



Mental Health Service Lines and Facility Performance

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In previous issues of *Transition Watch* we reported our observations on several aspects of primary care and mental health service lines, including the history of service line implementation in the VA, and the variety of forms service lines have taken at both the facility and network level. Most recently (February 2001) we devoted an entire issue to a summary of some of the key findings from our 3-year service line evaluation study, which involved site visits, surveys, and analyses of national VA databases. Using FY 97 and FY 98 data, facilities with service lines were compared to those without service lines on a variety of quantitative outcomes related to VA performance goals in the areas of utilization, patient satisfaction, and indicators of quality.

Overall, we observed a decline in performance at facilities for a year after their adoption of service line organizational structures, possibly reflecting the turbulence associated with the implementation of change. In addition, there were no consistent, significant performance advantages at those facilities where service lines had been in place for a longer period (two years or more), suggesting that facilities do recover from the implementation of change, but service lines did not confer any particular performance advantage.

However, there were several limitations and qualifications associated with our first wave of service line analyses.

- Although generally accepted as representing VA performance goals, the particular measures used to date may not be the most sensitive to the impact of service lines.
- Using data from only two points in time limited our ability to assess the possible long-term effects of service lines.

In this article we report the results of some additional analytic work that begins to address these shortcomings. These new analyses, which look at mental health service lines, involve a different set of performance measures and utilize a more sophisticated approach to the modeling of effects over time. Under the leadership of Robert Rosenheck, MD, Director of the Northeast Program Evaluation Center (NEPEC), analyses have been conducted to examine the relation-

ship between mental health service lines at 123 VA medical centers and 20 measures derived from VA administrative databases. Included in our analysis were only those measures for which it was possible to predict the desired direction of the service line impact. The measures fell into three principal domains:

- continuity of care indicators;
- readmission rates; and
- emphasis on community-based mental health care.

Scores for these measures were computed for six points in time (FY 95-00) and were analyzed using hierarchical linear modeling (HLM). This approach permits a more refined estimation of the short and long-term impact of service line implementation than was possible in our previous round of primary care service line analyses. The prior analysis used only data from FY 97 and 98. The multiple data points used in the current analysis made it possible to examine the effects of mental health service line implementation as they unfolded over several years in comparison to facilities that had not implemented service lines. As in our earlier analyses, we controlled for potentially confounding facility and patient characteristics.

The key findings are summarized in Table 1. An up (▲) or down (▼) triangle in the "predicted (favorable effect)" column of the table indicates whether an increase (▲) or decrease (▼) in the measure was regarded as a favorable service line impact. Similar triangles are used in the three columns indicating observed significant effects to represent the actual direction of change. Solid triangles (▲ or ▼) indicate findings in the predicted direction and open triangles (△ or ▽) indicate findings opposite from the predicted direction.

Thirteen of the 20 measures had statistically significant relationships with service lines. Findings for six of these measures were in the

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predicted (favorable) direction and seven were contrary to prediction. Service lines in mental health appear to be associated with shorter length of stay for inpatients, fewer readmissions, and a smoother transition for the first six months after discharge with regard to continuity of care. In particular, six-month continuity of care was positively associated with service line implementation in both the first year post-implementation and in subsequent years. However, we also observed a decline in access-related continuity measures (e.g. variables 2, 3, 6, and 8 in Table 1), both immediately following inpatient

discharge and overall. We also observed a long-term increase in costs, particularly on the inpatient side (see variables 19 and 20 in Table 1). Overall, the number of positive impacts diminished, and the number of negative impacts increased, with the passage of time.

As compared to our previous findings, these results suggest a somewhat more positive initial impact of service lines, with six of the seven statistically significant results in the predicted (favorable) direction one year after implementation. However, the current results also indicate an increasingly negative impact with the passage of time, with four of the six significant relationships after two years, and six of the seven significant relationships after three years, in the unfavorable direction. Once again, then, the picture regarding the

Table 1. Relationship Between Mental Health Service Lines and Performance

Domain	Measure	Predicted (Favorable) Effect ¹	Observed Significant Effect ²		
			After 1 Year	After 2 Years	After 3 Years
Continuity of Care	1	Days to first outpatient stop within 6 months after discharge	▼	▼	
	2	Dropout rate (6 months with no outpatient visit)	▼	△	
	3	Any outpatient stop within 30 days after discharge	▲		▽
	4	Any medical outpatient stop within 6 months after discharge	▲		▽
	5	At least 1 psych & 1 substance abuse outpatient stop within 6 months of discharge	▲		
	6	Number of psych and substance abuse visits among those with any stops	▲		▽
	7	Number of days with outpatient stop	▲		
	8	Number of medical stops within 6 months by those with any stops	▲		▽
	9	Continuity: Bi-months with two stops after discharge	▲		
	10	Continuity: Bi-months with two stops after discharge (dual diagnosis outpatient)	▲	▲	▲
	11	Continuity: Six months	▲	▲	▲
	12	Continuity of care index	▲		
	13	Modified continuity index	▲	▲	
Readmission Rates	14	Percent readmitted within 30 days	▼		
	15	Percent readmitted within 180 days	▼	▼	
Emphasis on Community-Based Outpatient Care	16	Length of stay, general psychiatry inpatients	▼	▼	
	17	Bed days 6 months after discharge	▼		
	18	Percent of general psychiatry patients who were inpatients	▼		
	19	Inpatient as a percent of all mental health costs	▼		△
20	Per capita mental health treatment costs (inpatient and outpatient combined)	▼		△	

¹Increase ▲ Decrease ▼

²Filled arrows ▲▼ indicate a statistically significant (p<.05) favorable result (consistent with prediction); open arrows △▽ indicate a statistically significant (p<.05) unfavorable result (contrary to prediction).

Expanding Management Research in VA

Currently, VA's Health Services Research and Development Service (HSR&D) conducts relatively little management research, in contrast with substantial clinical health services research. Recognizing that evidence-based management is as important as evidence-based clinical practice in providing quality service to our veterans, HSR&D leaders are committed to expanding their investment in organizational and management research.

To support HSR&D efforts to expand its management research capacity, the HSR&D Management Decision and Research Center (MDRC) sponsored a workshop on Management Research in VA in November 2001. The target audiences were HSR&D researchers and management researchers at universities affiliated with HSR&D research centers. Several VISN and VAMC leaders attended as faculty and participants. The goals of the workshop were: to stimulate interest in conducting management research in VA; to increase and develop skills in conducting management research; and to offer opportunities for researchers to explore potential collaborations. The workshop was well attended and well received.

MDRC staff are now working on a series of follow-up activities including a web-based handbook on conducting management research, additional skill building and information exchange among researchers, and opportunities for dialogue between researchers and managers. Another meeting on Management Research was held on Friday, February 15, 2002 following the HSR&D National Meeting in Washington, DC.

If you would like more information about these initiatives, contact Martin P. Charns or Carol VanDeusen Lukas at the MDRC by calling (617) 278-4433.

impact of service lines is neither simple nor consistent.

Further analyses are underway to help clarify the findings. In particular, additional work is ongoing in two areas:

- To date, our analyses have taken a simple "presence/absence" approach to describing the state of service line implementation at any given site. The next refinement in this regard will be to differentiate between the various major types of service line structure, as well as how long a service line has existed, and to take these into account in the analytic modeling.
- Using the techniques described in this article, we will reexamine the relationship between primary care and mental health service lines and patient satisfaction.

Please take a moment and tell us how you feel about *Transition Watch* by using our Instant Feedback Site for VA Health Services Research Publications on the web at (<http://www.va.gov/resdev/prt/idp/>). Your comments and suggestions will guide us in our efforts to provide you with important HSR&D information in future issues.

In subsequent issues of *Transition Watch* we will report the results of these and other additional analyses as we continue to better understand the impact of this major VA organizational change.

Transition Watch is a quarterly publication of the Office of Research and Development's Health Services Research and Development Service. Its goal is to provide timely, accessible health care change information and resources to aid VHA managers in their planning and decision making. Summaries and analysis of ongoing survey and management studies within VHA will be included, as well as organizational change resources from within and outside VA. For more information or to provide us with your questions or suggestions, please contact:

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Coordination Improves Foot Care for Patients with Diabetes

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The evidence linking organizational factors and clinical outcomes has been growing, especially over the last five years. Building on this line of research, we have recently completed initial data collection and analysis for an HSR&D funded service-directed research project to describe facility-level variations in structural features, amputation rate, ulcer rate, and quality of clinician-provided diabetes foot care. The study approach is based on earlier work in surgical services in which VA investigators found a strong relationship between coordination among staff and risk-adjusted surgical complication rates. In this article, we have noted several practices that can improve VAMC performance for patients with diabetes.

Background

Diabetes-related foot complications inflict an enormous patient burden. Patients with diabetes and foot ulcers are at increased risk of hospitalization, infection, amputation, and death.^{1,2} Amputation has dire consequences for patients, including decreased function, lowered quality of life, and increased cost.^{3,4,5} One prospective study reported the five-year mortality rate for diabetes-related foot ulcer patients healed with major amputation was 71%.⁶ From 1989 through 1998 the total number of diabetes-related amputations did not decrease⁷; in FY99 it was estimated that 75% of all amputations performed in the VHA were on veterans with diabetes.⁸

Well-orchestrated preventive foot care may result in a significant reduction, variously estimated at between 50-85%, in diabetes-related foot complications. An American Diabetes Association review defined “preventive foot care” as a multidisciplinary care team who utilized risk assessment tools, therapeutic footwear, and patient education.⁹ These elements have been recommended components of the VA Clinical Practice Guidelines for Veterans with Diabetes Mellitus since 1997.

Coordination and Clinical Outcomes

Evidence is accumulating that demonstrates a relationship between coordination of care and patient outcomes.^{10,11,12,13,14} In an earlier project, VA investigators found significant relationships between coordination among surgeons, anesthesiologists, and nurses and

risk-adjusted post-surgical complications in VA surgical services.^{15,16,17} Building on prior research in health care and other settings, the VA investigators conceptualized coordination in terms of two major types: programming and feedback. Programming approaches depend upon pre-specifying activities to be performed and ensuring that staff have adequate training to perform the activities. Programming approaches include policies, procedures, protocols, pathways, education, and training. Feedback approaches involve the exchange of information among staff to determine the activities to be performed and responsibilities for the activities. Feedback approaches to coordination occur in discussions among individual staff, as well as in rounds, meetings, and conferences, and through supervision.

Study of Foot Care for Diabetic Patients

Using the coordination framework, we studied the systems of foot care for diabetic patients in ten VAMCs. We visited each medical center and conducted interviews with direct caregivers, administrators and support staff knowledgeable about care for diabetic patients. We also administered a staff survey and examined rates of lower extremity amputation for each site. Our findings were similar to those in VA surgical services: more coordination was related to better outcomes. In particular, sites having high levels of programming approaches to coordination had the lowest rates of major lower extremity amputations, and sites with the lowest levels of programming had the highest rates of those amputations.

In our site visits to the VAMCs, we observed a number of innovative practices that contributed to coordination, as well as other practices that detracted from it. We categorized both types of practices in terms of coordination strategy (programming or feedback), and in terms of the phase of care (screening, surveillance, or salvage) along the continuum of care. Screening involved identifying asymptomatic persons at increased risk of ulcers and amputation, while surveillance included preventive care for high-risk conditions. Salvage, the final phase of care, included ulcer, revascularization, and amputation care, as well as rehabilitation.

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In general, all sites had highly structured and coordinated processes for screening patients for foot risk factors. The importance of screening is that it should then lead to life-long surveillance of the patient at risk by the health care system. However, since there are no mandated surveillance processes to follow, as there are for screening, it is not surprising that we found much variation among the ten sites in this phase of care.

Innovative practices

Screening and referral

- Patients provided with report of risk (coordination through programming)
 - One site provided patients with an immediate report of their foot risk. Self management of foot care is an important aspect, if not the most important aspect, of a risk reduction program for lower extremity complications. Consistent with a conceptual framework of an “activated patient,” providing our veterans with information regarding their risk, as well as actions that they can take to reduce risk, is an important component of care.
- Written criteria for patient referral to specialty clinics (programming)
 - One site had a hard copy manual, and was in the process of preparing a computer template, for foot related referrals. Included in the referral criteria were guidelines to help determine whether a patient needed to be referred, recommendations for work-up of the patient based upon diagnosis prior to referral, and information regarding specialty clinics and their staff.

Surveillance

- Diabetes Registry (programming)
 - Several facilities identified patients with diabetes and provided clinicians with summaries of recent outcomes, as well as unmet process and outcomes measures for these patients prior to their appointments. While not specific for foot care, this demonstrates facility-level capacity for disease-specific registries to track and measure process and outcomes.
- Library with patient materials (programming)
 - One site had a small patient library conveniently located near the ambulatory care clinics. It

provided patients with easy access to materials highly relevant to their condition.

Areas of concern

Surveillance

- Non-foot specialist supervision of routine foot care by non-MD personnel (feedback)
 - At several sites nursing personnel performed routine foot care duties, such as callus and nail care, and minor wound care, under the direction of a non-foot specialist MD. At the least, coordination and communication regarding foot care would probably be better served by including a foot specialist in the process of care either directly, or through multidisciplinary care.
- Reactive approach to referring facilities (feedback)
 - Several sites received high-risk patients referred from other facilities for tertiary or salvage care. However, there appeared to be no proactive approach by the tertiary care facility to work with the referring facility on issues such as preventive foot care, clinical pathways, or documentation of surveillance.

Salvage

- Competing subsystems of foot care (ulcer care) (programming)
 - At one site two sections provided ulcer care. Economies of scale, as well as improved coordination, could result from a unified approach.

We also noted that mechanisms that we expected would assist in the screening and surveillance of patients with diabetes were lacking in all of the sites we visited.

- There were no high-risk foot registries, making it difficult for surveillance of high-risk patients (programming).
 - As noted previously, diabetes registries can be created, and it is possible to identify, through administrative data, veterans with high-risk feet. Without data on the population at risk, it is difficult to track process and outcomes of care, and to, therefore, manage a foot care program.
- There was no patient-level data on unmet needs or satisfaction with foot care. Once patients were referred for high-risk foot care, no systematic method existed for determining their access to or satisfaction with this care (feedback).

- Many quality improvement efforts envision that the process of care be viewed from the patient perspective. In foot care, this would include patient self-reports on access to foot care clinicians, satisfaction with footwear, and knowledge about foot care practices.
- There was no patient-level or collated provider data on the quality of or satisfaction with prescribed footwear (feedback).
 - Without systematically collected data from the patient and professional perspective, it is difficult to evaluate the quality of care except by anecdotal information.
- Clinical pathways for ulcer care did not exist at any of the sites in the study (programming).
- Written policies for off-site care and for triage also did not exist (programming).
 - Although informal policies and procedures were evident at all sites, the development of defined policies for key aspects of foot care would be a logical management approach towards standardization of care, especially for residents and new hires.

Conclusion

While recognizing the limitations of generalizing these results to the entire VHA, these findings suggest that screening, surveillance, and salvage components of foot care programs could be improved through improved coordination efforts at the facility level. We have identified both innovative practices that could be easily replicated, as well as areas of concern for facility level leadership.

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