (3%)







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