MATHEMATICA
Policy Research, Inc.

Evaluation of the Medicaid Value Program: Health Supports for Consumers with Chronic Conditions

*Memorial Health System
Case Study*

August 14, 2007

*Erin Fries Taylor
Dominick Esposito
Kristin Andrews
Marsha Gold*

MEMORIAL HEALTHCARE SYSTEM'S HEALTH NAVIGATOR INTERVENTION

Memorial Healthcare System (Memorial) is a public non-profit healthcare provider that serves as the "safety net" facility for southern Broward County, Florida. Governed by a seven-member Board of Commissioners appointed by the governor of Florida, Memorial consists of six hospitals, numerous ancillary facilities including a nursing home, an urgent care center, a network of primary care centers, two mobile health centers, and a Center for Behavioral Health. Memorial provides health care to more than 98 percent of Medicaid beneficiaries in southern Broward County (either through its own Medicaid products or by delivering care via contract with other organizations).[1] For the Medicaid Value Program (MVP), Memorial targeted adult Medicaid beneficiaries with two or more chronic health conditions who already participate in Memorial's existing disease management program; at least one of those chronic conditions must be diabetes, asthma, congestive heart failure (CHF), hypertension or HIV/AIDS.

Memorial's MVP intervention utilized a "health navigator," a licensed social worker with a background in behavioral health. The health navigator focused on the unique psychosocial needs of patients, including food assistance, rent assistance, and referrals to behavioral health services. Whereas disease management nurses focus on the patients' medical needs, the health navigator aimed to link patients with support services that improve their social functioning. This may ultimately help patients focus more on managing their disease(s), reduce unnecessary utilization (such as avoidable hospital admissions), improve health status, and improve quality of life. To examine the impact of the intervention on these outcomes, Memorial randomly assigned disease management patients to treatment and control groups.

Although other similar models exist, there is little evidence of the impact of a health navigator-type intervention. Memorial staff reported that the need for such a navigator position was clear; for example, disease management nurses had been consistently asking for a social worker to help their patients navigate the system and work with patients on psychosocial needs.

ORGANIZATIONAL CONTEXT

Memorial provides health care services to all persons, regardless of their ability to pay, and has a long history of working with Medicaid and uninsured patients.[2] Given the complex needs of the patients it serves, Memorial has focused on disease management and preventive care for several years, which staff reported as unusual for a safety net institution. (Specifically, Memorial's disease management program began in 2000.) Memorial staff also noted the importance of overlaying social support services (through an intervention like the health navigator) on existing disease management, given the complex needs of many of its patients; and

---

[1] In addition to the Medicaid beneficiaries it serves, Memorial also serves as the health care delivery setting for the majority of privately insured patients in the community.

[2] Health care provided by Memorial to indigent patients is financed through a special taxing district created by the state legislature in 1947.

several Memorial staff members noted that the navigator intervention has strong organizational commitment from the top down.

While organizational commitment to the intervention appears stable, the structure and financing of Memorial's Medicaid care delivery is currently in flux, given recent state Medicaid reform. (While reform in Broward County was scheduled to begin in July 2006, it ultimately began several months later in fall 2006.) Prior to this reform, Memorial provided disease management to Medicaid beneficiaries through one of two programs: (1) The FAHS (Florida: A Healthy State) program, which was a disease management program provided to Florida's MediPass enrollees[3], or (2) disease management to enrollees in MHS' provider service network (PSN), which is essentially a health management organization (HMO) look-alike financed primarily through fee-for-service payment but with a shared savings component. Under Medicaid reform, however, almost all Medicaid beneficiaries in the two counties under the reform pilot are now required to receive care through either an HMO or a PSN, with the MediPass program and fee-for-service Medicaid essentially being eliminated in those two counties.[4] This has meant a major change for Memorial's Medicaid patients, given that the majority was enrolled via MediPass, rather than PSN. Fewer MediPass members than Memorial staff expected were transitioned to the PSN program; these patients instead enrolled in HMOs offered in the county (but typically still receive inpatient and ambulatory care at Memorial-affiliated settings).

Florida's reforms are intended to promote greater statewide management of Medicaid beneficiaries by plans and care delivery organizations. Moreover, given those reform efforts, it is possible that the state may move to convert Medicaid PSN programs (whose payment is still largely fee-for-service) to a risk arrangement (or capitated payment) within a few years. In that case, Memorial's (and others') incentives to control costs will be even larger.

Pfizer has played an important role historically in Memorial's disease management program. In 2002, Pfizer Health Solutions (PHS), a subsidiary of the Pfizer pharmaceutical company, formed a partnership with Florida's Agency for Healthcare Administration to improve the health of chronically ill Medicaid patients while reducing healthcare costs for the state. PHS provided a guarantee of $33 million in savings to the state of Florida.[5] As part of its involvement, Pfizer helped fund various components of disease management; in fact, Pfizer partnered directly with Memorial on this work and, until recently, financed a nurse care manager in Memorial's FAHS disease management program.[6] While Pfizer is no longer directly involved with the program, it was an important partner to Memorial in the past.

The state Medicaid office (the Florida Agency for Health Care Administration or AHCA) reportedly supported Memorial's health navigator intervention, though its involvement in the

---

[3] MediPass is a primary care case management program with fee-for-service payment from the state.

[4] A very small number of beneficiaries will be able to retain fee-for-service Medicaid.

[5] In exchange for these promised savings, the state agreed to include all of Pfizer's drugs on the state's preferred drug list.

[6] In late 2005, the state legislature decided that Pfizer's participation in the MediPass program was not legal. The state agreed to continue financing the program through state funds, however, given the savings that had accrued.

intervention remained fairly minimal throughout MVP (with AHCA staff focused on state Medicaid reform at this point). AHCA staff, however, did work with Memorial to help identify the clinical codes used for certain chronic conditions in order for Memorial to draw the intervention's target population from existing Medicaid data.[7]

Not surprisingly, Memorial also was focused on the state's major Medicaid reform efforts. The majority of its Medicaid members were enrolled through MediPass prior to state reform, and the system lost a large number of Medicaid members as a result. In light of these contextual factors, the health navigator intervention was not considered a top priority (given the resources and energy that Memorial had to devote to reform). Nonetheless, Memorial staff, including senior executives, were optimistic that the health navigator would result in important improvements in patient care, and the organization appeared committed to this work in the short term, until outcomes could be more fully assessed over a longer time frame.

PROGRAM INTERVENTION

Memorial's health navigator intervention targeted patients who were already participating in the disease management program and had at least two chronic conditions (including at least one of the following: diabetes, asthma, congestive health failure, hypertension, or HIV/AIDS).[8] The health navigator, who is bilingual, served as the primary staff person on the MVP intervention. While all patients receiving the health navigator treatment were already receiving disease management services, they may have had other needs and issues that prevented them from managing their disease. In the words of one Memorial staff member, "it's very hard to get people to monitor their blood sugar… when they don't have money for food or their electricity is going to be turned off tomorrow." The health navigator, therefore, focused on patients' psychosocial needs, so they could better focus on medical issues.

Patients were identified as eligible for the intervention through either claims data (with chronic conditions identified through *International Classification of Diseases, Ninth Revision*, or ICD-9, codes) or physician referral. Patients who met the eligibility criteria were then randomized into treatment and control groups; the treatment group received the health navigator services in addition to (existing) disease management services, and the control group received disease management services only. (Existing disease management activities were conducted primarily by telephone; in-person visits were fairly rare.) The bulk of enrollment into the intervention occurred when it first began in January 2006. At that time, approximately 110 patients were assigned to the treatment group and 50 to the control group. While new disease management patients were continuously enrolled in the intervention, only a few new Medicaid members joined the disease management program each month because Memorial's PSN caseload grew very slowly.

---

[7] Memorial only needed assistance from the state in identifying MediPass patients; it already had its own data on PSN patients.

[8] The following types of patients were excluded from the intervention: dual eligibles, those who were pregnant, those who were institutionalized, and those who had active cancer or end-stage renal disease.

After being randomly assigned to the treatment group, the patient was told by a nurse manager who handled the patient's disease management function that a social worker (the health navigator) would contact him/her. The navigator then contacted the patient over the telephone and, if possible, scheduled a home visit. (See Figure 1 for information on the flow of intervention activities.) During the home visit, which typically lasted one and one-half to two hours, the health navigator assessed the patient through a standardized patient assessment protocol that collects information on medical, social, financial, environmental, mental, and substance abuse issues.[9] The navigator then developed a care plan, which the patient signed. Depending on the patient's needs, the navigator would then connect the patient to a local food bank and social service agencies to help pay rent, provide transportation, or apply for food stamps. The navigator would also provide a mental health referral, if necessary. She may also have offered the patient education materials on nutrition and so forth. After arranging for social and mental health services, as needed, the health navigator followed up periodically, typically calling the patient twice a month.

An important aspect of the intervention was the close connection between the health navigator and the disease management nurses. The health navigator actually worked in the same physical space as the disease management nurses. They talked regularly—both through regular formal meetings and informal conversations—about their common patients. In fact, when the intervention first began and 110 patients were assigned to the treatment group, the navigator used information provided by the disease management nurses to understand which treatment group patients were most in need to help prioritize her contacting patients. The health navigator and disease management nurses also shared information through the disease management database where they all recorded notes after every patient contact or visit. According to one Memorial staff member, the disease management nurses have said, "we were a three-legged horse running a race [until the health navigator]. She is the fourth leg."

Given that the health navigator works so closely with the disease management nurses, the distinction between and delineation of roles may become less clear over time. In fact, one staff person noted that the navigator began to take on more of a clinical role over time that historically was performed by the nurses. To ensure that the navigator brings added value to the disease management program, it is probably important that the roles remain at least somewhat distinct and complementary.

PROCESS AND OUTCOME MEASURES

Memorial reported a number of process and outcome measures related to its intervention. Process measures reported for patients in the treatment group included the following, all of which are based on the disease management database and/or chart audit (see Figure 1):

- Proportion of treatment group patients who received a health navigator home visit

---

[9] This patient assessment was based in part on one used by Memorial's disease management nurses, but added several components related to psychosocial needs.

- Proportion of treatment group patients who received a health navigator home visit and had a completed psychosocial intake and depression screening

- Proportion of treatment group patients who had an individualized care plan and, if needed, referrals

- Of those given referrals, proportion of treatment group patients who complied with referrals

In addition, Memorial reported one additional process measure, which reflects the intensity of the intervention for both the treatment and control groups: the average number of telephone or in-person contacts per patient by the health navigator and disease manager combined.

The health navigator conducted home visits for approximately 70 to 80 percent of those patients in the intervention group from October 2006 to April 2007 (Table 1). (Other treatment group members were contacted but either refused directly, did not respond to scheduling requests, or could not be contacted.) Among patients receiving a home visit, the navigator always was able to complete a psychosocial intake, suggesting a strong rapport between navigator and patient and a willingness on the part of patients to provide information. By April 2007, nearly 80 percent of those with a home visit received an individualized care plan, which included items like referrals to social service agencies, completion of an application for

TABLE 1

TREATMENT GROUP PROCESS MEASURES FOR MEMORIAL'S HEALTH NAVIGATOR INTERVENTION, FIRST FIVE QUARTERS OF PROGRAM OPERATIONS
(Percentages, Unless Otherwise Noted)

	April 2006	July 2006	October 2006	January 2007	April 2007
Had a health navigator visit	42.2	63.9	73.0	77.9	76.6
Sample Size	**116**	**97**	**74**	**77**	**64**
Completed intake screen (among clients with a visit)	100.0	100.0	100.0	100.0	100.0
Sample Size	**49**	**62**	**54**	**60**	**49**
Had individualized care plan (among clients with a screen)	32.7	51.6	66.7	63.3	79.6
Sample Size	**49**	**62**	**54**	**60**	**49**
Complied with referrals (among clients with a care plan)	81.3	65.6	77.8	79.0	94.9
Sample Size	**16**	**32**	**36**	**38**	**39**

Source: Reported by Memorial on May 9, 2007.

adult day care, and referrals to a mental health provider. (The navigator then followed up with the patient at least once a month to determine if various items of the care plan have occurred.) The remaining one-fifth of patients did not have needs that required a plan or already had made the appropriate contacts with social service agencies or others. No fewer than 65 percent of clients with care plans complied with referrals in any three-month period and 95 percent had done so in the quarter ending April 2007.

In only a short period of time, the health navigator intervention was successful at increasing the number of patient contacts with Memorial staff (Table 2). On average, treatment group members had nearly twice as many contacts per quarter with either the health navigator or their disease manager compared with the control group (4.5 contacts per treatment group member versus 2.4 per control group member), suggesting that the intervention's intensity was high (especially when one accounts for the intervention's scope as evidenced by other process measures). With the health navigator intervention in place, treatment group members averaged 1.5 contacts per month while control group members averaged less than one contact per month. Since 20 percent of treatment group members never had a health navigator visit, these data suggest that mean contacts among those who took advantage of the intervention was even larger.

TABLE 2

AVERAGE NUMBER OF DISEASE MANAGER AND HEALTH NAVIGATOR CONTACTS
AMONG TREATMENT AND CONTROL GROUP MEMBERS PER QUARTER

	Treatment		Control		
	Sample Size	Average Number of Contacts	Sample Size	Average Number of Contacts	Percent Difference in Contacts
Baseline	104	1.1	36	1.1	–0.4
April 2006	116	5.8	42	3.6	60.4
July 2006	97	3.2	37	1.0	216.5
October 2006	74	3.6	29	2.2	63.5
January 2007	77	2.8	28	1.5	87.9
April 2007	64	7.2	28	3.7	95.8
Average per quarter during the intervention	86	4.5	33	2.4	85.4

Source: Reported by Memorial on May 9, 2007.

Note: The baseline period was November 2005 to January 2006.

Memorial also collected three outcome measures for both treatment and control group patients: (1) the proportion of patients who rated their satisfaction with Memorial's disease management program as either excellent or very good, based on a short satisfaction survey administered by telephone, (2) the average self-reported mental health status scores, using the SF-12 instrument, and (3) the proportion of patients with avoidable hospital admissions, based

on claims data.[10] All three of these outcome measures were reported at baseline, as well as 6 and 12 months after the intervention began.[11]

Treatment-control differences over the first 12 months of the intervention for these outcome measures were mixed. We might expect the intervention to first have had an effect on measures such as satisfaction and mental health scores, but the sample sizes at followup for these measures were small (44 and 79, respectively), making it impossible to determine if treatment-control differences are impacts or due to chance (Table 3). Nonetheless, it is noteworthy that a larger proportion of treatment group members than control group members rated Memorial's disease management program as "excellent" or "very good" in its biannual satisfaction survey (93 percent versus 86 percent). With such a small sample, the minimum detectable treatment-control difference we could detect in this measure would be about 25 percent.[12]

When measured after the first 12 months of the intervention, the treatment-control difference in average mental health status scores was small, and likely not significant (especially with such a small sample). Although the health navigator made mental health referrals for a number of patients during the intervention (and some complied), it likely takes more time for these services to result in differences in this type of measure.

The one outcome measure that might require the most time to change was the number of avoidable hospital admissions (measured per 100 patients enrolled). However, the treatment-control difference in this measure was the largest among all outcome measures. Treatment group members had more than 50 percent fewer admissions (per 100 patients) than control group members during the intervention. While this might be statistically significant, there was also a large difference in baseline values of this measure, but in the opposite direction. Due to this pre-intervention discrepancy, the small sample size, and short followup period (for this type of measure), there is not enough information to infer whether or not this difference is a true program impact or occurred by chance.

The measures collected by Memorial suggest that the health navigator was successful in implementing various components of the intervention, with strong performance on all process measures. The outcomes of the intervention, however, are much less clear and our ability to infer whether or not the intervention had effects on them is limited, at the least, by the small sample size and also by the short followup period (particularly for inpatient admissions).

---

[10] An avoidable hospitalization is defined as one in which the primary or secondary diagnosis for the hospitalization is a condition for which they are receiving disease management services.

[11] Memorial also reported the mental health status score measure at 15 months after the intervention began, but the sample size was small (54 total patients), so we do not report these data here.

[12] Estimated at 80 percent power and the 95 percent confidence level, using sample means to calculate sample variances for the treatment and control groups.

TABLE 3

OUTCOME MEASURES REPORTED BY MEMORIAL FOR THE TREATMENT
AND CONTROL GROUPS AT BASELINE AND FOLLOWUP

	Treatment		Control		
	Sample Size	Value	Sample Size	Value	Percent Difference
Percent Rating Memorial Disease Management Program as Excellent or Very Good					
Baseline	35	85.7	12	83.3	2.9
Followup	30	93.3	14	85.7	8.9
Average SF-12 Mental Health Component Score					
Baseline	125	45.4	46	46.7	–2.6
Followup	59	43.4	20	44.9	–3.3
Number of Avoidable Inpatient Admissions (per 100 Patients)					
Baseline	104	18.3	36	13.9	31.5
Followup	77	14.3	28	32.1	–55.6

Source: Reported by Memorial on May 9, 2007.

Note: The baseline period for the number of avoidable admissions measure was calendar year 2005 and the followup period is calendar year 2006. Baseline measures for the satisfaction and mental health scores were collected at the beginning of the intervention and followup measures were collected 12 months after the start of the intervention.

INTERVENTION CHALLENGES

Memorial faced a few challenges implementing its intervention. First, the intervention started several months after originally anticipated because of staffing issues and delays related to a severe hurricane season in 2005. The health navigator intervention, however, was in place by January 2006 and, despite some initial communication problems between the health navigator and disease management staff, appeared to have run without incident.

Memorial also encountered some patient resistance or lack of cooperation. Twenty percent of patients (25 of 125) who were randomly assigned to treatment formally declined to participate. Of those who did agree to participate, the health navigator conducted home visits with about 75 percent as of April 2007. Similarly, some patients who were provided a referral to a mental health provider did not comply with that referral. As one senior executive at Memorial stated, "We can walk you to the trough, but we can't make you drink."

Unfortunately, because of the state Medicaid reform efforts discussed above, many of Memorial's patients were disenrolled from MediPass/FAHS since the fall of 2006. As a result, the treatment group included about 60 patients and the control group about 30 patients as of April 2007. The smaller than expected number in the treatment group, however, allowed the health navigator to spend more time with each patient and perhaps provide a slightly more intensive intervention than originally anticipated.

CONCLUSIONS

Memorial conducted its health navigator intervention over one year, allowing a substantial amount of time to track process and short-term outcome measures. Its information technology department was supportive in both building the disease management database and reporting the process and outcome measures; as a result, Memorial was able to report measures for several quarters. Besides a slightly slower than expected start to the intervention, the primary challenge involved the small number of patients in the treatment and control groups. The dwindling numbers were due in large part to recent Medicaid reform at the state level, though some level of general churn in and out of Medicaid was also a factor. Despite the strong study design, the small samples greatly limited the ability to identify whether the intervention had an impact on treatment group outcomes compared with the control group.
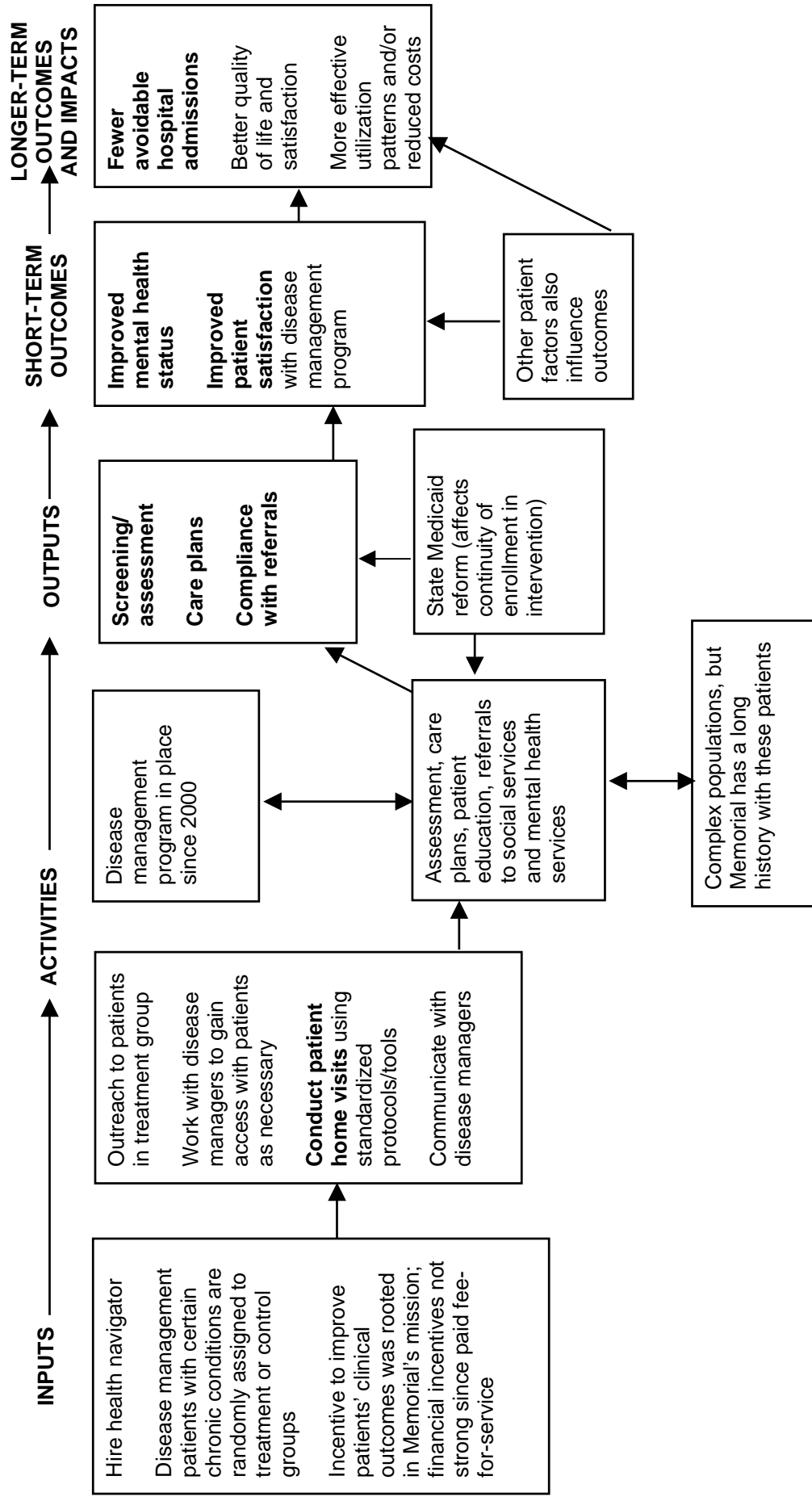
The health navigator intervention appears promising. While the intervention's effect on outcomes remains unclear, Memorial staff have a very favorable view of the health navigator. Disease management nurses and others feel that the navigator reduces burden on disease management nurses and is improving patient care. The treatment-control group difference in patient contacts seems to support this notion and is strong evidence for how well the intervention was implemented. Moreover, as several Memorial staff noted, the health navigator intervention—particularly the initial assessment and approach—was well-defined, standardized, and straightforward.

The components of the navigator intervention appear quite replicable in other settings, as long as there is a dedicated social worker with a mental health background, strong links to community resources, and tools for use during home visits (such as the PHQ-9 depression screening tool). However, if a program sponsor wants to reach more patients than this intervention, it will likely need to employ additional health navigators, as the services provided are resource intensive. In addition, in order to maximize the effectiveness of the health navigator, existing clinical staff must be willing to engage this staff member actively in the planning of patient care.

Given that staff support at Memorial is strong, sustainability appears likely in the shorter term–at least until longer-term outcomes can be more fully assessed. The prospects for longer-term sustainability, however, are much more uncertain. While it would help if the intervention showed more favorable results in terms of patient outcomes, no formal return on investment analysis is necessarily required to sustain such an intervention at Memorial. Yet even in the presence of favorable outcomes, other competing demands within the health system—financial or otherwise—could prevail and diminish the likelihood of sustainability.

FIGURE 1

LOGIC MODEL OF MEMORIAL'S HEALTH NAVIGATOR INTERVENTION

INPUTS →

Hire health navigator

Disease management patients with certain chronic conditions are randomly assigned to treatment or control groups

Incentive to improve patients' clinical outcomes was rooted in Memorial's mission; financial incentives not strong since paid fee-for-service

ACTIVITIES →

Outreach to patients in treatment group

Work with disease managers to gain access with patients as necessary

Conduct patient home visits using standardized protocols/tools

Communicate with disease managers

Disease management program in place since 2000

Assessment, care plans, patient education, referrals to social services and mental health services

Complex populations, but Memorial has a long history with these patients

OUTPUTS →

Screening/ assessment

Care plans

Compliance with referrals

State Medicaid reform (affects continuity of enrollment in intervention)

SHORT-TERM OUTCOMES

Improved mental health status

Improved patient satisfaction with disease management program

Other patient factors also influence outcomes

LONGER-TERM OUTCOMES AND IMPACTS

Fewer avoidable hospital admissions

Better quality of life and satisfaction

More effective utilization patterns and/or reduced costs

Note: **Bold** indicates reported process and outcome measures.

10