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Best Practices in
Coordinated Care

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BACKGROUND

To study possible reforms and innovations to the Medicare FFS program, Congress mandated in the Balanced Budget Act of 1997 that the Secretary of Health and Human Services evaluate best practices of coordinated care and design a demonstration project for targeted beneficiaries in the Medicare FFS program. Mathematica Policy Research, Inc. (MPR) was competitively awarded the contract to conduct a review of best practices in chronic illness care coordination and to recommend demonstration design options.

This report describes lessons learned from current best practices in coordinated care as the first step in designing the mandated demonstration programs. A separate report will propose key demonstration design features, including the method of paying for the intervention, financial incentives for programs to generate savings to Medicare, target sample sizes for the demonstration programs, and methods for evaluating them.

Current health care often fails to meet the needs of chronically ill people. Treatment regimens for chronic illness often do not conform to evidence-based guidelines (Large State Peer Review Organization 1997). Care is frequently rushed and overly dependent on patient-initiated followup. Providers typically devote little time to assessing function, providing instruction in behavior change or self-care, or addressing emotional or social distress (Calkins et al. 1991; Clark and Gong, 2000; and Holman and Lorig 1998). Care is fragmented, with little communication across settings and providers (Manian 1999).

A small proportion of chronically ill persons also incurs the large majority of health care costs (Eggert 1988). Furthermore, many unplanned hospitalizations of chronically ill persons appear to be preventable. Thus, preventive interventions targeted to this group might yield sizable overall savings in health care.

Based on these observations, we developed a working definition of what coordinated care is. We also kept in mind the needs and priorities of the Medicare program both to control program expenditures and to make available high-quality health care for its beneficiaries. Thus, coordinated care programs should serve chronically ill persons "at risk" for adverse outcomes and expensive care. They should remedy the above listed shortcomings in current health care for chronically ill people by (1) identifying those medical, functional, social, and emotional needs that increase their risk of adverse health events; (2) addressing those needs through education in self-care, optimization of medical treatment, and integration of care fragmented by setting or provider; and (3) monitoring patients for progress and early signs of problems. These approaches may be able to raise the quality of health care, improve health outcomes, prevent costly hospitalizations and other medical care, and produce program savings.

In seeking to improve the quality of care and reduce medical costs, a number of organizations, including managed care plans, commercial firms, and academic medical centers, have developed programs to coordinate the care of chronically ill persons. These programs are generally not

available, however, to beneficiaries in the Medicare fee-for-service (FFS) program, which covers acute care only.

METHODS

We took a two-phase approach to identifying best practices in coordinating care--we identified as many successful programs as possible, then interviewed a selected subset in detail to assess the reasons for their success. We restricted our search to actual (not proposed) programs with evidence of reductions in hospital admissions (the costliest Medicare-covered service) or in total medical costs, because programs without such effects are unlikely to generate sufficient savings to cover the cost of the intervention. We also limited our search to programs serving adults with chronic, systemic illness or providing true care coordination (not, for example, medical devices or programs for wound care).

We searched extensively for both published and unpublished programs. To find published programs, we used an electronic literature search and scanned new issues of relevant journals. A public solicitation of programs started with HCFA's publication of a notice in the *Federal Register.* We also canvassed experts, followed trade publications, placed notices in professional and trade journals, created a Web page, broadcast notices to relevant e-mail discussion groups, and sent mailings to professional and trade organizations. We developed instruments to rate programs on the size of their effects on rates of hospitalization or total medical costs, the credibility of the evidence for those estimates, the size of any effects on patient well-being, and the process of care.

Of the 157 programs that volunteered to provide us with all the necessary information, 67 reported reductions in hospital use or cost and met the other criteria for inclusion. Twenty-two (33 percent) of these were from a hospital or hospital-based health system, 14 (21 percent) from an academic medical center, 13 (19 percent) from a commercial vendor, 14 (21 percent) from a health plan or managed care organization, 1 (1 percent) from a group practice or multispecialty group, and 3 (4 percent) from other organizations like home health agencies or community health centers. Based on their ratings, a subset of 24 programs were selected for further interview.[1] An additional set of three programs with good ratings on the process of care coordination, but *without* hospital use or cost impacts was also interviewed for a further understanding of what factors might have led to their lack of success. Two of the 27 interviewed programs were then excluded: a group clinic program that was not a true care coordination program, and a consulting program that did not provide direct services to patients. Finally, four published programs with zero use/cost impacts, whom we did not interview, were also included, making a final group of 29 programs for detailed study.

Using semistructured interview protocols, two study team members with extensive experience in the case management field conducted comprehensive telephone interviews with senior program

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[1]One of the interviewed programs was included only on the basis of impacts on hospital use/cost from an earlier version of the program. A recent evaluation of the current version of the program shows a lack of hospital use/cost impacts.

staff. The interviews sought the details of programs' care coordination practices and elicited the views of program staff members concerning reasons for their success or lack of success.

FINDINGS

The Care Coordination Programs Accomplished Three Steps

Programs started by targeting one of two broad categories of chronically ill people: (1) those at "high risk" for suffering adverse, expensive health outcomes; or (2) those whose main health problems were certain specific diagnoses.

All the programs went through a three-step process with each patient:

1. ***Assess and Plan.*** Identify all important problems and goals. Produce a clear, practical plan that addresses these problems and lists specific goals.[2]

2. ***Implement and Deliver.*** Operationalize the plan and deliver the interventions.

3. ***Reassess and Adjust.*** Determine whether the interventions are working and, if they are not, adjust the plan.

Although care coordination does not really occur in discrete steps and tasks, and the steps actually occur simultaneously or blend into each other, we found it conceptually useful to divide up the process this way. The first step encompasses such activities as initial patient assessment, defining problems and goals, choosing interventions to meet each problem and goal, and writing down a plan of care. The second step covers the domains of patient education, service arrangement, and coordination with providers. The third step entails regular evaluation and monitoring of whether the plan of care developed in step one, and its execution in step two, are achieving the intended goals.

Quality improvement is another important program feature. We did not list it among the three steps, however, because it does not function at the individual-patient level. Ideally, programs should engage in efforts to continually improve their performance.

Each Step Has a Number of Component Tasks

The successful completion of each step requires the performance of several smaller tasks. For example, in step one, merely uncovering problems in the initial assessment without having available a number of proven, effective interventions to address those problems will do the patient no good.

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[2]This first step could and probably should also incorporate the patient's strengths or assets for staying well, but in the interviews, program staff spoke mostly of ways of uncovering and addressing problems.

Thus, we broke each step down further into a number of component tasks. Step one, Assess and Plan, has four tasks:

1. ***Uncover all important problems.*** These are the problems that can keep the patient from better health and lead to unplanned hospitalizations. These problems vary for each patient.

2. ***Address all important problems and goals.*** Every important problem and goal should have a plan and an intervention or interventions to address it.

3. ***Draw from a comprehensive arsenal of proven interventions.*** A care coordinator must have a broad array of appropriate, proven interventions available in order to choose the best ones to meet a patient's needs.

4. ***Produce a clear, practical plan of care, with specific goals.*** The first step concludes with a written, individualized plan of care. It is important that all concerned--patient, care coordinator, primary care physician (PCP)--have a common, agreed-upon set of goals for the patient, and when and how the patient is going to achieve them.

In the second step, Implement and Deliver, the care coordinator must implement the plan and deliver the services outlined in the plan of care. Care coordinators provide services of care coordination and communication (embedded in the first and second tasks), patient education (third task), and oversight of the care plan and assurance that interventions happen as planned (fourth task). The care coordinator must:

1. ***Build ongoing relationships with the PCPs and with other providers.*** This task enables care coordinators to coordinate care and facilitate communication among providers. Also, programs that fail to engage the physician may be limited in the degree to which they can address the medical aspects of care coordination.

2. ***Build ongoing relationships with patients and families.*** The foundation for this relationship is often laid during the initial assessment in the first step.

3. ***Provide excellent patient education.*** This intervention must be part of every plan of care. Programs must teach patients crucial self-care skills, such as proper diet for their condition, medical compliance, self-monitoring, emergency action plans, and skills to cope with the stresses of chronic illnesses.

4. ***Make certain that planned interventions get done.*** This task involves monitoring to make sure each intervention gets done.

Finally, the third step, Reassess and Adjust, has five tasks:

1. ***Perform periodic reassessments.*** The care coordinator must contact patients on a regular basis to make sure they continue to progress and have not encountered new problems.

2. ***Be accessible.*** Patients must have an easy way to reach a care coordinator at all times.

3. ***Nurture the relationship with PCPs and providers.***

4. ***Nurture the relationship with patient and family.***

5. ***Make prompt adjustments to the plan of care as needed.*** If the reassessment in the first task reveals a lack of progress, the plan of care may need to be changed. Several interventions may have to be tried and discarded before a successful solution is discovered. Changes in the plan of care also need to be made promptly, sometimes even urgently. Patients' level of risk for complications may change, necessitating a change in follow-up frequency.

There Were Two Main Types of Care Coordination Programs, Each Serving Different Populations of Patients

The two main types were non-disease-specific programs ("case management programs") and disease-specific programs ("disease management programs"). The two main types of programs differed in the patients they served and the tactics they adopted to accomplish the three steps and their component tasks.

Case management programs target "high-risk" patients--those at high risk of suffering costly hospitalizations and adverse health outcomes because of complex social and medical vulnerabilities. These high-risk patients tend to have diverse combinations of health, functional, and social problems. We studied 11 case management programs with high process-of-care scores and evidence of impacts.

Disease management programs target patients whose main health problem is a single diagnosis. Even though most patients also have comorbid conditions, patients whose main problem is a specific diagnosis tend to have a relatively standard set of needs related to that diagnosis. The description of disease management programs is based on seven disease management programs with high process-of-care scores and evidence of impacts.

Both sets of programs in our study had significant experience in coordinated care. The average and median ages of the case management programs were 4 years and 3.5 years, respectively. The average and median ages of the disease management programs were 3.3 years and 3 years, respectively. Program staff described an initial learning curve and the need to make adjustments over the years. In both types of programs, care coordinators were nurses with at least a bachelor's

degree in nursing. Some of the case management programs relied on advanced practice nurses (master's-prepared nurses).

Approaches of Case Management Programs to the Three Steps

For high-risk patients, the first step (Assess and Plan) included a comprehensive initial assessment that covered a broad set of domains, ranging from medical (such as diagnoses and medications), to functional (such as activities of daily living), to social (such as caregiver burden or availability of transportation), to emotional (such as depression or loneliness).[3] Assessments were done in person and often included a home evaluation. With patients' permission, case managers consulted with PCPs and family members, and often with others involved with the patient as well (nurses, physical therapists, sometimes even neighbors or apartment managers). The assessment concluded with a clear, written plan of care that listed individualized problems, goals, and interventions. Interventions were varied and often included referrals to community services or resource organizations.

In step two, case managers implemented the plan of care and delivered services. In order to enable care coordination and facilitate communication, case managers strengthened their relationships with patients and families, as well as with PCPs. In most programs, there was no requirement that patients switch PCPs in order to receive case management services or that they be locked into a restrictive provider network.[4] All programs provided extensive patient education. Case managers taught patients in the following areas: symptom identification and management; self-monitoring; avoidance of triggers of clinical worsening; reduction of emotional distress; appropriate activity level; compliance with medications, diet, and medical followup; appropriate use of emergency and PCP office care; ways of interacting with physicians; advanced directives; and health care power of attorney. Since patients tended to have different combinations of problems, education was highly individualized.

Finally, in step three, all programs followed up with patients by telephone or through home visits to make sure they were progressing as planned and to catch incipient problems early. The frequency and method of monitoring was generally left to the discretion of the case manager. Some programs discharged patients when case managers felt they had stabilized, and others kept patients in the program but monitored them less frequently and by telephone.

Case management programs' quality improvement efforts were variable. A few came close to true continuous quality improvement by regular monitoring of key indicators with feedback to staff, but many relied more on ad hoc or retrospective analyses of cases ending in untoward events such as avoidable hospitalizations.

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[3]Some programs first assessed patients' risk level (the patients' risk of requiring costly care and suffering adverse events) and performed less thorough initial assessments for low-risk patients. In this report, we focus on the process of care for high-risk patients.

[4]There were a few "team programs" in which PCPs and case managers were all on the same case management team. Thus, only patients of the designated PCPs received case management services.

Rural Case Management Programs Functioned Similarly but Were Constrained by Geography

The four rural programs we identified, all case management programs, looked similar to the nonrural programs. However, rural programs felt that their case managers' close ties to and knowledge of the community were especially critical to gaining patients' trust and finding ways of getting things done. Travel distances placed important constraints on case managers, limiting their caseloads, forcing them to expend energy on transportation arrangements, and making it difficult for them to forge collaborative relations with outlying physicians.

Approaches of Disease Management Programs to the Three Steps

Step one for the disease management programs involved an initial assessment of a narrower set of domains and a more standardized plan of care than for case management programs. Domains assessed included knowledge of the specific disease; self-monitoring skills; health status; smoking and alcohol consumption; compliance with medication, diet, and exercise recommendations; stress management and coping skills; depression; readiness to make behavioral changes; and conformance of the medical regimen with established guidelines on quality care. In several programs, patients' problems and goals were selected from standard templates, so that problem and goal lists were individualized, but within a range set by the templates. In all programs, the initial assessment and the care planning were tied to standard national guidelines of care for the particular disease. There was less emphasis on consulting a wide range of sources in the initial assessment, and less emphasis on arrangement of services to community agencies as part of the plan of care. Thus, disease management programs relied less heavily on the discretion of their care coordination staff.

In step two, the disease management programs stressed building relationships with patients, providing excellent patient education, and making sure medical care conformed to established guidelines. Again, in nearly all programs, the disease management programs worked *with* patients and their PCPs, and patients were not required to see a special set of doctors. Patient education tended to be more standardized than in case management programs, and programs evaluated more systematically the quality of the education provided.

In step three, as in the first two steps, programs generally had more explicit guidelines than did the case management programs for the minimum frequency of followup, and there was less reliance on the discretion of disease care managers. Disease care managers could exceed the minimum number of visits, however, if they felt the patient needed it. Compared to the case management programs, the disease management programs made more use of technology to monitor patients, such as software that prompted disease care managers on currently due and overdue interventions, and Interactive Voice Response (IVR) systems that allowed patients to make daily reports of their vital signs and symptoms using a touch-tone telephone. Some of the programs discharged their patients, while others did not discharge them but instead moved them to lower intensities of monitoring. Programs that never discharged their patients pointed out that chronic conditions such as diabetes and heart failure are incurable, and that it is human nature to lapse into old behaviors.

Disease management programs' quality improvement efforts tended to be more systematic than those of case management programs. The greater computerization of these programs facilitated regular reporting of process and outcome indicators.

Common Features of Case Management and Disease Management Programs

Despite the differences outlined above between the two types of programs, there were a number of common features. All programs had been in existence for a number of years. In all programs, care coordinators were nurses with at least a bachelor's degree in nursing, and some case management programs had master's-level nurse case managers. All programs went through the three-step process with each patient. All programs also completed certain component tasks within each step: producing a written plan of care at the end of step one, establishing an ongoing relationship with patients and providing patient education and monitoring in step two, and periodically reassessing patients as part of step three. All the disease management programs built their programs around national evidence-based or consensus-based guidelines.

Finally, all programs seemed to have a proactive outlook, to view care coordination as a preventive activity. They saw their mission as one of providing services to patients in the present to prevent adverse health outcomes and hospitalizations in the future. Thus, arranging for supportive services in the home and teaching patients to monitor and take care of themselves are examples of efforts to keep problems from developing in the first place. Periodic reassessment and adjustment of the care plan are meant to catch any problems as early as possible and deal with them before they become severe.

LIMITATIONS AND STRENGTHS OF THIS STUDY

Limitations

Our study relied on data reported by the programs we evaluated. We have no independent means of verifying this process and impact information. However, information from unpublished programs did not seem to differ markedly or systematically from that of published programs. The interviews with program staff were also conducted by two objective interviewers with extensive case management experience who sought to obtain an accurate picture of program operations. Furthermore, our observations on the three major steps, the important component tasks, and the programs' proactive philosophy reflect the experience of virtually all of the programs. Finally, the conclusions are supported by evidence from non-interviewed programs and the small number of programs we studied with zero use/cost impacts, and are consistent with the conclusions of other authorities on chronic illness care.

We also did not have a census or a random sample of programs. Our sample consists of programs that volunteered to submit data, and a significant number of programs we identified or were aware of did not respond. It excludes programs that lacked data on impacts on hospital admissions or total medical costs. Although including more programs may have uncovered additional examples of ways to accomplish the three steps, it seems unlikely that additional programs would have changed our conclusions on the basic three steps.

A number of programs we reviewed had managed care or integrated delivery system features that might not translate to a Medicare FFS setting, such as health plans' contractual leverage over providers or programs' access to health plan administrative databases. These features were not universal across the programs, however, and it appears care coordination programs can improve patient outcomes without them.

Finally, because of the study design, there were a number of issues we could not address. There was not enough variation in certain features, such as financial incentives for providers or the adequacy of primary care, for us to discern what the effect of their absence would be. Given programs' lack of data on operating costs, we also could not assess program cost-effectiveness. By focusing on programs with reduction in hospital use, though, we selected programs that have the potential to be cost-effective.

Strengths

A noteworthy feature of our study is the weight given to evidence. We included only programs with reported impacts. We considered not only the size of programs' reported impacts, but also the quality or credibility of program evidence. We are unaware of previous reviews that have limited themselves to programs with measurable impacts or have ranked programs by the quality of their evidence.

Our study also maintained a practical focus on programs that stand a reasonable chance of being cost-effective because they have reduced use of expensive health care services. Programs that demonstrate improvements only in clinical processes of care are an important contribution, but unless they can also be shown to save at least as much money as they cost, they would only exacerbate Medicare's projected financial deficits.

We also set forth a working definition of what "care coordination" is. These considerations excluded two kinds of so-called "case management" programs. The first kind, developed mainly by hospitals, has a primary goal of shortening inpatient hospital stays. The second kind, seen mostly in managed care plans, seeks to find the least expensive alternative among covered treatments or benefits for a given clinical situation. Neither type of program tries to meet the needs of chronically ill people that current health care fails to address, and neither type of program typically takes the long-range proactive approach of intervening to avert poor outcomes in the future.

Our study had a broad scope. We considered both case management and disease management programs and pointed out useful distinctions and similarities. We noted that "high-risk" patients and patients with a primary disease have different needs and that these contrasting needs shape the details

of how programs approach the three steps. Earlier studies have examined either case management programs or disease management programs exclusively, or they have grouped them together without recognizing potential differences. Unlike other studies that have restricted themselves to the managed care setting, our study also included programs regardless of setting or sponsor.

Finally, ours was an empirical approach. We did not start with any detailed preconceptions of what features programs must possess or any specific models that such programs must follow. Thus, our conclusions are broadly applicable to a variety of programs and settings.

Implications for Care Coordination in General

The care coordination programs we studied appear to be providing to chronically ill people important services that they currently cannot obtain in the traditional U.S. health care system. Although providers in the current system do provide some care coordination services, they generally do not offer the breadth or depth of services we found in these programs: comprehensive multidimensional assessment of medical, functional, and psychosocial needs; arrangement of community services; coordination across providers; intensive health education and support for lifestyle modification; and methodical tracking of patients' progress between office visits.

There appear to be two main populations of chronically ill patients and two corresponding and equally important types of programs that have evolved to serve them: case management and disease management programs. Case management programs tend to serve a smaller group of complex, medically or socially vulnerable "high-risk" patients. They carefully assess each patient's distinct set of problems and goals to develop highly individualized plans of care. Disease management programs tend to serve a larger group of patients whose main problem is a single chronic disease. These patients generally have similar primary needs, and programs can take a more standard approach with each patient.

Even within each broad category of program, there were many effective ways of coordinating care. In part, the wide variations in approaches reflected underlying variations in the characteristics of patients served. Whether a successful program included or omitted a specific strategy seemed to depend on the barriers to health (or assets for wellness) of that program's patient population. Thus, assessment of a program's approach requires an accurate picture of a program's patient population and its needs.

Our study suggests that incremental approaches to improving chronic illness can succeed. There is nothing in the three steps or the overall proactive stance that requires any organizational or structural change in the health care system. The great majority of programs in our study did not require physicians to acquire new staff or equipment or to reorganize their practices. Programs did not require patients to be "locked in" to a predefined network of providers. The programs did not take chronically ill patients away from their PCPs.

Implications for the Demonstration

Our study suggests that a demonstration in FFS Medicare of coordinated care programs similar to the ones we studied should be feasible and appears to have a reasonable chance of being cost-effective. Given the focus of the demonstration, selected programs will have to target populations that are currently of the highest importance to the Medicare FFS program. In addition, based on common themes and features in the programs studied, we make the following five recommendations for features of demonstration programs:

1. Programs should follow the three steps (Assess and Plan, Implement and Deliver, Reassess and Adjust) for all enrolled patients.

   - Step one should conclude with a written plan of care.

   - Step two should include the establishment of an ongoing care coordinator-patient relationship, and the provision of excellent patient education.

   - Step three should include periodic reassessment of patients' progress.

2. Programs should have express goals of prevention of health problems and crises, and of early problem detection and intervention (a proactive approach, in other words).

3. Disease-specific programs should incorporate national evidence-based or consensus-based guidelines into their interventions.

4. Care coordinators should be nurses with at least a bachelor's degree in nursing.

5. Programs should have significant experience in care coordination and should have evidence of having reduced hospital use or total medical costs.

Implementation of a care coordination demonstration in FFS Medicare also raises a host of difficult design issues, which are addressed in a separate demonstration design report. Our findings suggest that care coordination holds the potential to reduce health care utilization while maintaining or improving the quality of care for chronic illness within the existing health care system. What remains to be seen in the demonstration is whether care coordination programs like the ones studied can achieve the same medical cost savings and quality impacts when implemented in the general Medicare FFS setting, and whether the savings will at least equal the costs of the intervention.