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The Lovelace Case Management Demonstration Program After One Year

Final Report

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EXECUTIVE SUMMARY

In 1998, Lovelace Health Systems (LHS) applied to the Centers for Medicare & Medicaid Services (CMS) to operate demonstration case management programs as part of CMS's Medicare Case Management Demonstration for Congestive Heart Failure and Diabetes Mellitus. Mathematica Policy Research, Inc. (MPR) is evaluating the LHS program along with 15 others participating in CMS's Medicare Coordinated Care Demonstration. Together these two demonstrations are testing a range of models aimed at improving the care of chronically ill beneficiaries with Medicare fee-for-service coverage. The MPR evaluation includes both implementation analysis and impact analysis based on a randomized design. This report is one of a series that will describe each program during its first year and will provide estimates of its impact on Medicare service use and costs during the first six months of program operation.

Research over the past decade suggests that successful care coordination usually has several features. These include effective ***patient identification***, ***highly qualified staff***, ***physician buy-in***, and ***financial incentives*** aligned with program goals. Successful programs also offer a well-designed, structured intervention that includes:

- A multifaceted assessment whose end product is a ***written care plan*** that can be used to monitor patient progress and that is updated as the patient's condition changes
- A process for providing ***feedback to care coordinators, program leaders, and physicians*** about patient outcomes
- ***Patient education*** that combines the provision of factual information with techniques to help patients change self-care behavior
- Procedures for ***integrating fragmented care, facilitating communication*** among providers, and, when necessary ***arranging for community services***

The ultimate purpose of this report series is to assess the extent to which demonstration programs have these features, as well as describe early enrollees in the program and their Medicare service use and costs during the first few months after enrollment. Information for the report comes from telephone and in-person contacts with program staff, and analysis of Medicare and program-generated data. The next report series will focus on Medicare service use and costs over a longer time and will include all first-year enrollees.

This report describes the LHS Case Management Demonstration Project (abbreviated as the Lovelace CMDP). LHS was founded in the 1920s as a medical group practice modeled on the Mayo Clinic. Since January 2003, it has been part of Ardent Health Services. LHS is a 3,000-employee, managed-care oriented, integrated delivery system that includes more than 300 physicians, an acute-care hospital, a health plan, and primary care clinics. The prototype for the CMDP is the six-year-old LHS Outpatient Case Management Program. Using disease management practice guidelines, this program provides high-risk patients with assessment, care planning, and short-term monitoring. Although it has not been formally evaluated, anecdotally

the program enjoys wide support among LHS physicians. There are two other health systems participating with LHS--Presbyterian, and more recently, Sandia Health Systems.

Program Organization and Approaches. The Lovelace CMDP staff includes a program director, two medical directors (one to oversee its intervention for congestive heart failure [CHF] patients and the other its diabetes patients), care coordinators (called "case managers"), a program manager/case manager supervisor (responsible for day-to-day operations), and an enrollment/billing coordinator. The program and medical directors are based on the LHS campus; the program manager, case managers, and enrollment coordinator are in a nearby office. Each participating health system has also assigned a pharmacist to consult with the CMDP.

Staff would like the CMDP to be seen as a community program, rather than one associated with LHS. They report that the case managers enjoy the same quality and depth of relationship with LHS and non-LHS physicians. Staff have accomplished this primarily by assigning a single case manager to each clinic where LHS and non-LHS physicians practice. The program director and manager have made presentations at area health systems' medical executive board meetings and monthly clinic physicians' meetings. Case managers also educate new physicians about the CMDP when they see them in the clinics.

The primary approach the CMDP has taken to improving patient health and reducing health care costs is to improve communication and coordination among physicians and patients. The program expects to improve communication primarily by teaching patients to request needed tests and other care from their physicians. It also has taken the approaches of trying to increase patient adherence to treatment recommendations and of gaining wider physician acceptance of case management. To improve adherence, the program teaches patients one-on-one during each case manager contact, uses adverse events as "teachable moments," and sends patients to classes conducted by LHS and other health systems. Staff stated that a key focus of the program's intervention is getting patients to associate their symptoms with their own behavior. CMDP staff and procedures are nearly identical for patients with diabetes and those with CHF.

Patient Identification. The Lovelace CMDP began enrolling beneficiaries living in the Albuquerque area in November 2001. To be eligible, beneficiaries must be under age 85 and have either (1) moderate to severe CHF or CHF plus one of several serious chronic conditions; or (2) diabetes with poor glucose control, or diabetes and coronary artery disease, hyperlipidemia, or hypertension. CHF patients must have been hospitalized with the disease in the past two years. As in all 16 demonstration programs, beneficiaries must also meet three CMS requirements: (1) be enrolled in Medicare Parts A and B, (2) not be in a Medicare managed care plan of any kind, and (3) have Medicare as their primary payer.

The program identifies potential patients primarily from lists of Medicare-covered patients with CHF or diabetes, generated electronically by LHS and the other two participating health systems. Program staff then review patients' medical records to verify clinical eligibility criteria. The program asks the physicians of eligible patients for their consent to approach the patients, then sends letters signed by the physician inviting them to participate. A case manager follows up the letter with a scripted telephone call requesting a home visit to further explain the program. During the call, the case manager stresses the physician's personal recommendation that the

patient enroll and that she will be working with the physician to help the patient take better care of him- or herself.

Assessment, Care Planning, and Monitoring. Following random assignment of a beneficiary to the treatment group, the program conducts a detailed assessment of health, self-care behaviors, and physical activity and identifies environmental and psychosocial barriers to effective self-care. Case managers usually conduct the assessment in the patient's home, where they can observe factors that may affect the patient's care plan. They also ask patients to identify barriers, recognizing that, if a patient does not see an unhealthy behavior as a problem, change will be difficult to achieve.

Care planning is a collaborative effort of the case manager, patient, and patient's physician. The case manager, working with the patient, drafts a care plan based on the assessment. The care plan consists of short- and long-term goals, as well as referrals to community-based education programs and services. The case manager then uses the care plan to guide all subsequent patient contacts. The patient's primary care physician receives an assessment summary and draft care plan before a formal meeting involving the physician, case manager, and patient, which the program calls the Case Management Physician (or CaMP) visit. (There are subsequent CaMP visits twice a year.) During the visit, the physician can learn about barriers the patient faces to effective disease management and about program plans for overcoming these barriers. The visit also allows the physician to reiterate the case manager's recommendations. Staff observed that patients need to see the physician and case manager working as a team and are more likely to follow advice when it comes from both their physician and case manager.

The program includes monitoring by case managers and self-monitoring by patients. Case managers contact patients weekly for the first 16 weeks, every other week for the next 8, and monthly thereafter unless the patient's condition worsens. Most contact is by telephone using a standard list of diagnosis-specific questions. This list also provides a structure for delivering a consistent educational message.

Staffing and Program Quality Management. Maintaining and improving care quality and ensuring programs attain their goals both require that staff have adequate qualifications, training, and supervision and that management has the tools and support to monitor program progress toward its goals. Case managers for the CMDP must be baccalaureate-prepared nurses or social workers (although during the program's first year, all case managers were nurses). The case management supervisor provides individual training to, and supervision of, the case managers. She meets with them weekly to review individual patient cases and to discuss the program's processes and case management model. Case managers also receive project-specific training in communication and active listening.

The program primarily monitors individual patient progress by comparing it to care plan goals and by comparing patient behavior before and after case management. It does not generate formal program-level reports of patients' outcomes, but does prepare reports to monitor enrollment by diagnosis, case manager, and health system membership; to track the status of invitation letters; and to remind the case managers of upcoming CaMP visits. The program director monitors overall program progress informally and reports periodically to the program host's chief executive officer.

WHO ENROLLS IN THE PROGRAM?

Program enrollment among eligible beneficiaries has been much lower than anticipated and appears to be concentrated among relatively healthier beneficiaries with the target diagnoses. After a year of operations, the CMDP had enrolled 198 patients, just 17 percent of the 1,200 the program's waiver application stated it would enroll in that time. After assessing the pace of enrollment, the program updated its original glucose-control and comorbidity eligibility criteria to current clinical standards, and made its hospitalization criterion less stringent. Following this change, enrollment of patients with diabetes picked up somewhat, but remained low. Staff attribute the shortfall to an increase in Medicare managed care in the area in recent years, a lack of accurate beneficiary contact information, and a higher-than-anticipated patient refusal rate.

To gain another perspective on the proportion of eligible beneficiaries enrolling in the program and to describe their characteristics, the evaluation simulated the CMDP's eligibility criteria using Medicare enrollment and claims data. (April 15, 2002, was used as a pseudo-enrollment date for nonparticipants; it is roughly the midpoint of the 11-month enrollment period considered here.) The simulation showed that, during the program's first 11 months of operation, 116 out of an estimated 6,434 eligible beneficiaries enrolled (just under two percent). The analysis did not distinguish between beneficiaries served by the participating health systems and those served elsewhere in the program's service area, however, so the number of eligible nonparticipants who might truly have had access to the demonstration is probably smaller. Nevertheless, we expect that eligible nonparticipants served by the CMDP's health systems are similar to the larger pool of nonparticipants identified in the claims data.

Program participants were similar to eligible nonparticipants in age, sex, and race, but they were less likely to be poor and differed in treatment for certain diagnoses and previous Medicare service use and costs (Table 1). Approximately 15 percent of both groups were under age 65. (Beneficiaries older than 85 were not eligible for the program.) Just under half were male, and about one-fifth were nonwhite. Participants were less likely than nonparticipants to have been eligible for Medicaid (13 versus 28 percent). Only 21 percent of participants had a hospitalization in the year before intake, compared with 36 percent of nonparticipants. Medicare costs for participants were $467 per month in the year before enrollment, compared with $919 per month for eligible nonparticipants.

CMDP's Medicare waiver application estimated that the cost for eligible beneficiaries in the absence of the program during the demonstration period would be $1,443 per month on average. During the year before enrollment, actual program enrollees were substantially less costly, averaging $467 per month.

An initial round of the CMDP's annual patient satisfaction survey showed patients who did enroll were highly satisfied with program services and were beginning to see themselves moving toward better self-management and symptom control. Eleven patients of the 97 enrolled during the first program year disenrolled voluntarily. Staff reported that about half of those disenrolling had changed their minds about wanting to participate, while others thought they were doing well enough on their own or had other demands on their time, such as caring for an ill relative.

TABLE 1
CHARACTERISTICS OF CMDP PARTICIPANTS AND ELIGIBLE NONPARTICIPANTS
DURING FIRST 11 MONTHS OF PROGRAM ENROLLMENT
(Percent, Except As Noted)

	Participants[a]	Eligible Nonparticipants
Age		
Younger than 65	14.2	16.8
65 to 84	85.8	83.2
85 or older[b]	0.0	0.0
Male	47.5	48.2
Nonwhite	18.5	20.7
Medicaid Buy-In for Medicare A or B	13.0	28.1
Medical Conditions Treated in Past Two Years		
CHF (without diabetes)	16.1	20.1
Diabetes (without CHF)	60.5	51.4
CHF and diabetes	21.6	20.4
Hospital Admission in Past Year	21.1	35.7
Hospital Admission in Past Month	1.9	5.9
Total Medicare Reimbursement Per Month (Dollars)	$467	$919
Number of Beneficiaries	**162**	**6,272**

Source: Medicare Enrollment Database and National Claims History

Note: For participants the intake date is their date of enrollment. For eligible nonparticipants it is April 15, 2002, the midpoint of the eleven-month enrollment period covered by the participation analysis.

[a] Participants who do not meet CMS's Medicare requirements for the demonstration or who had invalid Health Insurance Claim (HIC) numbers on MPR's enrollment file are excluded from this table because Medicare service use data were not available. Participants who are members of the same household as a research sample member are included above, but are not part of the research sample.

[b] The CMDP excluded beneficiaries age 85 or older

TO WHAT EXTENT DOES THE PROGRAM ENGAGE PHYSICIANS?

One of the Lovelace CMDP's goals is to get primary care physicians to see case managers as patient care partners with knowledge that they would not normally have about patients' barriers to adhering to treatment recommendations. The program recognizes that physicians have limited time. Therefore, it makes few requests of physicians beyond asking them to sign patient invitation letters, participate in CaMP visits, review care plans, and respond to case manager requests to discuss specific patients. Thus, physicians and case managers do not

collaborate in the day-to-day care or monitoring of patients. Rather, case managers independently supplement physician efforts.

The program has adopted two primary strategies to engage physicians, and these have met with a measure of success. First, it conducts the formal CaMP visits with physicians twice a year. Second, the program assigns case managers to patients based on the clinic to which the patient goes so that physicians become familiar with those case managers. Physicians have cooperated in identifying which of their patients are appropriate for the program and in working with the case managers. Staff state, however, that it is difficult to meet with physicians in person because they are so busy. As a result, staff cannot get them as involved as they believe would be best. It also appears that physicians are not actively encouraging individual patients to enroll beyond recommending that the program invite them and agreeing to sign the invitation letter. Nevertheless, staff believe that primary care physicians, especially those who have patients in whom they see improvement, are satisfied with the program. Anecdotally, staff have heard that physicians are "relieved" to have someone "keeping a closer eye on their patients."

HOW WELL IS THE PROGRAM IMPLEMENTING KEY INTERVENTION APPROACHES?

Improving Communication and Coordination. Fundamental components of the Lovelace CMDP are improving communication between physicians and patients and making care less fragmented and more timely (that is, better coordinated). The program's primary strategy to support these approaches is to teach patients how to (1) manage their health better (for example, to understand the types and importance of preventive care and regular testing their conditions require); (2) be more proactive and effective in articulating their concerns and needs to physicians; and (3) assemble information that must be shared with specialty physicians. In CaMP visits, patients can practice articulating their needs to physicians, and case managers can assess whether patient communication skills are improving. Although case managers primarily teach patients how to manage care for themselves, they will intervene on behalf of patients when necessary.

If a patient is experiencing medication side effects or a polypharmacy problem, the case manager first discusses her concerns with the designated consulting pharmacist. Then, the case manager or the pharmacist calls the physician to resolve the problem. In addition, the CMDP has developed an extensive support service resource manual. The program will also pay for several goods and services, usually on a one-time basis, if the patient cannot afford them (transportation, medical supplies, and low-tech monitoring equipment) and has a limited contingency fund to pay for medications. During its first year, the program provided only two CHF patients with prescription medications and one diabetes patient with home safety equipment and referred fewer than 10 patients to support services.

The CMDP is hampered somewhat in its efforts to improve communication and coordination by the lack of timely information about (1) adverse patient events and problems of polypharmacy and (2) inconsistent advice from different physicians that develop following initial assessment. Its case managers rely primarily on patient self-reports of events and problems or on reports that discharge planners sometimes provide. Thus, it may be some weeks until the case manager learns, for example, about a hospitalization. Only then can she check whether patients

understood instructions or were given additional medications that might be redundant or interfere with ones they are already taking.

Improving Patient Adherence. Improving patient adherence to treatment regimens is also an important component of the Lovelace CMDP. Much of what the program does is geared toward teaching patients to recognize the connection between worsening symptoms and failure to adhere to recommendations regarding medication, diet, and exercise. Moreover, the program wants patients to learn that they have some control over their symptoms. The program's assessment tool includes a "readiness-to-change" module that asks about recent disease management successes and barriers, whether the patient is willing and able to improve management, and, if not, why not. The assessment concludes with an agreement between the patient and case manager about the behavior(s) they will work on.

The program's educational messages are simple, but are delivered at every opportunity. Case managers follow an established curriculum that covers (1) etiology; (2) signs and symptoms; (3) medication, diet, and exercise; and (4) self-care. The program also refers some patients to disease-specific education classes given by local hospitals. Case managers give patients their business cards with six to eight basic self-management activities listed on the back. At every contact the case manager asks the patient about each item on the card. This reinforcement emphasizes the importance of performing these activities, as well as preparing the patient for case manager contacts.

To determine if the patient is learning as planned, case managers compare care plan goals to patient activities and outcomes, allowing for "peaks and valleys" in adherence. They also gauge patient learning by observing how much patients incorporate the program's educational messages into their day-to-day self-care and behaviors. If the case manager finds that a patient is not learning, she works with the patient to identify learning barriers and an alternative learning method, then develops a plan to help the patient move forward. If, despite this iterative process, a patient does not begin to make needed changes to self-care behavior, the case manager may suggest the patient is not ready for the program but that the patient could call on the case manager to reenroll in the program when he or she is. (During its first year, no patients disenrolled from the program for this reason.)

Among the 22 CHF patients enrolled in the CMDP during its first year, all except one had received at least one contact for self-care or disease-specific education, and more than two-thirds had at least one contact during which the case manager explained tests, procedures, or medications. Among the 75 diabetes patients, nearly 90 percent had a contact for self-care or disease-specific education, and at least two-thirds had a contact during which the case manager explained tests, procedures, or medications.

WHAT WERE ENROLLEES' MEDICARE SERVICE USE AND COSTS?

This report presents preliminary estimates of Medicare service use and costs for those enrolled during the program's first nine months. However, the sample size was too small (58 treatment and 60 control group patients) and the follow-up period too short (the first two full calendar months after random assignment) to draw inferences about the true effects of the program over a longer period. Average Medicare reimbursement for the treatment group

(exclusive of demonstration costs) was $562 (or $281 per month)—which is extremely low for patients with CHF or diabetes. (The Adjusted Average Per Capita Cost paid to Medicare + Choice plans in the Albuquerque area is about $500 per month and reflects costs for the overall Medicare population, who should be healthier, on average, than CMDP patients.) Average costs for the control group were higher over this period—$1,161 ($581 per month). Although the treatment-control difference was relatively large, it was not statistically significant because, as noted, it was based on a relatively small sample.

CONCLUSION

Program Strengths and Unique Features. The Lovelace CMDP has many of the features associated with effective care coordination:

- The program targets patients with diagnoses that typically are associated with high health care costs and uses searchable databases at participating hospitals to identify patients. Physicians then review patients for program appropriateness and sign letters inviting them to participate.
- The program administers a structured, in-person assessment that draws on patients' views of their own barriers to treatment adherence and includes pharmacist review of medications. Assessment-based care plans are shared with physicians at the first of twice-yearly meetings that include the case manager, patient, and physician.
- The program regularly monitors patients primarily by telephone, with each contact following a set of self-management questions. Patients monitor their own symptoms and vital signs and report them at each contact.
- The program's education message is simple and consistent, emphasizing the relationship between treatment adherence and symptoms. Case managers determine if patients are learning by comparing care plans to behaviors. If they are not, case managers work with patients to identify learning barriers and approaches to overcoming them.
- The program views case managers as supplementing physicians' efforts and coordinating care with them, rather than collaborating day-to-day. To develop the trusting relationship with physicians needed to facilitate the sharing of patient information, the case managers and patients meet twice yearly with patients' physicians in CaMP visits and the case managers are assigned to the clinics where (LHS and non-LHS) physicians practice.
- The program seeks to reduce care fragmentation primarily by teaching patients what types of care they need, how to arrange for it, and how to get clarifying information from physicians. The program includes regular pharmacist review of medications to identify problems of polypharmacy or suboptimal prescribing and has limited funds to pay for some goods and services, including medications.
- Case managers are baccalaureate-prepared nurses. The program provides each with individual training on the CMDP model and supervises them closely. This individual-

specific approach seemed workable during the program's first year, when it had relatively few case managers.

- Program demands on physicians are modest in recognition of physicians' busy schedules. Anecdotal evidence suggests that participating physicians are relieved to have another professional keeping an eye on their more complex patients.

- The program does not provide financial incentives to staff to achieve particular patient outcomes or program goals, but it does reimburse physicians for working with its case managers.

Potential Barriers to Program Success. The Lovelace CMDP faces several challenges. First and foremost, the program has had great difficulty meeting its enrollment target. Staff report that part of the shortfall has been due to increased Medicare managed care penetration in the Albuquerque area, leading to fewer beneficiaries than expected being eligible for the program. On the other hand, the Medicare data simulation conducted for this report suggests that more than 6,000 beneficiaries in the Albuquerque area were eligible for the program during its first year (albeit many may have been served by health systems other than those participating in the CMDP). In addition, eligible patients have shown less interest than expected in the program. Although physicians sign program invitation letters to their own patients, their limited involvement in encouraging patients to enroll likely contributes to the shortfall.

A second challenge is that the program is enrolling patients who were less likely to have been recently hospitalized than originally expected. As a result, total Medicare spending for participants during the year before enrollment was roughly half that for eligible nonparticipants and was markedly lower than spending estimated in the program's waiver application.

A less-critical third barrier to success is the absence of a process to generate reports on patient outcomes to help program administrators determine whether the intervention is attaining its broad objectives, such as increasing patient adherence and reducing the incidence of adverse events, and if not, why not. Such reports would also indicate whether particular case managers were performing better than others and might suggest approaches to improving performance. Reports of patient outcomes could also provide valuable feedback to case managers and physicians. Although the program's Access database appears to track at least some of these outcomes, program staff noted they did not have the resources to develop formal reports from it.

It remains to be seen whether the CMDP can reduce hospitalizations and other avoidable expenses. The data available for this report were for a group of patients too small and covered a time period too early to be indicative of its eventual effectiveness. However, if the program continues to enroll patients who appear to be healthier than originally anticipated, it will be difficult for the program to save enough money to cover the costs of its intervention.

INTRODUCTION

Lovelace Health Systems (LHS), located in Albuquerque, New Mexico, operates the Centers for Medicare & Medicaid Services (CMS's) Medicare Case Management Demonstration for Congestive Heart Failure and Diabetes Mellitus. Mathematica Policy Research, Inc. (MPR) is evaluating this demonstration along with the 15 programs participating in CMS's Medicare Coordinated Care Demonstration. These programs test a range of models aimed at improving the care of chronically ill beneficiaries with Medicare fee-for-service coverage. Organizations as diverse as hospital systems, disease management vendors, and retirement communities host the programs, which are serving patients in 17 states and the District of Columbia. MPR is evaluating the programs through implementation analysis and impact analysis based on a randomized design.[1]

This report is one of a series that will describe each program during its first year of implementation and provide preliminary estimates of its impact on Medicare service use and costs. First, it briefly describes the data and methodology used in this series of reports and presents an overview of the program that is the focus of this report. It then addresses the following questions: Who enrolls in the program? To what extent does the program engage physicians? How well is the program implementing its approaches to improving patient health and reducing health care costs? What were enrollees' Medicare service use and costs during its first months of operation? The report concludes with a discussion of the program's strengths and unique features, as well as potential barriers to program success.

[1]Appendix Table A.1 lists the host for each demonstration program in the evaluation, as well as each program's service area and target diagnoses.

This report describes LHS's Case Management Demonstration Project, abbreviated here as the Lovelace CMDP.[2] LHS was founded in the 1920s as a medical group practice modeled on the Mayo Clinic. Today it is part of Ardent Health Services. The Lovelace CMDP began enrolling beneficiaries with congestive heart failure (CHF) or diabetes in November 2001.

DATA SOURCES AND METHODOLOGY

Implementation Analysis. The evaluation's implementation analysis uses information gathered during telephone interviews with program staff conducted approximately three months after the program began enrolling patients and in-person interviews conducted approximately six months later. For each program, one of three MPR implementation team members conducted the telephone and in-person interviews using semistructured protocols. The interviews covered the following topics: organization and staffing, targeting and patient identification, program goals, care coordination activities (such as assessment, patient education, and service arranging), physician attitudes toward the program and interventions with physicians, quality management, record keeping and reporting, and financial monitoring. Use of the protocols ensured that each interviewer collected as consistent a set of information for each program as possible, while allowing the interviewer to explore issues of specific importance to each program. The structure of the protocols will also make synthesizing findings across programs more efficient. MPR staff also reviewed written materials each program provided, including the program's proposal to CMS, its operational protocol, materials it provided to patients and

[2]Although LHS operates the demonstration as two separate programs—one for patients with diabetes and one for patients with congestive heart failure—the programs' staff and interventions are nearly identical. Thus, we describe the demonstration here as if it were a single program, noting the few significant differences. For a more detailed description of the LHS demonstration's early implementation plans and experiences, see Aliotta and Schore (2002).

physicians, and forms used in its operation. (Appendix Table A.2 contains a full list of documents reviewed for this report.) This analysis also includes an examination of data each program collected specifically for the evaluation describing care coordinator contacts with patients, patient disenrollment, and goods or services the program purchased for patients during its first year of operation.

Participation Analysis. The evaluation uses Medicare claims and eligibility data to estimate the number of beneficiaries in the Lovelace CMDP service area who were eligible for the program and the percentage who actually enrolled during the program's first year of operations. Beneficiaries are identified as eligible if, for any month between November 2001 and October 2002, they (1) lived in the program's service area, (2) were enrolled in Medicare Parts A and B, (3) had Medicare as the primary payer, (4) were not in a Medicare managed care (Medicare + Choice) plan, and (5) met the program's target diagnosis and service use requirements (described in detail in Appendix B). The midpoint of the 11-month enrollment period examined in this analysis—April 15, 2002—is used as a pseudo-enrollment date for nonparticipants; the actual enrollment date is used for participants. Participants and eligible nonparticipants were then compared with respect to demographic characteristics, diagnoses, and utilization histories to determine the extent to which participants are typical of the pool of eligible beneficiaries.

Impact Analysis. This report also presents early impact estimates based on key study outcomes. The evaluation's impact analysis is based on the random assignment of consenting, eligible Medicare beneficiaries to either receive the program intervention in addition to their regular Medicare benefits or to receive only their regular Medicare benefits as usual. Comparison of outcomes for the two groups will yield unbiased estimates of the impact of care coordination. Disenrollees are not excluded from the analysis sample because doing so would

introduce unmeasured, preexisting differences between the treatment and control groups that random assignment is meant to avoid.

The report provides two types of comparisons of estimated treatment and control group means for Medicare-covered service use and costs. The first uses outcomes measured over the first two months after random assignment for beneficiaries who enrolled in the program during its first 11 months. The second compares treatment and control group means for each calendar month after program startup, using all sample members enrolled through the end of each month, to observe any trends in treatment-control differences over time.

In this report, the impact of the program's intervention is estimated as the simple difference in mean outcomes between treatment and control patients. T- and chi-squared tests are used to establish whether differences are statistically significant. The next round of site-specific reports will use regression to adjust for any chance baseline differences between the two groups that arose despite random assignment. (Appendix B describes in more detail the methods used to obtain Medicare data, construct variables, and choose analysis samples.)

The treatment-control comparisons presented in this report may not reflect the true long-term impacts of the program, for several reasons. First, the comparisons are based on a relatively small sample (only patients enrolling during the first four months of program operations). Second, the outcomes are measured too soon after patient enrollment to expect programs to be able to have sizable impacts. (The timetable for the evaluation's first Report to Congress defined the observation period for this report.) Third, program interventions may change over time as staff gain more experience with the specific patients they have enrolled. Finally, if programs change their eligibility criteria or the type of outreach they conduct, they may enroll different types of patients over time.

Despite these shortcomings, the treatment-control differences are presented to provide some limited feedback to the programs on how the two groups compare. Later analyses will examine Medicare service use and cost impacts over a longer time and will include all enrollees during the program's first 17 months. These analyses will also examine patient outcomes based on telephone interviews with treatment and control group members. Interview-based outcomes include the receipt of preventive health services, general health behaviors, self-management, functioning, health, and satisfaction with care, as well as disease-specific behaviors and health care.

OVERVIEW OF THE LOVELACE CMDP

Program Organization and Relationship to Physicians. LHS is a 3,000-employee, managed-care oriented, integrated delivery system that includes more than 300 physicians, an acute-care hospital, a health plan, nine primary care clinics, and a regional practice site in Santa Fe. The demonstration program is housed in the Lovelace Clinic Foundation, a nonprofit research institute in LHS. The prototype for the Lovelace CMDP is the six-year-old LHS Outpatient Case Management Program. Using disease management practice guidelines, this program provides high-risk patients with assessment, care planning, and short-term monitoring. Although the program has not been formally evaluated, anecdotally it enjoys wide support among LHS physicians.

The CMDP program staff includes a program director, two medical directors (one to oversee its CHF intervention and one its diabetes intervention), care coordinators (called case managers in this program), a program manager/case manager supervisor (responsible for day-to-day operations), and an enrollment/billing coordinator. The program director and medical directors are located on the main LHS campus; the program manager, case managers, and enrollment coordinator are located in an office across the street. The program had 2 full-time-equivalent

case managers after nine months of operation (and 3.5 full-time-equivalent case managers a year later). Ultimately, the program anticipates case manager caseloads of approximately 60 patients each.

The developers of the Lovelace CMDP envisioned that many patients participating in the program would have LHS physicians but that the program would be open to patients receiving care from other health systems. To encourage other health systems to participate, LHS refers to the program as the CMS Case Management Demonstration Project, dropping the Lovelace name The CMDP reached an agreement with Presbyterian Health Systems in January 2002 and began enrolling its patients in March 2002.[3]

Staff would like the CMDP to be seen as a community program, rather than one associated with LHS, and report that the case managers enjoy the same quality and depth of relationship with LHS and non-LHS physicians. Staff have accomplished this primarily by assigning a single case manager to each clinic where the physicians practice. Thus, physicians may see their patients' case managers almost daily, in addition to meeting with them formally at least twice a year and communicating by telephone as needed in the interim. In addition, the program director and program manager make presentations about the CMDP at health systems' medical executive board meetings and monthly clinic physicians' meetings. The program provides physicians with a marketing packet that includes a brochure describing the program, cards with program eligibility criteria, and copies of physician letters inviting patients to participate. Staff also meet with the physicians individually as their first patients enroll in the program. Case managers are

[3] As of mid-2003, the program had reached an agreement with a third system, Sandia Health Systems (formerly St. Joseph's Hospital). The program began enrolling Sandia patients in June 2003.

mindful of educating new physicians about the program when they encounter them in the clinics. CMDP staff also meet periodically with clinic lead nurses and care managers.

Primary Approaches. The primary approach the Lovelace CMDP has taken to improving patient health and reducing health care costs is to improve communication and coordination among physicians and patients. Other approaches are increasing patient adherence to treatment recommendations and gaining wider physician acceptance of case management. The program expects to improve communication by teaching patients to request needed tests and other care from their physicians and by following up to make sure care is received. Other approaches it hopes will improve communication are regular formal meetings that include physicians, case managers, and patients, and informal contacts between physicians and case managers. To improve adherence, the program teaches patients one-on-one during each case manager contact, uses adverse outcomes as "teachable moments," and sends patients to classes conducted by LHS and other health systems.

Target Criteria and Patient Identification. Patients in the Lovelace CMDP must have (1) moderate to severe CHF or CHF plus diabetes, chronic lung disease, previous heart attack, or renal insufficiency; or (2) diabetes with poor glucose control or with coronary artery disease, hyperlipidemia, or hypertension.[4] CHF patients must have been hospitalized with the disease in the past two years.[5] They must live in the Albuquerque metropolitan statistical area (Bernalillo

[4]The program defines moderate to severe CHF by (1) an echocardiogram with ejection fraction of 50 percent or less; or (2) a New York Heart Association functional class of III or IV (marked limitation in, or inability to, carry out ordinary physical activity).

[5] Before June 2002, in addition to CHF or diabetes, the program required patients to have severe comorbid conditions as measured by the Cornell Comorbidity Index. Staff found, however, that the index excluded too many patients who would have been suitable for the program. In addition, before June 2002, CHF patients had to have been hospitalized *in the past year*.

and parts of Valencia and Sandoval counties).[6] As in all 16 demonstration programs, beneficiaries must meet CMS's insurance payer and coverage requirements for the demonstration: (1) be enrolled in Medicare Parts A and B, (2) not be in a Medicare managed care plan of any kind, and (3) have Medicare as their primary payer. The Lovelace CMDP excludes beneficiaries residing in nursing homes, in hospice, or on dialysis, as well as those who are older than age 85, cannot read at a fourth-grade level (and do not have a caregiver who can do so), have a cognitive deficit and no able caregiver, or have been in a case management program during the past 12 months. (Appendix B contains a more detailed description of CMDP eligibility criteria.)

The program identifies potential patients primarily from lists, generated electronically by LHS and other participating health systems, that include Medicare-covered patients with CHF or diabetes. (These lists are updated quarterly.) The case managers or program manager then conduct a more detailed review of patients' medical records to verify clinical eligibility criteria. For patients who meet the clinical criteria, the enrollment coordinator checks Medicare eligibility criteria on the Common Working File. The program then contacts the physicians of potentially eligible patients for their consent to approach the patients and, for patients deemed appropriate, sends letters signed by their physicians inviting them to participate. A case manager follows the letter up with a scripted telephone call to the patient requesting a home visit to explain the program. During the call, the case manager stresses the physician's personal recommendation that the patient enroll and that she will be working with the patient's physician to help the patient take better care of him- or herself. (Appendix C contains the invitation letter and the script used for followup.) If, during the home visit, the patient decides to participate, the case manager will

[6] In early 2003, the program expanded its service area to include nearby Santa Fe and Torrance counties.

verify the patient's Medicare number, have the patient sign demonstration enrollment and consent forms, and conduct an assessment. (This assessment includes the SF 12, and the Minnesota Living with Heart Failure questionnaire or the American Group Practice Association Diabetes questionnaire [version 2.1].) If the assessment reveals a serious medical problem, the program will contact the patient's physician. Intake data for consenting patients are then sent to MPR for random assignment.

After more than a year of enrollment, the program was working with nearly 90 physicians and had enrolled many program patients from outside LHS. Of the roughly 370 patients enrolled in the CMDP as of mid-2003, more than half of all patients, and about two-thirds of the patients with CHF, were from Presbyterian Health Systems. Presbyterian Health Systems provided a higher proportion of patients with CHF because LHS has a competing tele-management program for heart failure patients that draws LHS patients away from the CMDP (personal communications with program staff April and July 2003).[7] In addition, most patients (about 85 percent) were identified through the review of health system patient lists; the others were referred directly to the program by hospital case managers and, less frequently, by physicians. The program has given providers laminated cards with its eligibility criteria to promote such referrals and has left brochures geared toward patients in clinic lobbies. As other demonstration programs have found, Albuquerque physicians are too busy and patient visits too short for them to refer many patients directly to the program.

[7] LHS Heart Failure Tele-Management program nurses manage medications, which CMDP case managers do not. CMDP staff also describe the Tele-Management nurses as more familiar with LHS cardiologists than their own case managers and the cardiologists as preferring to refer their patients to a program that does not involve random assignment. On the other hand, the Tele-Management nurses are not trained to provide support services (such as service arranging, or help with social, psychological, or financial problems), as the CMDP case managers are.

Assessment, Care Planning, and Monitoring. As noted, the program conducts some assessment before random assignment. Following random assignment to the treatment group, using a tool similar to the one used by the LHS Outpatient Case Management program, the program conducts a more detailed assessment of patient health, assesses self-care behaviors and physical activity, and identifies environmental and psychosocial barriers to effective self-care. (Appendix C contains this assessment tool.) Case managers ask patients (and their families) to identify barriers, because, if a patient does not see any problems with a behavior that the case manager views as a barrier, adherence is difficult to achieve. If the case manager identifies barriers that the patient does not yet recognize, however, she will provide the patient with information about why the behavior is a barrier to adherence and the risks involved in not changing it, and will encourage the patient to decide to change the behavior.

Case managers usually conduct the assessment in the patient's home, where they can observe environmental and other factors that may affect the patient's plan of care. However, a few patients prefer to meet with the case managers in the program office (for example, because they do not like strangers coming into their homes). The assessment takes about 90 minutes.

Many providers also give input for the assessment. Each health system participating in the program has identified an in-house pharmacist to review the medication regimens of patients from that health system. Therapists and home health nurses also provide input. In addition, case managers review clinical indicators found in medical records.

The assessment is documented using a template-guided dictation that is then stored on the MedProfile system.[8] Paper copies of the full assessment are sent to the patients' primary care physicians and placed in the program's patient files. The program conducts formal reassessments annually using the SF-12 and the Living with Heart Failure or Diabetes 2.1 questionnaires, but reassesses patients informally with each contact for changes concerning self-care and physical activity, and psychosocial problems.

Between November 2001 and November 2002, the first year of program operation, 97 patients enrolled and had been randomly assigned to the Lovelace CMDP treatment group (22 with CHF and 75 with diabetes) (Table 1). More than 80 percent of the patients enrolled (17 of 22 CHF patients and 64 of 75 diabetes patients) had at least one contact for assessment during the year. Among those contacted for assessment, between 70 and 75 percent had their first contact within two weeks of enrollment. Staff had hoped to complete all patient assessments within two weeks. Delays in starting assessments have usually been due to difficulty finding an appointment time convenient for the patient or to the patient wanting to postpone the assessment until an acute episode had passed.

[8] The program uses the IDX case management module and MedProfile medical profiling software for all patients (LHS and non-LHS), as well as an Access database developed specially for the program. In addition to data required for the evaluation, the Access database includes patient demographics and other identifying information; weekly and monthly data on patient self-monitoring and on inpatient admissions and emergency room visits; clinical indicators collected semiannually and annually; and reminders for case managers to conduct CaMP visits. (Appendix C contains several Access screens used to track self-care, clinical indicators, inpatient admissions, and emergency room use.) MedProfile includes dictations from the assessment and care plan, as well as ongoing patient notes. IDX includes data on encounters such as hospitalizations, emergency room visits, and physician visits. LHS physicians have access to IDX and MedProfile; non-LHS physicians receive paper copies of selected documents stored on these systems. (The project switched from IDX to Midas in early 2003 to better comply with HIPAA requirements.)

TABLE 1

CASE MANAGER CONTACTS WITH PATIENTS DURING FIRST 12 MONTHS

	CHF	Diabetes
Number of Patients Enrolled[a]	22	75
Number of Patients with at Least One Case Manager Contact (percent)	21 (95.0)	68 (91.0)
Total Number of Contacts for All Patients	407	835
Mean Number of Contacts per Patient, Among Those Contacted	19.4	12.3
Number of Case Managers Contacting Patients[c]	5	7
Number of Patients in Contact with More Than One Case Manager	9	1
Among Those Patients with at Least One Contact:		
Percentage of contacts case manager initiated	87.0	82.3
Percentage of contacts by telephone	86.2	77.6
Percentage of contacts at patient's residence	5.9	8.5
Percentage of contacts in person elsewhere	7.9	13.9
Of all Patients Enrolled, Percentage with Assessment Contact	77.3	85.3
Among Those Patients with an Assessment, Percentage of Patients Whose First Assessment Contact Is:		
Within a week of random assignment	29.4	28.1
Between one and two weeks of random assignment	41.2	45.3
More than two weeks after random assignment	29.4	26.6
Of All Patients Enrolled, Percentage of Patients with Contacts for:		
Routine patient monitoring	86.4	66.7
Providing emotional support	31.8	10.7
Providing disease-specific or self-care education	95.5	86.7
Explaining tests or procedures	63.6	45.3
Explaining medications	81.8	62.7
Monitoring abnormal results	22.7	8.0
Identifying need for non-Medicare service	13.6	8.0
Identifying need for Medicare service[b]	77.3	42.7
Monitoring services	13.6	12.0
Mean Number of Patients Contacted per Case Manager	4.2	9.7
Mean Number of Patient Contacts per Case Manager	81.4	119.3

SOURCE: Lovelace program data received January 2003 and updated July 2003. Covers 12-month period beginning November 16, 2001, and ending November 15, 2002.

[a]Number of patients enrolled in the treatment group as of November 15, 2002.

[b]Medicare services included diabetic education, foot and eye examinations, and semiannual meetings with patient physicians.

Table 1 *(continued)*

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[c]The program employed 7 case managers during its first year, but had no more than 3.5 full-time equivalent case managers employed at any point in time

CHF = congestive heart failure.

The care planning process is a collaborative effort between the case manager, patient, and patient's physician. The case manager, working with the patient, drafts a patient-specific care plan based on the assessment. The case manager then uses the care plan to guide all subsequent patient contacts. It includes short-term goals (for example, attendance at disease management classes) and longer-term goals (for example, improved medication adherence), as well as referrals for community services. Physicians receive a summary of each patient's assessment and draft care plan. They receive this summary before a formal meeting with the case manager and patient that the program calls the Case Management Physician (or CaMP) visit. The visit is held between one and two months after enrollment and provides the physician with the opportunity to learn about barriers the patient faces to effective disease management of which the physician may not have been aware and about the case manager's and the patient's plans for overcoming these barriers. During the CaMP visit, the physician provides acceptable ranges for the patient's clinical indicators (for example, blood glucose level for diabetics or weight change for those with CHF). The visit also allows the physician to reiterate the case manager's recommendations. Staff observed that patients need to see the physician and case manager working as a team and believe that patients are more likely to follow advice when it comes from their physician as well as the case manager. Following this meeting, the case manager finalizes the care plan with the patient, adds it to the MedProfile assessment dictation, and sends a paper copy to the physician and the CMDP files. The initial care plan routinely changes, however, with each patient contact as the case manager and the patient identify barriers to change and approaches to overcoming them or as the patient meets one goal and a new goal is added.

The program intervention includes monitoring by case managers and self-monitoring by patients. Case managers contact most patients weekly for the first 16 weeks, every other week for the next 8, and monthly thereafter unless the patient's condition worsens. Most contact is by

telephone using a standard list of questions specific to each of the program's two target diagnoses.[9] Except for the semiannual CaMP visits, in-person visits are unusual. Case managers provide patients with teaching and support to conduct self-monitoring (for example, by providing a diabetic patient who has a tremor with a glucose monitor that takes blood from his arm rather than his finger). During monitoring, case managers also address comorbid conditions that may pose barriers to better self-management (for example, helping a CHF patient get relief from arthritis that keeps the patient from adhering to an exercise regimen). Staff stated that a key focus of the program's intervention getting patients to associate symptoms with their own behavior. If a symptom change or out-of-range reading occurs, patients are instructed to call either their CMDP case manager or the LHS or Presbyterian Health Systems triage system, through which they can speak with a nurse 24 hours a day, 7 days a week.

Of the 22 CHF patients enrolled during the first year of operation, nearly all (21) had at least one contact with a case manager during that year, and patients who had been contacted had 19 contacts, on average. Among those CHF patients contacted, case managers initiated most contacts (87 percent), and most contacts (86 percent) were by telephone. Although these contacts include those for assessment, many patients (86 percent) had a contact for routine monitoring, and nearly a third (32 percent) had a contact during which the case manager provided emotional support. Of the 75 diabetes patients enrolled, 91 percent (68 of 75) had been contacted by the case managers, and the patients who had been contacted had 12 contacts, on average. Case managers initiated most of the contacts (82 percent), and just over three-quarters (78 percent) were by telephone. Diabetes patients were much less likely than CHF patients to

[9] The program has only a few patients who leave Albuquerque for long vacations. (New Mexico does not have snowbirds per se.) While patients are away, the case managers communicate with them by telephone and may ask patients to fax them clinical indicator readings that patients record for themselves.

have received routine monitoring (just 67 percent did), and only 11 percent had contacts during which case managers provided emotional support (Table 1). It is likely that diabetes patients had fewer contacts during the year because they tended to enroll later, as discussed further below.

Staffing and Program Quality Management. Maintaining and improving care quality and ensuring programs attain their goals both require that staff have adequate qualifications, training, and supervision and that management has the tools and support to monitor program progress toward its goals. Case managers for the Lovelace CMDP must have a baccalaureate degree in either nursing or social work. After operating about a year, the program had two case managers, both of whom had extensive nursing experience. One was also a diabetic educator and had several years of case management experience. The program manager/case management supervisor provides individual training to, and supervision of, the case managers. She meets with them weekly to review individual patient cases and to discuss the program's processes and its case management model. She also reviews two or three randomly selected cases every two or three weeks. Case managers attend the same CHF, heart disease, and diabetes disease management classes as patients. They also receive project-specific training in communication and interviewing/active listening skills. The supervisor noted that the greatest training need has been to teach case managers the difference between nursing and case management.[10] In addition, since case management takes so many forms, new program case managers require an orientation to case management as practiced in the CMDP. The supervisor anticipated that the next case manager the program hires will have substantial case management experience and either be a nurse or social worker with a master's degree. (She believes that master's-prepared nurses have better "critical thinking" skills than those with baccalaureate degrees. She would have liked to

[10]The supervisor noted that this primarily entails teaching the case managers not to "do everything for the patient."

hire a social worker to deal with behavioral barriers to making needed lifestyle changes. However, at the end of the CMDP all case managers were nurses.)

At the time of our site visit, the program was not generating many formal reports to monitor its activities because staff felt they had so few patients they could monitor them without reports. (They had 85 treatment group members, about 42 per case manager, at that time.) For example, they were monitoring individual patient progress against care plan goals and comparing patient behavior before and after case management. The program did, however, expand the Access database it developed to assemble data for the evaluator, to generate reports to monitor weekly and cumulative enrollment by diagnosis (CHF versus diabetes), case manager, and patient health system membership (Lovelace versus Presbyterian). The program also generated reports on the status of invitation letters for eligible patients (for example, the number requiring physician signature, the number in the mail, or the number for whom a home visit had been scheduled), as well as reports to remind the case managers of when CaMP visits were due. As noted, the program primarily uses the IDX and MedProfile systems to record patient data (such as assessments, clinical indicators, and hospitalizations). Staff described these as text-based systems, however, and thus not suited to generating reports.

The program director reports to the chief executive officer of the Lovelace Clinic Foundation, the program host, on program progress, primarily through informal meetings. The host is primarily interested in the pace of enrollment, patient and physician satisfaction, and program costs relative to revenue, as well as lessons program staff are learning about case management. The program director and program manager meet formally as part of weekly administrative and clinical meetings for hospital case management program staff and see each other informally throughout the week.

WHO ENROLLS IN THE PROGRAM?

Enrollment among eligible beneficiaries during the program's first year has been much lower than anticipated and appears to be concentrated among healthier beneficiaries with the target diagnoses. After assessing the pace of enrollment, the program made its glucose control, comorbidity, and hospitalization eligibility criteria less stringent. Following this change, enrollment of patients with diabetes picked up somewhat, but remained low. The program appears to have enrolled patients who (1) are less likely than eligible nonparticipants to have been hospitalized during the previous year; and (2) had lower Medicare costs during the year before intake than expected, based on the program's waiver cost estimate. Roughly 10 percent of patients voluntarily disenrolled from the program during the year. Those who do participate appear to like the program, however. Results of the program's annual patient satisfaction survey indicate that patients feel they can better control their medical conditions and are highly satisfied with the assistance they get from program case managers.

Enrollment After One Year. Between November 2001 and November 2002, the Lovelace CMDP enrolled 198 patients in the demonstration—98 in the treatment group and 100 in the control group (MPR Weekly Enrollment Report, week ending November 24, 2002). This was just 17 percent of the 1,200 beneficiaries the program's waiver application stated it would enroll in the demonstration during its first year.

Staff reported that actual enrollment fell short of the program's target for several reasons. An increase in the Medicare + Choice capitation payment following proposal submission in 1998 and a subsequent spike in Medicare + Choice enrollment reduced the pool of beneficiaries eligible for the CMDP. In addition, the proportion of Medicare beneficiaries in the area who are retired military personnel and receive their care through the Veterans Administration has increased. The program also overestimated the proportion of diabetic beneficiaries with poorly

controlled blood glucose. In addition, after a few months of enrollment, staff decided that the program's original inclusion criterion for comorbidity was too restrictive. The program updated some of its eligibility criteria to be more consistent with current clinical standards effective June 2002 (as described in greater detail in Appendix B). Staff believed this change noticeably increased the number of eligible patients *invited* to participate during the months following the revision. Evaluation enrollment reports do show an increase in the enrollment rate for patients with diabetes (from about 8 per month between November 2001 and June 2002 to about 17 per month between July and October 2002), but no such increase was evident for patients with CHF.

Staff reported that many letters the program sent to potentially eligible beneficiaries went unanswered or were returned because the addresses were incorrect. In addition, many telephone calls the program made to follow up the invitation letters were never returned. Some beneficiaries who were identified as potentially eligible were found to be ineligible during those follow up calls. Other beneficiaries who were eligible declined to participate in the program during that call. The most common reasons beneficiaries gave for declining were that they did not think they needed a case manager and that they were too busy to participate (for example, because they are caring for an ill spouse). That physicians are not actively promoting the program to invited patients likely contributes to the high refusal rate. On the other hand, staff estimated that about 95 percent of those who accepted a home visit to get additional information about the program decided to participate.

Percent of Eligible Beneficiaries Participating. To gain another perspective on the proportion of eligible beneficiaries enrolling in the program and to describe their characteristics, the evaluation simulated the program's eligibility criteria using Medicare enrollment and claims data to estimate the percent of eligible beneficiaries who chose to participate in the Lovelace CMDP. (Appendix B contains a detailed description of the simulation.) This simulation

identified 6,434 beneficiaries eligible for the CMDP between November 2001 and October 2002, the program's first 11 months of operation. That is, they met CMS's three demonstration-wide Medicare requirements, lived in the program's service area, and met the program's diagnostic and service use criteria.[11] During the same 11 months, 116 "eligible" beneficiaries enrolled in the demonstration (1.8 percent of the 6,434 eligible beneficiaries).[12] (See Tables B.2 and B.3.)

Comparison of Participants and Eligible Nonparticipants. According to an analysis of Medicare enrollment and claims data, program participants were similar to eligible nonparticipants in age (about 15 percent were younger than 65), gender (just under half were male), race (only about a fifth were nonwhite), and reason for entitlement to Medicare (about a quarter were disabled or had end-stage renal disease). Participants were much less likely than eligible nonparticipants, however, to be eligible for Medicaid, as reflected in records of state buy-in for Medicare (13 versus 28 percent) (Table 2).

[11]Between November 2001 and October 2002, 85,835 beneficiaries were living in the program's service area. Of those, 37,817 (44 percent) would have been ineligible for the program because they did not meet one of CMS's demonstration-wide criteria. Of the remaining 48,018 beneficiaries who met these insurance criteria, 6,434 (13 percent) also met the program's diagnostic and service use criteria at some point during the program's first 11 months, and had none of its exclusion criteria (to the extent they could be simulated with the Medicare data). (See Table B.2.)

[12]In fact, 172 beneficiaries actually enrolled in the program during its first 11 months. When estimating the participation rate, the evaluation excludes enrollees with incorrect Health Insurance Claim (HIC) numbers on MPR's enrollment file (there was one for the CMDP), and those who did not meet the Medicare demonstration-wide criteria or the program-specific criteria (as measured with Medicare data). These enrollees were excluded from the participation analyses in order to use a consistent definition of eligibility for the numerator and denominator of the ratio. (The beneficiary with an invalid HIC number may well be eligible, but the beneficiary's Medicare data could not be obtained to assess that, so the person was excluded. The HIC number has since been corrected.) This leaves 116 known *eligible* participants. Most of the reduction was due to failure to meet the program's service use or diagnostic criteria. The comparison of participants to eligible nonparticipants in Table 2, however, excludes only participants with invalid HIC numbers and those who did not meet Medicare demonstration-wide requirements, leaving 162 participants. Thus, the comparison more closely reflects the differences between all actual participants and those who were eligible to participate but did not.

TABLE 2

CHARACTERISTICS OF ALL PARTICIPANTS AND ELIGIBLE NONPARTICIPANTS
DURING THE FIRST 11 MONTHS OF PROGRAM ENROLLMENT
(Percentages, Unless Otherwise Noted)

	Demonstration Participants (Treatments and Controls)[a]	Eligible Nonparticipants
Age at Intake		
Average age (in years)	71.1	71.0
Younger than 65	14.2	16.8
65 to 74	46.9	42.4
75 to 84	38.9	40.9
85 or older	0.0	0.0
Male	47.5	48.2
Nonwhite	18.5	20.7
Original Reason for Medicare: Disabled or ESRD	24.7	27.5
State Buy-In for Medicare Part A or B	13.0	28.1***
Newly Eligible for Medicare (Eligible Less than Six Months)	0.6	0.0***
Enrolled in Fee-for-Service Medicare 6 or More Months During Two Years Before Intake	99.4	98.4
Medical Conditions Treated During Two Years Before Month of Intake[b]		
Congestive heart failure (without diabetes)	16.1	20.1
Diabetes (without congestive heart failure)	60.5	51.4**
Congestive heart failure and diabetes	21.6	20.4
Coronary artery disease	50.9	50.9
Stroke	11.8	24.6***
Cancer	18.0	23.6*
Chronic obstructive pulmonary disease	42.9	38.1
Dementia (including Alzheimer's disease)	0.0	0.0
Peripheral vascular disease	10.6	16.8**
Renal disease	8.1	13.2*
Total Number of Diagnoses (number)	2.6	2.8
Days Between Last Hospital Admission and Intake Date[b]		
No hospitalization in past two years	66.5	49.2***
0 to 30	1.9	5.9**
31 to 60	3.7	4.8
61 to 180	6.8	12.2**
181 to 365	8.7	12.9
366 to 730	12.4	15.1

TABLE 2 *(continued)*

	Demonstration Participants (Treatments and Controls)[a]	Eligible Nonparticipants
Annualized Number of Hospitalizations During Two Years Before Month of Intake[b,c]		
0	62.7	49.9***
0.1 to 1.0	26.1	33.6
1.1 to 2.0	8.7	10.1
2.1 to 3.0	2.5	3.7
3.1 or more	0.0	2.7**
Medicare Reimbursement per Month in Fee-for-Service During One Year Before Intake[b]		
Part A	$204	$484***
Part B	$263	$435***
Total	$467	$919
Distribution of Total Medicare Reimbursement per Month in Fee-for-Service During One Year Before Intake[b]		
$0	0.0	1.0
$1 to 500	77.0	60.4***
$501 to 1,000	9.3	13.6
$1,001 to 2,000	9.3	10.3
More than $2,000	4.4	14.7***
Number of Beneficiaries	**162**	**6,272**

Source: Medicare Enrollment Database and National Claims History File.

Note: The intake date used in this table is the date of enrollment for participants. For eligible nonparticipants, the intake date is April 15, 2002, the midpoint of the 11-month enrollment period examined.

[a]Participants who do not meet CMS's demonstration-wide requirements for the demonstration or had an invalid HIC number on MPR's enrollment file are excluded from this table because we do not have Medicare data showing their reimbursement in the fee-for-service program. Members of the same households as the research sample members are included.

[b]Calculated among beneficiaries with six or more months in Medicare fee-for-service in the two years before intake. (See Note above for definition of intake date.)

[c]Calculated as 12 x (number of hospitalizations during two years before month of intake)/(number of months eligible). The estimate of the proportion with no hospitalization in the two years before the month of intake may differ slightly from the proportion with no hospitalization in the two years before the date of intake because the two measure slightly different periods. Someone enrolled on September 20, 2003, whose only hospitalization in the preenrollment period occurred on September 5, 2003, would not be counted as hospitalized during the 24 months before the month of intake. Conversely, someone hospitalized on September 25, 2001, would be captured in the measure defined by month of enrollment, but not in the measure based on the day of enrollment.

*Difference between participants and eligible nonparticipants significantly different from zero at the .10 level, two-tailed test.

**Difference between participants and eligible nonparticipants significantly different from zero at the .05 level, two-tailed test.

***Difference between participants and eligible nonparticipants significantly different from zero at the .01 level, two-tailed test.

The distribution of patients with CHF and diabetes suggests that diabetics are slightly overrepresented compared with CHF patients. To be eligible for the program, beneficiaries had to have either diabetes or CHF. Just under 20 percent of participants and nonparticipants had CHF only, and about 20 percent of both groups had been treated for both CHF and diabetes. Participants were slightly more likely than eligible nonparticipants to have been treated for diabetes without CHF, however (60 versus 51 percent). In general, participants were less likely to have a history of certain other chronic conditions, including stroke, cancer, peripheral vascular disease, and renal disease (Table 2).

Participants were less likely to have been recently hospitalized and had lower Medicare reimbursement than eligible nonparticipants in the year before enrollment, suggesting that they were in relatively better health. About 21 percent of participants had a hospitalization in the year before enrolling, compared with 36 percent of nonparticipants.[13] Fewer participants had a hospitalization in the month before enrolling (two versus six percent). Participants also had substantially lower average monthly Medicare reimbursement during the year before intake ($467 versus $919) (Table 2). This estimate is also substantially below the estimate in the Lovelace CMDP waiver application. The waiver estimated that Medicare costs would average $1,443 per month for eligible beneficiaries in the absence of the program.[14]

Satisfaction and Voluntary Disenrollment. Although many eligible beneficiaries the program approached were not interested in participating, staff believe that the patients who *have*

[13]April 15, 2002, the mid-point of the 11-month enrollment period considered for this analysis, is used as a pseudo-enrollment date for nonparticipants. Actual enrollment dates were used for participants.

[14]Preenrollment costs are lower than projected postenrollment costs included in the waiver application in part because the sample members were all alive throughout the preenrollment period, whereas the projected costs included beneficiaries who died during the period over which costs were measured. However, the difference in costs is too large to be attributable solely to this difference in sample composition; it is primarily attributable to the CMDP having enrolled healthier beneficiaries than originally anticipated.

enrolled are highly satisfied with program services. This inference was based on an initial round of the program's annual patient satisfaction survey, which also showed that patients have begun to see for themselves that they are moving toward better self-management and symptom control. Staff believe that the program works best for patients who are motivated to change their self-care behavior but who do not know how to do it and for those who "have gotten lost in the system."

Patients may stay in the Lovelace CMDP from enrollment until the program ends in November 2004. During its first year of operation, the program's 22 CHF patients were enrolled for an average of 35 weeks and the 75 diabetes patients for an average of 21 weeks. (Two-thirds of the CHF patients had been enrolled more than 30 weeks, compared with under a third of diabetes patients.) Eleven of the 97 enrolled patients (11 percent) disenrolled voluntarily during the first program year (Table 3). Staff report that about half had changed their minds about wanting to participate, while others thought they were doing well enough on their own or had an ill relative to care for. In addition, one CHF patient left because his or her physician left the program to work for the Veterans Administration and one was disenrolled by the program because he or she never answered case manager telephone calls.

TO WHAT EXTENT DOES THE PROGRAM ENGAGE PHYSICIANS?

While the importance to program success of engaging eligible patients is self-evident, engaging physicians is also critical. Case managers must develop trusting, collaborative relationships with primary care physicians for physicians to feel (1) comfortable communicating important information to them about their patients (for example, medication changes, new problems identified during office visits, or areas for additional patient education); and (2) that the information they get from the case managers is credible and warrants their attention (for example, regarding problems in home environment that affect patients' health, functional deficits patients do not tell physicians about, or reminders about providing preventive care). A trusting,

TABLE 3

LENGTH OF STAY AND DISENROLLMENT FOR PATIENTS ENROLLED DURING FIRST TWELVE MONTHS

	Congestive Heart Failure	Diabetes
Number of Patients Enrolled[a]	22	75
Length of Enrollment (Percent of All Enrollees)		
5 weeks or less	0.0	17.3
6 to 10 weeks	0.0	25.3
11 to 30 weeks	36.4	28.0
31 weeks or more	63.6	29.3
Mean Length of Enrollment (weeks)	35.1	20.7
Number of Patients Who Disenrolled	5	8
Among Those Who Disenrolled, Number Dissenrolled for following reason:		
Patient completed program	0	0
Patient died	0	0
Patient lost program eligibility[b]	0	0
Patient initiated disenrollment	3	8
Program assessed patient as uncooperative[c]	1	0
Patient's physician left program	1	0
Other	0	0
Among Those Who Initiated Disenrollment, Number Disenrolling:		
Within a month of random assignment	0	3
Between 1 and 2 months	1	3
Between 3 and 4 months	1	1
5 or more months	3	1

Source: Lovelace program data received January 2003 and updated July 2003. Covers 12-month period beginning November 16, 2001, and ending November 15, 2002.

[a]Number of patients enrolled in the treatment group as of November 15, 2002.

[b]Patients can lose program eligibility for the following reasons: joining a managed care plan, changing care to Veterans Administration, going into hospice or moving to a nursing home.

[c]Uncooperative patients include those who did not respond to calls from case managers.

respectful relationship also will facilitate case manager access to physicians when urgent problems arise and will facilitate communication and coordination across medical care providers (Chen et al. 2000). Moreover, if the program seeks to improve clinical practice or increase acceptance of case management among physicians, case managers would naturally need to engage physicians.

The Lovelace CMDP would like primary care physicians to see case managers as patient care partners who have knowledge that busy physicians would not normally have about patients' psychosocial, environmental, and functional barriers to achieving optimal treatment adherence. The program recognizes that physicians have limited time, however. Therefore, it makes few requests of physicians beyond asking them to sign patient invitation letters, participate in CaMP visits, and respond to case manager requests to discuss specific patients and suggestions for medication or other treatment changes.

Collaboration. The CMDP is promoted to physicians as providing "intensive support in managing [their] most difficult and time-consuming patients." The CMDP practice model does not involve daily collaboration and coordination between physicians and case managers. Rather, it provides physicians with an extra set of ears (to learn of patient barriers to treatment adherence and worsening of symptoms) and eyes (to generally keep a closer watch on complex patients and provide assistance and resources to overcome barriers). The program has limited expectations for physician involvement because the staff recognize that physicians will be too busy to do more. As a result, the program focuses on getting patients to be more proactive self-managers, rather than having case managers acting on their behalf and frequently intervening with their physicians. The program expects, however, that physicians will (1) work with case managers to identify which of their patients are appropriate for the program; (2) review the assessment summary and draft care plan before the initial CaMP visit, then actively participate in that visit;

and (3) respond to case manager telephone calls about specific patient problems that come up between the twice-yearly CaMP visits.

To engage physicians, the program has adopted two primary strategies: (1) conducting the formal CaMP visits that include the case manager, patient, and physician; and (2) assigning case managers to patients based on the clinic to which the patient goes. The CaMP visits allow the case manager to highlight patient improvements in self-management and symptom control or the need for the physician to help the patient improve in these areas. The visits also allow the case manager to demonstrate her expertise to the physician.

Case managers are also assigned to care for all patients in particular clinics so that physicians and other clinic staff can speak with them face-to-face and thus develop good working relationships. Most contact between case managers and physicians, however, is by telephone.

The program also pays physicians $85 twice a year for working with the program case managers.

Improving Practice. The Lovelace CMDP also seeks to increase physician acceptance of case management, with the goal of providing better care for their patients. The program does not seek to improve clinical practice, although case managers occasionally remind physicians about particular items in the physician's health system practice guidelines. (LHS has developed practice guidelines called Episodes of Care; the other health systems participating in the program each have their own guidelines. Program staff believe that area physicians largely adhere to diabetes and CHF treatment guidelines.) The program intends to increase physicians' acceptance of case management by showing them that, when patients receive case management, their health improves and they take less of their physician's time. As noted, follow-up CaMP visits are an excellent forum to display patient improvement.

Efforts to engage physicians appear to have succeeded within the program's limited expectations. LHS and Presbyterian Health Systems physicians have cooperated in identifying which of their patients are appropriate for the program. In general, however, they do not directly refer their patients to the program. No physicians have raised active barriers to program implementation. However, program staff all state that it is difficult to meet in person with physicians because they are so busy. As a result, staff cannot get them as involved as they believe would be best.

Nevertheless, staff believe that primary care physicians, especially those who have patients in whom they see improvement, are satisfied with the program. Results of the program's first round of annual physician satisfaction surveys were not available for this report, but anecdotally staff have heard that physicians are "relieved" to have someone "keeping a closer eye on their patients." After more than a year of operation, program staff felt most physicians were cooperating with program case managers most of the time and, indeed, had come to see the value of case management for their patients.

HOW WELL IS THE PROGRAM IMPLEMENTING KEY INTERVENTION APPROACHES?

Improving communication between physicians and patients is the primary approach the Lovelace CMDP takes to improving patient health. It supports this approach by teaching patients better self-management skills and how to act as their own advocates. Teaching patients how to adhere to treatment recommendations is an important related goal.

Improving Communication and Coordination. Fundamental components of the Lovelace CMDP are improving communication between physicians and patients and making care less fragmented and more timely (that is, better coordinated). The program's primary strategy to support this approach is to teach patients (1) how to manage their health better (for example, to

understand the types and importance of preventive care and regular testing their conditions require); (2) how to be more proactive in articulating their concerns and needs to their primary care physicians; and (3) how to coordinate information that must be shared with specialty physicians. For example, if the patient needs to speak with the physician and has trouble getting past the physician's reception staff, case managers teach the patient to call the LHS or Presbyterian Health Systems triage nurse for assistance. CaMP visits, particularly those that follow the initial visit during which the case manager takes the lead, allow patients to practice articulating their needs to physicians and allow case managers to assess whether patient communication skills are improving. If they are not, case managers will continue to help patients to identify the source of their difficulties and to find a means for overcoming them, or if necessary, identify family members or other caregivers to assist the patient with communication tasks.

Case managers will also intervene on behalf of patients when necessary, however. For example, if a patient needs to make a physician appointment but is not doing it, the case manager will first explore with the patient possible barriers to making the appointment. After addressing each one, if the patient is still not able to do so, the case manager will make the appointment for the patient. When the need arises between CaMP visits, case managers communicate with physicians primarily by telephone or hand-carry urgent messages for specific patients to physicians' offices (rather than speaking with physicians informally in person in the clinics). For example, if a patient's symptoms worsen, apparently unrelated to any patient behavior, the case manager may telephone a patient's physician to discuss whether a workup is needed. If a case manager has identified a polypharmacy problem or believes that a patient is experiencing medication side affects, she will first discuss her concerns with the designated health system

pharmacist. Based on this discussion, the case manager or the pharmacist will then call the physician to resolve the problem.

Case managers hear about patients' adverse events primarily during regular monitoring contacts, although patients and their families are encouraged to call the case manager to tell her when such events occur. LHS inpatient case managers sometimes tell program staff if one of the program patients is hospitalized, or the case manager may see the admission on the LHS database. The program views all adverse events as "teachable moments" that may underscore the need for the patient to identify symptom changes earlier and to call the physician more quickly.

The program has taken the approach of teaching patients to communicate more effectively with their physicians, to understand their health care needs, then request and coordinate needed care, and to advocate for themselves. Case managers can assess the effectiveness of this teaching by directly observing patients interacting with their physicians during the program's CaMP visits and through discussions with patients during monitoring contacts. Staff believe they have been equally successful teaching LHS and non-LHS patients.

The Lovelace CMDP is hampered in its efforts to improve communication and coordination by the lack of timely information about (1) adverse patient events, (2) problems of polypharmacy, and (3) inconsistent advice from different physicians, that occur following the initial assessment. Its case managers rely primarily on patient self-reports of events and problems or reports that discharge planners may provide. Thus, the case manager may not learn about a hospitalization until some weeks after discharge. Only then can she check in with a patient as to whether he or she understood instructions or were given additional medications that might be redundant or interfere with ones the patient is already taking.

Improving Patient Adherence. Improving patient adherence to treatment regimens (with the assistance of family, when necessary) is also an important component of the Lovelace CMDP. Much of what the program does is geared toward teaching patients to recognize the connection between worsening CHF or diabetes symptoms and failure to adhere to treatment recommendations regarding medication, diet, and exercise. Moreover, the program wishes patients to learn that they have some control over their symptoms. Teaching begins during assessment. The program's assessment tool includes a "readiness-to-change" module that asks about recent disease management successes and barriers, whether the patient is willing and able to improve management, and, if not, why not. The assessment concludes with an agreement for the patient and case manager concerning which behavior(s) they will work on first.

Case managers do not receive any formal program-specific training in providing patient education. However, they discuss the education process informally at weekly staff meetings and have several teaching tools available. These include (1) a diabetes education teaching plan, (2) the *LHS Type 2 Diabetes Control and Self-Management Handbook*, and (3) *Learning to Live with Heart Failure: a Self-Care Handbook* (published by Channing L. Bete Co., Inc., 1997). Educational topics include (1) etiology; (2) signs and symptoms; (3) medication, diet, and exercise; and (4) self-management (for example, symptom monitoring, required preventive care and tests, triggers to avoid) and how to improve it. Case managers also provide copies of these materials to any patients they think would benefit from them. (The materials are written at an eighth-grade reading level and are available in English and Spanish.)[15] During the program's first year case managers followed an established curriculum called "The Right Stuff" and

[15] The program does not enroll beneficiaries who only speak Spanish and who do not have English-speaking caregivers, since none of its case managers are bilingual. However, staff estimate that only a handful of such patients (likely less than five) have been turned away for this reason.

sometimes referred patients to disease-specific education classes given by local hospitals. Case managers also give patients their business cards with six to eight basic self-management activities listed on the back (for example, blood sugar testing and foot exams for diabetics, weighing and medication adherence for patients with CHF). At every contact, the case manager asks the patient about each item on the card. This reinforcement prepares the patient for case manager contacts and emphasizes the importance of performing these activities. (The card, which the case managers call their "patient empowerment tool," appears in Appendix C.) Teaching takes place with every contact and adverse event. The case managers make a point of providing praise even for small patient successes.

To determine if the patient is learning as planned, case managers compare care plan goals to patient activities and outcomes since the last contact, allowing for "peaks and valleys" in patient adherence. They also gauge patient learning by observing how much patients incorporate the program's educational messages into their day-to-day self-care and behaviors. If the case manager finds that a patient is not learning, she works with the patient to identify learning barriers and the best method for learning. She then develops a plan to help the patient move forward. If the patient has a cognitive impairment, the case manager assesses the level of the impairment, adjusts her educational approach accordingly, and enlists family or other caregivers to assist the patient. If, despite this iterative process, patients persistently have difficulty with self-management and, as a result, are not making needed changes to self-care behavior, the case manager may suggest to the patient that he (or she) is not ready for the program, but that the patient could call on the case manager to reenroll in the program when he is. As noted earlier, after about a year of operations, the program was not using formal reports to track patient progress because staff believed they had too few patients to warrant it.

Among the 22 CHF patients enrolled in the CMDP during its first year, all but one (96 percent) had received at least one contact for self-care or disease-specific education, and many had at least one contact during which the case manager explained tests or procedures (64 percent) or medications (82 percent). Among the 75 diabetes patients, most had a contact for self-care or disease-specific education (87 percent), and many had a contact during which the case manager explained medications (63 percent) or tests or procedures (45 percent) (Table 1).

In summary, the Lovelace CMDP provides a simple, consistent educational message supported by disease-specific curricula and written materials. Education is provided primarily by case managers who are baccalaureate-prepared nurses. The program does not provide them with formal patient education training. Instead, it relies on that provided in basic nursing education supplemented by informal discussion of patient education issues during staff meetings. The program adapts its intervention to each patient's educational needs and abilities. The curricula do not appear to be highly structured, but their educational messages are limited, and case managers repeat those messages consistently at each patient contact. Case managers assess whether patients are learning by comparing patient activities to care plan goals and by observing whether the patient is applying education to daily self-care. If the patient is not learning, the case manager and patient identify learning barriers and approaches to overcoming them.

Increasing Access to Services. The Lovelace CMDP assesses all patients to ascertain whether they have unmet needs for support services which might be hindering their ability to adhere to treatment recommendations. The program has developed an extensive area resource manual to refer patients to a wide variety of services (or, if necessary, arranges services on their behalf). However, increasing access to support services is not the program's primary focus because fewer patients than expected have need such services.

The program will pay for several goods and services, usually on a one-time basis, if the patient cannot afford them: transportation, medical supplies, and equipment, such as scales and glucometers. The program also has a limited contingency fund to pay for medications. Transportation is in particularly short supply in the Albuquerque area, and a few patients have required assistance getting it. This usually first entails identifying family, acquaintances, or faith-based groups to provide rides. If these resources are not available, the case manager refers the patient to formal transportation services. As a last resort, the program provides vouchers for taxicab services. There is a two-year wait for state-funded personal care, so case managers have tried to identify patients they think will need personal care in a couple of years to get them on waiting lists in advance.

Some program patients have difficulty purchasing all the medications they need. Most have MediGap policies, but only some of these policies have prescription drug coverage, and others are so limited that some patients "max out" quickly. Prescription drug programs subsidized by pharmaceutical companies also have limits. Case managers have gotten some patients on Medicaid as Qualified Medicare Beneficiaries so that patients can use money they would have to have spent on Medicare premiums and cost sharing for their medications. Staff believe that most of their patients have incomes too high to qualify for the state pharmacy assistance program.

In fact, the program did not purchase many support services for patients or refer patients to them during its first year of operation.[16] During the year, the program provided two CHF patients (nine percent) with prescription medications and one diabetes patient (one percent) with home safety equipment (Table 4). In addition, case managers referred a small percentage of

[16]The program also paid physicians for their participation at least once for most of the 22 CHF patients (82 percent) and some of the diabetes patients (41 percent) who were enrolled during the year. The lower rate for diabetics is likely due to the fact that a higher proportion were relatively more recently enrolled than their counterparts with CHF.

TABLE 4

GOODS AND SERVICES PURCHASED FOR PATIENTS
ENROLLED DURING FIRST 12 MONTHS

	Congestive Heart Failure	Diabetes
Number of Patients Enrolled[a]	22	75
Percentage of Patients for Whom Program Purchased:[b]		
Assistive devices	0.0	0.0
Home or vehicle modification or safety equipment	0.0	1.3
Home monitoring devices[c]	0.0	0.0
Medication reminder devices	0.0	0.0
Mental health/spiritual counseling/emotional support	0.0	0.0
Meals	0.0	0.0
Prescription drugs	9.1	0.0
Transportation	0.0	0.0

Source: Lovelace program data received January 2003 and updated July 2003. Covers 12-month period beginning November 16, 2001, and ending November 15, 2002.

[a]Number of patients enrolled in the treatment group as of November 15, 2002.

[b]The program also paid physicians for coordinating with case managers. During its first year it made such payments on behalf of 82 percent of its congestive heart failure patients and 41 percent of it diabetes patients.

[c]Devices include scales and glucometers.

patients to non-Medicare-covered services or arranged services for them (14 percent of CHF patients and 8 percent of diabetes patients). However, more than three-quarters of the CHF patients and more than two-fifths of the diabetes patients received help arranging for Medicare-covered services such as diabetic education or foot and eye exams, as well as help arranging for CaMP visits with patient physicians (Table 1).

WHAT WERE ENROLLEES' MEDICARE SERVICE USE AND COSTS?

This report provides preliminary estimates of the effect of the CMDP on Medicare service use and expenditures. These early estimates must be viewed with caution, as they are not likely to be reliable indicators of the true effect of the program over a longer period. Due to lags in data availability, analysis for this report included only an early cohort of enrollees (those enrolling during the first nine months of program operation), and allowed observation of their experiences during their first two months in the program. The estimates thus include patients' experiences only during the program's first 11 months of operation, when staff still may have been fine-tuning the intervention. Moreover, the program may enroll patients with quite different characteristics over time.

During the first two months after random assignment, total Medicare Part A and B reimbursement for the treatment group, exclusive of demonstration payment, averaged $562 ($281 per month), compared with $1,161 ($581 per month) for the control group (Table 5). (Results are presented for the first two full calendar months after enrollment, excluding the first partial month.) The treatment group cost is quite low (similar to the rate paid to Medicare + Choice plans in the Albuquerque area). The large treatment-control difference ($599) is not statistically significant, however, due to the small sample size. Except for the rate of inpatient hospital admission, treatment and control group members had similar rates of use of different types of Medicare services.

TABLE 5

MEDICARE-COVERED SERVICE USE DURING THE TWO MONTHS AFTER THE MONTH OF RANDOMIZATION, FOR EARLY ENROLLEES

	Treatment Group	Control Group	Difference[a]
Inpatient Hospital Services			
Any admission (percent)	0.0	5.2	–5.2*
Mean number of admissions	0.00	0.07	–0.07
Mean number of hospital days	0.00	0.78	–0.78
Emergency Room Services			
Any emergency room encounters (percent)			
Resulting in admission	0.0	3.5	–3.5
Not resulting in admission	5.2	5.2	0.0
Total	5.2	8.6	–3.4
Mean number of emergency room encounters			
Resulting in admission	0.00	0.03	–0.03
Not resulting in admission	0.07	0.05	0.02
Total	0.07	0.09	–0.02
Skilled Nursing Facility Services			
Any admission (percent)	0.0	0.0	0.0
Mean number of admissions	0.00	0.00	0.00
Mean number of days	0.00	0.00	0.00
Hospice Services			
Any admission (percent)	0.0	0.0	0.0
Mean number of days	0.00	0.00	0.00
Home Health Services			
Any use (percent)	1.7	0.0	1.7
Mean number of visits	0.03	0.00	0.03
Outpatient Hospital Services[b]			
Any use (percent)	84.5	86.2	–1.7
Physician and Other Part B Services[c]			
Any use (percent)	87.9	89.7	–1.8
Mean number of visits or claims	4.4	5.1	–0.7
Mortality Rate (percent)	0.0	0.0	0.0
Total Medicare Reimbursement[d]			
Part A[e]	$0	$630	-$630
Part B	$562	$531	$31
Total	$562	$1,161	–$599
Reimbursement for Care Coordination[f]	$369	$0	$369***
Number of Beneficiaries	**58**	**60**	

Source: Medicare National Claims History File.

TABLE 5 *(continued)*

Note: Sample includes those enrolled during the first four months of program operations. Participants were excluded from this table if they had an invalid HIC number on MPR's enrollment file, were identified as a member of the same household as a research sample member, or did not meet Medicare coverage and payer requirements (defined as having Medicare as a secondary payer, being in Medicare managed care plan, or not having Part A and Part B coverage) during the month of randomization. Patient-months were excluded if the participant did not meet the above Medicare coverage and payer requirements that month, or had died in a previous month.

"Percents with any medical encounter type" are the percent of treatment or control group members who have at least one encounter of a particular type; "mean numbers of medical encounter types" are the average number of encounters of a particular type per treatment or control group member.

[a]The direction of the treatment-control difference does not by itself signify whether the program is "effective." That is, for some outcomes a statistically significant negative difference (such as lower hospitalization rates for the treatment group than for the controls) suggests that the program is working as intended. However, a positive difference for other outcomes, such as number of physician visits, does not necessarily mean the program is ineffective or having adverse effects, because the program may encourage patients to see their physician more regularly for preventative care or to obtain recommended laboratory tests for their target conditions than they would have in the absence of the demonstration.

Due to rounding, the difference column may differ slightly from the result when the control column is subtracted from the treatment column.

[b]Includes visits to outpatient hospital facilities as well as emergency room visits that do not result in an inpatient admission. Laboratory and radiology services are also included.

[c]Includes diagnostic laboratory and radiology services (including pathologist and radiologist services) from nonhospital providers, suppliers and devices, mammography, ambulance, covered medications, blood, and vaccines.

[d]Does not include reimbursement for care coordination services provided by demonstration programs.

[e]Includes reimbursement for inpatient, skilled nursing facility, hospice, and all home health care (including that paid under Medicare Part B). Excludes reimbursement for care coordination services provided by demonstration programs.

[f]This is the average amount paid to the program as recorded in the Medicare claims data for the two months following randomization. The difference between the recorded amount and two times the amount the program was allowed to charge per-member-per-month may reflect billing errors, delays, or payment adjustments for patients who disenrolled.

*Difference between treatment and control groups significantly different from zero at the .10 level, two-tailed test.
**Difference between treatment and control groups significantly different from zero at the .05 level, two-tailed test.
***Difference between treatment and control groups significantly different from zero at the .01 level, two-tailed test.

The large, though not statistically significant, difference in total Medicare spending seems to have resulted from a difference in hospitalization rates that was significant at the 10 percent level: three control group members, but no treatment group members, were hospitalized during the two-month reference period. The treatment and control groups did have a different preenrollment hospitalization history despite random assignment—this sometimes occurs with small samples. Seventy percent of treatment patients, compared with 48 percent of control patients, had no hospitalizations in the two years preceding enrollment (a difference statistically significant at the five percent level) (Table B.6). For the next report, because the number of enrollees will be larger, the two groups are likely to be statistically similar before enrollment. Thus, the differences in hospital use appear to be statistical artifacts resulting from small sample size.

The CMS per-member, per-month payment to the program averaged $185, less than the negotiated monthly rate of $205 for patients in the CHF program and $192 for patients in the diabetes program. The lower actual payment results from a lack of payment for patients who disenrolled, billing errors, or payment delays.

The evaluation also compared monthly Medicare use and spending trends for treatment and control group members from April through September 2002, months 6 through 11 of program operations (enrollment was too small from November to March to warrant inclusion) (Table 6). The sample enrolled each month is too small to draw inferences about program effectiveness; the table is included to demonstrate the types of analyses to be conducted in the future.[17]

[17]There are treatment group patient hospitalizations in Table 6, but not in Table 5, because sample and the follow-up period differ for the two tables. Table 5 includes two months of followup on all enrollees from November 16, 2001, through August 12, 2002. Table 6 includes all enrollees who were enrolled through the month end, whether or not it was within the first two months after their own enrollment.

TABLE 6

MONTH-BY- MONTH IMPACTS FOR SIX MONTHS OF PROGRAM OPERATIONS

	Group	Apr 02	May 02	Jun 02	Jul 02	Aug 02	Sep 02
Cumulative Enrollment Through Month End	Treatment	9	15	25	30	34	49
	Control	8	15	25	30	32	48
Number of Beneficiaries Enrolled Who Meet Medicare Coverage and Payer Requirements and Are Alive That Month	Treatment	9	14	24	29	32	45
	Control	8	15	25	30	32	45
Mean Medicare Reimbursement During the Month[a]	Treatment	$388	$328	$305	$319	$368	$443
	Control	$387	$333	$1,111	$788	$1,801	$240
Mean Reimbursement for Care Coordination During the Month[a,b]	Treatment	$175	$169	$180	$182	$177	$168
Whether Admitted to Hospital This Month[a] (Percentage)	Treatment	0.0	0.0	0.0	0.0	0.0	4.4
	Control	0.0	0.0	4.0	3.3	3.1	0.0
Treatment - Control Difference[c]							
Mean Medicare Reimbursement[a]		$1	–$5	–$806	–$469	–$1,433	$203
Mean Reimbursement for Medicare plus Care Coordination[a]		$176	$164	–$626	–$287	–$1,256	$371**
Percentage Hospitalized[a]		0.0	0.0	–4.0	–3.3	–3.1	4.4

Source: Medicare National Claims History File.

[a]Participants were excluded if they died in a previous month or failed to meet the Medicare coverage and payer requirements during the month of randomization or the month examined—that is, if they were in a Medicare managed care plan, had Medicare as a secondary payer, or did not have both Part A and Part B coverage. Participants were also excluded entirely from this table if they had an invalid HIC number on MPR's enrollment file.

[b]This is the mean amount paid to the program as recorded in the Medicare claims data. The difference between the recorded amount and the program's approved per-member-per-month fee may reflect billing errors, delays, or payment adjustments for patients who disenrolled.

TABLE 6 *(continued)*

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[c]The direction of the treatment-control difference does not by itself signify whether the program is "effective." That is, for some outcomes a statistically significant negative difference (such as lower hospitalization rates for the treatment group than for the controls) suggests that the program is working as intended. However, a positive difference for other outcomes, such as number of physician visits, does not necessarily mean the program is ineffective or having adverse effects, because the program may encourage patients to see their physician more regularly for preventative care or to obtain recommended laboratory tests for their target conditions than they would have in the absence of the demonstration.

*Difference between treatment and control groups significantly different from zero at the .10 level, two-tailed test.
**Difference between treatment and control groups significantly different from zero at the .05 level, two-tailed test.
***Difference between treatment and control groups significantly different from zero at the .01 level, two-tailed test.

It is too soon to tell whether the difference in Medicare reimbursement observed for this early cohort of program patients over a relatively short follow-up period are due to program effectiveness at reducing hospitalizations or are simply a result of the vagaries of small sample sizes.

CONCLUSION

Research over the past decade suggests, but is by no means conclusive, that successful care coordination has a number of features. These include effective patient identification, a well-designed and structured intervention, highly qualified staff, physician buy-in, and financial incentives aligned with program goals.

First, to generate net savings over a relatively short period, effective programs tend to target high-risk people. These people may include those with recognized high-cost diagnoses such as heart failure, but also those with prevalent geriatric syndromes such as physical inactivity, falls, depression, incontinence, misuse of medications, and undernutrition (Rector and Venus 1999; and Fox 2000).

Second, successful programs tend to have a comprehensive, structured intervention that can be adapted to individual patient needs. Key features include a multifaceted assessment whose end product is a written care plan that can be used to monitor patient progress toward specific long- and short-term goals and that is updated and revised as the patient's condition changes; and a process for providing aggregate- and patient-level feedback to care coordinators, program leaders, and physicians about patient outcomes (Chen et al. 2000). Another critical aspect is patient education that combines the provision of factual information with techniques to help patients change self-care behavior and better manage their care, as well as addressing affective issues related to chronic illness such as depression (Williams 1999; Lorig et al. 1999; Vernarec 1999; Roter et al. 1998; and Aubry 2000). Finally, successful programs tend to have structures

and procedures for integrating fragmented care and facilitating communication among providers, to address the complexities posed by patients with several comorbid conditions, and, when necessary, to arrange for community services (Chen et al. 2000; Bodenheimer 1999; and Hagland 2000).

The third and fourth characteristics that have been associated with successful programs are having highly trained staff, and having actively involved providers. Strong programs typically have care coordinators who are baccalaureate-prepared nurses or who have case management or community nursing experience. They also tend to have the active support and involvement of patients' physicians (Chen et al. 2000; and Schore et al. 1999).

Finally, periodic feedback during the demonstration period can motivate providers and care coordinators and enable the program to modify or intensify the intervention if it appears that it is not having the expected effect on intermediate or ultimate outcome indicators. Financial incentives can help to encourage physicians and program staff to look for creative ways both to meet patient goals and reduce total health care costs (Schore et al. 1999).

Program Strengths and Unique Features. The Lovelace CMDP has many of the features associated with effective care coordination:

- The program targets patients with diagnoses that typically are associated with high health care costs and uses searchable databases at participating hospitals to identify potential patients. After eligible patients are identified, physicians review them for program appropriateness, then sign letters inviting patients to participate.
- The program administers a structured, in-person assessment that hones in on patients' views of their own barriers to better treatment adherence. Assessments also include pharmacist review of each patient's medication list. Assessment-based care plans are shared with physicians at the first of a series of twice-yearly meetings that include the case manager, patient, and physician. Physicians provide acceptable ranges for clinical indicators for the care plan.
- The program monitors patients primarily by telephone, with each contact following a set of self-management-related questions meant to reinforce the program's educational intervention. Patients monitor their own symptoms and vital signs and

report them at each contact. Case managers continually compare patient activities and knowledge with care plan goals, updating plans as patient needs change.

- The program's education intervention teaches patients self-management and self-advocacy (particularly with physicians). It focuses on approaches to overcoming individual barriers to health behavior change, ranging from long-lived habits to difficulties posed by other medical conditions. The educational message is simple and consistently delivered at each contact. The message emphasizes the relationship between treatment adherence and symptoms to give patients a sense of control over their disease. The program views adverse events as learning opportunities.

- The program views case managers as supplementing physicians' efforts and coordinating care with them, rather than as collaborating with them on a daily basis. To develop the trusting relationship with physicians needed to facilitate the sharing of patient information, the case managers meet with patients' physicians twice a year. The meetings also provide an opportunity for physicians and case managers to appear together as a team, speaking with one voice to patients.

- The program seeks to reduce care fragmentation primarily by teaching patients what types of care they need, how to arrange for it themselves, and how to get clarifying information from physicians. The program also includes regular pharmacist review of patient medications to identify and address problems of polypharmacy or suboptimal prescribing.

- The program has developed a resource manual to help case managers arrange for support services and goods for patients, and it is able to pay a modest amount for some goods and services.

- The program employed case managers who were baccalaureate-prepared nurses. (The case manager supervisor, who was a social worker, assisted the nurses when patients had psychosocial problems that were barriers to self-care behavior change.) The program provides each with individual training on the CMDP model of case management and supervises each one closely. This individual-specific approach seemed workable during the program's first year when it had relatively few case managers.

- Program demands on physicians are modest in recognition of physicians' busy schedules. (This is a likely circumstance in many settings where care coordination might be implemented as an ongoing benefit.) Anecdotal evidence suggests that participating physicians are relieved to have another professional keeping an eye on their more complex patients.

- The program does not provide financial incentives to staff to achieve particular patient outcomes or program goals. It does, however, reimburse physicians for working with its case managers.

Potential Barriers to Program Success. The Lovelace CMDP faces several challenges. First and foremost, the program has had great difficulty meeting its enrollment target. Staff

report that part of the shortfall has been due to increased managed care penetration in the Albuquerque area in the past few years, leading to fewer beneficiaries than expected being eligible for the program. (About a third of all Medicare beneficiaries in the Albuquerque area were in managed care in early 2004.)[18] On the other hand, the Medicare data simulation conducted for this report suggests that more than 6,000 beneficiaries in the Albuquerque area were eligible for the program during its first year (albeit many may have been served by health systems other than LHS and the others participating in the CMDP). In addition, the program has encountered less interest than expected among eligible patients. Although physicians sign program invitation letters to their own patients, their limited involvement in encouraging patients to enroll likely contributes to the shortfall.

A second challenge is that the program is enrolling patients who appear to be healthier, and to thus have lower Medicare expenses, than originally planned. Participating patients were less likely than eligible nonparticipants to have a variety of comorbid conditions (such as stroke, cancer, and peripheral vascular disease) and were less likely to have been hospitalized during the year and month before enrollment. As a result, total Medicare spending for participants during the year before enrollment was about half that for eligible nonparticipants. It was also markedly lower than spending estimated in the program's waiver application. If the program continues to enroll patients similar to those enrolled during its first year, it will be very difficult for it to save enough money to cover the costs of its intervention.

A second-order barrier to success is the absence of a process to generate reports on patient outcomes (for example, patient self-care, clinical indicators, and adverse events) to help program administrators determine whether the intervention is attaining its broad objectives, such as

[18] http://www.cms.hhs.gov/healthplans/reportfilesdata/default.asp

increasing patient adherence and reducing the incidence of adverse events, and if not, why not. Such reports would also indicate whether particular case managers were performing better than others and might suggest approaches to improving performance. Reports of patient outcomes could also provide valuable feedback to case managers and physicians. Although the program's Access database appears to track at least some of these outcomes, program staff noted that they did not have the resources to develop formal reports from it.

Finally, a short-term barrier may be posed by the program's need to the train nurses it hires in case management because they are not required to have extensive case management experience. The program appears to have an effective one-on-one approach to training, but the time needed for case managers to become fully effective is likely to contribute to a lack of program effectiveness in its early months. The program plans to hire master's-prepared nurses in the future to reduce training time and to ensure staff have better "critical thinking" skills.

Plans for the Second Site-Specific Report. MPR will prepare a second report on CMDP activities during its second and third years of operation that will focus more heavily on program impacts based on survey and claims data. That report will also describe changes made to the program over time and the reasons for those changes, as well as staff impressions of program successes and shortcomings. The report is due in mid-2005.

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APPENDIX A

ADDITIONAL TABLES

A.1 DEMONSTRATION PROGRAMS PARTICIPATING IN THE EVALUATION

A.2 LIST OF DOCUMENTS REVIEWED FOR THIS REPORT

TABLE A.1

DEMONSTRATION PROGRAMS PARTICIPATING IN THE EVALUATION

Host Organization	Organization Type	Service Area	Targeted Diagnoses
Avera Research Institute/Avera McKennan Hospital and University Health Center	Hospital	49 counties in South Dakota and 22 contiguous counties in Minnesota, Nebraska, and Iowa	CHF
Carle Foundation	Integrated delivery system	11 counties in east central Illinois and 2 counties in west central Indiana	Heart conditions Diabetes Chronic lung disease
CenVaNet	Provider of care coordination services owned by hospitals and physicians	Richmond, Virginia, metropolitan area	Heart conditions Diabetes Chronic lung disease Cerebrovascular disease
Charlestown Retirement Community	Part of Erickson Retirement Communities	2 retirement communities in the Baltimore, Maryland, metropolitan area[a]	Heart conditions Diabetes COPD
CorSolutions	Provider of disease management services	Harris, Fort Bend, Bruzoria, and Montgomery counties, Texas (Houston area)	CHF
Georgetown University Medical School	Academic institution in partnership with Medstar, owner of Georgetown University Hospital and Washington Hospital Center	Washington, DC, and parts of Maryland and Virginia	CHF
Health Quality Partners	Provider of quality improvement services	Four counties in eastern Pennsylvania	Heart conditions Diabetes Asthma Moderate to severe hyperlipidemia or hypertension
Hospice of the Valley	Hospice	Maricopa County, Arizona (greater Phoenix)	CHF COPD Cancer Neurological conditions

TABLE A.1 *(continued)*

Host Organization	Organization Type	Service Area	Targeted Diagnoses
Jewish Home and Hospital Lifecare System	Long-term care provider, in partnership with the medical practices of St. Luke's and Mt. Sinai hospitals as referral sources	Manhattan and the Bronx, New York City	Heart conditions Diabetes Chronic lung disease Cancer Liver disease Stroke or other cerebrovascular disease Psychotic disorder Major depressive or anxiety disorder Alzheimer's or other cognitive impairment
Lovelace Health Systems	Integrated delivery system	Albuquerque metropolitan statistical area (Bernalillo, Valencia, and Sandoval counties in New Mexico)	CHF Diabetes
Medical Care Development	Consortium of 17 Maine hospitals hosted by a health services research organization	Rural areas of Maine	Heart conditions
Mercy Medical Center/North Iowa	Hospital	Rural areas of Iowa	CHF Chronic lung disease Liver disease Stroke Vascular disease Renal failure
QMed	Provider of disease management services	2 counties in northern California	CAD
Quality Oncology, Inc.	Provider of disease management services	Dade and Broward counties, Florida	Cancer
University of Maryland Medical School	Academic institution	Baltimore, Maryland, metropolitan area, two counties in western Maryland, four in eastern Maryland, and two in Pennsylvania	CHF
Washington University School of Medicine	Academic institution in partnership with American Healthways, a disease management services provider	St. Louis, Missouri, metropolitan area	No specific diagnoses targeted[b]

TABLE A.1 *(continued)*

Note: Each program's service area and targeted diagnoses refer to its first year of operations.

Heart conditions may include congestive heart failure (CHF); coronary artery disease (CAD); atrial fibrillation; and ischemic, hypertensive, or other heart diseases. Chronic lung disease includes asthma and chronic obstructive pulmonary disease (COPD). Neurological conditions include stroke, Alzheimer's disease, Parkinson's disease, and amyotrophic lateral sclerosis.

[a]Charlestown added a third retirement community in April 2003.

[b]Washington University uses an algorithm developed by its demonstration partner, American Healthways, to target Medicare beneficiaries who are likely to become clinically unstable and to require hospitalization during the next 12 months.

APPENDIX B

METHODS USED TO ANALYZE PARTICIPATION AND PROGRAM IMPACTS

This appendix describes the methods and data sources used to analyze participation and treatment-control service use and reimbursement differences using Medicare data.

A. METHOD FOR CALCULATING PARTICIPATION RATE AND PATTERNS

We measured the proportion and types of beneficiaries attracted to the program by calculating the participation rate and patterns. The participation rate was calculated as the number of beneficiaries who met the program's eligibility criteria and actually participated during the first 11 months of the program's operations, divided by the number who met the eligibility criteria. The 11 month window spanned 329 days, from November 16, 2001, through October 11, 2002. We explored patterns of participation by comparing eligible participants and eligible nonparticipants, noting how they differed on demographics, reason for Medicare eligibility, and costs and use of key Medicare services during the previous two years.

1. Approximating Program Eligibility Criteria

We began by identifying the program's eligibility criteria, reflecting CMS's insurance coverage and payer criteria for all programs and Lovelace Health Systems' specific criteria. CMS excluded beneficiaries from the demonstration who were not at risk for incurring full costs in the fee-for-service (FFS) setting because they (1) were enrolled in a Medicare managed care plan, (2) did not have both Part A and B coverage, or (3) did not have Medicare as the primary payer.

In addition, Lovelace applied program-specific criteria to identify the target population. Table B.1 summarizes these criteria, which were approved by CMS and by the Office of Management and Budget (Brown et al. 2001). The program confirmed these criteria in spring 2003. From November 2001 through May 2002, to be considered for the program's demonstration, beneficiaries must have received treatment for congestive heart failure (CHF) or

diabetes with a Cornell Comorbidity Index of 3 or more. Patients with CHF are required to have a hospital admission in the previous two years for CHF. Patients with diabetes must have an HgA1c of 8 or higher but do not need to have had a hospitalization.

TABLE B.1

ELIGIBILITY CRITERIA

Inclusion Criteria	**Criteria 11/01-5/31/02:** Beneficiaries seen in Lovelace Health Systems in preceding three years or by outside physicians for CHF or diabetes with Cornell Comorbidity Index of 3 or more. In addition, patients with CHF are required to have a hospitalization in the previous two years for CHF; no hospitalization requirement is applied to patients with diabetes. Patients with diabetes must have an HgA1c of 8 or higher. The Cornell Comorbidity Index assigns a weight of 1 for Myocardial Infarction, CHF, peripheral vascular disease, and cerebrovascular disease; 2 for chronic pulmonary disease, connective tissue disease, ulcer disease, mild liver disease, and diabetes; 3 for hemiplegia; and 6 for moderate or severe renal disease, diabetes with end organ damage, any tumor, leukemia, lymphoma, moderate or severe liver disease, metastatic solid tumor, and AIDS. **Criteria from 6/1/02 on:** **Diabetes:** • HgA1c of 8 or above over the last rolling year (no additional co-morbidity needed) **or** • A diagnosis of diabetes **and** any CAD documented over the last rolling year **or** • *A HgA1c of 6 or above **and** o Diagnosis of hyperlipidemia as indicated by ▪ Medication ▪ Or LDL>130 ▪ Diagnosis and o Diagnosis of hypertension as indicated by ▪ BP>130/80 ▪ Medication ▪ Diagnosis *No more than 20% of total current sample can be included in study with this criteria **Congestive Heart Failure:** • Diagnosis of CHF with an echocardiogram (ECHO) indicating an ejection fraction of 50% or less **or** • Hospitalized for heart failure within the last 2 years **or** • New York Heart Association functional classification of Class 3 or 4 by diagnosis or clinical presentation

	or
	• CHF diagnosis with a previous myocardial infarction or COPD, or Diabetes Mellitus (or hospitalized for diabetes complications), or renal insufficiency
	  o Check dictation and/or problem list in IDX
	or
	• Patient fulfills the clinical syndromes for heart failure, but does not have an ECHO or ECHO is normal
	  o Peripheral/pulmonary edema
	  o Diuretic medications
	  o Left ventricular systolic function compensated (LVSF)
	  o Check dictation in IDX
	
	ICD-9 Codes used by Lovelace:
	
	CHF: 428
	Diabetes: 250.0, 250.4, 250.5, 250.6, 250.7
	
	Codes for Cornell Comorbidity Index:
	Myocardial infarction: 412
	Peripheral vascular disease: 443.9, 440.2
	Cerebrovascular disease: 430-438
	Chronic pulmonary disease: 490-496, 416, 516.3
	Connective tissue disease: 710.9, 357.1, 714, 710
	Ulcer: 531-534
	Mild liver disease: 070.9, 571.0, 571.1, 571.40, 571.41, 571.8, 573.0, 573.1, 573.2
	Hemiplegia: 342
	Moderate or severe renal disease: 403, 585, 586
	Any tumor, leukemia, lymphoma, metastic: 140-208, 230-234
	Moderate or severe liver disease: 571.2, 571.5, 571.6, 572.2, 572.3, 572.8
	AIDS: 042

Exclusion Criteria	**Criteria 11/01-5/31/02:** Meets any of the following criteria: 1. Cannot read at a 4th grade level in Spanish or English and does not have caregiver who can 2. Has cognitive deficit and does not have a caregiver who will participate 3. Has dementia or Alzheimer's 4. Has participated in Lovelace's telemedicine program in the past year 5. Resides in a nursing home **Criteria from 6/1/02:** Added: 6. Is age 85 or over
Providers/Referral Sources	**Original:** Lovelace Health Systems hospitals, clinics, and physicians, providers, and hospitals outside of the LHS network **From 2/02:** Added Presbyterian Health Systems **From 4/03:** Added Sandia Health Systems (formerly St. Joseph's)
Geographic location	Albuquerque metropolitan statistical area (Bernalillo, Valencia, and Sandoval counties in New Mexico).

Lovelace changed its criteria effective June 1, 2002. To be considered for the program's demonstration after that time, beneficiaries still had to have diabetes or CHF, but the more specific clinical criteria changed. Patients with diabetes must satisfy one of the following criteria in the preceding year: treated for diabetes with an HgA1c of 8 or above; treated for diabetes and coronary artery disease (CAD); or treated for diabetes with an HgA1c of 6 or above and a diagnosis of hyperlipidemia or hypertension. Patients with CHF are required to meet one of the following criteria: diagnosis of CHF with an echocardiogram (ECHO) indicating an ejection fraction of 50 percent or less; a hospitalization for heart failure within the last two years; a New York Heart Association functional classification of Class 3 or 4 by diagnosis or clinical presentation; a CHF diagnosis with a previous myocardial infarction (MI), chronic obstructive pulmonary disease (COPD), diabetes, or renal insufficiency; or have heart failure without an abnormal ECHO.

Along with meeting these clinical criteria, at the time of enrollment the following types of beneficiaries were excluded: those who (1) read at less than a 4th grade level in Spanish or English without a caregiver who can read at a 4th grade level or higher, (2) have a cognitive deficit without a caregiver who will participate, (3) have Alzheimer's disease or other dementia, (4) have participated in Lovelace's telemedicine program in the past year, (5) are residents of a nursing home, or (6) are aged 85 or older. The last criterion was added in June of 2002.

We could approximate most of Lovelace's criteria with some exceptions using Medicare data. We implemented Lovelace's requirement that a patient must have ever had a diagnosis for one of the target conditions, by examining whether a beneficiary had such an encounter at any point during the 35-month period beginning December 1, 1999, two years before enrollment began, and ending 11 months after enrollment started (October, 31 2002). We were unable to observe the complete diagnostic history for beneficiaries who had not been in FFS Medicare

during the full two years before the 11-month enrollment window.[1] We could not approximate HgA1c levels, use of hyperlipidemia or hypertension medications, cholesterol readings, blood pressure readings, ejection fraction, or NYHA class. We also needed to rely on two years of pre-enrollment data for the first target criteria, rather than the three year period used by Lovelace. Additionally, we could not fully approximate four of Lovelace's exclusion criteria using Medicare data: meeting the literacy requirement, having a cognitive deficit with no willing caregiver, participating previously in Lovelace's telemedicine program, and residing in a nursing home. We applied Lovelace's age restriction to the full enrollment period. To identify whether a beneficiary met the exclusion or utilization criteria (hospitalization for CHF; or a medical visit for CHF and diabetes, CAD, or COPD; or a visit for diabetes with either a Cornell Comorbidity index value of 3 or more or a visit for CAD) at any point during the enrollment window, we examined a 31-month period for the early enrollees, beginning two years before the program began and ending 7 months after the program began; a 17-month period for later enrollees with diabetes, beginning one year before the enactment of the new criteria (June 1, 2002) and ending 5 months after; and a 29-month period for later enrollees hospitalized for CHF, beginning two years before the enactment of the new criteria and ending 5 months later.

2. Identifying Health Insurance Claim (HIC) Numbers and Records of Participants and All Beneficiaries

Medicare claims and eligibility data and data submitted by the program were used to identify participants and eligible nonparticipants. For all participants, we used the Medicare

[1] Among the 162 who enrolled in the first eleven months, who had valid Health Insurance Claim numbers reported and who met CMS's insurance requirements during the month of intake, 3.7 percent were enrolled in Medicare FFS 12 or less of the previous 24 months before they enrolled in the demonstration; less than one percent of participants were in FFS less than 6 of the 24 months before enrolling.

Enrollment Data Base (EDB) file to confirm the HIC number, name, and date of birth submitted by the program when beneficiaries were randomized. We identified potentially eligible nonparticipants by identifying the HIC numbers of all Medicare beneficiaries who were alive and living in the catchment counties during the 11-month enrollment window. Initially, three years of Denominator records (1999-2001) and one year of HISKEW records (2002) were used to identify people living in the catchment counties at any time in the 1999-2002 period. HIC numbers of potentially eligible nonparticipants and all participants together formed a "finder file." The finder file was used to gather data on the beneficiary's state and county of residence during the 11-month enrollment period, as well as to obtain eligibility information from the EDB. Using this information, we limited the sample to people living in the catchment counties at any point during the 11-month enrollment window. This finder file was also used to make a "cross-reference" file to ensure that we obtained all possible HIC numbers the beneficiary may have been assigned. This was done using Leg 1 of CMS's Decision Support Access Facility. At the end of this step, we had a list of HIC numbers for all participants, as well as all beneficiaries living in the catchment area during the 11-month enrollment period.

3. Creating Variables from Enrollment and Claims Data

We obtained eligibility information from the EDB and diagnostic and utilization data from the National Claims History (NCH). All claims files were accessed through CMS's Data Extract System. At the end of February 2003, we requested Medicare claims from 1999 through 2002. We received all claims that were updated by CMS through December 2002. This allowed a minimum of a two-month lag between a patient's receipt of a Medicare-covered service in the

last month we examined—October 2002—and the appearance of the claim on the Medicare files.[2]

Medicare claims and eligibility information were summarized as monthly variables from November 1999 through October 2002, for a total of 36 months. This enabled us to look at the eligibility status and the use of Medicare-covered services during any month in the two years before the program's start, to analyze participation in the first 11 months of program operation and to analyze treatment-control differences in Medicare service use and reimbursement following enrollment.

The EDB file provided the information with which to construct measures of beneficiaries' demographic characteristics (age, sex, race), dates of death, original reason for Medicare entitlement, Medicare managed care enrollment, Part A and B coverage, whether Medicare was the primary payer, and the state buy-in proxy measure for enrollment in Medicaid.

The Medicare claims data in the NCH files were used to construct measures of Medicare-covered service use and reimbursement by type of service (inpatient hospital, skilled nursing facility, home health, hospice, outpatient hospital, and physician and other Part B providers). When the services spanned months, the monthly variables were allocated based on the number of days served in that month as documented in the CLAIM FROM and CLAIM THRU dates. The length of stay for a month represented actual days spent in the facility in that month; costs were prorated according to the share of days spent in each month. Ambulatory visits were defined as

[2] Occasionally, the HIC number in the cross-reference file was not in the EDB file that we used. Because data from the EDB were needed for the analyses, such beneficiaries were dropped from the sample. One reason for differences between the HIC numbers in the EDB and cross-reference files was that the two files were updated at different times. CMS created the cross-reference file using the unloaded version of the EDB, which was updated quarterly. We extracted data using the production version of the EDB, which was updated every night.

the unique counts of the person-provider-date, as documented in the physician/supplier and hospital outpatient claims. Durable medical equipment (DME) reimbursements were counted in other Part B reimbursement. A small number of negative values for total Part A and Part B reimbursements during the past two years occurred for some of the demonstration programs. Any negative Part A and Part B amounts were truncated to zero. The few patients with a different number of months in Part A and Part B were dropped from the analysis of reimbursement in the two years before intake.

When we examined a beneficiary's history from the month during which they were randomized, we used the actual date of randomization for participants and a simulated date of randomization for nonparticipants: April 15, 2002 (a little less than the midpoint of the eleven-month enrollment window).

4. Defining Eligible Nonparticipants and Eligible Participants

We used target criteria information to whittle the group of beneficiaries who lived in the catchment area down to those who met the program's eligibility criteria that we could measure using the Medicare data. Tables B.2 and B.3 illustrate the exclusions used to identify the sample of eligible participants and nonparticipants used to analyze the participation rate.

We identified 85,835 beneficiaries who lived in Lovelace's catchment area at some point during the first 11 months of enrollment (Table B.2). We then excluded 37,817 people (44.1 percent) who did not meet the insurance requirements set by CMS during one or more months during the 11-month enrollment window. Another 35,252 of the remaining people (41.1 percent of all area beneficiaries) were dropped since they were not treated for one or more of the target diagnoses the program identified as necessary for inclusion during the 35 months from December 1999 through October 2002 (which includes the two years before the program began, as well as the 11-month enrollment window). Forty-three percent of the remaining beneficiaries

TABLE B.2

SAMPLE OF ALL ELIGIBLE BENEFICIARIES FOR PARTICIPATION ANALYSIS

Sample	Number
Full Sample of Eligible Beneficiaries Who Live in Catchment Area One or More Months During the First 11 Months of Enrollment	85,835
Minus those who:	
During 11-month enrollment period, either (1) were always in a Medicare managed care plan, or (2) never had Medicare Part A coverage, or (3) never had Medicare Part B coverage, or (4) Medicare was not primary payer during one or more months	–37,817
Did not have one or more of the target diagnoses on any claim during the two years before the program started or during the 11 month enrollment window	–35,252
Did not have a hospitalization for CHF; or a medical visit for diabetes with either a Cornell Comorbidity Index of 3 or more or a visit for CAD; or a diagnosis of CHF and CAD, COPD, or diabetes during the 31 months from April 2000 through October 2002[a]	–5,460
Met at least one of the exclusion criteria during the 31 months from April 2000 through October 2002	–872
Eligible Sample	**6,434**

[a]The Cornell Comorbidity Index assigns a weight of 1 for myocardial infarction, CHF, peripheral vascular disease, and cerebrovascular disease; 2 for chronic pulmonary disease, connective tissue disease, ulcer disease, mild liver disease, and diabetes; 3 for hemiplegia; and 6 for moderate or severe renal disease, diabetes with end organ damage, any tumor, leukemia, lymphoma, moderate or severe liver disease, metastatic solid tumor, and AIDS.

(5,460 people) did not meet the diagnostic or utilization requirements we measured during the appropriate time period as discussed above (this includes a period of up to 24 months before the program began, as well as the relevant enrollment window). Finally, 872 people were identified as meeting Lovelace's exclusion criteria, leaving us with a sample of 6,434 beneficiaries in the three counties eligible to participate in Lovelace's program.

Lovelace randomized 172 beneficiaries during the first eleven months of operation (Table B.3). Of these, one beneficiary could not be matched to their Medicare claims data due to problems with their reported HIC number and was therefore excluded form the participation sample[3]. Lovelace randomized three beneficiaries who had an address on the EDB that was outside its county catchment area. We excluded these cases from the participation analysis to maintain comparability to the eligible nonparticipant sample. We also excluded eight participants who did not meet CMS's requirements during the month of intake. All participants had at least one claim for a target diagnosis during the appropriate time period. The largest share--44 participants (26 percent)--were dropped from the participation analysis because they did not meet the utilization or comorbidity requirement during the one or two years before the relevant intake period. Among the 172 participants randomized by Lovelace into the program during its first 11 months of operations, after exclusions, 116 people are included in the participation analyses as eligible participants.

Lovelace's participation rate for the first 11 months of enrollment is calculated as the number of participants who met the eligibility requirements (116), divided by the number of eligibles who live in the catchment area (6,434), or 1.8 percent.

[3] A corrected HIC number was later submitted. The beneficiary will be included in the second site-specific report.

TABLE B.3

SAMPLE OF ELIGIBLE PARTICIPANTS FOR PARTICIPATION ANALYSIS

Sample	Treatment Group	Control Group	All
Full Sample of Participants Randomized During the First 11 Months of Enrollment	86	86	172
Minus those who:			
Had an invalid HIC number on MPR's enrollment file	–1	–0	–1
Not in geographic catchment area during the month of intake	–3	–0	–3
In a Medicare managed care plan, or did not have Medicare Part A and B coverage, or Medicare is not primary payer during the month of intake	–5	–3	–8
Did not have one or more of the target diagnoses on any claim during the two years before the program started or during the 11 month enrollment window	–0	–0	–0
Did not have a hospitalization for CHF; or a medical visit for diabetes with either a Cornell Comorbidity Index of 3 or more or a visit for CAD; or a diagnosis of CHF and CAD, COPD, or diabetes during the 31 months from April 2000 through October 2002[a]	–23	–21	–44
Met at least one of the exclusion criteria during the 31 months from April 2000 through October 2002	–0	–0	–0
Eligible Sample	**54**	**62**	**116**

TABLE B.3 *(continued)*

Note: The number of sample members reported as excluded at each point reflects *people in the previous line* who did not meet the additional eligibility criteria according to Medicare data. Thus, the table applied sequential criteria. The program actually used patient self-reports of diagnosis and service use. The total number of people who failed to meet a particular exclusion criteria may have been greater than the number reported in this table for program criteria that we could not fully assess using claims data (for example, reading level).

[a]The Cornell Comorbidity Index assigns a weight of 1 for myocardial infarction, CHF, peripheral vascular disease, and cerebrovascular disease; 2 for chronic pulmonary disease, connective tissue disease, ulcer disease, mild liver disease, and diabetes; 3 for hemiplegia; and 6 for moderate or severe renal disease, diabetes with end organ damage, any tumor, leukemia, lymphoma, moderate or severe liver disease, metastatic solid tumor, and AIDS.

Table B.4 presents the characteristics of the 116 participants enrolled by Lovelace during the first 11 months and the 6,652 eligible nonparticipants, who also meet Lovelace's eligibility requirements as measured with Medicare data. This table is identical to Table 2 in the text, except that the participant sample has been restricted to beneficiaries who meet the eligibility criteria. The results are very similar to those in Table 2, except that a slightly higher proportion of eligible demonstration participants had been treated for CAD, CHF, cancer, COPD, peripheral vascular disease, and renal disease and had more hospitalizations in the two years before intake[4].

B. METHOD FOR CALCULATING TREATMENT-CONTROL DIFFERENCES

Sample sizes are too small, and the follow-up period too short, to estimate program impacts. Comparing the treatment and control groups on mean outcomes, however, provides an early indication of potential effects. The analysis draws on the data and the variables constructed for the participation analysis but is restricted to the program's participants (treatments and controls). The cost of the intervention was estimated as the amount CMS paid to Lovelace for the treatment group patients, using G-coded claims in the physician claims file.

[4] Nonparticipants were identified as eligible if they met the target criteria anytime during the 11-month enrollment window, as well as the two years before the window. When we calculated preenrollment use of Medicare services for nonparticipants, we measured use over the time before a pseudo-enrollment date fixed at five months after the program began enrollment (that is, the middle of the 11-month window). As a result, for nonparticipants who became eligible based on service use in the latter five months of the 11-month enrollment window, this method does not capture that service use. We tested the sensitivity of the findings to this approach. For the sensitivity test, we limited the eligible nonparticipants to those who met the diagnostic and service-use criteria before their pseudo-enrollment date. This subsample of eligible nonparticipants had slightly higher reimbursements and service use than the sample shown in Tables 2 and B.4. For most programs, reimbursements for the eligible nonparticipants increased between 2 and 10 percent, and hospitalizations stayed the same or increased up to 10 percent

TABLE B.4

CHARACTERISTICS OF ELIGIBLE PARTICIPANTS AND ELIGIBLE NONPARTICIPANTS DURING THE FIRST 11 MONTHS OF PROGRAM ENROLLMENT
(Percentages, Unless Otherwise Noted)

	Eligible Demonstration Participants (Treatments and Controls)[a]	Eligible Nonparticipants	
Age at Intake			
Average age (in years)	71.1	71.0	
Younger than 65	14.7	16.8	
65 to 74	45.7	42.4	
75 to 84	39.7	40.9	
85 or older	0.0	0.0	
Male	51.7	48.2	
Nonwhite	18.1	20.7	
Original Reason for Medicare: Disabled or ESRD	28.5	27.5	***
State Buy-In for Medicare Part A or B	14.7	28.1	***
Newly Eligible for Medicare (Eligible Less than Six Months)	0.86	0.00	***
Enrolled in Fee-for-Service Medicare 6 or More Months During Two Years Before Intake	99.1	100.0	
Medical Conditions Treated During Two Years Before Month of Intake[b]			
Congestive heart failure (without diabetes)	17.2	20.1	
Diabetes (without congestive heart failure)	50.9	51.4	
Congestive heart failure and diabetes	30.2	20.4	**
Coronary artery disease	67.0	50.9	***
Stroke	16.5	24.6	**
Cancer	22.6	23.6	
Chronic obstructive pulmonary disease	48.7	38.1	**
Dementia (including Alzheimer's disease)	0.0	0.0	
Peripheral vascular disease	13.9	16.8	
Renal disease	10.4	13.2	
Total Number of Diagnoses	3.1	2.8	**
Days Between Last Hospital Discharge and Intake Date[b]			
0 to 30	2.6	5.9	
31 to 60	5.2	4.8	
61 to 180	9.6	12.2	
181 to 365	12.2	12.9	
366 to 730	14.8	15.1	
No hospitalization in past two years	55.7	49.2	

TABLE B.4 *(continued)*

	Eligible Demonstration Participants (Treatments and Controls)[a]	Eligible Nonparticipants	
Annualized Number of Hospitalizations During Two Years Before Month of Intake[b,c]			
0	53.0	49.9	
0.1 to 1.0	31.3	33.6	
1.1 to 2.0	12.2	10.1	
2.1 to 3.0	3.5	3.7	
3.1 or more	0.0	2.7	*
Medicare Reimbursement per Month in Fee-for-Service During One Year Before Intake[b]			
Part A	$281	$484	*
Part B	$319	$435	*
Total	$600	$919	**
Distribution of Total Medicare Reimbursement per Month Fee-for-Service During One Year Before Intake[b]			
$0	0.0	1.0	
$1 to 500	67.8	60.4	
$501 to 1,000	13.0	13.6	
$1,001 to 2,000	13.0	10.3	
More than $2,000	6.1	14.7	***
Number of Beneficiaries	**116**	**6,272**	

Source: Medicare Enrollment Database and National Claims History File.

Note: The intake date used in this table is the date of enrollment for participants. For eligible nonparticipants, the intake date is April 15, 2002, the midpoint of the 11-month enrollment period examined.

[a]Participants who do not meet Medicare coverage and payer requirements for the demonstration, or who had an invalid HIC number on MPR's enrollment file, are excluded from this table because we do not have Medicare data showing their reimbursement in the fee-for-service program. Members of the same households as the research sample members are included.

[b]Calculated among beneficiaries with six or more months in Medicare fee-for-service in the two years before intake.

[c]Calculated as 12 x (number of hospitalizations during two years before month of intake) / (number of months eligible). The estimate of the proportion with no hospitalization in the two years before the month of intake may differ slightly from the proportion with no hospitalization in the two years before the date of intake because the two measure slightly different periods. Someone enrolled on September 20, 2003, whose only hospitalization in the preenrollment period occurred on September 5, 2003, would not be counted as hospitalized during the 24 months before the month of intake. Conversely, someone hospitalized on September 25, 2001 would be captured in the measure defined by month of enrollment but not in the measure based on the day of enrollment.

*Difference between eligible participants and eligible nonparticipants significantly different from zero at the .10 level, two-tailed test.

**Difference between eligible participants and eligible nonparticipants significantly different from zero at the .05 level, two-tailed test.

***Difference between eligible participants and eligible nonparticipants significantly different from zero at the .01 level, two-tailed test.

1. Treatment-Control Differences

We used two approaches to estimate treatment-control differences in Medicare-covered service use and cost outcomes. First, we estimated differences over a two-month follow-up period for all beneficiaries Lovelace randomized during the first nine months of enrollment. The nine-month enrollment window covers November 16, 2001 through August 12, 2002. The follow-up time covered the two calendar months after the month of randomization. For example, for a beneficiary randomized on November 25, we examined outcomes in December and January.

Second, we estimated treatment-control differences by calendar month over six months of Lovelace's enrollment to look at how cost-effectiveness might vary over the life of a program. As Lovelace's enrollment did not pick up until spring of 2002, the period April 2002 through September 2002 was chosen to allow for a larger sample to be examined. One might expect programs to have little effect at first, since it takes time for patients to be assessed, the program to become fully operational, the patients to adopt case managers' recommendations, and their behavior changes to affect the need for health care. Analyzing costs by program month will allow us to examine such patterns. For each month from April 2002 through September 2002, we identified the patients who were enrolled in Lovelace's program and analyzed their Medicare-covered service use. For example, a person randomized in April would be present in April through September, provided that person is eligible and alive in each month.[5] Someone randomized in May would not be part of the calculations for April, but would be included in May through September, again provided that the person is eligible during those months.

[5] Patients were excluded as ineligible during months when we could not observe their full costs (when they were enrolled in a Medicare managed care plan for the full month).

The sample used to analyze treatment-control differences in outcomes differs from that used to analyze participation. Like the participation analyses, we excluded from the analysis sample randomized individuals for whom we have an invalid HIC number, because we could not obtain their Medicare claims data. We also excluded those people who enrolled but were ineligible for the demonstration according to CMS's criteria (as determined from data on the EDB). However, we also excluded beneficiaries flagged as a household member of a participant, since they were not part of the research sample and thus were not used for the outcomes analysis.[6] Also, in contrast to the participation analyses, participants who did not meet the program's target criteria according to the claims and EDB data were not excluded from the outcomes analyses. Given this, of the 123 people randomized in the first nine months of Lovelace's demonstration, the sample for analyzing treatment-control differences contained 118 people. For the eleven-month sample, 161, or 94 percent of the 172 randomized people, were included in the final sample (Table B.5). In addition to excluding beneficiaries, we excluded months during which we could not observe the beneficiaries' full costs in fee-for-service Medicare.

2. Integrity of Random Assignment

Eligible applicants to the program were randomly assigned to the treatment or control group. To assess whether random assignment successfully produced treatment and control groups with similar baseline characteristics, we used two-tailed t-tests and chi-squared tests to compare the

[6]Household members were excluded from treatment-control comparisons to keep the two groups balanced. Household members were assigned to the same experimental status to avoid the contamination that might occur if one person in the household was in the treatment group and another was in the control group. As a result, we expected to find fewer household members in the control group than in the treatment group, since household members have less incentive to join the demonstration if they know a household member has already been assigned to the control group and they will not receive care coordination.

TABLE B.5

SAMPLES FOR TREATMENT-CONTROL COMPARISONS

	First 9 Months	First 11 Months
Number of beneficiaries who were randomized	123	172
Minus those who:		
Were members of the same household as research sample members	–1	–1
Had invalid HIC numbers on MPR's enrollment file	–0	–1
In a Medicare managed care plan, or did not have Medicare Part A and B coverage, or Medicare is not primary payer during the month of intake	–4	–9
Number of usable sample members	**118**	**161**

two research groups. Table B.6 presents the baseline characteristics for both the nine-month and the eleven-month sample.

As expected under random assignment, the treatment and control groups generally had similar characteristics in both the nine- and eleven-month samples. There were statistically significant differences in four baseline characteristics for the nine-month sample: (1) the average age of beneficiaries, (2) the proportion of beneficiaries whose days between last hospital discharge and intake was 366 to 730 days, (3) the proportion of beneficiaries who had no hospitalizations in the previous two years, and (4) the proportion of beneficiaries who had no hospitalizations during the two years before month of intake. For the eleven-month sample, the treatment and controls had statistically significant differences in the same characteristics. These differences suggest the treatment group might be slightly healthier than the control group. We would expect some differences to occur due to small samples and the large number of characteristics examined. Thus, none of the differences in this small, early sample create any cause for concern.

3. Sensitivity Tests

To assess outcomes, we calculated Medicare-covered service use and cost in the two months after the month of randomization. For example, for a beneficiary who was randomized in the month of May, we examined outcomes in June and July. To examine whether our results were affected by not including costs and services that occurred closer to the randomization date, we conducted a sensitivity analysis examining outcomes for three months—during the month the individual was randomized, as well as the two months after randomization (Table B.7). The results were comparable, with one small exception. We found a statistically significant difference in the proportion of treatment patients who used any physician or other Part B services when we included the month of randomization. There was no difference in this outcome when

TABLE B.6

CHARACTERISTICS OF TREATMENT AND CONTROL GROUPS
IN THE RESEARCH SAMPLE ENROLLED DURING
THE FIRST 9 MONTHS AND 11 MONTHS
OF PROGRAM ENROLLMENT

	9-Month Sample				11-Month Sample			
	Treatment Group	Control Group		Total Research Sample	Treatment Group	Control Group		Total Research Sample
Age at Intake								
Average age (in years)	69.2	73.1	**	71.2	69.1	73.0	***	71.1
Younger than 65	19.0	10.0		14.4	19.0	9.8	*	14.3
65 to 74	46.6	45.0		45.8	48.1	45.1		46.6
75 to 84	34.5	45.0		39.8	32.9	45.1		39.1
85 or older	0.0	0.0		0.0	0.0	0.0		0.0
Male	46.6	48.3		47.5	49.4	46.3		47.8
Nonwhite	22.4	18.3		20.3	19.0	18.3		18.6
Original Reason for Medicare: Disabled or ESRD	24.1	23.3		23.7	24.1	25.6		24.8
State Buy-In for Medicare Part A or B	15.5	15.0		15.3	12.7	13.4		13.0
Newly Eligible for Medicare (Eligible Less than Six Months)	1.7	0.0		0.8	1.3	0.0		0.6
Enrolled in Fee-for-Service Medicare Six or More Months During Two Years Before Intake	98.3	100.0		99.2	98.7	100.0		99.4
Medical Conditions Treated During Two Years Before Month of Intake[a]								
Coronary artery disease	52.6	63.3		58.1	47.4	54.9		51.3
Congestive heart failure	43.9	45.0		44.4	39.7	36.6		38.1
Stroke	10.5	13.3		12.0	10.3	13.4		11.9
Diabetes	79.0	75.0		76.9	84.6	80.5		82.5
Cancer	12.3	18.3		15.4	14.1	20.7		17.5
Chronic obstructive pulmonary disease	45.6	43.3		44.4	42.3	43.9		43.1
Dementia (including Alzheimer's disease)	0.0	0.0		0.0	0.0	0.0		0.0
Peripheral vascular disease	12.3	13.3		12.8	11.5	9.8		10.6
Renal disease	5.3	10.0		7.7	6.4	9.8		8.1
Total Number of Diagnoses (number)	2.6	2.8		2.7	2.6	2.7		2.6
Days Between Last Hospital								

TABLE B.6 *(continued)*

	9-Month Sample				11-Month Sample			
	Treatment Group	Control Group		Total Research Sample	Treatment Group	Control Group		Total Research Sample
Discharge and Intake[a]								
0 to 30	3.5	1.7		2.6	2.6	1.2		1.9
31 to 60	1.8	6.7		4.3	1.3	6.1		3.8
61 to 180	8.8	6.7		7.7	7.7	6.1		6.9
181 to 365	8.8	11.7		10.3	7.7	9.8		8.8
366 to 730	7.0	25.0	***	16.2	6.4	18.3	**	12.5
No hospitalization in past two years	70.2	48.3	**	59.0	74.4	58.5	**	66.3
Annualized Number of Hospitalizations During Two Years Before Month of Intake[a,b]								
0	66.7	48.3	**	57.3	70.5	54.9	**	62.5
0.1 to 1.0	22.8	36.7		29.9	20.5	31.7		26.3
1.1 to 2.0	7.0	13.3		10.3	5.1	12.2		8.8
2.1 to 3.0	3.5	1.7		2.6	3.9	1.2		2.5
3.1 or more	0.0	0.0		0.0	0.0	0.0		0.0
Medicare Reimbursement per Month in Fee-for-Service During One Year Before Intake[a]								
Part A	$157	$296		$228	$164	$245		$205
Part B	$255	$292		$274	$247	$280		$264
Total	$412	$589		$503	$411	$524		$469
Distribution of Total Medicare Reimbursement per Month in Fee-for-Service During One Year Before Intake[a]								
$0	0.0	0.0		0.0	0.0	0.0		0.0
$1 to 500	75.4	76.7		76.1	76.9	76.8		76.9
$501 to 1,000	12.3	6.7		9.4	11.5	7.3		9.4
$1,001 to 2,000	10.5	8.3		9.4	9.0	9.8		9.4
More than $2,000	1.8	8.3		5.1	2.6	6.1		4.4
Location During Program Intake Period								
New Mexico								
Bernalillo	79.3	76.7		78.0	81.0	79.3		80.1
Sandoval	6.9	8.3		7.6	5.1	8.5		6.8
Valencia	13.8	15.0		14.4	12.7	12.2		12.4
Outside catchment area	1.7	0.0		0.8	2.5	0.0		1.2
Number of Beneficiaries	**58**	**60**		**119**	**79**	**82**		**162**

Source: Medicare Enrollment Database and National Claims History File.

TABLE B.6 *(continued)*

Notes: The intake date used in this table is the date of enrollment for participants. For eligible nonparticipants, the intake date is April 15, 2002, the midpoint of the 11-month enrollment period examined.

Participants were excluded from this table if they did not meet Medicare coverage and payer requirements for the demonstration, had an invalid HIC number on MPR's enrollment file, or were identified as a member of the same household as a research sample member.

[a]Calculated among beneficiaries with six or more months in Medicare fee-for-service in the two years before intake.

[b]Calculated as 12 x (number of hospitalizations during two years before month of intake) / (number of months eligible). The estimate of the proportion with no hospitalization in the two years before the month of intake may differ slightly from the proportion with no hospitalization in the two years before the date of intake because the two measure slightly different periods. Someone enrolled on September 20, 2003, whose only hospitalization in the preenrollment period occurred on September 5, 2003, would not be counted as hospitalized during the 24 months before the month of intake. Conversely, someone hospitalized on September 25, 2001 would be captured in the measure defined by month of enrollment, but not in the measure based on the day of enrollment.

ESRD = end-stage renal disease.

*Difference between treatment and control groups significantly different from zero at the .10 level, two-tailed test.

**Difference between treatment and control groups significantly different from zero at the .05 level, two-tailed test.

***Difference between treatment and control groups significantly different from zero at the .01 level, two-tailed test.

TABLE B.7

MEDICARE-COVERED SERVICE USE DURING THE MONTH OF RANDOMIZATION AND THE FOLLOWING NINE MONTHS FOR EARLY ENROLLEES

	Treatment Group	Control Group	Difference[a]
Inpatient Hospital Services			
Any admission (percent)	1.7	8.3	–6.6
Number of admissions	0.02	0.10	–0.08*
Number of hospital days	0.14	1.00	–0.86
Emergency Room Services			
Any emergency room encounters (percent)			
Resulting in admission	0.0	3.3	–3.3
Not resulting in admission	8.6	10.0	–1.4
Total	8.6	13.3	–4.7
Number of emergency room encounters			
Resulting in admission	0.00	0.03	–0.03
Not resulting in admission	0.10	0.10	0.00
Total	0.10	0.13	–0.03
Skilled Nursing Facility Services			
Any admission (percent)	0.0	0.0	0.0
Number of admissions	0.00	0.00	0.00
Number of days	0.00	0.07	–0.07
Hospice Services			
Any admission (percent)	0.0	0.0	0.0
Number of days	0.00	0.00	0.00
Home Health Services			
Any use (percent)	1.7	3.3	–1.6
Number of visits	0.03	0.15	–0.12
Outpatient Hospital Services[b]			
Any services (percent)	93.1	91.7	1.4
Physician and Other Part B Services[c]			
Any use (percent)	98.3	90.0	8.3*
Number of visits or claims	6.8	7.6	–0.8
Mortality Rate (percent)	0.0	0.0	0.0
Total Medicare Reimbursement[d]			
Part A[e]	$453	$1,385	–$932
Part B	$844	$973	–$129
Total	$1,297	$2,358	–$1,061
Reimbursements for Care Coordination[f]	$572	$0	$572 ***
Number of Beneficiaries	**58**	**60**	

Source: Medicare National Claims History File.

TABLE B.7 *(continued)*

Note: Sample includes those enrolled during the first four months of program operations. Participants were excluded from this table if they had an invalid HIC number on MPR's enrollment file, were identified as a member of the same household as a research sample member, or did not meet Medicare coverage and payer requirements (defined as having Medicare as a secondary payer, being in Medicare managed care plan, or not having Part A and Part B coverage) during the month of randomization. Patient-months were excluded if the participant did not meet the above Medicare coverage and payer requirements that month or had died in a previous month.

[a]The direction of the treatment-control difference does not by itself signify whether the program is "effective." That is, for some outcomes a statistically significant negative difference (such as lower hospitalization rates for the treatment group than for the controls) suggests that the program is working as intended. However, a positive difference for other outcomes, such as number of physician visits, does not necessarily mean the program is ineffective or having adverse effects, because the program may encourage patients to see their physician more regularly for preventative care or to obtain recommended laboratory tests for their target conditions than they would have in the absence of the demonstration.

Due to rounding, the difference column may differ slightly from the result when the control column is subtracted from the treatment column.

[b]Includes visits to outpatient hospital facilities as well as emergency room visits that do not result in an inpatient admission. Laboratory and radiology services are also included.

[c]Includes diagnostic laboratory and radiology services (including pathologist and radiologist services) from nonhospital providers, suppliers and devices, mammography, ambulance, covered medications, blood, and vaccines.

[d]Does not include reimbursement for care coordination services provided by demonstration programs.

[e]Includes reimbursement for inpatient, skilled nursing facility, hospice, and all home health care (including that paid under Medicare Part B). Excludes reimbursement for care coordination services provided by demonstration programs.

[f]This is the average amount paid to the program as recorded in the Medicare claims data for the month of randomization and the two following months. The difference between the recorded amount and three times the amount the program was allowed to charge per-member-per-month may reflect billing errors, delays, or payment adjustments for patients who disenrolled.

*Difference between treatment and control groups significantly different from zero at the .10 level, two-tailed test.

**Difference between treatment and control groups significantly different from zero at the .05 level, two-tailed test.

***Difference between treatment and control groups significantly different from zero at the .01 level, two-tailed test.

measured over the two-month period (text Table 5). This small difference between Tables 5 and B.7 is probably due to the small sample size. Thus, the results do not appear to be sensitive to how the month of randomization is treated.

APPENDIX C

SELECTED PROGRAM DOCUMENTS

Introductory letter sent to eligible beneficiaries

Script for telephone contact that follows up on introductory letter

Assessment for treatment group members

Selected Access database screens

Patient empowerment tool

Date

Health Care System
Street Address
City, State, Zip

Patient first and last Name
Address
City, State, Zip Code

Dear First Name, Last Name

I would like to invite you to take part in a heart failure research study sponsored by the Centers for Medicare and Medicaid Services (CMS). Doctors and CMS want to see if case management services help our patients control their heart failure better. Case Managers (nurses and social workers) will provide teaching, support and help you to get the care and services that you need.

Other heart failure studies show that controlling heart failure better leads to less medical problems for the patient and lower health care costs. Also, patients have the chance to be more active and to enjoy life more when they feel better. This study will show if we get these same positive results using the services of case managers. If the results are positive, Medicare may decide in the future to provide Case Management as a covered benefit.

To be selected for this study, you must meet certain criteria and give us your consent to participate. You will continue to get all of your usual medical care from me. In addition, you may also receive the help of a case manager who will check on how you are managing your heart failure at different times. There will be no cost to you to participate in the study.

I hope that you will decide to take part in this special study. I've asked one of the CMS case managers, _____, to give you a call in the next few days. Feel free to ask any questions you might have about this study and let us know if this is something that you want to do. Thank you.

Sincerely,

Dr. _____

Date

Health Care System
Street Address
City, State, Zip

Patient first and last Name
Address
City, State, Zip Code

Dear First Name, Last Name

I would like to invite you to take part in a diabetes research study sponsored by the Centers for Medicare and Medicaid Services (CMS). Doctors and CMS want to see if case management services help our patients control their diabetes better. Case Managers (nurses and social workers) will provide teaching, support and help you to get the care and services that you need.

Other diabetic studies show that controlling diabetes better leads to less medical problems for the patient and lower health care costs. Also, patients have the chance to be more active and to enjoy life more when they feel better. This study will show if we get these same positive results using the services of case managers. If the results are positive, Medicare may decide in the future to provide Case Management as a covered benefit.

To be selected for this study, you must meet certain criteria and give us your consent to participate. You will continue to get all of your usual medical care from me. In addition, you may also receive the help of a case manager who will check on how you are managing your diabetes at different times. There will be no cost to you to participate in the study.

I hope that you will decide to take part in this special study. I've asked one of the CMS case managers, _____, to give you a call in the next few days. Feel free to ask any questions you might have about this study and let us know if this is something that you want to do. Thank you.

Sincerely,

Dr. _____

SCRIPT FOR THE FIRST TELEPHONE CONTACT WITH THE PATIENT
HEART FAILURE CMS PROJECT

Hello, my name is _____ and I work with your doctor, _____ at the
(case manager) (PCP)
_____ clinic at Lovelace. I recently talked with your doctor and he/she recommended that I call you today. You might also have received a letter sent to you about the Centers of Medicare and Medicaid Services (CMS) Heart Failure Study Program I want to briefly talk with you about. Do you have a couple of minutes to talk with me?

Your doctor and I are working with a new helpful approach to support patients in taking care of their heart failure and related health problems. Heart Failure can be managed, but we know it is not easy for patients to keep up with everything that has to get done. Medications, diet, exercise, monitoring your weight, etc are all helpful for your heart failure, but, each day it can be a lot to handle. How has your experience in managing your heart failure been for you?

I work with your doctor as a case manager. I would like to meet with you to further discuss this project. At your convenience, we can either meet in your home, or at my office. We can talk further about:

- This special study being conducted by the Centers for Medicare and Medicaid Services (CMS) on taking care of heart failure
- How patients, like yourself, can get involved in the study
- Reviewing your concerns and ideas about managing your heart failure
- Gathering some baseline data information

What would be a convenient time for us to schedule this meeting? _____

If you have a family member or friend that helps you at home, please feel free to ask them to attend our meeting. Also, we will be going over information together that will need your approval and signature. So, if your family member or friend helps you in important decision, please have this person at our meeting.

Thank you for talking with me today. I look forward to meeting with you on _____
_____.

I will let your doctor know that we will be getting together. Please feel free to call me at _____ with any further questions or if we would need to set up a different time for our meeting should your plans change.

SCRIPT FOR THE FIRST TELEPHONE CONTACT WITH THE PATIENT
DIABETES CMS PROJECT

Hello, my name is _____ and I work with your doctor, _____ at the
(case manager) (PCP)
_____ clinic at Lovelace. I recently talked with your doctor and he/she recommended that I call you today. You might also have received a letter sent to you about the Centers of Medicare and Medicaid Services Diabetes Study Program (CMS) I want to briefly talk with you about. Do you have a couple of minutes to talk with me?

Your doctor and I are working with a new helpful approach to support patients in taking care of their diabetes and related health problems. Diabetes can be managed, but we know it is not easy for patients to keep up with everything that has to get done. Medications, diet, exercise, testing your blood, foot care, etc are all helpful for your diabetes, but, each day it can be a lot to handle. How has your experience in managing your diabetes been for you?

I work with your doctor as a case manager. I would like to meet with you to further discuss this project. At your convenience, we can either meet in your home, or at my office. We can talk further about:

- This special study being conducted by the Centers for Medicare and Medicaid Services (CMS) on taking care of diabetes
- How patients, like yourself, can get involved in the study
- Reviewing your concerns and ideas about taking care of your diabetes
- Gathering some baseline data information

What would be a convenient time for us to schedule this meeting? _____

If you have a family member or friend that helps you at home, please feel free to ask them to attend our meeting. Also, we will be going over information together that will need your approval and signature. So, if your family member or friend helps you in important decisions, please have this person at our meeting.

Thank you for talking with me today. I look forward to meeting with you on _____
_____.

I will let your doctor know that we will be getting together. Please feel free to call me at _____ with any further questions or if we would need to set up a different time for our meeting should your plans change.

CMS
Case Management
Demo Project

CMS DEMONSTRATION PROJECT HEART FAILURE ASSESSMENT FORM
CASE MANAGEMENT DEPARTMENT Albuquerque, New Mexico

I. GENERAL INFORMATION

Assessment date:_____ **MR# :** _____ **Date of birth:** __/__/__ **SS#:** _____

Patient Name (last, first): _____ **Phone:** _____

Address: _____ **City:** _____ **Zip:** _____

Directions to home: _____

Living situation: ☐ Alone ☐ Spouse/Partner ☐ Family ☐ Shelter care
☐ Private home ☐ Retirement facility ☐ Assisted living ☐ Nursing home

Relationship status: ☐ Single ☐ Spouse / Partner ☐ Divorced ☐ Widowed ☐ Separated

Primary caregiver / significant other:

Name: _____ Relationship: _____ Phone#: _____

Emergency Contact Person: _____ Relationship:_____ Phone#:_____

PCP: _____ **Clinic** _____ **Phone:** _____	**Health Insurance:**
Specialist: _____ **Clinic** _____ **Phone:** _____	**Primary:** _____
Specialist: _____ **Clinic** _____ **Phone:** _____	**Secondary:** _____
Health Care System _____	

- Advanced Directives Y N Location: _____
- Power of Attorney – Health Care: Name: _____ Relationship: _____ Location: _____
  Financial: Name: _____ Relationship: _____ Location: _____
- Guardianship / conservatorship: Name: _____ Relationship: _____ Phone #: _____

II. MEDICAL HISTORY AND ASSESSMENT

- **Primary diagnosis:** _____ **ICD Code:** _____
- **Secondary diagnosis:** _____ **ICD Code:** _____
- Other Comorbid condition (s):

  _____

  _____

  _____
- Previous Hospitalizations: _____

  Dates: _____

  Reason: _____

- Previous ER Visits: _____

  Dates: _____

  Reason: _____
- Previous Surgical Procedures: _____

  Dates: _____

  Reason: _____
- Previous Injuries: _____

  Dates: _____

  Reason: _____
- Has any member of your immediate biological family (father, mother, brother, or sister) ever had or currently have any of the conditions listed below?

  ❑ DIABETES _____
  ❑ CANCER _____
  ❑ STROKE OR CAROTID SURGERY BEFORE AGE 60 _____
  ❑ HEART DISEASE _____
- Other family medical history:

  _____

  _____
- Lab/Radiology Work: ECHO Result: _____ Date: _____

  LDH Result: _____ Date: _____

  HDL Result: _____ Date: _____

  Trig Result: _____ Date: _____
- Height: _____ Weight: _____
- Body Mass Index: _____ What was your weight 1 year ago? _____
- Do you weight yourself daily? Y N

  If not daily, how often do you weigh yourself? _____
- Do you keep a record of your weight? Y N

  What was your highest and lowest weight during the past week? _____

  _____

  Do you know what to check for? Y N Describe: _____

  _____
- Do you monitor your blood pressure? Y N Yourself? Clinic?

  How often? _____ Most recent blood pressure: _____
- **Signed Medical Record Consent Form: Y N (Note: If the patient is not a Lovelace patient or a new Lovelace patient, please have a consent form signed so that previous and/or current medical records can be obtained.)**

III. PREVENTION

- Immunization status: (Inquire when immunizations were done.)

  Influenza Y N _____ Pneumococcal Y N _____

  Hepatitis B Y N _____ Tetanus Y N _____

- Diagnostic screening completed: (Inquire when tests were done.)

  EKG Y N _____ Mammogram Y N _____

  PAP Y N _____ Prostate Exam Y N _____

  Rectal Exam Y N _____ Self Breast Exam Y N _____

  Sigmoidoscopy / Colonoscopy Y N _____

  Stress Echo Y N _____

- Drug allergies: _____

  Other allergies: _____

- Have you had adverse side effects from your meds in the recent past? Y N If so, please check the following symptoms that apply:

  _____Bowel changes _____Confusion

  _____Dizziness _____Insomnia

  _____Sleepiness _____Rash

  _____Other Please describe:_____

MEDICATIONS

Complete list of medications and return to department secretary.

Name:_____

MR #_____

PCP:_____

Specialist:_____

Case Manager:_____ **Ext.**_____

RX #	Medication	Dosage	Frequency	Date Prescribed	Provider

Please include herbal medicine and vitamins, and non-prescribed medications.

IV. CURRENT LIFESTYLE RISK FACTORS

A. SMOKING / ALCOHOL USE

1. Have you ever smoked cigarettes? (If no, go to Question 2.)

   a. Do you currently smoke cigarettes? Y N (If no, go to Question 1b)

   If yes, how many cigarettes do you smoke a day?
   - ❑ Less than 10
   - ❑ 10-19
   - ❑ 20-39
   - ❑ 40-59
   - ❑ 60 or more

   b. If you quit, did you quit at age 38 or younger? Y N

   How long ago did you quit?
   - ❑ Less than 3 months ago
   - ❑ 3-11 months ago
   - ❑ 1-5 years ago
   - ❑ 6-14 years ago
   - ❑ Over 14 years ago

   How many cigarettes did you smoke a day before quitting?
   - ❑ Less than 2 packs/day
   - ❑ 2 or more packs/day

2. Have you ever smoked a pipe or cigar? (If no, go to Question 3.)

   a. Do you currently smoke a pipe or cigar? Y N (If no, go to Question 2b)

   If yes, how many pipes/cigars do you smoke a day?
   - ❑ 2 or less
   - ❑ 3-5
   - ❑ 6 or more

   Do you inhale cigar or pipe smoke?
   - ❑ Yes, always inhale
   - ❑ Yes, sometimes inhale
   - ❑ No, never inhale

   b. If you no longer smoke a pipe or cigar, did you quit at age 38 or younger? Y N

   How long ago did you quit?
   - ❑ Less than 3 months ago
   - ❑ 3-11 months ago
   - ❑ 1-5 years ago
   - ❑ 6-14 years ago
   - ❑ Over 14 years ago

How many pipes or cigars did you smoke a day before quitting?

- ❑ 5 or less
- ❑ More than 5

3. Do you live or work with anyone who often smokes in your presence? Y N

4. Do you use smokeless tobacco? Y N

5. How many alcoholic drinks do you average in a week?
   - ❑ 0-7 drinks
   - ❑ 8-14 drinks
   - ❑ 15-21 drinks
   - ❑ 22-30 drinks
   - ❑ 31-49 drinks
   - ❑ 50 ore more drinks

What is 1 "Drink"?
5 oz. wine
12 oz. beer
1 ½ Oz. 80 proof alcohol

B. SUBSTANCE ABUSE / USE

1. Have you ever used non-prescription, over-the-counter, or illegal drugs? Y N
   If yes: What?_____ When?_____
2. Do you take any herbal medicines or vitamins? Y N
3. Have you had any treatment for substance abuse? Y N If so, what? _____
   _____

C. PHYSICAL ACTIVITY

1. Look at the chart to the right. Is your activity mainly from A B C or D? How much time do you spend in a typical week consistently doing activities listed below? (Note: Include only the time spent actually doing the exercise.)

   - ❑ less than 15 minutes per week
   - ❑ 15-30 minutes per week
   - ❑ 31-60 minutes per week
   - ❑ up to 1.5 hours per week
   - ❑ up to 2 hours per week
   - ❑ up to 3 hours per week
   - ❑ up to 4 hours per week
   - ❑ up to 5 hours per week
   - ❑ up to 6 hours per week
   - ❑ more than 6 hours per week

Note: The majority of Americans spend less than one hour per week engaged in any form of exercise.

A. Moderate physical activity:
   Examples:
   walking,
   golf (walking the course)
   recreational tennis, bicycling,
   stationary bicycling (low tension),
   rowing machine, nordic track,
   circuit weight training

B. Vigorous exercise:
   Examples:
   brisk walking (at least 4 mph)
   competitive tennis, snow shoveling,
   fase or aerobic dancing, basketball
   racquetball, handball, swimming,
   stationary bicycling (moderate tension)
   jogging (4-5 mph)

C Very vigorous exercise
   Examples:
   running (7 mph),
   cycling (racing speeds, cross country skiing (outside, or on a machine),
   stair climbing, jumping rope

D Non-recreational exercise
   Examples:
   chopping wood, raking, heavy gardening,
   shoveling, lawn mowing (non-riding),
   physical work e.g. heavy construction,
   bricklaying, framing

2. Physical Activity converted to calories per week _____

   (Refer to the Physical Activity Calorie Chart)

   Estimated PA cals per week_____

D. NUTRITION

PLEASE LOOK AT THE FOODS IN BOX A AND BOX B

Box A		Box B	
Vegetables (not fried or cooked in oil or butter(	Non-granola cereal	Red meat (e.g. steak, hamburger, hot dogs, sausage	Ice cream
Pasts (without oily sauce)	Low or non-fat yogurt or cottage cheese	Cold cuts and luncheon meats	Snacks such as potato chips, corn chips
Fruit	Skim or low fat (1%) milk	Poultry with skin	Butter, margarine, sour cream
Bread	Fish and shellfish (not fried or cooked in oil or butter)	Fried or sauteed food	Mayonnaise
Baked Potato	Poultry (not fried, no skin)	Whole milk, cream, coffee creamer	Cooking oil
Rice (not fried)	Plain beans	Eggs, cheese	Sauce, gravy
Fat free sauces and salad dressings		Cake and cookies	Regular salad dressing
		Donuts and pastries	Nuts and seeds
		Chocolate candy	Peanut butter
		Pizza	French fries

Mark one box in each of the following sections that best describes your food choices in a typical week:

- ❑ All from Box A
- ❑ Virtually all from Box A
- ❑ Most from Box A
- ❑ More from Box A
- ❑ Equally from both Boxes
- ❑ More from Box B – (average American)
- ❑ Most from Box B
- ❑ Virtually all from Box B
- ❑ All from Box B

Considering breakfast, lunch, snacks and dinner, how many times in a typical week do you:

A. Eat fried foods such as fried chicken, fried fish, french fries, etc.?
- ❑ Never
- ❑ 1-2 times
- ❑ 3-6 times
- ❑ 7 or more

B. Eat red meat such as steak, hamburgers, hot dogs, bacon, sausage, pork, etc.?
- ❑ Never
- ❑ 1-2 times
- ❑ 3-6 times
- ❑ 7 or more

C. Eat higher fat desserts and snack foods such as ice cream, cookies, pastry, donuts, potato chips?
- ❑ Never
- ❑ 1-2 times
- ❑ 3-6 times
- ❑ 7 or more

In a typical week, how often do you eat 2 servings of vegetables and 1 fruit per day?
- ❑ Less than once per day
- ❑ 1-3 days per week
- ❑ 4-5 days per week
- ❑ 6-7 days per week
- ❑ Almost always eat MORE than 2 vegetables and 1 fruit every day

What is a "SERVING"?
1 cup of vegetables
½ cup of beans
3 cups of salad
1 piece of/or cup of fruit

V. FUNCTIONAL STATUS-Requires assistance and / or supervision for all or part of a 24 hour day for the following:

FUNCTIONAL STATUS – Requires assistance and/or supervision for all or part of a 24 hour day for the following:		
❑ Home safety	❑ Money management	❑ Meal preparation
❑ Transfers	❑ Housekeeping	❑ Grocery shopping
❑ Medication administration		❑ Driving
Sensory Impairment(s): ☐ Vision ☐ Hearing ☐ Speech		
Details on above: _____		

Perception of most troubling symptoms: _____

PHYSICAL SELF-MAINTENANCE SCALE (PSMS)

Patient's Name: _____ Date: _____

Rated by _____

(Numbers one through five in each category represent worsening states of function. Circle the number that best describes the patient's functional status. Scores in all six categories should then be totaled. The higher the final score, the greater the degree of impairment:)

A. Toileting

1. Cares for self at toilet completely, no incontinence.
2. Needs to be reminded or needs help in cleaning self, or has rare (weekly at most) accidents.
3. Soiling or wetting while asleep more than once a week.
4. Soiling or wetting while awake more than once a week.
5. No control of bowels or bladder.

B. Feeding

1. Eats without assistance.
2. Eats with minor assistance at mealtimes and/or with special preparation of food, or help in cleaning up after meals.
3. Feeds self with moderate assistance and is untidy.
4. Requires extensive assistance for all meals.
5. Does not feed self at all and resists efforts of others to feed him/her.

C. Dressing

1. Dresses, undresses, and selects clothes from own wardrobe.
2. Dresses and undresses self with minor assistance.
3. Needs moderate assistance in dressing or selection of clothes.
4. Needs major assistance in dressing, but cooperates with efforts of others to help.
5. Completely unable to dress self and resists efforts of other to help.

D. Grooming (neatness, hair, nails, hands, face, clothing)

1. Always neatly dressed, well groomed, without assistance.
2. Grooms self adequately with occasional minor assistance, e.g., shaving.
3. Needs moderate and regular assistance or supervision in grooming.
4. Needs total grooming care, but can remain well groomed after help from others.
5. Actively negates all efforts of others to maintain grooming.

D. Physical Ambulation

1. Goes about grounds or city.
2. Ambulates within residence or about one block distance.
3. Ambulates with assistance of (check one)

   ( ) another person ( ) railing ( ) cane ( ) walker

   ( ) wheelchair - gets in and out without help

   ( ) wheelchair – needs help in getting in, out
4. Sits unsupported in chair or wheelchair, but cannot propel self without help.
5. Bedridden more than half the time.

F. Bathing

1. Bathes self (tub, shower, sponge bath) without help.
2. Bathes self with help in getting in and out of tub.
3. Washes face and hands only, but cannot bathe rest of body.
4. Does not wash self but is cooperative with those who bathe him/her.
5. Does not try to wash self, and resists efforts to keep him/her clean.

To track patient functional status, record the base and follow-up scores of the PSMS in the chart provided:

	PSMS	DATE
Baseline		
Follow-up		
Follow-up		
Follow-up		
Follow-up		

Adapted from Lawton MP. and Brody EM. Assessment of Older People: Self-Maintaining and Instrumental Activities of Daily Living. The Gerontologist. 1969;9(3): 179-186.

VI. PSYCHOSOCIAL ASSESSMENT **Household / Family members / Significant other(s):**

SUPPORT SYSTEM:

Key Social Support Individuals:

Name	Relationship	Living where? (w/you, town/state?)	Age	Health Status

Who, other than your doctor, helps you make your health care decisions?

Name: _____ Relationship: _____ Phone#:_____

CULTURAL INFLUENCES:

1. What is the primary language you **best** understand and communicate most comfortably? What other languages do you understand well?_____
2. Do you have any cultural or spiritual beliefs and customs that help you cope with your health? Y N
3. Do any of your beliefs and customs prevent you from following your diabetes management plan? Y N

   If yes, please describe_____

   _____

Adapted from Multidimensional Functional Assessment Questionnaire, Edition 2 (pp. 154-156) by Duke University Center for the Study of Aging and Human Development, 1988.

EDUCATION:

What school grade level of formal education did you complete?_____
What was/is your occupation? _____
Are you able to read Spanish/English at a 4th Grade Level or have a CGer interested in active participation? Y N
(if unable to determine, use RALM to test for literacy level)
Learning Preference: verbal/discussion written materials both none stated
Readiness to learn: willing/able to learn barriers to learning present _____

VII. MENTAL / EMOTIONAL / BIORHYTHMS

(If there are three or more indicators checked below, complete the Mood Assessment. If any single problem seems significant, administer tests, as needed.)

During the past 4 weeks, have you had any of the following problems?

Anger	Stress (more than usual)
Apathy	Decreased concentration
Insomnia	Loss of appetite
Too much sleep	Significant losses
Early morning awakening (not related to physical symptoms)	Visions/Hallucinations

- Do you find yourself feeling lonely? Quite often Sometimes Almost never
- Have you had any significant losses or adjustments recently (moves/relocations, deaths, functional changes)? _____

Zung Scale SDS Score: _____ **Date Administered:** _____

SF 12 Health Survey Score: _____ **Dates Administered:** _____
Score: _____ **Date Administered:** _____
Score: _____ **Date Administered:** _____

Living With Heart Failure Score: _____ **Date Administered:** _____
Score: _____ **Date Administered:** _____
Score: _____ **Date Administered:** _____

(Complete the SF-12 and Living with Heart Failure once a year on each patient)

COMMENTS:_____

Suicide/Abuse

- Have you ever *thought* about suicide? Y N When?_____

  Have you ever *planned* or *tried* to harm yourself? Y N When?_____

  Have you ever worked with a mental health therapist or psychiatrist? Y N

  Have you ever been hospitalized with a mental health or emotional problem? Y N

  Describe:_____

  _____

- Are you currently in a relationship / living situation where you are physically or emotionally hurt, threatened or made to feel afraid? No Do not want to answer

  Yes ☐ Assess for safety ☐ Resources

  ☐ Mental Health referral ☐ Recommendation for medical appointment

VIII. COGNITION

(If there is a significant change in one of the areas below, complete the Folstein)

- During the recent past have some of the following symptoms occurred?

  _____Appearance/behavior inappropriate or unusual

  _____Concentration poor

  _____Memory impaired

  _____Communication impaired

  _____Decline in personal organization

  _____Orientation to: _____Person _____Place _____Time _____Not observed

  _____No cognitive deficit noted

Folstein Mini Mental Exam **Score:**_____/30 **Date administered:** _____

IX. SERVICES

	SERVICES	In place	Required	COMMENTS
	Adult/Child Protective Services			
	Advance Directives			
	Community Services Referral			
	Consumable medical supplies			
	Custodial care / Respite care			
	Durable/consumable medical equipment			
	Family Problems			
	Financial management			
	Home oxygen			
	Home environment modifications			
	Home Infusion Therapy			
	Hospice (Home)			
	Housing Placement ❑ SNF ❑ Assisted Living ❑ Shelter home			
	Medical Social Worker			
	Mental health			
	Office of Senior Affairs			
	Recreation / Socialization			
	Rehabilitation Therapy: ❑ Inpatient ❑ Outpatient ❑ Home			
	❑ Skilled Nursing Care ❑ Home ❑ SNF			
	Transportation			
	Other (i.e., WIC, Food stamps, waiver programs)			

CASE MANAGEMENT SURVEY

- Have you received case management services in the past? Y
- **Complete Case Management Patient Satisfaction survey on a yearly basis.**

X. READINESS TO CHANGE

- What successes have you had in the management of your heart failure during the past few months?

  Describe:_____

  _____

  _____

  _____

- What concerns you most about your health, and specifically, about the management of your heart failure? Describe:

  _____

  _____

  _____

- Are you willing and able to work on improving the management of your heart failure? Y N If No, why?:

  _____

  _____

  _____

XI. CASE MANAGEMENT PLAN

- Successful behaviors already doing that need to be maintained:

_____ _____

_____ _____

_____ _____

- Problems/Challenges Identified:

Monitoring Weight Daily
- Needs functioning scale
- Lack understanding of importance
- Logs daily weight

Self Monitoring of Symptoms
Self Management of Symptoms
Smoking Behaviors
Consistent Medical Follow Up
Lab/Radiology work needed
Blood Pressure Monitoring
ECHO yearly
TSH Annually
Lipids Annually
LDH Annually
HDL Annually
Trig Annually

Physical Activity
- Lacks awareness of benefits
- Lacks consistency
- Barriers to getting started
  - Appropriate footwear/equipment
  - Requires exercise evaluation and RX
  - Record Keeping

Nutrition Therapy
- Carbohydrate counting
- Fat Grams
- Limited protein intake
- Calorie counting
- Fiber
- Obesity
- Record Keeping

AGREEMENT by patient and case manager to work on this first:

_____

_____

_____

- Potentials for future focus:

_____ _____

_____ _____

_____ _____

- Barriers / Obstacles to be problem solved: (limited financial/emotional resources, poor coping skills or poor support system)

_____ _____

_____ _____

_____ _____

- INTERVENTIONS:

Assessment	Coordination of Services	Crisis intervention
Medical record review	Immediate/short term planning	Referral to podiatry
Psychosocial Counseling	Financial issues	Referral to diabetes educator
Consultation	Hospice	Referral PCP/specialist for
Education	Insurance issues	clinic visit/phone call
Motivational interviewing	Medication issues	Referral to HHC
Problem solving obstacles to	Monitor adherence	Referral Nutrition/dietary
behavior change	Placement	Referral to other services
Long term care planning	Problem identification	CM F/UP phone call
Safety issues	Pain management	CM F/UP clinic visit
Enlist support system/family	ADL evaluation	CM/F/UP home visit
		Resource information

Other: _____

_____

_____

Treatment Plan:

- _____
  _____
  _____
- _____
  _____
  _____
- _____
  _____
  _____
- _____
  _____
  _____
- _____
  _____
  _____
- _____
  _____
  _____

CMS
Case Management
Demo Project

CMS DEMONSTRATION PROJECT DIABETES ASSESSMENT FORM
CASE MANAGEMENT DEPARTMENT Albuquerque, New Mexico

I. GENERAL INFORMATION

Assessment date:_____ **MR# :** _____ **Date of birth:** __/__/____ **SS#:** _____

Patient Name (last, first): _____ **Phone:** _____

Address: _____ **City:** _____ **Zip:** _____

Living situation: ☐ Alone ☐ Spouse/Partner ☐ Family ☐ Shelter care
☐ Private home ☐ Retirement facility ☐ Assisted living ☐ Nursing home

Relationship status: ☐ Single ☐ Spouse / Partner ☐ Divorced ☐ Widowed ☐ Separated

Primary caregiver / significant other:

Name: _____ Relationship: _____ Phone#: _____

Emergency Contact Person: _____ Relationship:_____ Phone#:_____

PCP: _____ **Clinic** _____ **Phone:** _____	**Health Insurance:**
Specialist: _____ **Clinic** _____ **Phone:** _____	**Primary:** _____
Specialist: _____ **Clinic** _____ **Phone:** _____	**Secondary:** _____
Health Care System _____	

- Advanced Directives Y N Location: _____
- Power of Attorney – Health Care: Name: _____ Relationship: _____ Location: _____
  Financial: Name: _____ Relationship: _____ Location: _____
- Guardianship / conservatorship: Name: _____ Relationship: _____ Phone #: _____

II. MEDICAL HISTORY AND ASSESSMENT

- **Primary diagnosis:** _____ **ICD Code:** _____
- **Secondary diagnosis:** _____ **ICD Code:** _____
- Other Comorbid condition (s):

  _____

  _____

  _____
- Previous Hospitalizations: _____
  Dates: _____
  Reason: _____
- Previous ER Visits: _____
  Date: _____
  Reason: _____

- Diagnostic screening completed: (Inquire when tests were done.)

  EKG Y N _____ Mammogram Y N _____

  PAP Y N _____ Prostate Exam Y N _____

  Rectal Exam Y N _____ Self Breast Exam Y N _____

  Sigmoidoscopy / Colonoscopy Y N _____

  Stress Echo Y N _____

- Drug allergies: _____

  Other allergies: _____

- How often do you check your blood sugars? _____

  Do you keep a record of your blood sugars? Y N

  What was your highest and lowest reading during the past week? _____

  Do you know when you're having a symptom of high or low blood sugar? Y N Describe: _____

  _____

  Do you look at your feet regularly? Y N How often? _____

  Do you know what to check for? Y N Describe: _____

  _____

  Does someone else check your feet? Who? _____ How often? _____

- Have you had adverse side effects from your meds in the recent past? Y N If so, please check the following symptoms that apply:

  _____Bowel changes _____Confusion

  _____Dizziness _____Insomnia

  _____Sleepiness _____Rash

  _____Other Please describe:_____

MEDICATIONS

Complete list of medications and return to department secretary.

Name:_____

MR #_____ **SS#**_____

PCP:_____ **Health Care System** _____

Specialist:_____

Case Manager:_____ **Ext.**_____

RX #	Medication	Dosage	Frequency	Date Prescribed	Provider

Please include herbal medicine and vitamins, and non-prescribed medications.

IV. CURRENT LIFESTYLE RISK FACTORS

A. SMOKING / ALCOHOL USE

1. Have you ever smoked cigarettes? (If no, go to Question 2.)

   a. Do you currently smoke cigarettes? Y N (If no, go to Question 1b)

   If yes, how many cigarettes do you smoke a day?
   - ❑ Less than 10
   - ❑ 10-19
   - ❑ 20-39
   - ❑ 40-59
   - ❑ 60 or more

   b. If you quit, did you quit at age 38 or younger? Y N

   How long ago did you quit?
   - ❑ Less than 3 months ago
   - ❑ 3-11 months ago
   - ❑ 1-5 years ago
   - ❑ 6-14 years ago
   - ❑ Over 14 years ago

   How many cigarettes did you smoke a day before quitting?
   - ❑ Less than 2 packs/day
   - ❑ 2 or more packs/day

2. Have you ever smoked a pipe or cigar? (If no, go to Question 3.)

   a. Do you currently smoke a pipe or cigar? Y N (If no, go to Question 2b)

   If yes, how many pipes/cigars do you smoke a day?
   - ❑ 2 or less
   - ❑ 3-5
   - ❑ 6 or more

   Do you inhale cigar or pipe smoke?
   - ❑ Yes, always inhale
   - ❑ Yes, sometimes inhale
   - ❑ No, never inhale

   b. If you no longer smoke a pipe or cigar, did you quit at age 38 or younger? Y N

   How long ago did you quit?
   - ❑ Less than 3 months ago
   - ❑ 3-11 months ago
   - ❑ 1-5 years ago
   - ❑ 6-14 years ago
   - ❑ Over 14 years ago

How many pipes or cigars did you smoke a day before quitting?

- ❑ 5 or less
- ❑ More than 5

3. Do you live or work with anyone who often smokes in your presence? Y N

4. Do you use smokeless tobacco? Y N

5. How many alcoholic drinks do you average in a week?
   - ❑ 0-7 drinks
   - ❑ 8-14 drinks
   - ❑ 15-21 drinks
   - ❑ 22-30 drinks
   - ❑ 31-49 drinks
   - ❑ 50 ore more drinks

What is 1 "Drink"?
5 oz. wine
12 oz. beer
1 ½ Oz. 80 proof alcohol

B. SUBSTANCE ABUSE / USE

1. Have you ever used non-prescription, over-the-counter, or illegal drugs? Y N
   If yes: What?_____ When?_____
2. Do you take any herbal medicines or vitamins? Y N
3. Have you had any treatment for substance abuse? Y N If so, what? _____
   _____

C. PHYSICAL ACTIVITY

1. Look at the chart to the right. Is your activity mainly from A B C or D? How much time do you spend in a typical week consistently doing activities listed below? (Note: Include only the time spent actually doing the exercise.)

   - ❑ less than 15 minutes per week
   - ❑ 15-30 minutes per week
   - ❑ 31-60 minutes per week
   - ❑ up to 1.5 hours per week
   - ❑ up to 2 hours per week
   - ❑ up to 3 hours per week
   - ❑ up to 4 hours per week
   - ❑ up to 5 hours per week
   - ❑ up to 6 hours per week
   - ❑ more than 6 hours per week

Note: The majority of Americans spend less than one hour per week engaged in any form of exercise.

A. Moderate physical activity:
   Examples:
   walking,
   golf (walking the course)
   recreational tennis, bicycling,
   stationary bicycling (low tension),
   rowing machine, nordic track,
   circuit weight training

B. Vigorous exercise:
   Examples:
   brisk walking (at least 4 mph)
   competitive tennis, snow shoveling,
   fase or aerobic dancing, basketball
   racquetball, handball, swimming,
   stationary bicycling (moderate tension)
   jogging (4-5 mph)

C Very vigorous exercise
   Examples:
   running (7 mph),
   cycling (racing speeds, cross country skiing (outside, or on a machine),
   stair climbing, jumping rope

D Non-recreational exercise
   Examples:
   chopping wood, raking, heavy gardening,
   shoveling, lawn mowing (non-riding),
   physical work e.g. heavy construction,
   bricklaying, framing

2. Physical Activity converted to calories per week _____

   (Refer to the Physical Activity Calorie Chart)

   Estimated PA cals per week_____

D. NUTRITION

PLEASE LOOK AT THE FOODS IN BOX A AND BOX B

Box A		Box B	
Vegetables (not fried or cooked in oil or butter(	Non-granola cereal	Red meat (e.g. steak, hamburger, hot dogs, sausage	Ice cream
Pasts (without oily sauce)	Low or non-fat yogurt or cottage cheese	Cold cuts and luncheon meats	Snacks such as potato chips, corn chips
Fruit	Skim or low fat (1%) milk	Poultry with skin	Butter, margarine, sour cream
Bread	Fish and shellfish (not fried or cooked in oil or butter)	Fried or sauteed food	Mayonnaise
Baked Potato	Poultry (not fried, no skin)	Whole milk, cream, coffee creamer	Cooking oil
Rice (not fried)	Plain beans	Eggs, cheese	Sauce, gravy
Fat free sauces and salad dressings		Cake and cookies	Regular salad dressing
		Donuts and pastries	Nuts and seeds
		Chocolate candy	Peanut butter
		Pizza	French fries

Mark one box in each of the following sections that best describes your food choices in a typical week:

- ❑ All from Box A
- ❑ Virtually all from Box A
- ❑ Most from Box A
- ❑ More from Box A
- ❑ Equally from both Boxes
- ❑ More from Box B – (average American)
- ❑ Most from Box B
- ❑ Virtually all from Box B
- ❑ All from Box B

Considering breakfast, lunch, snacks and dinner, how many times in a typical week do you:

A. Eat fried foods such as fried chicken, fried fish, french fries, etc.?
   - ❑ Never
   - ❑ 1-2 times
   - ❑ 3-6 times
   - ❑ 7 or more

B. Eat red meat such as steak, hamburgers, hot dogs, bacon, sausage, pork, etc.?
   - ❑ Never
   - ❑ 1-2 times
   - ❑ 3-6 times
   - ❑ 7 or more

C. Eat higher fat desserts and snack foods such as ice cream, cookies, pastry, donuts, potato chips?
   - ❑ Never
   - ❑ 1-2 times
   - ❑ 3-6 times
   - ❑ 7 or more

In a typical week, how often do you eat 2 servings of vegetables and 1 fruit per day?

- ❑ Less than once per day
- ❑ 1-3 days per week
- ❑ 4-5 days per week
- ❑ 6-7 days per week
- ❑ Almost always eat MORE than 2 vegetables and 1 fruit every day

What is a "SERVING"?
1 cup of vegetables
½ cup of beans
3 cups of salad
1 piece of/or cup of fruit

V. FUNCTIONAL STATUS-Requires assistance and / or supervision for all or part of a 24 hour day for the following:

FUNCTIONAL STATUS – Requires assistance and/or supervision for all or part of a 24 hour day for the following:		
❑ Home safety	❑ Money management	❑ Meal preparation
❑ Transfers	❑ Housekeeping	❑ Grocery shopping
❑ Medication administration		❑ Driving
Sensory Impairment(s): ☐ Vision ☐ Hearing ☐ Speech		
Details on above: _____		

Perception of most troubling symptoms: _____

_____

PHYSICAL SELF-MAINTENANCE SCALE (PSMS)

Patient's Name: _____ Date: _____

Rated by _____

(Numbers one through five in each category represent worsening states of function. Circle the number that best describes the patient's functional status. Scores in all six categories should then be totaled. The higher the final score, the greater the degree of impairment:)

A. Toileting

1. Cares for self at toilet completely, no incontinence.
2. Needs to be reminded or needs help in cleaning self, or has rare (weekly at most) accidents.
3. Soiling or wetting while asleep more than once a week.
4. Soiling or wetting while awake more than once a week.
5. No control of bowels or bladder.

B. Feeding

1. Eats without assistance.
2. Eats with minor assistance at mealtimes and/or with special preparation of food, or help in cleaning up after meals.
3. Feeds self with moderate assistance and is untidy.
4. Requires extensive assistance for all meals.
5. Does not feed self at all and resists efforts of others to feed him/her.

C. Dressing

1. Dresses, undresses, and selects clothes from own wardrobe.
2. Dresses and undresses self with minor assistance.
3. Needs moderate assistance in dressing or selection of clothes.
4. Needs major assistance in dressing, but cooperates with efforts of others to help.
5. Completely unable to dress self and resists efforts of other to help.

D. Grooming (neatness, hair, nails, hands, face, clothing)

1. Always neatly dressed, well groomed, without assistance.
2. Grooms self adequately with occasional minor assistance, e.g., shaving.
3. Needs moderate and regular assistance or supervision in grooming.
4. Needs total grooming care, but can remain well groomed after help from others.
5. Actively negates all efforts of others to maintain grooming.

D. Physical Ambulation

1. Goes about grounds or city.
2. Ambulates within residence or about one block distance.
3. Ambulates with assistance of (check one)

   ( ) another person ( ) railing ( ) cane ( ) walker

   ( ) wheelchair - gets in and out without help

   ( ) wheelchair – needs help in getting in, out
4. Sits unsupported in chair or wheelchair, but cannot propel self without help.
5. Bedridden more than half the time.

F. Bathing

1. Bathes self (tub, shower, sponge bath) without help.
2. Bathes self with help in getting in and out of tub.
3. Washes face and hands only, but cannot bathe rest of body.
4. Does not wash self but is cooperative with those who bathe him/her.
5. Does not try to wash self, and resists efforts to keep him/her clean.

To track patient functional status, record the base and follow-up scores of the PSMS in the chart provided:

	PSMS	DATE
Baseline		
Follow-up		
Follow-up		
Follow-up		

Adapted from Lawton MP, and Brody EM. Assessment of Older People: Self-Maintaining and Instrumental Activities of Daily Living. The Gerontologist 1969;9(3) 179-186

VI. PSYCHOSOCIAL ASSESSMENT **Household / Family members / Significant other(s):**

SUPPORT SYSTEM:

Key Social Support Individuals:

Name	Relationship	Living where? (w/you, town/state?)	Age	Health Status

Who, other than your doctor, helps you make your health care decisions?

Name: _____ Relationship: _____ Phone#: _____

CULTURAL INFLUENCES:

1. What is the primary language you **best** understand and communicate most comfortably? What other languages do you understand well? _____
2. Do you have any cultural or spiritual beliefs and customs that help you cope with your health? Y N
3. Do any of your beliefs and customs prevent you from following your diabetes management plan? Y N

   If yes, please describe _____

_____

Adapted from Multidimensional Functional Assessment Questionnaire, Edition 2 (pp. 154-156) by Duke University Center for the Study of Aging and Human Development, 1988.

EDUCATION/WORK HISTORY:

What school grade level of formal education did you complete? _____
What was/is your occupation? _____
Are you able to read Spanish/English at a 4th Grade Level or have a Caregiver interested in active participation? Y N (if unable to determine, use REALM to test for literacy level)
Learning Preference: verbal/discussion written materials both none stated
Readiness to learn: willing/able to learn barriers to learning present:

_____

VI. MENTAL / EMOTIONAL / BIORHYTHMS

(If there are three or more indicators checked below, complete the Zung Scale. If any single problem seems significant, administer tests, as needed.)

During the past 4 weeks, have you had any of the following problems?

Anger	Stress (more than usual)
Apathy (loss of interest in activities)	Decreased concentration
Insomnia	Loss of appetite
Too much sleep	Significant losses
Early morning awakening (not related to physical symptoms)	Visions/Hallucinations

- Do you find your self feeling lonely? Quite often Sometimes Almost never
- Have you had any significant losses or adjustments recently (moves/relocations, deaths, functional changes)?

_____

Zung Scale: _____ **Date Administered:** _____

SF 12 Health Survey Score: _____ **Dates Administered:** _____
_____
_____

Diabetes 2.1 Score _____ **Dates Administered** _____
_____
_____

(Complete SF-12 and Diabetes 2.1 once a year on each patient)

COMMENTS: _____
_____
_____
_____
_____

Suicide/Abuse

- Have you ever *thought* about suicide? Y N When?_____

  Have you ever *planned* or *tried* to harm yourself? Y N When?_____

  Have you ever worked with a mental health therapist or psychiatrist? Y N

  Have you ever been hospitalized with a mental health or emotional problem? Y N

  Describe:_____

  _____

- Are you currently in a relationship / living situation where you are physically or emotionally hurt, threatened or made to feel afraid? No Do not want to answer

  Yes ☐ Assess for safety ☐ Resources

  ☐ Mental Health referral ☐ Recommendation for medical appointment

VII. COGNITION

(If there is a significant change in one of the areas below, complete the Folstein)

- During the recent past have some of the following symptoms occurred?

  _____Appearance/behavior inappropriate or unusual

  _____Concentration poor

  _____Memory impaired

  _____Communication impaired

  _____Decline in personal organization

  _____Orientation to: _____Person _____Place _____Time _____Not observed

  _____No cognitive deficit noted

Folstein Mini Mental Exam Score:_____/30 Date administered:_____

IX. SERVICES

	SERVICES	In place	Required	COMMENTS
	Adult/Child Protective Services			
	Advance Directives			
	Community Services Referral			
	Consumable medical supplies			
	Custodial care / Respite care			
	Durable/consumable medical equipment			
	Family Problems			
	Financial management			
	Home oxygen			
	Home environment modifications			
	Home Infusion Therapy			
	Hospice (Home)			
	Housing Placement ❑ SNF ❑ Assisted Living ❑ Shelter home			
	Medical Social Worker			
	Mental health			
	Office of Senior Affairs			
	Recreation / Socialization			
	Rehabilitation Therapy: ❑ Inpatient ❑ Outpatient ❑ Home			
	❑ Skilled Nursing Care ❑ Home ❑ SNF			
	Transportation			
	Other (i.e., WIC, Food stamps, waiver programs)			

CASE MANAGEMENT SURVEY

- Have you received case management services in the past? Y N
- **Complete Case Management Patient Satisfaction survey on a yearly basis**

X. READINESS TO CHANGE

- What successes have you had in the management of your diabetes, during the past few months? Describe:_____

_____

_____

_____

- What concerns you most about your health, and specifically, about the management of your diabetes? Describe: _____

_____

_____

_____

- Are you willing and able to work on improving the management of your diabetes? Y N If No, why?:_____

_____

_____

XI. CASE MANAGEMENT PLAN

- Successful behaviors already doing that need to be maintained:

_____ _____

_____ _____

_____ _____

- Problems/Challenges Identified:

Need Diabetic Educator Appointment
Home Blood Glucose testing
    Logs of Blood Glucose for review
Self-monitoring of symptoms
Self-management of symptoms w/ appropriate response
Self-management of daily foot care
Complication screening
    HbA1c: Quarterly
    Retinopathy: Annual dilated eye exam
    Nephropathy: Microalbuminuria ratio annually (urine)
    Peripheral Neuropathy: foot exam each MD visit, clinical evaluation of nerve & vascular status annually
    Lipids: Annually
    Blood Pressure monitoring
Current Smoking Behaviors

Physical Activity
    Awareness of benefits
    Consistency
    Getting Started
        Appropriate footwear
            Poor glucose control
        Requires exercise eval & RX
        Record keeping
Nutrition Therapy
    Carbohydrate counting
    Fat grams
    Limited protein intake
    Exchange
    Calorie counting
    Fiber
    Obesity
    Record Keeping

AGREEMENT by patient and case manager to work on this first:

_____

_____

_____

- Potentials for future focus:

_____ _____

_____ _____

_____ _____

- Barriers / Obstacles to be problem solved: (limited financial/emotional resources, poor coping skills or poor support system)

_____ _____

_____ _____

_____ _____

- INTERVENTIONS:

Assessment	Coordination of Services	Crisis intervention
Medical record review	Immediate/short term planning	Referral to podiatry
Psychosocial Counseling	Financial issues	Referral to diabetes educator
Consultation	Hospice	Referral PCP/specialist for
Education	Insurance issues	clinic visit/phone call
Motivational interviewing	Medication issues	Referral to HHC
Problem solving obstacles to	Monitor adherence	Referral Nutrition/dietary
behavior change	Placement	Referral to other services
Long term care planning	Problem identification	CM F/UP phone call
Safety issues	Pain management	CM F/UP clinic visit
Enlist support system/family	ADL evaluation	CM/F/UP home visit
Schedule CamP Visit		Resource information

Other: _____

_____

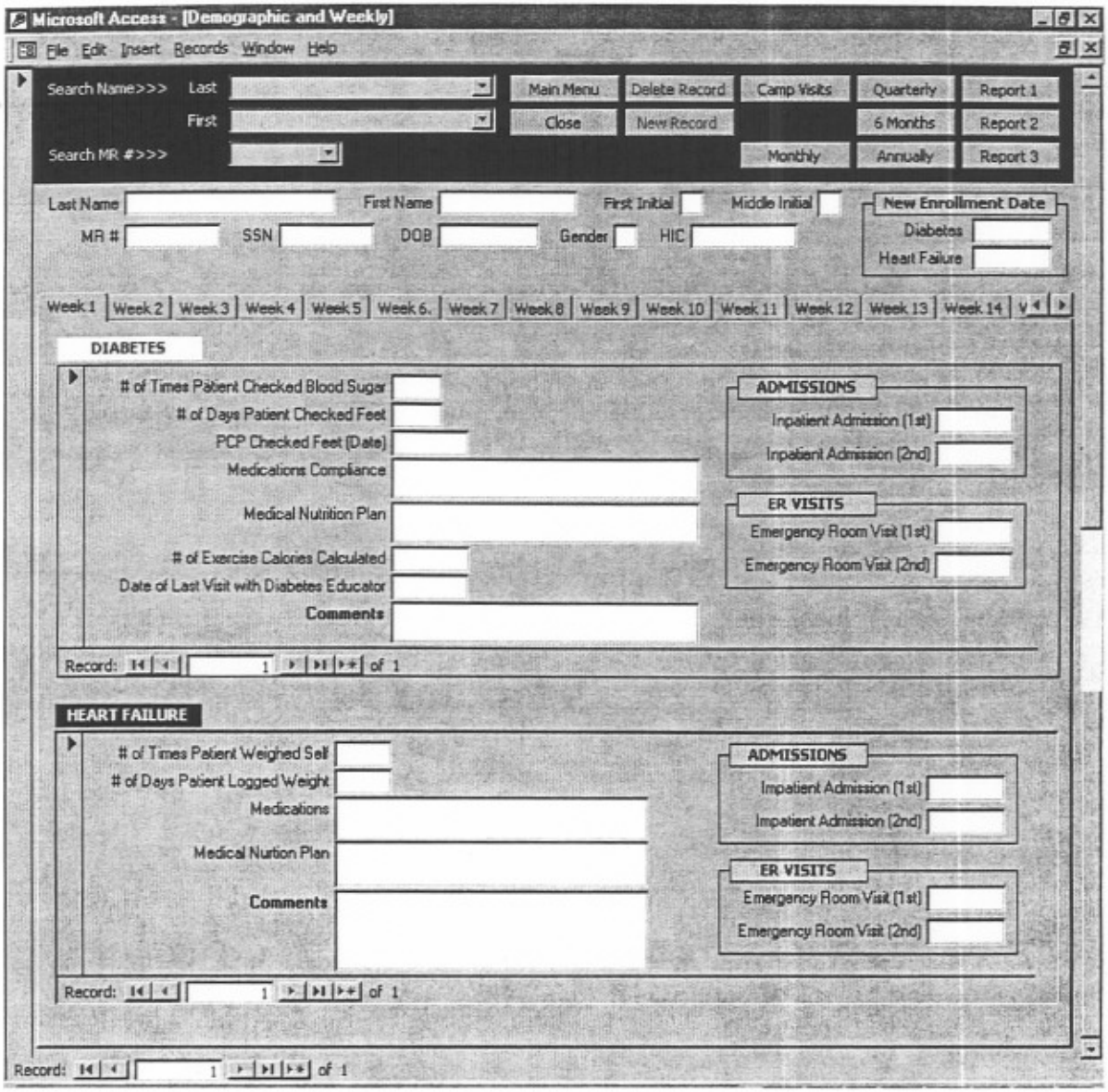
_____

Plan:

- _____
  _____
  _____
- _____
  _____
  _____
- _____
  _____
  _____
- _____
  _____
  _____

Weekly [Week 1- Week 15]

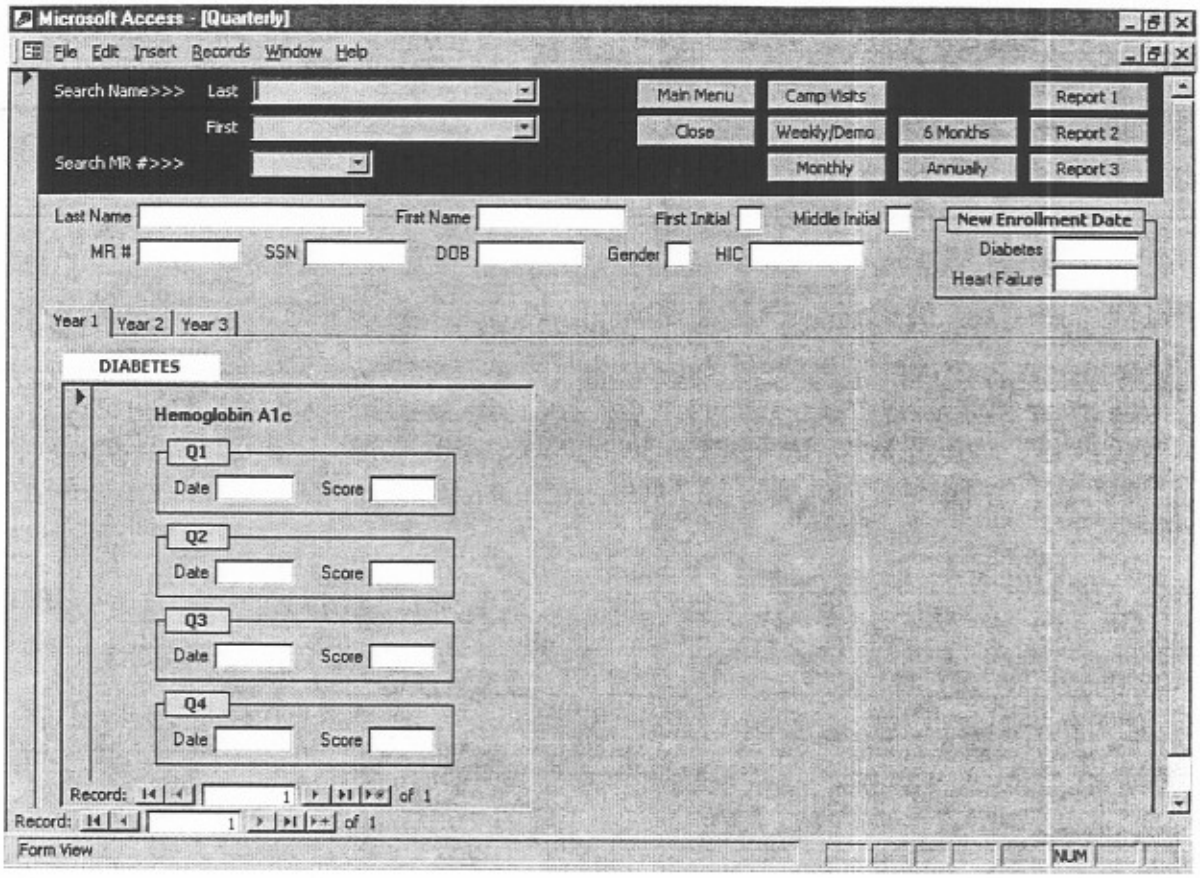
Use to enter data for weeks 1- 15



CMS Case Management Demonstration Database – Data Entry

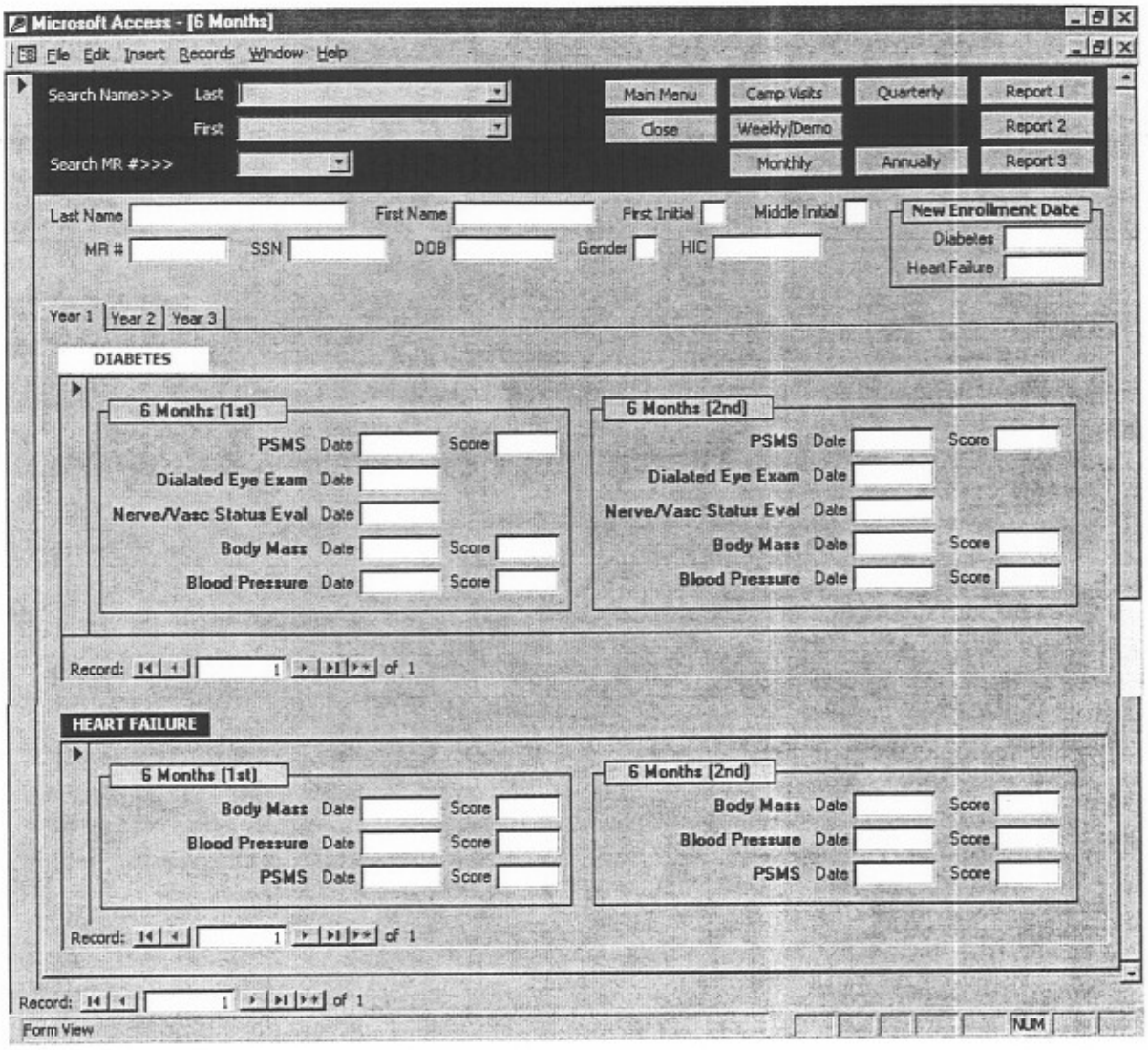
Quarterly [Year 1 – Year 3]

Use to enter data for Diabetes case study only, Q1-Q4 for years 1-3



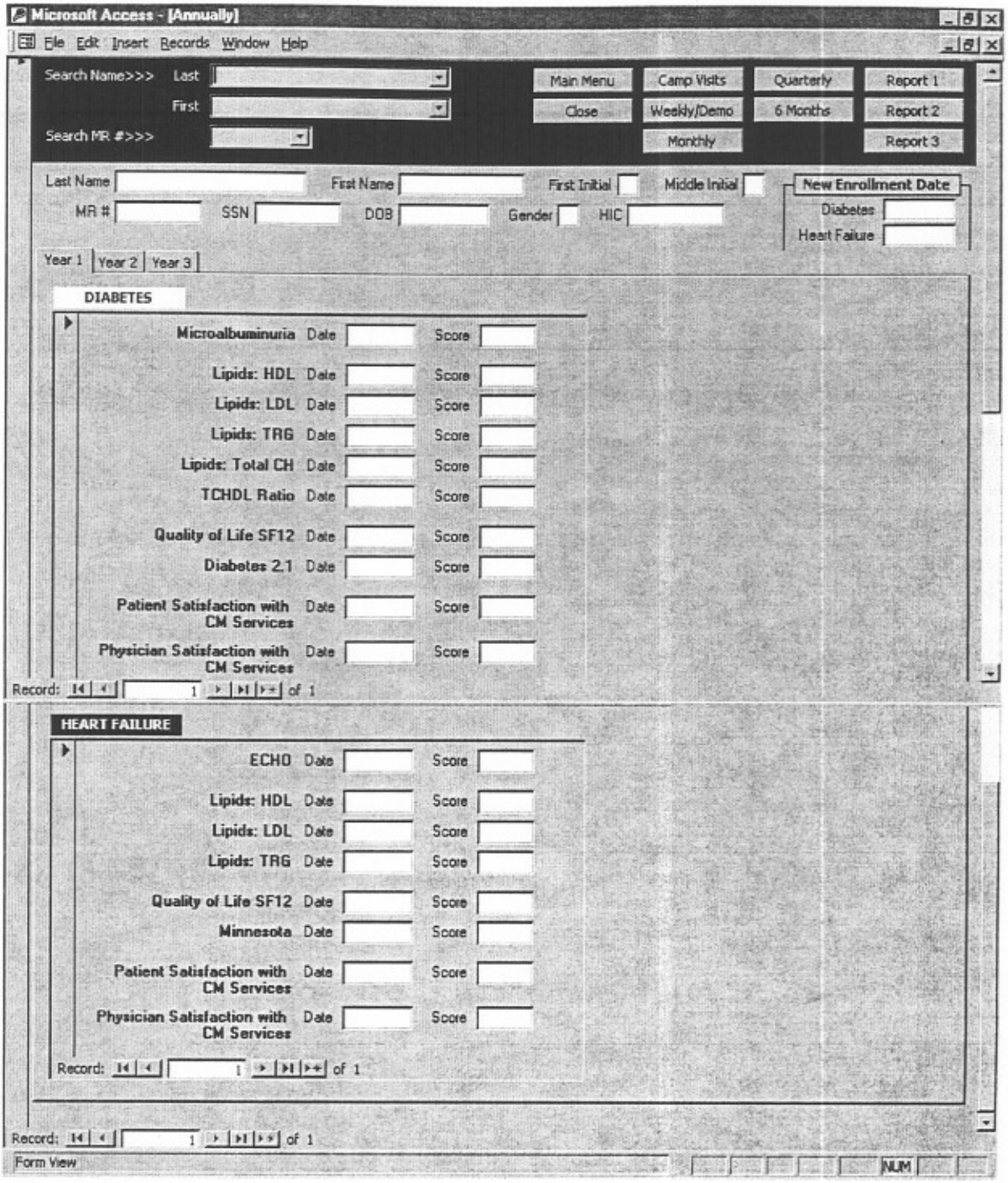
6 Months [Year 1 – Year 3]

Use to enter data at the end of each year for years 1-3



Annually [Year 1 – Year 3]

Use to enter data at the end of each year for years 1-3



" Patient Empowerment Tool "

CHF

To provide the best care, please prepare to give the following information weekly. It is very important for you to call and leave this info if I am not available when you return my call.

1. # times weighed
2. # times recorded daily weights
3. Did you gain more than 2 pounds this week?
4. Medications taken 100% of time?
5. Diet concerns. How much salt/products are you eating?
6. Dr appointments

Diabetes

To provide the best care, please prepare to give the following information weekly. It is very important for you to call and leave this info if I am not available when you return my call.

1. # times tested blood sugar
2. Highest & lowest BS during the week
3. # times recorded BS
4. Exercise activities and calories burned
5. Diet concerns
6. # days feet checked
7. Medications taken 100% of time?
8. Dr appointments