Impact of a Service Line Management Model on Behavioral Health Care in the Military Health System

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Large health care systems are seeking to reduce variation in care delivery and improve outcomes. This column describes the U.S. Army health care system's transformation to a service line management model and the impact on behavioral health care between 2013 and 2017. An evaluation found a promising association between the service line model and greater use of standard outpatient clinical programs, more frequent engagement of patients with serious conditions, and less use of inpatient services. The observational nature of these preliminary findings does not permit causal inferences; however, the service line model may help health care systems reduce variation between geographically distinct care delivery locations and improve performance.

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The Military Health System (MHS), like many large health care organizations, is under scrutiny to ensure that all of its hospitals consistently deliver high-quality care. Greater standardization is necessary to address disparities between military hospitals in the availability of high-quality care and to ensure that service members consistently receive the best possible services as they move between installations as part of their occupational assignments (1). One component of the MHS, the Army Medical Command, recently standardized its behavioral health care system and may offer an example of a health care management model that is capable of standardizing best practices and improving outcomes. Prior to 2010, the Army experienced major problems created by wide variation in the behavioral health care provided in Army hospitals (2). Fundamental changes were necessary, and the Army redesigned its health care delivery management model around clinical service lines (3).

A service line is an established model for managing clinical care and is currently in use in a variety of military and civilian health care settings. At the local (hospital) level, service lines reduce divisions between health care professionals who are treating the same group of patients for similar or related conditions (e.g., psychiatry, psychology, and social work), because service lines group clinical professionals into teams based on the needs of the patient, not by professional discipline. Service lines strive to create patient-centered clinical services that facilitate measurement and accountability of processes, outcomes, and costs (4). Across large health care systems, service lines establish routes for communication between clinicians at the local level, through hospital leadership, to clinical leaders at the system (headquarters) level. Even though clinical service lines have been used for decades, few studies of their impact on behavioral health care delivery have been published. This study is the first to evaluate the Army's Behavioral Health Service Line (BHSL) structure, processes, and outcomes.

Implementation and Evaluation of the BHSL

The Army's transition to clinical service lines began in 2011 when it shifted more authority for policy making, strategic planning, and program development to the headquarters level and away from individual hospitals. To operationalize the change, the service line model was selected to

HIGHLIGHTS

- In response to major problems with behavioral health care delivery in its hospitals, the Army health care system implemented a service line management model beginning in 2011.
- Through the service line, Army leaders made far-reaching changes to behavioral health care structure, utilization, and oversight.
- Data from 2013–2017 indicate that several changes, including routine collection of clinical outcome data, implementation of standard clinical programs, greater outpatient continuity, and reduced use of inpatient care, were associated with model implementation, although the evaluation design did not permit causal inferences.

manage each major clinical area, beginning with behavioral health. The systems-level BHSL team, led by the Army director of psychological health, included administrators, analysts, resource managers, and clinicians.

The BHSL changed the management and delivery of care in several ways. First, to reorganize hospital- and clinic-level operations, the systems-level team implemented a policy that eliminated all departments organized around discipline (psychiatry, psychology, and social work) and formed a single Department of Behavioral Health at each Army hospital. The BHSL also integrated disparate clinical programs into a single system of care. In 2012, BHSL leaders identified more than 60 behavioral health programs that had been developed by Army hospitals to address the surge in behavioral health conditions attributed to the wars in Iraq and Afghanistan over the prior decade. Because the expansion had not been previously managed at the system level, wide variation in accessibility, quality, and efficiency had developed. The BHSL identified a group of exemplary clinical programs and worked to replicate them in all hospitals. BHSL leaders developed change management strategies, including clinical staff training programs and manuals; redesigned administrative processes, such as clinical personnel rosters and workload standards; disseminated clinical practice guidelines for high-incidence conditions, such as posttraumatic stress disorder (PTSD); and ensured that resources were available to hire staff and renovate facilities. The BHSL also reconfigured administrative data sources and analytic processes to display accurate and timely information about clinician performance. The BHSL used the newly created data to develop a suite of metrics and used those metrics to inform an oversight process that monitored program implementation and identified variance between hospitals.

The exemplary clinical programs identified as best practices for widespread dissemination were embedded behavioral health (EBH), intensive outpatient programs (IOPs), the child and family behavioral health system (CAFBHS), and a clinical outcome platform called the Behavioral Health Data Portal (BHDP).

EBH is a model for providing outpatient behavioral health care to soldiers assigned to combat units. EBH relocates behavioral health providers from centrally located hospitals to smaller clinics placed as close as possible to where soldiers live and work. Between 2012 and 2017, the Army implemented 61 EBH clinics across the Army. IOPs provide an intermediate level of care for patients who require more frequent visits than can be provided in an outpatient clinic but who do not require inpatient care. Between 2015 and 2017, the Army established 37 IOPs at 19 hospitals. CAFBHS clinics deliver outpatient care to family members of soldiers on active duty and provide consultation to primary care providers. CAFBHS includes a school-based behavioral health program. Providers in the school-based program deliver care in small clinics within the school and consult with teachers and counselors. Between 2014 and 2017, a total of 31 CAFBHS clinics and 15 school-based behavioral health clinics were created. BHDP is a Web-based application that collects patient-reported outcome measures by using standard clinical instruments. Implementation began in 2012 and grew steadily. By 2017, BHDP was used in 834,481 outpatient encounters, 70.3% of all individual encounters with adults in that year.

To determine the relationship between the implementation of the service line and performance at the hospital level, an observation period of 2013 to 2017 (fiscal years) was defined. It encompassed the establishment of service line management and the major structural and process changes made by BHSL leaders. This column focuses on five utilization metrics and three clinical outcome metrics. Outpatient market share is the portion of outpatient behavioral health care provided in Army hospitals and clinics divided by the total outpatient behavioral health care provided in Army hospitals and in the civilian TRICARE network. The measure "PTSD and depression treatment continuity" indicates the proportion of patients with a new diagnosis of PTSD or depression (based on *ICD-9* or *-10* codes in the first three diagnostic positions) who received a minimally adequate number of treatment sessions, defined as four or more encounters in a behavioral health clinic in the first 90 days (three visits in addition to the one in which the diagnosis was initially made). Inpatient bed-days is the total number of days spent by soldiers on active duty and their family members during an admission to any hospital for behavioral health and substance use disorder services. Clinical outcome metrics captured how frequently patients achieved a clinical response or remission for PTSD, depression, and generalized anxiety disorder, three of the most common disorders in the Army population, on the basis of symptom change on standardized clinical instruments.

The evaluation found that during the observation period, outpatient market share increased, indicating that the Army was able to meet more of the demand for care within its own facilities and referred fewer patients to outside providers through the TRICARE network (Table 1). A decrease was noted in the use of inpatient services, with the largest change between 2013 and 2015. The data also show a trend for more consistent attendance at outpatient follow-up visits among patients with a diagnosis of PTSD or depression. Clinical outcomes showed generally consistent trends in achievement of clinical response or remission, with some fluctuations from year to year. Approximately 35%–44% of patients with PTSD, depression, or generalized anxiety disorder showed clinically meaningful responses on standardized clinical scales.

Discussion

This column describes the implementation of the service line management model in a large, multisite health care system. Through the service line structure, system-level leaders directly influence hospital-level decisions by issuing binding directives (orders) to hospitals, establishing and reviewing metrics, and shifting financial incentives to the highest clinical priorities.

Evaluation of the service line model showed a decrease in use of inpatient behavioral health care during the

TABLE 1. Measures of behavioral health care in Army hospitals and clinics after implementation of a service line management model in 2011[a]

Metric	2013	2014	2015	2016	2017
Outpatient encounters (N)	1,446,462	1,415,409	1,326,286	1,344,215	1,566,199
Outpatient market share (%)[b]					
Active duty service members	90.5	91.7	92.1	94.4	96.7
Active duty family members	46.3	44.6	44.6	49.4	51.5
Outpatient treatment continuity (%)[c]					
PTSD	68.5	70.4	70.9	71.0	71.7
Depression	62.7	65.8	65.8	67.0	68.9
Inpatient bed-days (Army and civilian facilities) (N)	133,252	110,361	97,077	92,694	96,247
Clinical outcome (%)[d]					
PTSD	na	30.2	30.0	33.9	33.4
Depression	na	38.2	41.0	43.7	40.0
Generalized anxiety disorder	na	na	na	35.8	37.4

[a] Sources: Military Health System and Reporting Tool (M2) and the Behavioral Health Data Portal. na, data not available prior to implementation of metric.
[b] Percentage of outpatient behavioral health care provided in Army hospitals and clinics divided by the total outpatient behavioral health care provided in Army hospitals and in the civilian TRICARE network.
[c] Percentage of patients with a new diagnosis of PTSD or depression who received ≥4 encounters in a behavioral health clinic in the first 90 days.
[d] Percentage of patients in a new episode of care who achieved clinical response or remission.

observation period, despite little change in outpatient utilization. This finding suggests that the decreased use of inpatient care was not attributable to a reduction in the overall demand for behavioral health care. Although the evaluation design did not permit any inferences regarding causal links, the temporal relationship between the decrease and the implementation of EBH as the standard structure for outpatient care suggests that it played a role. A similar temporal association between EBH and reduced inpatient utilization was found at an Army post in an evaluation of the EBH pilot program in 2010 (during the peak of war activities in Iraq and Afghanistan) (5). EBH may have focused greater treatment resources on patients with PTSD and depression. During the observation period, an increasing percentage of patients with those conditions received at least four outpatient visits during the 90 days after their diagnosis. The roughly 70% rates of achievement of minimally adequate care, as defined by a standard health services definition, is far higher than has been reported previously, either in the military or the U.S. Department of Veterans Affairs (6, 7).

By the end of the observation period, all Army hospitals routinely collected clinical outcome data, a critical step toward value-based care. As of 2017, between 33% and 40% of patients with PTSD, depression, or generalized anxiety disorder achieved at least a 10-point improvement or reduced their symptom scores to a level consistent with clinical remission in the first 6 months of outpatient treatment. Few health care systems have published similar outcome data, limiting the ability to make comparisons. However, one highly regarded health system found that 40% of its patients with depression who had scores ≥10 on the nine-item Patient Health Questionnaire (PHQ-9) achieved improvement between the initial visit and follow-up (an average of 131 days later), defined as a 5-point decrease in PHQ-9 scores (8). Although the Army cohort is different from the one in that study, the evidence indicates that the care provided by Army clinics under a service line model compares favorably with national benchmarks. The clinical improvement rates for PTSD documented in this evaluation study are also highly comparable to data from randomized clinical trials of the efficacy of PTSD treatments for veterans (9).

This study had important limitations. Because the data were collected in the midst of servicewide changes to the health care system, no comparison group was available, and the strength of the data are largely limited to temporal observations and consistency across outcomes. It is impossible to definitively establish causal relationships between the implementation of the service line model and health outcomes. In addition, the decrease in pace and scale of deployments to Iraq and Afghanistan and changes in recruitment policies in the latter years of the observation period could have influenced outcomes, although outpatient utilization remained consistent during this period.

Conclusions

This evaluation of the Army's BHSL was intended to provide preliminary evidence concerning temporal and logical connections between the change to the service line model, the structural changes made by service line leaders (standardization of clinical programs), trends in service utilization (improved patient engagement in outpatient care), changes in clinical outcomes (reduced symptom burden of common conditions), and population health (decreased need for inpatient care). The Army's experience indicates that the service line model may help health care systems reduce variation between geographically distinct care delivery locations and improve total system performance. More rigorous quasi-experimental or controlled studies are needed to examine the impact of service line models of care.

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Submissions Invited for Culture & Mental Health Services Column

A new column in *Psychiatric Services,* Culture & Mental Health Services, edited by Roberto Lewis-Fernández, M.D., aims to clarify the ways that culture shapes the utilization, delivery, and organization of mental health services. Submissions may examine the influence of culture at the level of the individual seeking care (e.g., the impact of a person's cultural views of illness on treatment choice and level of engagement), the provider (e.g., the role of implicit racial-ethnic biases on service recommendations), the program (e.g., how local socioeconomic and organizational factors influence the package of services offered at a clinic), or the mental health system (e.g., how political forces affect reimbursement structures that determine availability of services). Dr. Lewis-Fernández welcomes papers that focus on aspects of culture related to interpretation (meaning making), social group identity (e.g., race-ethnicity, language, and sexual orientation), and social structures and systems. The goal of the column is to make visible the social-contextual frameworks that shape care. Papers, limited to 2,400 words, may be submitted online as columns via ScholarOne Manuscripts at mc.manuscriptcentral.com/appi-ps. The cover letter should specify that the submission is for the Culture & Mental Health Services column.