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The Early Experience of the CenVaNet Case Management Program

Final Report

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EXECUTIVE SUMMARY

In January 2001, the Centers for Medicare & Medicaid Services (CMS) selected CenVaNet to operate a demonstration care coordination program as part of CMS's Medicare Coordinated Care Demonstration. Mathematica Policy Research, Inc. (MPR) is evaluating the 15 programs in the demonstration, as well as one program that is participating in CMS's Medicare Case Management Demonstration for Congestive Heart Failure and Diabetes Mellitus. The evaluation uses a randomized design to test the impact of care coordination on care quality, health service use, and health service costs. This case study documents CenVaNet's early experiences in the demonstration; the documentation is based on telephone interviews with program staff conducted three months after the program began enrolling patients. Another site-specific report containing preliminary program impacts and a detailed description of program implementation is planned for fall 2003.

Experience with Care Coordination. CenVaNet, located in Richmond, Virginia, is owned jointly by the Central Virginia Health Network, which consists of 11 not-for-profit hospitals, and a group of 350 physician-investors. CenVaNet was established in 1996 as a managed care risk contractor, but its focus has shifted to providing care management services. CenVaNet developed the prototype intervention for the demonstration while under contract with CIGNA for Seniors, a Medicare+Choice managed care plan. Between 1997 and 2000, when it was discontinued, the prototype program provided network and care management services to approximately 1,000 patients with congestive heart failure (CHF), chronic obstructive pulmonary disease, or diabetes. CenVaNet modified the prototype program for the demonstration by altering the processes it used to identify, recruit, enroll, and communicate with patients. The demonstration program also has enrolled a broader group of patients.

Goals and Eligibility Criteria. The CenVaNet program's goals are to (1) improve beneficiary education and adherence, and (2) improve communication and coordination between patients and physicians. The program targets patients in the Richmond, Virginia, metropolitan area who have CHF; ischemic, hypertensive, or other heart disease; cerebrovascular disease; diabetes; or chronic lung disease. Patients must be at moderate or high risk for health-related resource consumption, as determined by the PraPlus™ screening questionnaire. They must have Medicare Parts A and B, must have Medicare as their primary payer, and must not be in managed care. The program excludes patients who are younger than age 65; have HIV, end-stage renal disease, or a major mental disorder; or are candidates for organ transplant. Waiver cost estimates suggest the program will save Medicare $4,473,304 over the four-year study period, assuming a 20 percent reduction in Medicare costs and an enrollment of 614 treatment group patients.

Outreach and Enrollment. The primary mode of patient identification is to have the physicians in the Central Virginia Health Network provide the program with lists of patients who have the eligible diagnoses. The program asks the physicians to exclude any patient deemed to be inappropriate. It then mails prospective participants a letter on their physician's letterhead, after which program staff contact them by telephone to explain the study, and to ask them to participate. During the call, program staff also administer the PraPlus survey to determine the

patient's level of risk. Patients must be at moderate to high risk to be eligible for the study. The program began enrolling patients in April 2002. After three months, it had enrolled 423 patients (214 in the treatment group and 209 in the control group) and was on track toward meeting its enrollment target of 1,000 patients by April 2003.

Key Program Staff Members. The key program staff members are the project director, project manager, care management supervisor, medical director, finance director, and the care managers. The medical director, who is a geriatrician, chairs CenVaNet's medical management committee and provides medical oversight for all care management activities. The project manager, CenVaNet's vice president of medical management, has several years of nursing experience and has managed care experience in utilization review, care management, and quality improvement. CenVaNet's manager of care management, who also has several years of nursing and care management experience, is referred to in this report as the care management supervisor. The program has both full-time and part-time care managers, all of whom are registered nurses or social workers. It also has employed several part-time nurses on a temporary basis to help with patient recruitment.

Care Coordination Components. The CenVaNet intervention includes assessment, care planning, and monitoring; patient education; arrangement of receipt of services and resources; and communication across providers. Patients will remain in the program until the end of the four-year study.   All patients receive a comprehensive in-home assessment covering their medical history and current health, medications, end-of-life planning, financial and social issues, functional status, in-home safety, psychosocial status, wellness, transportation issues, patient supports, and patient education needs. Using disease-specific lists of standard problems and interventions, care managers develop care plans tailored to each patient that set out individualized goals concerning treatment adherence and lifestyle changes, and that include a timetable for meeting those goals. Care managers use information obtained during the initial assessment and their own clinical judgment to assign patients to an acuity level that determines the frequency of follow-up monitoring. The highest-risk patients (Level IV) are contacted at least weekly, and more frequently, if necessary. Patients at the next-highest level of risk (Level III) are contacted on a weekly or biweekly basis. Moderate-risk patients (Level II) are contacted biweekly to monthly. The lowest-risk patients (Level I) are contacted at least monthly.

Patient Education and Coordination Across Providers. During the initial assessment, care managers identify any need for patient education. Patient education, which is incorporated into the care plan's goals, focuses on improving self-care skills and adherence to recommended treatment regimens, disease etiology and symptoms, and the relationship between patient behaviors and symptoms. Care managers also are responsible for communicating with the patient's providers (particularly the primary care physician) about the patient's progress toward meeting his or her goals. In addition, care managers ensure that events (such as diagnostic testing) occur at the appropriate time and in the proper order, and that information (such as the results of a test) is available at the time of the patient's visits to the physician. Care managers encourage patients who are capable of doing so to communicate with their physicians, and to arrange for their own care.

Arranging Services. Although service arrangement is not a major focus, the program provides or arranges (but does not pay) for a wide variety of services and resources. Scales, pill boxes, and peak flow meters are provided at the program's expense to patients who cannot afford

them. The program has developed an extensive reference manual that care managers use to identify community services for patients.

Physicians' Expected Role. Program staff expect that physicians will (1) refer their patients to the program, and (2) be responsive to care managers' requests for information and assistance. Physicians in the Central Virginia Health Network already are familiar with CenVaNet's role as a provider of care management services. Program staff are realistic about the level of physician involvement they can expect, and they have been careful not to make too many demands. It appears that the program does not expect physicians to be very active partners in the care management process; rather, the program's main requirement is that physicians answer direct questions from the care manager.

Data Systems. The program uses Pfizer Health Solutions' InformaCare™, an Internet-based disease management software product, for all its care management activities. InformaCare contains data from assessments and care plans, as well as ongoing patient notes. The system stores data in discrete data fields, making it easy to generate reports for monitoring patient outcomes or care manager activities.

Early Implementation Experience. Health service delivery demonstration programs such as the ones in this evaluation typically encounter barriers to early implementation. Barriers may include lower-than-expected enrollment; opposition from physicians; difficulty hiring qualified staff or obtaining space and equipment (including higher-than-expected labor, rent, or equipment costs); and difficulty developing a data collection system that can monitor patients and program activities efficiently. CenVaNet has experienced few problems during its initial months of operation. It has been particularly successful in patient enrollment, as it has identified and enrolled a large number of patients and was on track at the time of our call to meet its enrollment target. However, success with enrollment has resulted in significant delays in moving prospective patients through the enrollment process. Program staff had not anticipated how time-consuming the patient recruitment process would be. The program is using part-time, temporary nurses and other care management staff to make recruitment telephone calls. In July 2002, the program scheduled a hiatus in patient enrollment so that the care managers could catch up on the backlog of initial assessments.

Problems Related to Evaluation Activities. Demonstration programs also commonly encounter early problems related to difficulty providing program data required for the evaluation or contamination of the control group. CenVaNet's staff reported that they had little difficulty providing data for the evaluation describing disenrollment, care manager contacts with patients, and services paid for by the program. There is some potential for control group contamination related to a care coordination program for patients after their discharge from the hospital that CenVaNet operates through a Kellogg Foundation grant. However, program staff believe that the patient populations for this demonstration and the Kellogg program are sufficiently different that contamination will not be an issue. In any event, CenVaNet's information system is capable of identifying any control group patients who enter that program.

Early Successes. CenVaNet's demonstration program contains many features associated with successful care coordination programs. For example, a computerized care management information system is used to record all patient data and to track patient contacts. The care management process itself includes important elements, such as organized initial patient

assessments, ongoing care planning, frequent and structured followup with patients and physicians, and patient education. All of the care managers have significant community nursing experience, and several are certified care managers. In addition, there are two part-time social workers on the staff. This program structure, along with the staff's previous care management experience, should enable CenVaNet to address any difficulties it may encounter.   The program's management team has developed strong relationships with community physicians that facilitate interactions between care managers and physicians. During its first three months of operation, the staff have successfully implemented their program, and they are well on their way toward meeting their patient enrollment targets.

CENVANET CASE STUDY

CenVaNet is 1 of 15 care coordination programs participating in the Medicare Coordinated Care Demonstration. The demonstration, sponsored by the Centers for Medicare & Medicaid Services (CMS) and mandated by the Balanced Budget Act of 1997, tests a wide range of care coordination models for Medicare fee-for-service beneficiaries. Mathematica Policy Research, Inc. (MPR) is evaluating the 15 programs in this demonstration, as well as a program participating in CMS's Medicare Case Management Demonstration for Congestive Heart Failure and Diabetes Mellitus. The evaluation of these programs uses a randomized design to test the impact of care coordination on care quality, health service use, and costs. It includes an implementation analysis to assess which features appear to lead to the success or failure of each program.

This brief case study report describes the early experiences of CenVaNet's demonstration program, which it calls the "Medicare Coordinated Care Demonstration Project." The CenVaNet demonstration began enrolling patients for evaluation in April 2002. This report is based on telephone interviews, using semistructured interview protocols, conducted in July 2002 with CenVaNet staff members. The report begins by describing the history of CenVaNet's demonstration program. It then discusses how the demonstration program relates to CenVaNet as a whole and provides an overview of the key features of the intervention. It concludes by highlighting some early program successes.

Subsequent reports will describe program implementation in greater detail, using information collected during in-depth, in-person interviews and a second set of telephone interviews with program staff. Ultimately, we will synthesize the findings from the implementation analysis with the findings from the impact analysis to assess the strengths and

weaknesses of each program, as well as to determine which features appear to be associated with each program's success or failure. This report does *not* make such an assessment, as it too early to estimate program impacts.

Program Context

CenVaNet, located in Richmond, Virginia, is owned jointly by the Central Virginia Health Network, which consists of 11 not-for-profit hospitals, and a group of 350 physician-investors. CenVaNet was established in 1996 as a managed care risk contractor, but its focus has shifted to providing care management services. CenVaNet now markets its services to employers, hospitals, physician practices, and pharmaceutical companies.

Intervention History. The prototype intervention for CenVaNet's demonstration was developed in 1997, when CenVaNet contracted with CIGNA for Seniors, a Medicare+Choice managed care plan, to provide care management and network services (Table 1).[1] The care management intervention, developed by CenVaNet staff, was based on national guidelines. The program enrolled patients with congestive heart failure (CHF), chronic obstructive pulmonary disease, and diabetes. Approximately 1,000 patients received care management services between 1997, when the prototype program began operations, and 2000, when CIGNA decided to terminate its care coordination benefit. The prototype received positive feedback from CIGNA, providers, and patients. In addition, the network services component of the prototype raised physician awareness and acceptance of CenVaNet's care management program. However, the impact of the prototype program was never evaluated formally.

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[1]Network services included physician recruitment, communication and education programs, and regular visits to physician offices.

TABLE 1

PROGRAM HISTORY

Intervention Developer

- CenVaNet

Original Intervention Context and Target Population

- Care coordination intervention developed under a contract with CIGNA for Seniors, a Medicare+Choice managed care plan

- Targeted patients with congestive heart failure, chronic obstructive pulmonary disease, or diabetes

- Enrolled 1,000 patients between 1997 and 2000

Original Intervention and Adaptations for Demonstration

- Disease management and care management features

- Nurse and social worker care managers conducted patient assessment, care planning, monitoring, patient education, and service arrangement

- Increased the number of diseases targeted for the demonstration

- Developed a process to identify and recruit patients in the fee-for-service environment

- Eliminated utilization review component

- Incorporated the use of an in-home monitoring device for some patients

Effectiveness of Original Intervention

- Community physicians became familiar with CenVaNet's administrative staff and with some care managers through their participation in the prototype program

- Program staff received positive feedback from patients and providers

- Not formally evaluated

SOURCE: Telephone interviews with CenVaNet program staff conducted in July 2002 and review of program documents.

CenVaNet modified the prototype care management program for the CMS demonstration in several ways. To better serve the spectrum of individuals with chronic illness, it expanded its target population to include patients with ischemic and other types of heart disease, as well as patients with cerebrovascular disease. Because it no longer had access to CIGNA's administrative databases, it also developed new processes to identify potential patients. Similarly, it developed its own strategies for patient recruitment because it no longer could rely on the endorsement of its patients' insurers to promote its program. In addition, CenVaNet no longer was able to monitor patients in "real time." For example, under the CIGNA contract, program staff were notified immediately about a patient's hospitalization or emergency room visit. As of the time of MPR's interviews with CenVaNet staff, CenVaNet's care managers had been asking patients or their family members to call them when they are admitted to the hospital or have an emergency room visit.

CenVaNet decided to participate in the CMS demonstration to achieve two goals. It wanted to adapt its care management model to a traditional Medicare fee-for-service population, and it wanted to provide evidence that care management could reduce costs while maintaining or improving patient health.

Relationship Among Program, Host Organization, and Providers. CenVaNet is the host for the demonstration program. It offers care management services to several clients and, for the purpose of the demonstration, considers CMS as one of these clients.

The program staff consists of a project director, project manager, care management supervisor, medical director, finance director, and the care coordinators (called "care managers" in this program). All of these staff are employed by CenVaNet, and all of them work from CenVaNet's offices, in Richmond. Some staff, such as the care management supervisor, and most of the care managers, work full time on the demonstration; others, such as the project

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director, medical director, and finance director, spend only a portion of their time performing demonstration activities. At three months after the start of enrollment, five care managers worked full time on the demonstration, one care manager worked part time on it, and the care management supervisor divided her time between supervising the care managers and managing her own caseload.

CenVaNet has a very close relationship with the physicians who recruit patients for the demonstration. All of these physicians are affiliated with the hospitals of the Central Virginia Health Network, which are part owners of CenVaNet. In addition, the physician leadership of the Central Virginia Health Network was highly supportive of CenVaNet's application to become a demonstration site and has conveyed this enthusiasm to its members. Physicians have responded by allowing the demonstration staff to work with their office staff to identify patients for the demonstration. They also have permitted the demonstration to send patient recruitment letters on their letterhead.

CenVaNet has worked for several years to maintain its relationship with the network's physicians, many of whom cared for patients enrolled in the prototype care management program. That involvement enabled the physicians to become familiar with CenVaNet's approach to care management, and to develop relationships with many of the program's current care managers. CenVaNet's network management staff continue to foster relationships with the network's physicians for the demonstration, as well as for projects with other clients. In addition, regular communication strengthens CenVaNet's relationships with the network's physicians. In the demonstration, the care managers contact physicians by telephone or in person if a patient has an urgent problem. However, if a patient is making progress and is not having any problems, they send the physician a written progress report every six months.

Service Environment. According to program staff, the greater Richmond area's service environment does not have any unusual features. Like most of the country, it has a shortage of nurses, but the shortage seems to have had a greater effect on hospitals than on the program. Because qualifications for care managers are different than for hospital nurses, the labor pool for the program differs and the program had no difficulty hiring additional care managers. Community services and resources are readily available in the city of Richmond but are harder to find in the more rural parts of the program's service area. CenVaNet has responded to this problem by developing an extensive list of community resources, and by having a social worker on the care management staff.

The area has only a few other disease management and care coordination programs. A large cardiology practice operates a CHF clinic with a disease management component but despite some similarities to CenVaNet's program, its emphasis is on medication management. The local Area Agency on Aging operates a fee-for-service care management program, but CenVaNet's staff reported that the program is not integrated with physicians, and that its main focus is on delivering social services. CenVaNet itself runs a fee-for-service care management program, called "Care Partners," but it currently has only two clients and does not compete for demonstration patients. In addition, CenVaNet has received a grant from the W.K. Kellogg Foundation to provide care management to patients recently discharged from Bon Secours-Richmond Community Hospital. Although current Kellogg program patients will be precluded from enrolling in the demonstration program, demonstration control group members subsequently could receive care from the Kellogg program following demonstration enrollment.[2] The program will be able to identify control group patients who enroll in the Kellogg program.

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[2]The Kellogg grant program is open to all age groups and to individuals hospitalized for any of a variety of medical and surgical diagnoses.

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Key Program Features

Program Goals and Expected Savings. The broad goals of CenVaNet's demonstration program are to (1) improve beneficiary education and adherence, and (2) improve communication and coordination among patients and physicians (Table 2). The program would like to show that it can adapt the care management model it developed for chronically ill beneficiaries in managed care to serve patients in traditional fee-for-service Medicare. In addition, specific desired outcomes for patients include improving understanding about and self-management of illnesses, reducing polypharmacy, and enhancing quality of life and functional status. Ultimately, the program staff would like patients to be able to manage their own care, independent of the care managers. Outcomes for physicians include developing a better understanding of care management and developing an understanding of the similarity between care management's goals and the physician's own goals for patients. Although program staff believe that most physicians in the program's service area practice in accordance with national practice guidelines, they also believe that the physicians are not completely familiar with either the benefits of care management or the ability of care managers to help patients outside the physician's office.

CMS is paying CenVaNet $145 per patient for the initial month of care coordination and $80 per patient per month thereafter. Waiver cost calculations for all the demonstration programs assume that each program will reduce Medicare costs by 20 percent. According to these calculations, CenVaNet will save Medicare an average of $195 per patient per month or approximately $4,473,304 over the four-year life of the demonstration, net of the demonstration's costs (other than start-up and evaluation costs) (Table 2). These calculations assume that 614 beneficiaries will be randomly assigned to the treatment group over the four-year demonstration period with replacements for patients who leave the program.

TABLE 2

PROGRAM GOALS AND DESIRED OUTCOMES

Program Goals

- Improve beneficiary education and adherence

- Improve communication and coordination among patients and physicians

Outcomes for Patients

- Enhance understanding of their illness

- Improve self management of condition, with decreasing reliance on the care manager

- Improve quality of life and functional status

- Reduce hospitalizations

Outcome for Health Service Delivery System

- Provide evidence that care management improves health and reduces health care costs for chronically ill fee-for-service Medicare beneficiaries

Outcomes for Providers

- Improve understanding of care management

Program Payment and Net Savings for Medicare

- Program fee of $145 per patient for the first month, and $80 per patient per month thereafter

- Average net savings to Medicare of $195 per patient per month, or $4,473,304 over the four-year life of the demonstration, assuming a 20 percent reduction in Medicare costs and an enrollment of 614 treatment group patients[a]

SOURCE: Telephone interviews with CenVaNet program staff conducted in July 2002 and review of program documents.

[a]The target of 614 treatment group patients assumes that enrollment would continue over the four-year demonstration period with replacements for patients who leave the program.

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Target Population and Outreach. CenVaNet's program targets patients in the greater Richmond, Virginia, area who have CHF; ischemic, hypertensive, or other heart disease; cerebrovascular disease, diabetes, or chronic lung disease. Patients must be at moderate or high risk for health-related resource consumption as determined by the PraPlus™ screening questionnaire. CenVaNet chose this target population because it believes that controlling the high cost of care for the target conditions would provide the greatest program impacts, and because it had experience serving this population under its previous contract with CIGNA. As with all the Medicare Coordinated Care Demonstration programs, CenVaNet enrollees must have Medicare Parts A and B, must have Medicare as their primary payer, and must not be in managed care (Table 3). CenVaNet excludes patients who are younger than age 65; have HIV, end stage renal disease, or a major mental disorder; or are transplant candidates.

To identify patients, the program uses lists of patients who have the appropriate diagnoses that are generated from the medical records systems of physicians in the Central Virginia Health Network. Program staff help the physicians' office staff to generate the patient lists. They then ask the physicians to review the lists, and to delete the names of all patients deemed inappropriate for the program. CenVaNet then sends letters to patients who are potential program participants on the physicians' letterhead and signed by the physicians. CenVaNet began patient recruitment in the largest of the network's cardiology practices (to identify patients with CHF and other types of heart disease) and ophthalmology practices (to identify patients with diabetes). Additional physician offices have been contacted as recruitment has progressed.

After the letters have been sent out, program staff contact potential participants by telephone to explain the study, and to administer the PraPlus survey, which is used to verify eligibility and determine health risk. Patients must be at moderate to high risk for significant health-related resource use to be eligible for the study. Program staff schedule an in-home visit with eligible

TABLE 3

TARGET POPULATION AND OUTREACH

Eligibility Inclusion Criteria	Resides in the greater Richmond, Virginia, area Medicare as primary payer Medicare Parts A and B PraPlus™ risk score of moderate or high[a]
Disease-Specific Inclusion Criteria	Diagnosis of congestive heart failure; ischemic, hypertensive, or other heart disease; cerebrovascular disease; diabetes; or chronic lung disease
Eligibility Exclusion Criteria	Younger than age 65 HIV, end-stage renal disease, or major mental disorder Organ transplant recipient or transplant candidate Enrolled in a Medicare+Choice health plan
Outreach and Referral Procedures	Solicit referrals from physicians affiliated with Central Virginia Health Network hospitals[b] No direct marketing to patients
Enrollment	
Goal	500 treatment group and 500 control group members enrolled by April 2003
Number enrolled after three months	214 treatment group and 209 control group members enrolled by July 7, 2002
Problems with Eligibility Criteria or Enrollment Shortfalls	No problems reported

SOURCE: Telephone interviews with CenVaNet program staff conducted in July 2002 and review of program documents.

[a]The PraPlus™, a 17-item screening questionnaire, identifies elderly people at high risk for future use of health care services. The items include self-rating of health status, presence of certain chronic illnesses, indicators of physical functioning, and use of health services during the previous year. The PraPlus™ score has been shown to be a valid predictor of utilization (Pacula, Boult, Reed, and Aliberti 1997).

[b]Enrolled patients who switch to a physician who is not affiliated with a Central Virginia Health Network hospital are permitted to remain in the demonstration program.

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patients to obtain informed consent. MPR randomly assigns consenting patients to the treatment group, in which they receive care coordination services in addition to the usual Medicare-covered services, or to the control group, in which they continue receiving the usual Medicare-covered services. The program does not market itself directly to patients.

At the time of the interview, CenVaNet had enrolled 423 patients (214 treatment group and 209 control group patients), and it was on track toward meeting its enrollment target of 1,000 patients (500 patients per group) within the first year of the study. This rate of enrollment is approximately what the program had expected. The program is tracking the rate of enrollment by both physician group and diagnostic group and believes that it is attracting a good mix of patients.

CenVaNet's success in patient recruitment probably is due largely to its close relationship with the physicians in the Central Virginia Health Network. Because the physicians are affiliated with the hospitals that are part owners of CenVaNet, they have a financial stake in demonstrating the effectiveness of care management. In addition, the program staff's considerable advance work to encourage physician participation may have increased the likelihood of participation relative to participation of physicians in demonstration programs that did not engage in this up-front work.

Key Program Staff Members and Their Responsibilities. As noted, the staff key for the intervention include the project director, project manager, care management supervisor, medical director, finance director, and the care managers. The medical director, a geriatrician, chairs CenVaNet's medical management committee and provides medical oversight for all care management activities.   His program responsibilities include attending biweekly care management conferences and monthly staff meetings, researching changes in clinical practice

guidelines, and reviewing the initial assessments of all newly enrolled patients to identify

deviations in their care from clinical practice guidelines. In addition:

- The project manager is CenVaNet's vice president of medical management, as well as a registered nurse with 11 years of nursing experience and managed care experience in utilization review, care management, and quality improvement. She developed CenVaNet's care management infrastructure and is responsible for ensuring that the intervention is provided as planned, that enrollment goals are met, and that there is sufficient administrative support to accomplish the program's objectives.

- The care management supervisor is CenVaNet's manager of care management. She is a registered nurse and certified case manager with five years of nursing experience in mental health care management and acute care. She is responsible for supervising and training the care managers, reporting program data, and helping the care managers to solve problems. She spends half her time conducting care management for patients.

- At the time of the interview, the program had five full-time care managers and one part-time care manager.[3] All of the full-time care managers are registered nurses; one of them has an M.S.N. and two are certified care managers. The part-time care manager has an M.S.W. The program also employs another nurse who staffs CenVaNet's Wellness Line. This nurse provide services for both demonstration patients and other CenVaNet care management patients. All of the care managers are responsible for implementing the program intervention (discussed in more detail in the next section).

The care management supervisor trained the care managers in how to arrange services,

conduct patient monitoring, and use InformaCare, the program's care management information

system, to document their work. She meets with the care managers weekly to discuss the

management of patients with complex care needs; evaluate program effectiveness; and provide

care management education, in-service training, and staff development.

The program plans to have a ratio at full enrollment of 1 care manager for every 60 patients,

or 8 full-time care managers for the 500 treatment group patients. The program chose this ratio

on the basis of its previous care management experience. With an enrollment of 214 treatment

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[3]CenVaNet used two other part-time staff (a nurse and a social worker) to help make patient recruitment telephone calls.

group patients three months after its start and the equivalent of 5.5 full-time care managers, however, the ratio is approximately 1 to 40, fewer patients per care manager than the program believes would be most cost-effective.[4]

Care Coordination Components. The CenVaNet intervention includes core care management functions (assessment, care planning, and monitoring), patient education, arrangement of services and resources, and communication with providers (Table 4). Each of these components has been associated with effective care coordination efforts (see, for example, Chen et al. 2000). Patients will remain in the program until the end of the four-year study, and no patients will be enrolled during its last six months. Thus, patients will receive care management for between 6 and 48 months, depending on when they enroll. Care managers are assigned to patients geographically, so each care manager generally works with patients concentrated among a few physicians' offices.

Assessment. Care management for all patients begins with a comprehensive assessment to determine their needs. The assessment covers medical history and current health, medications, end-of-life planning, financial and social issues, functional status, in-home safety, psychosocial status, wellness, transportation issues, patient supports, patient education needs, and other areas. The care managers conduct the assessment in person, in the patient's home. They document the results of the assessment on paper and then enter them into InformaCare. The intervention has no formal reassessment process, although care managers reassess patients informally at each follow-up contact and after major events, such as hospitalizations. Updated patient information is entered into InformaCare after each patient contact.

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[4]Rather than carry an independent caseload, the social worker care manager co-managers patients with a nurse care manager.

TABLE 4

MAJOR PROGRAM COMPONENTS

Component[a]	Provided?	Description
Assessment	Yes	All assessments are conducted in person, in the patient's home
		Results documented on paper forms and entered into InformaCare™, a care management information system
		Covers: 　Medical history 　Current medical status 　Medications 　End-of-life planning 　Financial and social status 　In-home safety 　Psychosocial status 　Wellness issues and preventive care 　Transportation issues 　Patient supports 　Functional status 　Educational needs
		No formal reassessment; care managers conduct informal reassessment during each patient contact
Care Planning	Yes	Assessment results used to identify problems to be addressed by care plan
		Sets dates for accomplishment of goals
		Patients' physicians neither help to develop nor review care plan
		Documented in InformaCare
Ongoing Monitoring and Evaluation	Yes	Care managers contact highest-acuity patients at least weekly, or more frequently, if necessary; high- to moderate-acuity patients weekly or biweekly; moderate-acuity patients biweekly to monthly; and low-acuity patients at least monthly
		Care managers provide patient education and assess patient progress during contacts
		In-home monitoring technology is used by some patients.
Patient Education	Yes	Patient education booklets are used.

Table 4 *(continued)*

Component[a]	Provided?	Description
		Care managers provide structured, individualized education during contacts with patients.
Provider Education	No	Providers receive information only about care coordination program.
		Communication about care of individual patients is informal.
Service and Resource Arrangement or Provision	Yes	Care managers arrange for a wide variety of services and resources.
		Program pays only for scales, pill boxes, and peak flow meters[b]
		Services arranged for/referred to include:
		Medicare-covered services: - Durable medical equipment - Home health
		Community-based services: - Adult day care - Transportation - Personal care/homemaking - Meals and/or food sources - Dental services - Housing, including homeless services - Mental health - Spiritual care
		Care managers assist with application for medication assistance programs or other public programs.
Facilitating Communication Across Providers	Yes	Care managers encourage patients to communicate with their providers but interact with all providers, as necessary.

SOURCE: Telephone interviews with CenVaNet program staff conducted in July 2002 and review of program documents.

[a]Based on recommendations for successful care coordination interventions by Chen et al. (2000).

[b]For patients who cannot afford to pay.

According to data that the program prepared for the evaluation in August 2002, by the end of June, care managers had assessed 128 of the 198 treatment group patients who were enrolled between April and June of 2002 (Table 5). The program's policy is to complete a patient's initial assessment within two weeks of random assignment. However, according to the program data, the care managers conducted almost 75 percent of these assessments more than two weeks after patients were randomly assigned to the treatment group; five percent were conducted within one week of random assignment, and 21 percent between one and two weeks of random assignment. The difference between the actual and expected time to completion of the assessments may reflect a backlog of patients who had been waiting to be assessed during the program's initial months.[5]

Care Planning. The care managers use the results of the initial assessment to develop care plans tailored to each patient. The plans lay out personalized goals concerning treatment adherence and lifestyle changes, provide a timetable for meeting those goals, and include disease-specific lists of standard nursing diagnoses and interventions. A care plan is mutually agreed on by the care manager, patient, and family or caregiver. The patient's physician receives a copy of the plan but is not expected to provide feedback on it. Program staff believe physicians would prefer to leave this task to the care managers and patients. The care plan is documented in InformaCare.

Monitoring. The care managers use the information obtained from the initial assessment and their own clinical judgment to assign patients to an acuity level that determines the frequency of follow-up monitoring. They contact the highest-acuity patients (Level IV) weekly (or more frequently, if necessary), Level III patients weekly or biweekly, Level II patients

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[5]The program's care managers had addressed the backlog of assessments within six months of the start of program enrollment.

TABLE 5

CARE COORDINATOR CONTACTS WITH PATIENTS
BETWEEN APRIL AND JUNE 2002

Number of Patients Enrolled[a]	198
Number of Patients with at Least One Care Manager Contact	128
Total Number of Contacts for All Patients	363
Number of Care Managers Contacting Patients	8[b]
Number of Patients in Contact with More than One Care Manager	11
Among Patients with at Least One Contact:	
Percentage of contacts care manager initiated	94.8
Percentage of contacts:	
At patient's residence	48.5
By telephone	51.5
In person, elsewhere	0.0
Of all Patients Enrolled, Percentage with Assessment Contact	63.6
Among Patients with an Assessment, Percentage Whose First Assessment Contact Was:	
Within one week of random assignment	4.8
Between one and two weeks of random assignment	20.6
More than two weeks after random assignment	74.6
Of All Patients Enrolled, Percentage with Contacts to:	
Identify need for non-Medicare service	16.7
Identify need for Medicare service	7.1
Provide disease-specific or self-care education	59.6
Explain tests or procedures	20.2
Explain medications	38.9
Perform routine patient monitoring	28.3
Monitor services	4.0
Monitor abnormal results	6.1
Provide emotional support	6.6
Average Number of Patients Contacted per Care Manager	16.0
Average Number of Patient Contacts per Care Manager	45.4

SOURCE: CenVaNet program data received August 15, 2002.

[a]Number of patients enrolled in the treatment group as of June 30, 2002.

[b]Includes the six full and part-time care managers, the care management supervisor, and the project manager.

biweekly or monthly, and the lowest-acuity patients (Level I) monthly. InformaCare generates patient-contact reminders for the care managers. Because InformaCare is Internet-based, patients can log onto the system to communicate directly with their care manager.[6] During the monitoring contacts, care managers conduct patient education, reassess the patient's status, and evaluate the patient's progress toward meeting the goals of the care plan.

CenVaNet recently decided to use an in-home monitoring device, the "Health Buddy," to conduct follow-up monitoring of some patients. The program has designed a study-within-a-study to examine the added benefits of daily monitoring on a patient's motivation to perform self-care. In this substudy, eligible treatment group patients (those who have CHF or diabetes; a sixth to eighth grade reading level; sufficient visual acuity; and a land-based telephone line) are randomly assigned to receive either care management plus the Health Buddy or care management alone. Every day, patients assigned to the Health Buddy group answer a series of questions about their health and symptoms by pressing buttons on the Health Buddy device. The data are transmitted to the care managers, who can quickly follow up if a patient reports a problem or has abnormal weight or blood sugar level readings.[7]

Patient Education. Patient education focuses on improving self-care skills and adherence to recommended treatment regimens, understanding disease etiology and symptoms, and understanding the relationship between patient behaviors and symptoms. During the initial assessment, care managers determine patients needs for education and then incorporate education goals into the care plans. The care managers rely on disease-specific patient education booklets to guide the pace at which they provide information.

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[6]The care managers reported that only a small number of patients, perhaps 20, have used InformaCare in this way.

[7]As of February 2003, 74 treatment group patients had been given a Health Buddy device.

Provider Practice. Changing provider practice is not one of CenVaNet's goals, as most physicians in the area already practice in accordance with clinical practice guidelines. For example, the rates of prescription of angiotensin converting enzyme inhibitors and of beta blockers indicate that physicians are aware of current recommendations for the treatment of CHF. However, their adherence to diabetes management guidelines, particularly for retinal eye examination and testing for proteinuria, may be less consistent. Instead of including a formal physician education component, the program staff have chosen to address patient management issues on a case-by-case basis. For example, a care manager might approach a physician about a particular patient if she believed that the physician was not prescribing a recommended medication, or was prescribing a medication at a lower-than-recommended dose. The staff expect instances such as these to occur relatively infrequently.

CenVaNet primarily wants physicians to understand more clearly what care management is, and to consider it a valuable tool that will aid them in their practice. The care managers help physicians to recognize both the barriers that patients face in their daily lives and the areas in which the physicians need to communicate more effectively with particular patients. To help them better understand the program, CenVaNet gives the physicians a booklet introducing care management and mails them a monthly newsletter which includes information about the program. CenVaNet intends to survey physicians twice a year about their experiences with the program, but it plans to delay the surveys until after MPR has completed its survey of physicians.

Arranging Services. CenVaNet provides few services or resources. The exceptions are scales, pill boxes, and peak flow meters, which are provided at the program's expense to patients who cannot afford them. The program does arrange for or refers patients to a wide variety of community-based services and resources (see Table 4). It has developed an extensive reference manual that identifies these services, which the care managers help patients to access by

providing assistance in navigating system bureaucracies and by teaching patients how to act as their own advocates. In addition, the social worker care manager's caseload consists solely of patients who have especially high social services needs. She co-managers all of her patients with a nurse care manager.

Communication. The care managers are responsible for communicating with the patient's providers (particularly the primary care physician) about the progress the patient has made in achieving his or her goals. Although physicians do not have a role in developing or approving of the care plan, they receive copies of all of their patients' care plans. They also receive progress reports on their patients every six months (or more frequently, if a patient's condition warrants it). The program originally had planned to send the progress reports every three months but decided that this schedule might be too frequent and an annoyance to the physicians. Furthermore, progress reports did not generate much response from the physicians participating in the prototype program. Care managers contact physicians immediately if urgent problems develop. For example, a care manager alerted a physician when she noticed that a patient was exhibiting symptoms of digitalis toxicity.

Care managers also are responsible for making sure that events (such as diagnostic testing) occur at the appropriate time and in the proper order, and that information (such as a test result) is available when the patient visits his or her physician. They also follow up with patients to make sure that necessary appointments are scheduled and necessary care is received. They do so primarily by encouraging patients to follow up with providers, rather than by making the appointments themselves. However, the care managers will contact physicians directly if they believe that the physicians should change a patient's medications; this contact is handled with care so as not to make the physicians feel as if the program is telling them how to manage their patients.

Other Care Manager Responsibilities. Although care managers do not provide direct, hands-on care, they do interact with patients in many settings, including the patient's home, assisted-living centers, group homes, intermediate or skilled nursing facilities (for short-term stays), acute-care facilities, and physicians' offices.

Early Implementation Data. According to program data generated for the evaluation, between April and June 2002, 128 of the 198 patients enrolled through the end of June had had at least one contact with a care manager (Table 5). Almost 95 percent of these contacts were initiated by the care managers. Half were telephone contacts (51.5 percent) and half (48.5 percent) were home visits, primarily as part of the program's initial patient assessment. Among all enrolled patients, 59.6 percent had contacts relating to disease-specific or self-care education, 38.9 percent had contacts relating to the explanation of medications, and 28.3 percent had contacts relating to monitoring of their progress. These proportions are likely to change as the program matures, and new enrollees comprise a smaller share of total enrollment.

Involvement of Physicians. Program staff expect that physicians will (1) refer their patients to the program, and (2) respond to care managers' requests for information and assistance (Table 6). The fact that many physicians in the Central Virginia Health Network, especially those whose patients the program approached first, already are familiar with CenVaNet's role as a provider of care management services should aid the program in its patient recruitment efforts. Physicians generate lists of patients they judge to be appropriate for care management and allow CenVaNet to send recruitment letters to patients on their own letterhead. The program does not expect physicians to function as active partners in the care management process. For example, the program expects physicians to respond only to direct inquiries from the care managers. Overall, it appears that the program has taken great care to avoid increasing the burden on physicians' time or resources.

TABLE 6

PLANNED PHYSICIAN INVOLVEMENT

	Brief Description
Promotion of Program to Physicians	Program sends physicians a booklet explaining the program and a monthly newsletter. Program has focused its activities on 10 to 20 large physician group practices.
Physicians as Referral Sources	Physicians are the primary source of patient referrals. Invitation letters to patients sent on the physicians' letterhead with the physicians' signatures.
Physicians' Role in Encouraging and Maintaining Patient Participation	Physicians do not have a role in this area.
Physicians' Role in Care Coordination	Physicians are involved in, but are not an integral part of, the care management process. Physicians receive information about their patients' progress toward goals, but they are not expected to respond unless their intervention is needed (for example, to change a medication)

SOURCE: Telephone interviews with CenVaNet program staff conducted in July 2002 and review of program documents.

Data Systems. The program uses InformaCare™, an Internet-based disease management software product for all its care management activities (Table 7). Pfizer Health Solutions, the software vendor, has worked with CenVaNet to adapt the software to the program's needs. InformaCare stores data from assessments, care plans, and ongoing patient notes in discrete data fields, making it easy to generate reports for monitoring patient outcomes or care manager activities. In addition, CenVaNet is working with Pfizer to develop a patient outcomes reporting function within the software. With some additional programming, the InformaCare system has been able to generate patient-level data for the evaluator, including dates of program enrollment and disenrollment and records of care coordinator contacts and services paid for by the program. Although none of the care managers had had any experience with this type of information system prior to their involvement in the program, all of them have adapted well to using it and find it to be a valuable tool. They believe it has improved the quality of their documentation, and that it has helped to standardize their care procedures. However, the use of the InformaCare system has not increased their productivity as they had hoped it would. CenVaNet also has developed its own Microsoft Access database to manage the patient enrollment process. Although this database is not directly linked to InformaCare, the program is able to send patient demographic data to Pfizer which loads this information into the InformaCare system.

Financial Monitoring. The program monitors overall direct costs for staff salaries relative to the budget, but it does not monitor the costs of specific tasks (such as enrollment or patient education). It also monitors the direct costs of staff travel time, postage, and purchased items (such as scales, pill boxes, and peak flow meters). CenVaNet and the Central Virginia Health Network provide the program with management support services, office space, telephones, and computers. The demonstration pays for these services out of its overhead rate. According to the demonstration cost report through June 30, 2002, the program had spent slightly less than

TABLE 7

DATA SYSTEMS

Type of Data	Program Maintains Records?	Brief Description
Patient Level		
Enrollment/disenrollment	Yes	InformaCare™ and Microsoft Access database
Assessment	Yes	InformaCare
Care planning	Yes	InformaCare
Monitoring	Yes	InformaCare and Health Buddy
Non-Medicare services	Yes	InformaCare
Adverse events	Yes	Paper documentation
Grievances	Yes	Paper documentation
Care Coordinator Level		
Time log/productivity	Yes	InformaCare
Other[a]	Yes	InformaCare
Program Level		
Overall Costs	Yes	Medicare cost reports

SOURCE: Telephone interviews with CenVaNet program staff conducted in July 2002 and review of program documents.

[a]InformaCare contains tools to help the care managers manage their patient caseloads and prioritize their work.

$55,000 and had been reimbursed for slightly more than $40,000 in patient payments. CMS provided the demonstration with $75,448 in start-up funding. The program spent $49,153 of this amount to offset patient enrollment costs, including hardware and software upgrades, computer programming, and temporary staffing to help with enrollment. The program does not offer financial incentives to promote patient or program goals, nor does it pay physicians for their participation.

Early Implementation Experience

Operations. Health service delivery demonstration programs such as the ones in this evaluation typically encounter some barriers to early implementation. Barriers may include lower-than-expected enrollment, opposition from physicians, difficulty hiring qualified staff or obtaining space and equipment (including higher-than-expected labor, rent, or equipment costs), and difficulty developing a data collection system that can efficiently monitor patients and program activities. Problems in these areas during the early months of implementation could require a program to make changes to its original design.

CenVaNet experienced few problems during its early months of operation. CenVaNet developed an information system that can generate needed reports. In addition, the program has not had any difficulty hiring staff. The program has been particularly successful in the area of patient recruitment. Program staff spent the months before the demonstration started visiting physicians' offices and marketing the program by focusing on their success in the CIGNA for Seniors project. In addition, CenVaNet developed a patient-identification strategy that entailed working with a small number of key physician practices that had large populations of patients in the target disease groups. This strategy enabled the program to identify a large target population with relative ease. Furthermore, the program's patient acceptance rate has been higher than expected. Although CenVaNet had anticipated that only about 25 percent of eligible patients

would agree to enroll, the acceptance rate actually has been about 42 percent. The program staff believe that the efforts they made to introduce and explain the program to physicians resulted in a greater willingness on the part of physicians to promote the program to their patients.

In some respects, CenVaNet's success in patient enrollment has created difficulties in other areas. For example, the program has experienced significant delays in moving prospective patients through the enrollment process. In this process, a patient first receives a recruitment letter and then is called by a staff member, who explains the program and asks the patient to participate. After a patient gives verbal consent to participate, the program makes one in-home visit to obtain a signed consent form, followed by a second in-home visit (for treatment group members) to perform the initial assessment. When the program first began enrolling patients, it had the care managers make the telephone calls and conduct both visits.

Program staff acknowledged that they had not anticipated how time-consuming the patient recruitment process would be. The process required the care managers to spend a significant portion of their time out of the office. Even when they were in the office, much of their time was devoted to making recruitment-related telephone calls. As their caseloads increased, the care managers found it increasingly difficult to spend time on patient recruitment tasks.

To address this problem, the program hired two part-time, temporary staff (a nurse and a social worker) to help make recruitment telephone calls. In addition, it began using other CenVaNet staff (including the project manager and office assistants) to conduct the in-home patient consent visits. Finally, in July 2002, it scheduled a hiatus in patient enrollment so that the care managers could catch up on their backlog of initial assessments.

CenVaNet has had few problems in its relationships with participating physicians. Physicians in other programs sometimes have felt that care managers threaten their autonomy or sometimes have found program procedures or paperwork to be burdensome. By contrast,

CenVaNet has not experienced any opposition from physicians. In fact, the close relationship between CenVaNet and the physicians affiliated with the Central Virginia Health Network's hospitals and the positive reactions of the physicians who participated in CenVaNet's previous care management program led program staff to expect strong physician support for the program. Even with this good relationship, program staff have been very conscious of the burden they place on physicians. As a result, they decided to send progress reports to the physicians every six months, rather than every three months, as originally planned.

CenVaNet has made only a few changes to its basic intervention. However, its decision to incorporate the use of the Health Buddy device could be considered a departure from the program's original plan. Even so, because only a small number of patients will be randomized to receive a Health Buddy, it is unlikely that any overall treatment-control differences will be driven by the effects of the device, and the innovation will not distort the evaluation findings. However, the use of the Health Buddy could introduce logistic or other management difficulties for which the program had not planned. We will address these issues during our site visit to the program.

Problems Related to Evaluation Activities. Demonstration programs commonly encounter early problems related to their participation in an evaluation, including difficulty providing program data required for the evaluation and inadvertent contamination of the control group. Program staff did not report difficulty providing data for the evaluation that described disenrollment, care managers' contacts with patients, or services paid for by the program. The staff worked with Pfizer to make modifications to the InformaCare system that would enable them to produce these data. Although this process required significant effort, the system now is set up to provide data for the evaluation.

Contamination of the control group or bias of program impacts can occur in several ways. For example, control group members may participate in other care management programs or may have contact with program staff before or after random assignment that leads them to receive treatment they might not otherwise have sought. In addition, physicians who change their practice for all patients with the targeted conditions may treat control group members differently after the demonstration begins. To date, however, none of these sources of bias or contamination appear to be a problem for CenVaNet's demonstration program. Few other care coordination or disease management programs operate in CenVaNet's market area, and the ones that do operate do not offer interventions similar to the demonstration program's. Although it is possible for control group patients to enroll in the care coordination program that CenVaNet operates through its W.K. Kellogg Foundation grant, program staff believe that the patient populations in the two programs are sufficiently different that contamination will not be an issue. In any event, CenVaNet's information system is capable of identifying all control group members who cross over into the Kellogg program.

Control group patients do not receive any information from program staff that might lead them to seek medical care. The program does collect information about patient risk during the telephone screening interview conducted prior to patient randomization, but it does not share the information with either the patients or their physicians. Although this process guards against control group contamination, it does create an ethical dilemma in some cases. The program has decided that it will advise or counsel a patient to seek care only if a care manager or other staff member identifies an immediate threat to that patient's health or life. All program staff have agreed to abide by this policy, with the understanding that the interests of Medicare beneficiaries as a group outweigh those of a single individual. The program has no contact with control group members after random assignment.

Finally, although it would not be unusual for a physician who serves treatment group members to also treat control group members, the program does not focus on changing physician practice patterns. Thus, physicians are unlikely to make major changes to their treatment methods because of their involvement in the demonstration. A physician might observe that treatment group patients have improved outcomes because of care management and might then become more sensitive to barriers impeding all patients' ability to perform self-care. However, given that this type of practice change would require physicians to spend more time with patients, it is unlikely to be a major source of contamination.

In summary, there seems to be little potential for control group contamination. The program has little interaction with patients prior to randomization, and none with control group patients after randomization. In addition, the influence of other care management or disease management programs is limited, and there is little chance of large-scale changes in physician practice occurring.

Summary and Discussion

The relatively recent history of care coordination and disease management has yielded an extremely wide variety of programs, sponsored by different types of organizations, and that provide many types of interventions. Interventions range from simple utilization review, to improvement of physician care and self-care for a particular disease, to general improvement of health service delivery to patients at risk for avoidable service use and high costs. As one of its goals, the implementation analysis for the evaluation of the Medicare Care Coordination Demonstration will try to develop a parsimonious classification of these programs composed of a few salient care coordination/disease management program features. Our classification scheme will evolve as we learn more about the diverse interventions being tested under this demonstration. We have begun by classifying programs according to (1) the type of organization

implementing the program, and the extent to which the program is integrated with other key providers; (2) the program's target population, and a program focus on care for a particular disease versus a program focus on overall health care; and (3) the program's major focus—improving patient education and adherence, improving provider practice, providing or arranging for services, or improving communication and coordination. In this summary section, we use this classification to provide an overview of CenVaNet's intervention.

CenVaNet is a provider of care management services. It is jointly owned by a group of not-for-profit hospitals and physician investors. Its staff have experience implementing care management programs in the managed care setting. While the program has good relationships with its participating physicians, it does not seek to integrate community physicians into the intervention. Physicians are the source of patient referrals and are expected to answer the care coordinators' questions, but they have little input into contributing to the care plan or giving care managers information about their patients. The program has sought to reduce the burden it places on physicians by limiting the number of patient progress reports it sends.

CenVaNet's intervention targets patients with heart disease, cerebrovascular disease, diabetes, or chronic lung disease who are at moderate to high risk for high-cost health resource use. The program uses standard care management procedures (assessment, care planning, and monitoring) to provide for general care coordination needs. It addresses patient needs related to their target condition, as well as any nontargeted comorbid conditions. Thus, CenVaNet's program appears to provide both a focused disease management intervention and a more global care management one.

CenVaNet's intervention focuses on reducing hospital use and costs by (1) improving patient education and adherence to the prescribed treatment regimen, and (2) improving communication and coordination with physicians and other providers. Care managers also help

to arrange for Medicare-covered and non-Medicare-covered services, and they try to increase physicians' acceptance of care management as a way of increasing their own effectiveness.

CenVaNet's demonstration program contains many features that have been found to be associated with successful care coordination interventions (Chen et al. 2000). For example, a computerized care management information system is used to record all patient data and to track patient contacts. The care management process itself includes important elements, such as organized initial patient assessments, ongoing care planning, frequent and structured followup with patients, and patient education. All of the care managers have significant community nursing experience, and several are certified care managers. In addition, there are two part-time social workers on staff. This program structure, along with the staff's previous care management experience, should allow CenVaNet to address any difficulties they encounter. Finally, the program's management team has developed strong relationships with community physicians that facilitate interactions between care managers and physicians.

Based on the lessons of the care coordination literature and its experience evaluating other care coordination programs, the evaluation team sees no barrier to success for CenVaNet's program. During its first three months of operation, the program has encountered few problems, and it has been implemented largely as planned. Program staff reported a high level of patient and physician acceptance of the program. CenVaNet's program has the potential to be successful, if the staff can balance the tasks of recruiting enrollees and implementing its intervention. The delay in initial assessment of patients enrolled during the first few months of operation suggests that impacts for those months may not be observed, even if the program proves to be effective overall.

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