

CHAPTER

2

---

**Care coordination in  
fee-for-service Medicare**

---



# Care coordination in fee-for-service Medicare

## Chapter summary

Gaps exist in care coordination in fee-for-service (FFS) Medicare because of the fragmentation of service delivery, the lack of tools to help communicate across settings or providers, and the lack of a financial incentive to coordinate care. These gaps are particularly important in Medicare because beneficiaries are more likely to have multiple chronic conditions than younger patients, requiring more interaction with the health care system.

The effects of poor care coordination include beneficiaries having to repeat medical histories and tests, receiving inconsistent medical instructions or information, experiencing poor transitions between sites of care, and using higher intensity settings when it is not necessary. Models to improve care coordination include physician practice transformation models to better deliver chronic care, care manager models, and models focusing on facilitating transitions between settings. The Center for Medicare & Medicaid Innovation is also establishing tests of care coordination models to provide additional information on their efficacy in Medicare.

Findings from recent Medicare demonstrations on care coordination and disease management models have not shown systematic improvements in beneficiary outcomes or reductions in Medicare spending. The most successful program in the Medicare demonstrations emphasized developing a care coordination intervention as well as restructuring providers'

## In this chapter

- Consequences of poor care coordination
- Reasons for poor care coordination
- Care coordination: Models and types
- Care coordination demonstrations in FFS Medicare
- Challenges of establishing an effective care coordination intervention
- Care coordination and Medicare payment policy
- Conclusion

administrative and care delivery processes so that they would work well around the intervention. Restructuring the way care is provided may be necessary to achieve good care coordination, but such restructuring is difficult in a FFS environment.

The incentives in FFS Medicare to increase volume often work at cross-purposes with efforts to coordinate care and improve care delivery. Further, the fee schedule for physicians and other health professionals is widely perceived to favor procedures and tests over cognitive activities such as care coordination that primary care practitioners are more likely to provide. Care coordination also cannot work without a robust, well-supported primary care system, and therefore the decline in the primary care workforce is cause for alarm.

The approaches most likely to achieve significant improvement in care coordination are those that: fundamentally change the FFS incentives to provide more, rather than better, care; give organizations the flexibility to use the best tools for their population; and support, facilitate, and permit innovation that will improve care for beneficiaries. While broad payment reform (such as the shared savings payment approach for accountable care organizations and bundled payments) holds promise for improving care coordination, these changes will take time to develop. In the interim, it may be necessary to take intermediate steps to improve care coordination and provide explicit payments for the related activities that primary care clinicians do but that are not currently paid for under the FFS system. Policy options for care coordination could include adding codes or modifying existing codes in the fee schedule that allow practitioners to bill for care coordination activities, creating a per beneficiary payment for care coordination, or using payment policy to reward or penalize outcomes resulting from coordinated or fragmented care. Each of these options has positive and negative features that the Commission will explore in future work. ■

The Commission has been concerned for many years that gaps exist in care coordination in fee-for-service (FFS) Medicare and that this lack of coordination around transitions and management of illness can harm beneficiaries. Care coordination is particularly important for the Medicare population because beneficiaries often have multiple acute and chronic conditions requiring systemic coordination.

Adding to the urgency of these gaps in care coordination is continued erosion in the base of primary care practitioners. Primary care—comprehensive health care provided by personal clinicians responsible for the overall, ongoing health of their patients—is a crucial component in ensuring that beneficiaries receive coordinated care. Some key components of primary care include: emphasizing a first point of contact with the beneficiary, providing continuity across time and settings, and delivering holistic care for the multiple chronic and acute conditions facing many Medicare beneficiaries (Starfield et al. 2005).

Despite the importance of primary care in ensuring that care is well coordinated for beneficiaries facing chronic illness, primary care faces a mounting crisis due to fewer new physicians opting for primary care specialties and a persistent imbalance in payment between primary care and specialty physicians (Bodenheimer and Pham 2010, Medicare Payment Advisory Commission 2008).

The Commission has raised concerns that the current process of setting Medicare payment rates for physicians and other health professionals undervalues primary care activities relative to specialty or procedural care (Medicare Payment Advisory Commission 2008). This practice has resulted in a preference for specialty care relative to primary care among medical school graduates (Bodenheimer 2006). These trends are also reflected in access to physician services among the Medicare population. Specifically, among the small number of beneficiaries seeking a new physician, a larger share of them (35 percent) encountered a small or big problem when seeking a primary care physician than the share of Medicare beneficiaries seeking a specialist (15 percent) (Medicare Payment Advisory Commission 2012).

In response to these alarming trends in the primary care workforce and the importance of primary care to both coordinated care and future payment reforms (such as the shared savings payment approach for accountable care organizations) that have the potential to improve the delivery of efficient, high-quality care, the Commission

has made a number of recommendations to address the undervaluation of primary care services in the fee schedule relative to other services.

First, the Commission has made recommendations that the Secretary of Health and Human Services identify overpriced procedures and collect data to improve the estimates of work and practice expense in the fee schedule (Medicare Payment Advisory Commission 2006, Medicare Payment Advisory Commission 2011a). Second, the Commission has made specific recommendations to establish a payment adjustment for primary care services in the fee schedule and that CMS establish a medical home pilot project (Medicare Payment Advisory Commission 2008). A variant of both recommendations was enacted into law in 2010. Third, the Commission's recommendation for replacing the sustainable growth rate system for physician payment would provide preferential treatment for primary care relative to specialty care (Medicare Payment Advisory Commission 2011a).

Without a well-developed, well-supported primary care system, the care coordination models described in this chapter are unlikely to be widely successful. Furthermore, research has illustrated that higher provision of primary care is correlated with the delivery of more efficient, higher quality care (Baicker and Chandra 2004, Medicare Payment Advisory Commission 2008). Recognizing the costs that primary care clinicians incur in care coordination that are not directly reflected in the fee schedule, through mechanisms such as those discussed in this chapter, would provide further support for primary care, and emphasize its value in a reformed delivery system.

In addition to accurate valuation of primary care in the fee schedule, policies to improve care coordination in Medicare can encompass a continuum ranging from very prescriptive policies (where specific defined activities are paid for) to very broad policies (where a global payment is made for an episode or a beneficiary). For example, the most prescriptive policies include changing billing codes in the physician fee schedule to direct resources toward care coordination activities. Somewhat less prescriptive are policies that make per member per month payments to a medical home or care management entity to manage a population of patients or make transitional care payments for patients being discharged from the hospital. The Commission's published work in this area includes: a review of key elements of care coordination models, models of care for dual-eligible populations, and Medicare's experience with care coordination

demonstrations (Medicare Payment Advisory Commission 2004, Medicare Payment Advisory Commission 2006, Medicare Payment Advisory Commission 2009, Medicare Payment Advisory Commission 2010, Medicare Payment Advisory Commission 2011b).

Somewhat broader policies tie payment to outcomes that are the direct result of good or bad care coordination. One example is Medicare's existing policy that reduces payment to hospitals with high readmission rates. This policy links the payment to the outcome (readmissions) without prescribing specific actions that the provider must take. Care coordination policies at the broadest end of the continuum make the provider responsible for delivering a certain quality of care at a fixed level of spending, with wide leeway on how to do so. These types of policies include fixed payment arrangements such as bundling or capitation.

---

## Consequences of poor care coordination

---

Coordinating care for Medicare beneficiaries is a substantial task. In 2008, about 20 percent of aged Medicare beneficiaries had an inpatient admission, 14 percent of beneficiaries used a post-acute care provider, 70 percent of beneficiaries had an outpatient hospital department visit, and the average beneficiary had 12 visits for evaluation and management services per year—in a physician's office, hospital, nursing home, or other location (Chronic Condition Warehouse 2012).<sup>1</sup> In addition, in 2009 the average Medicare beneficiary enrolled in Part D filled 4.1 prescriptions per month. The average was higher for Part D enrollees receiving the low-income subsidy (5.0 prescriptions per month) compared with those who do not (3.6 prescriptions per month).

In FFS Medicare, there is little systematic coordination of a patient's care among multiple providers and settings. Coordinating one's own care is challenging even in a single health event, but many beneficiaries have a significant number of such events in a year. Beneficiaries who are physically frail or have cognitive challenges may have limited ability to express their treatment preferences or communicate with multiple providers about their condition. Furthermore, health literacy declines with age, and decision-making processes change (Finucane et al. 2002, Kutner et al. 2006).

Poorly coordinated care is also more likely to occur for people in racial or ethnic minority groups or those with lower incomes, and these patterns are of concern to the Commission. For example, the rate of individuals receiving complete discharge instructions for heart failure when being released from the hospital is lower for American Indians and Alaskan Natives than for other racial and ethnic groups, and the rate of readmissions for heart failure is higher for African Americans and Hispanics than for Whites. Higher income individuals were more likely to report that their health providers asked about their medications and treatments from other doctors than were the poor and near poor (Agency for Healthcare Research and Quality 2011a).

Minority groups are also less likely to use formal post-acute care settings and are more likely to be admitted to post-acute care in worse health than other groups (Konetzka and Werner 2009). If it is the case that post-acute care providers facilitate care coordination for their beneficiaries, this difference in usage of formal post-acute care could exacerbate racial and ethnic differences in obtaining coordinated care. Overall, to the extent that racial and ethnic minorities and those with lower incomes are experiencing adverse health events and facing stress due to uncoordinated care, improving care coordination could improve their overall health and reduce disparities in outcomes.

## Repeated medical history and diagnostic tests

Poor care coordination can entail repeated demands for information from patients on their medical history and their current medical regimen as well as repeated diagnostic tests. Survey respondents in the United States were more likely to report care coordination issues than respondents in the five other countries surveyed: Medical records were not available in the doctor's office in time for the appointment or a medical test was ordered that the patient thought was unnecessary because it had already been done (Schoen et al. 2009).

## Polypharmacy

Polypharmacy is a term encompassing inappropriate use of medications that can lead to adverse health events. One study of prescription drug patterns among the elderly found that the number of drugs taken and the complexity of prescription instructions have increased over time, with 12 percent of individuals age 65 or over taking at least 10 medications per week (Gurwitz 2004), and consumption of five or more drugs is a risk factor for falls among the

elderly (Berdot et al. 2009). Reconciling medications and instructions across settings and providers can reduce the incidence of adverse drug events and is often a key feature in care coordination models (Gandhi et al. 2003).

### **Inconsistent medical information and poor communication**

The Survey on Chronic Illness and Caregiving, conducted by Harris International in 2000, found that about 20 million individuals with chronic illnesses had received inconsistent information from providers, while a slightly smaller number (18 million and 17 million, respectively) had received different diagnoses for the same chronic illness or had been told by pharmacists that drugs they were prescribed were contraindicated (Anderson and Knickman 2001).

Results from the National Healthcare Quality Report find performance on self-reported measures of poor coordination to be positively correlated with patient severity and age. For example, among respondents with an office visit in the past year, 15 percent of patients with a significant activity limitation reported that they had poor communication with their providers, higher than the rate for those without an activity limitation (10 percent). And respondents over age 65 were more likely than people in other age groups (except children) to report that their physicians did not ask about prescription medications and treatments from other doctors (Agency for Healthcare Research and Quality 2011b).

### **Poor transitions or hand-offs between settings and providers**

Transitions between settings can be jarring and the effect of hospitalizations in limiting mobility is particularly acute for older patients. For example, the prolonged bed rest and change in routine associated with a hospitalization works in tandem with the normal processes of aging (such as reduced muscle strength, declines in bone density and respiratory ability, and declines in sensory continence) to put patients at risk of further decline in functional status and higher rates of anxiety and other psychological disturbances (Creditor 1993, Gillick et al. 1982, Graf 2006). Each transition can limit the beneficiary's ability to recover to the same level of functioning. Transitions from the hospital to the ambulatory setting also pose a special challenge—patients and their families need to establish new patterns of self-care and may lack the experience with their condition to recognize a serious complication (Brown 2009).

### **Unnecessary emergency department use and hospital readmissions**

Poor care coordination can result in patients seeking care from a higher intensity setting than needed—for example, using the emergency department when they could have been treated in the office of a physician or other health professional. Among a survey of U.S. residents, a quarter of adults reported that they went to the emergency department for a condition that could have been treated by a regular doctor if available (Schoen et al. 2009). Of all Medicare hospital admissions, about 19 percent result in a readmission to the hospital within 30 days (Institute of Medicine 2011).

---

### **Reasons for poor care coordination**

---

Health care can be poorly coordinated for several reasons. First, no one entity is accountable for care coordination. Second, FFS payment generally does not specifically pay for non-face-to-face activities, which include providers communicating with each other to coordinate a beneficiary's care. And third, no easy way exists to communicate information across providers and settings, and interoperability is poor among existing information systems.

### **Payment policies**

Medicare's FFS system, which generally pays for discrete episodes or services within siloed settings for face-to-face encounters, gives little incentive to providers to spend time coordinating care. Services provided by a physician or other health care professional that do not involve a face-to-face encounter are not billable under Medicare's fee schedule (there are a few exceptions to this general rule).<sup>2</sup> Instead, care coordination activities are largely subsumed in the fee schedule's evaluation and management codes, which pay for in-person visits. Medicare and most other payers have separate payment systems for different provider types, meaning that each care process is broken up into a set of different transactions between the beneficiary and the health care delivery system.

### **Lack of tools to communicate effectively across settings and providers**

The health care system is fragmented, with many providers, settings, and clinical and nonclinical staff involved with each patient's episode of illness. Fragmentation on its own may not be harmful, if clinically

important information is communicated across settings and providers. However, there is significant evidence that communication across providers and settings is poor (Bodenheimer 2008).

Important instructions are often not received before patients have their first visit with the provider—for example, one study found that two-thirds of physicians treated a patient for the first time after being discharged from the hospital but before the physician received the hospital’s discharge summary (Kripalani et al. 2007). Another study found that only a quarter of hospital discharge summaries mentioned that there were outstanding medical test results and what tests they were, even though all patients had outstanding tests and their discharge summaries should have included such information (Were et al. 2009). Similar incompleteness was found in transfers between primary and specialty physicians and between community physicians and hospital-based physicians (Forrest et al. 2000, Gandhi et al. 2000, Schoen et al. 2005). Even providers with robust information technology systems are often unable to use them to communicate easily with other providers because their systems are not interoperable (Elhauge 2010).

---

## Care coordination: Models and types

---

Care coordination is a broad concept that encompasses a wide range of activities and often means different things to different people. The term care coordination is often used interchangeably with terms such as case management, disease management, and care management. However, in this chapter, the Commission views care coordination as a broad term that means a set of tools available for improving the delivery of coordinated care (which could include disease management, case management, and transitional care). Because of the disease burden of the Medicare population, the care coordination models discussed here also generally focus on people who have or who are going to have significant contact with the health care system.

One definition of care coordination is that it “is a conscious effort between two or more participants involved in a patient’s care to facilitate appropriate delivery of health care services” (Agency for Healthcare Research and Quality 2011b). Also part of the care coordination discussions are efforts to make care patient centered with a holistic orientation. Patient centered means

that the beneficiaries’ preferences and perspective should be elicited, understood, and built into their plan of care. A holistic orientation means that the patients’ medical treatment should be tailored to their specific situation and should not ignore the other factors that affect health—such as mental and social well-being, nutrition, income or housing security, literacy and education, and other factors.

Practitioners and other researchers have developed a series of models to improve care coordination and improve the experience for individuals with multiple chronic conditions.<sup>3</sup> Table 2-1 groups the models of care coordination by type of intervention or component. The models vary in design and attempt to coordinate care by:

- transforming primary care practices that can better manage patients with a heavy chronic disease burden;
- utilizing a care manager role, either inside or outside the physician’s office; and
- managing transitions between settings, targeting hospital patients who are discharged to other settings.

### Practice transformation models

Examples of transformed practice models are the chronic care model and medical home model, which restructure medical practices so they can improve the delivery of coordinated care. Principles that underlie the chronic care model include accessing community resources to help patients, creating an organizational culture that promotes safe effective care, empowering and activating patients to express their preferences, supporting clinical care that is consistent with guidelines, and organizing patient and population data. The chronic care model forms the basis for many other interventions, including the medical home model. Medical homes are medical practices that deliver patient-centered care, coordinate care across providers and settings, and have robust information technology to facilitate information transfer (Medicare Payment Advisory Commission 2008).

### Embedded care manager models

Guided Care<sup>®</sup> and the Aetna<sup>SM</sup> case manager models place a care manager (often an advanced practice nurse) in a physician’s office, versus the medical practice hiring a care manager (as in the practice transformation models). The care manager identifies high-risk and potentially high-risk patients. Because the Aetna model is run by the insurer, care managers in this model are able to use claims information to identify patients who could benefit from

**TABLE  
2-1**

**Illustrative models of care coordination**

<b>Model name</b>	<b>Principles</b>	<b>Responsible entity</b>
<b>Practice transformation models</b>		
Chronic care model	Six principles of chronic care delivery for transforming physician offices: community resources and policies, health care organization, self-management support, delivery system design, decision support, clinical information systems.	Medical practice
Medical home	Medical home model generally follows seven principles: a personal physician, a physician-directed medical practice, a whole person orientation, care that is coordinated and integrated, quality and safety, enhanced access to care (such as open scheduling and off-hours access), and payment reform to reflect the added value of a medical home.	Medical practice
<b>Embedded care manager models</b>		
Aetna <sup>SM</sup> case manager model	Case manager helps manage patient care by communicating with the patient and the clinical staff.	Nurse case manager funded by Aetna and placed in medical practices
Guided Care <sup>®</sup> model	Eight clinical activities of Guided Care: assessment, planning, chronic disease self-management, monitoring, coaching, coordinating transitions, educating and supporting caregivers, and accessing community resources.	Guided Care nurse placed in primary care medical practice
<b>Transitions models</b>		
Care Transitions Intervention <sup>®</sup>	Intervention focused on patient activation and self-care, assistance with medication self-management, assistance with medical record owned and maintained by the patient to facilitate cross-site information transfer, follow-up with primary or specialty care, and identification of worsening condition and development of responses.	Transition coach works with the patients and their families.
Transitional Care Model <sup>®</sup>	Comprehensive discharge planning in the hospital and home follow-up by advanced practice nurses. Transitional care nurse develops an evidence-based plan of care, visits patient in the hospital, conducts home visits, and attends first follow-up visit with primary care physician. Active engagement of patients and caregivers and coordination with other medical staff involved in the patient's care.	Advanced practice nurses trained in the transitional care model
<b>External care manager models</b>		
Community health teams	Provider practices link to community health teams to help them provide coordinated care. Intervention integrating health team with providers, frequently interacting with patients, and facilitating transitions and access to community resources.	Health teams in the community that work with medical practices. Teams can include care coordinators, nurses, and social supports.
Disease management	Generally a telephone-based intervention focused on patient education and activation, monitoring of clinical symptoms, and evidence-based practice.	Disease management organizations that communicate directly with the patient

Source: Boulton et al. 2009, Coleman 2003, Congressional Budget Office 2004, Naylor et al. 2011, Patient-Centered Primary Care Collaborative 2007, and Thorpe and Ogden 2009.

better care coordination. The care manager helps with care planning and transitions, provides in-home assessments, and facilitates access to care and social supports for seriously ill patients (Boult et al. 2009, Hostetter 2010). A cluster-randomized controlled trial of Guided Care reported in the *Annals of Internal Medicine* found that the only significant reduction in utilization for beneficiaries receiving Guided Care was for home health episodes (Boult et al 2011).

### **Transitions models**

The Transitional Care Model<sup>®</sup> and the Care Transitions Intervention<sup>®</sup> use care managers to facilitate transitions across settings. The Transitional Care Model institutes comprehensive pre-discharge and post-discharge care management for patients with heart failure and other chronic conditions. In the Transitional Care Model, advanced practice nurses identify hospitalized patients who are likely to need assistance transitioning back home or to another setting and provide care management during hospitalization and through the transition. The advanced practice nurses visit patients in the hospital, develop comprehensive discharge planning, make home visits after discharge, and communicate by telephone. The Transitional Care Model has been applied in different settings and has been shown through a randomized clinical trial and a randomized controlled trial to reduce costs and rehospitalizations (Naylor et al. 1999, Naylor et al. 2004).

The Care Transitions Intervention focuses on patient activation, using coaches to train patients to manage their care by communicating information across providers, fulfilling medication instructions, following up with providers, and identifying what to do when their condition worsens. A randomized controlled trial set in a large integrated delivery system in Colorado found reduced rehospitalization rates and lower overall hospitalization costs from the Care Transitions Intervention (Coleman et al. 2006). Tests of transition models, under way at the Center for Medicare & Medicaid Innovation (CMMI), are expected to provide CMS with further evidence regarding the effectiveness of this type of intervention in the Medicare program.

### **External care manager models**

Community health teams and disease management models use an external entity to perform care coordination activities. Community health teams consist of medical and social service staff that work with the offices of physicians

and other health professionals to coordinate care, activate patients in managing their health, and facilitate access to community resources. Community health teams were established in certain communities in Vermont in 2008, although no formal evaluation has been completed (Agency for Healthcare Research and Quality 2012).

Disease management interventions generally entail a commercial disease management organization communicating with patients and their physicians about patient self-management, adherence to recommended guidelines, and coordination of care across providers. Evaluations of the effectiveness and cost neutrality of disease management programs have been mixed (Congressional Budget Office 2004, Fireman et al. 2004, Mattke et al. 2007).

### **Elements of team-based care**

Many of the care coordination models in Table 2-1 emphasize a team-based care delivery model, in which a care coordinator works with a team of medical and social service providers involved in the beneficiary's care. In some of the models, the team is explicit, such as in the community health team model. In others, the team is more fluid and centers on a care manager who coordinates with medical professionals, social service providers, patient coaches, nutritionists, pharmacists, home care workers, and other parties as needed. These team-based models can include elements such as palliative care and social service supports.

#### **Palliative care**

Some team-based models include a palliative care component, particularly for beneficiaries with complex health needs. Palliative care focuses on managing symptoms, improving quality of life, and making sure beneficiaries' care is in line with their goals and preferences. Specifically, palliative care can include managing pain and symptoms, providing access to social supports for beneficiaries and their caregivers, supporting beneficiaries to communicate effectively with their physicians and other providers, understanding beneficiaries' preferences and ensuring that their treatment conforms to those preferences, and helping patients understand and anticipate their disease trajectory and how to access medical and social supports if their symptoms worsen.

The goals of palliative care are diverse, as they are typically tailored to the individual patient. Depending

on the patient's condition, palliative care may seek to, for example, minimize pain, reduce side effects, or maintain a certain level of mobility. Palliative care is often offered to patients after they receive a diagnosis of a serious or advanced illness and to those who have expressed a preference for symptom management or goal-directed care. Nonhospice palliative care can be appropriate for patients at all stages of curable and incurable disease (such as treatable cancers that cause significant pain, conditions that require managing a complex drug regimen, and serious illnesses), although the goals may change if a patient's disease advances.

Palliative care can be delivered as part of an interdisciplinary team for patients with chronic illness or complex health needs, along with other medical staff, social service providers, nutritionists, therapists, and others. Many of the principles of palliative care are akin to the principles underlying other models of care coordination—patient-centered, goal-focused care that facilitates access to diverse medical and social supports and elicits a patient's preferences so that they can be reflected in the plan of care for that patient.

### **Social service supports**

Most models emphasize facilitating patients' access to social support services, welfare programs, nutritionists, and other services for themselves and their caregivers. Caseworkers and patient coaches can also help support patient activation—that is, patients taking an active role in managing their illness or condition—by teaching patients to identify their symptoms and seek assistance, supporting compliance with medical instructions, and helping patients learn to express their treatment preferences.

### **Upcoming CMS initiatives**

The Patient Protection and Affordable Care Act of 2010 (PPACA) established a number of pilots and models to test coordinated care delivery. Some were established as separate provisions of law and others are being developed by CMMI under its authority to test models of care. In addition to the projects listed below, CMMI has assumed oversight of all existing Medicare demonstrations.

### **Independence at home demonstration**

Section 3024 of PPACA establishes a demonstration to test a service delivery model in which medical professionals run primary care teams treating Medicare beneficiaries in their homes. Practices may share in savings provided they meet specific quality and cost targets. Eligible

Medicare beneficiaries are those with two or more chronic conditions and one nonelective admission in the past 12 months. Eligible practices must have significant experience providing home-based primary care. Sixteen sites were chosen in spring 2012 under this initiative.

### **Community-based care transitions program**

Section 3026 of PPACA provides funding for models designed to improve care transitions for Medicare beneficiaries. Eligible entities must be acute care hospitals with high readmission rates in partnership with community-based organizations. The community-based organizations must have experience providing care transition services across multiple settings. Thirty sites have been chosen to date to participate in this initiative (Center for Medicare & Medicaid Innovation 2012).

### **Medical homes**

Under the CMMI authority, CMS is running three medical home projects:

- The Comprehensive Primary Care Initiative is a multi-payer model that pays a care management fee to a select group of primary care practices that establish medical homes, with the potential to share in Medicare savings (Center for Medicare & Medicaid Innovation 2012). Applications were due January 17, 2012.
- The Multi-Payer Advanced Primary Care Practice Demonstration consists of CMS joining with certain states to support previously established multipayer health initiatives for advanced primary care. Over the past several years, eight states have worked with public and private payers in their state to establish a payment system to support advanced primary care, and this demonstration adds Medicare to the payer mix so that participating providers face a common payment method. The demonstration began in July 2011 (Center for Medicare & Medicaid Innovation 2012).
- The Federally Qualified Health Center (FQHC) Advanced Primary Care Practice Demonstration will pay qualifying FQHCs a care management fee for their Medicare beneficiaries, and the FQHC must seek certification as a level three Patient-Centered Medical Home. CMS operates this demonstration in conjunction with the Health Resources and Services Administration, which is providing technical assistance. This demonstration started making

payments to FQHCs in November 2011 (Center for Medicare & Medicaid Innovation 2012).

### **Health care Innovation Challenge**

While not specifically for care coordination, the CMMI Innovation Challenge is a large grant program to support innovative methods of improving the delivery of health care and lowering costs, particularly for individuals with a high disease burden. Grants can be made to providers, payers, local governments, multipayer collaboratives, and public-private partnerships. Up to \$1 billion has been set aside for this program, and the first batch of awardees was announced in May 2012 (Center for Medicare & Medicaid Innovation 2012). Depending on the applications and awards, this program could provide additional evidence on improving care coordination for Medicare beneficiaries with a high disease burden.

---

### **Care coordination demonstrations in FFS Medicare**

---

Over the past decade, FFS Medicare has run seven demonstrations to test care coordination and disease management interventions. Four early ones were disease management or care coordination demonstrations: the Informatics, Telemedicine, and Education Demonstration; the Case Management Demonstration for Congestive Heart Failure and Diabetes Mellitus; Medicare Disease Management for Severely Chronically Ill Beneficiaries; and Disease Management for Dual-Eligible Beneficiaries. These demonstrations generally tested telephonic disease management, with some interventions providing additional in-person visits. Most of the demonstrations were not cost neutral when fees were included. The disease management for dual eligibles demonstration was redesigned a few years into a demonstration with a smaller fee to assess whether it could achieve cost neutrality, but the redesign also failed to generate savings (Bott et al. 2009). Medicare has also conducted demonstrations testing value-based payment, which are listed in online Appendix A to this chapter (<http://www.medpac.gov>).

More recently, CMS has conducted three large-scale multiyear care coordination demonstrations: the Care Management for High-Cost Beneficiaries demonstration (CMHCB), the Medicare Coordinated Care Demonstration (MCCD), and Medicare Health Support (MHS).

### **Design of recent Medicare care coordination demonstrations**

The three recent demonstrations tested commercial disease management (MHS) or external and practice-based models of care coordination (CMHCB and MCCD). The demonstrations targeted beneficiaries with chronic conditions, high Medicare spending, or high hierarchical condition category risk scores. The demonstrations generally used an intent-to-treat, randomized design and had comprehensive independent evaluations (see online Appendix B for quality measures used in evaluating the demonstrations (<http://www.medpac.gov>)).

Overall, the results from the three demonstrations do not indicate that the programs were more successful for individuals with certain conditions, although the two programs that showed the most success in MCCD either targeted those with heart disease or showed the largest gains for beneficiaries with congestive heart failure, coronary artery disease, or chronic obstructive pulmonary disease (Brown 2009).

In MHS, the programs were paid a monthly fee per beneficiary and the fees were at risk. Fees at risk means that if the program did not reduce Medicare spending for its beneficiaries over the comparison group by at least the amount of the fee, then the program would have to pay back some or all of the monthly fee. In MCCD, the programs were paid a monthly fee and the fees were not at risk. In CMHCB, the programs must reduce Medicare spending for their beneficiaries over the comparison group by the cost of the fees plus 5 percent. If the program exceeded those savings thresholds, then the programs in CMHCB could participate in shared savings. Overall, the demonstrations would reduce federal spending on Medicare only if they reduce Medicare spending by more than enough to offset their fee.

### **Medicare Health Support**

This intervention, originally called the Chronic Care Improvement Program, tested the efficacy of commercial disease management programs. Eligible beneficiaries were those with heart failure or diabetes, or both, provided their spending was projected to be 35 percent more than the average beneficiary. The disease management programs were paid a monthly fee based on the clinical and financial outcome measures for the populations they covered and faced financial risk for poor

performance. All programs used call center–based care managers to improve patients’ ability to understand their condition, improve self-care, and communicate effectively with providers. Five programs (out of eight) dropped out early because they did not foresee being financially viable.

The CMS-sponsored evaluation of MHS found a limited positive effect on clinical quality measures, such as cholesterol and hemoglobin A1c levels. The interventions were also found to have very small effects on hospitalizations and emergency department visits. There was no significant difference in total Medicare spending for the treatment group compared with the control group, and therefore none of the interventions reduced total Medicare spending when care coordination fees were included (McCall and Cromwell 2011).

### **Medicare Care Management for High-Cost Beneficiaries demonstration**

Of the original six care management organizations that CMS selected to participate in CMHCB, two interventions were population based (they were outside the health care delivery system), and four were provider based. Medicare paid these organizations an administrative fee per beneficiary. The programs were designed to be similar to both disease management programs and provider-based care management programs. The interventions focused on engaging physicians and supporting patient management of their conditions.

One program was terminated by CMS in the second year because it did not produce cost savings and had not come up with a way of improving its financial performance. Another program requested early termination in the second year of the demonstration. The other four programs completed the demonstration.

Most programs did not show improved processes of care, beneficiary experience, self-management, or functional status, although two programs reduced hospital admissions and emergency department visits and showed improvements in mortality rates. One program demonstrated significant success in cost reduction (reducing acute care expenditures to a level far exceeding the care management fee); however, the other programs did not reduce Medicare expenditures by an amount sufficient to recoup the administrative fees paid (McCall et al. 2010a, McCall et al. 2010b, McCall et al. 2010c, McCall et al. 2010d, McCall et al. 2011a, McCall et

al. 2011b). As of March 2012, three sites were still in operation.

### **Medicare Coordinated Care Demonstration**

This intervention tested the effect of care coordination programs for beneficiaries with at least one chronic condition. Each of the 15 programs was able to define its target population and exclusion criteria, provided the beneficiaries had at least one chronic condition, and was given wide latitude in designing the intervention. As a result, some programs were based on a hospital admission, others excluded beneficiaries with end-stage renal disease or who were under age 65, and most excluded beneficiaries who had serious mental illness or dementia. The participating programs were diverse, including hospitals and academic medical centers, commercial disease management companies, integrated delivery systems, a hospice, and a long-term care facility. All programs assigned beneficiaries to a care coordinator, who assessed their needs, mainly by telephone, and created a care plan. One program (out of 15) dropped out early because it was unable to recruit a sufficient number of participants.

Most programs showed limited or no improvements in quality of care, and none reduced total Medicare expenditures when care coordination fees were included. Two programs showed a reduction in Medicare expenditures, although it was not significant. As of March 2012, one site was still in operation.

### **The Medicare care coordination demonstrations had modest overall results, but some findings are worth pursuing**

Overall, the Medicare care coordination demonstrations have not shown significant effects on spending and outcomes, with most demonstration projects unable to recoup their care management fee through lower utilization.

- **Very limited effects on Medicare spending**—Overall, only 1 program out of 29 in the three CMHCB, MCCD, and MHS demonstrations showed a statistically significant reduction in regular Medicare expenditures when fees were included (Bott et al. 2009, Nelson 2012). Twelve other programs had non-statistically significant reductions in regular Medicare expenditures before accounting for fees; when fees were included, the number dropped to four programs (Nelson 2012).

- **Programs evolved**—Many of the programs in the CMHCB, MCCD, and MHS demonstrations changed their target population, the type of intervention, or their fees as the intervention got under way (Bott et al. 2009). One program in the MCCD was unable to recruit sufficient participation and ended early, and another changed the care management fee during its extension period (Bott et al. 2009). In the CMHCB, nearly all programs changed their target population, renegotiated their care management fee, or changed the level of intensity of their intervention (McCall et al. 2010a, McCall et al. 2010b, McCall et al. 2010c, McCall et al. 2010d, McCall et al. 2011a, McCall et al. 2011b).
- **Sporadic improvement in clinical quality or outcomes**—Overall, the Medicare demonstrations showed very low rates of improvements in clinical quality measures and intermittent success at reducing hospitalizations and use of other acute care services. For example, among the MCCD, nearly all the programs had an improvement in at least one of five health education measures; however, almost none of them were able to improve the rate of potentially preventable hospitalizations, and only one program showed improvement in three of eight preventable hospitalization measures (Peikes et al. 2009).

While the overall results of the interventions were modest, there is evidence that some interventions may have had directionally positive effects. Analyzing the program results is challenging because they lacked the size and statistical power sufficient to detect small improvements. As a result, the estimates of Medicare spending, hospitalizations and rehospitalizations were generally imprecise. For this reason, in Table 2-2 we look at programs from the Medicare demonstrations that appeared to reduce hospitalizations by more than 5 percent, provided that the *p* value is no more than 0.20.

The programs in Table 2-2 give a set of case studies to illuminate some of the challenges facing the programs as well as giving some directional evidence on what may be effective. It is also worth noting that, in addition to the programs in Table 2-2, subgroup analyses for a few programs continued under MCCD found that the results were concentrated among the highest risk enrollees, and so the programs may have been more successful if they targeted their interventions to this high-risk group (Schore et al. 2011).

### **Case study: The most successful program had deep institutional support and undertook extensive planning**

The CMHCB program run by Massachusetts General Hospital (MGH) and the Massachusetts General Physicians Organization, called the Care Management Program (CMP), was a practice-based intervention that established care managers in each medical office. The care managers were on the staff of the medical practice but also had access to external resources in the Massachusetts General system, such as mental health and pharmacy services. MGH had piloted a similar type of program in one of its health centers, which helped to troubleshoot issues on integrating the care manager into the clinical staff, what type of services the care manager needed access to, and how the medical staff best received the information from the care manager (McCall et al. 2010c).

The population in the CMP was relatively similar to that in other demonstrations. The selection criteria for CMP included what the program administrators called a loyalty component—beneficiaries had to be regular users of the Massachusetts General Physicians Organization in the past.

The CMP was evaluated by using a model of randomization at the physician group level—because, as described in the evaluation, it was “a community intervention trial” in which the intervention is administered for a specific group or community (McCall et al. 2010c). Therefore, the comparison group consisted of beneficiaries with similar characteristics in physician groups affiliated with other teaching hospitals in Boston. The comparison group was selected based on the distribution of the intervention group with respect to Medicare spending and hierarchical condition category risk scores. In comparing the intervention with the comparison groups for CMP, the intervention group was less likely to include those who were under age 65 or disabled or to include beneficiaries with diabetes as the comparison group. The intervention group was also less likely to include racial and ethnic minorities and less likely to include beneficiaries dually eligible for Medicare and Medicaid. However, the participation rates were quite high for all racial and ethnic groups, and among those eligible to be enrolled, the differential rate of participation in the CMP was slightly higher for African American beneficiaries versus beneficiaries in other racial categories (McCall et al. 2010c).

**TABLE  
2-2**

**Potential evidence of a reduction in hospitalizations in Medicare care coordination demonstrations**

	Change in hospitalizations		Point-value estimate indicates reduced Medicare spending?	Point-value estimate indicates reduced Medicare spending when fees were included?
	Percentage	p value		
<b>Medicare Coordinated Care Demonstration</b>				
Georgetown University	-24%	0.07	Yes	Yes
Health Quality Partners	-11	0.19	Yes	No
Mercy Medical Center	-17	0.02	Yes	No
<b>Care Management for High-Cost Beneficiaries demonstration</b>				
Care Level Management				
Original sample, months 18-29	-6	0.11	No	No
Supplemental sample	-6	0.05	Yes	No
Health Buddy Consortium				
Supplemental sample	-26	0.02	Yes	Yes
Massachusetts General Hospital				
Original sample, months 7-18	-24	0.00	Yes*	Yes*
Original sample, months 25-36	-19	0.01	Yes*	Yes*
Supplemental sample	-24	0.04	Yes*	Yes*
Village Health				
Original sample, months 7-18	-10	0.07	Yes	Yes
<b>Medicare Health Support</b>				
Aetna	-6	0.04	Yes	No

Note: \*Statistically significant at 5 percent.

Source: Bott et al. 2009, McCall and Cromwell 2011, McCall et al. 2010a, McCall et al. 2010b, McCall et al. 2010c, McCall et al. 2010d, McCall et al. 2011a, McCall et al. 2011b, Nelson 2012.

The integration of the hospital and the medical practices furthered communication between the care managers and the beneficiaries in a few key ways. First, the information on the hospital systems was transmitted to the physicians' offices (and by extension, the care manager), and vice versa. For example, care managers received an email message or a page when the beneficiary was in the emergency room or admitted to the hospital so the care manager could visit the beneficiary in the hospital and help facilitate the hospital discharge. Second, MGH's integration (affiliations with hospitals, physician practices, community health centers, and post-acute settings) meant that the information was much more likely to be transmitted across providers and that beneficiaries could

be easily referred to medical practices or health centers when their condition worsened instead of going to the emergency room.

Over time, the CMP changed the model to facilitate key referrals, with pharmacists taking the lead on medication therapy management and a much more substantial mental health team. They also increased the amount of staff time devoted to hospital and other institutional discharges—with a goal of having a patient assessment within 24 to 72 hours of discharge (McCall et al. 2010c).

Two other components are notable in terms of working with the medical practices—first, each care manager was responsible for one physician's patients, strengthening

the physician–care manager relationship. Second, the physicians were paid \$150 per member per year to compensate for their time working with the care managers.

The CMP reduced mortality, improved functional status, reduced utilization and Medicare spending, and was very popular among both medical providers and beneficiaries. The evaluators noted that this success may be due to “the depth of institutional support to (1) develop an MGH-specific program, and (2) fully integrate the CMP into MGH’s health care system” (McCall et al. 2010c).

### **Case study: Promising models were not always able to recruit enough participants**

Georgetown University Hospital had promising results for avoided hospitalizations but was able to enroll only 230 patients over the first three years of the demonstration. When the program was unsuccessful at recruiting a significant number of people, it dropped out of the demonstration six months before it was scheduled to end. The reasons for Georgetown’s difficulty in recruitment were that it overestimated the number of people in the target population and a large number of individuals refused to participate (Brown et al. 2007).

In contrast to some of the other programs in the MCCD, Georgetown did not partner with physicians in recruiting beneficiaries and reached out directly to beneficiaries once they were identified as potentially eligible (Brown et al. 2007). Overall, the lessons from the evaluation of the MCCD with respect to patient recruitment found that physician support was important and that preexisting physician relationships (either because the provider had positive experiences in dealing with local physician groups or because the program was run by the physician groups) were associated with greater success in enrolling beneficiaries.

Some programs recruited physicians to help them identify potential patients who could be enrolled and then used these physician-generated lists to enroll beneficiaries. Other programs reached out to physicians to urge them to encourage their patients to enroll if they were contacted by the care management organization, or they marketed themselves to physicians before the programs began (Brown et al. 2007). The importance of physician group buy-in was illuminated by the challenges facing one program in recruiting beneficiaries because the physicians in one area did not like the disease management organization running the program based on their experience in a managed care context (Brown et al. 2007).

Programs also had differential success in recruiting different population groups—overall, in MCCD, programs were slightly less successful at enrolling older beneficiaries and were less successful at recruiting dual-eligible beneficiaries (Brown et al. 2007). Disenrollment (other than due to death) from the programs was generally due to the beneficiary moving to a nursing facility or the physician leaving the network of the care management organization (e.g., if the program was run by an insurer, and the physician was no longer a participating provider) (Brown et al. 2007).

### **Case study: Two programs with different designs were moderately successful at reducing admissions because they emphasized similar features**

The two interventions that appear to improve hospitalizations in MCCD (Mercy and Health Quality Partners (HQP)) were quite different on the surface, but there were some similarities in the underlying approach. Mercy was a hospital-based program in a rural area, and HQP was an analytic quality improvement provider relying heavily on data analyses of its beneficiaries. On the basis of evidence to date that both programs could potentially be cost neutral, CMS allowed HQP to continue operating and offered the opportunity for Mercy to continue if they received a reduced fee.

Both HQP and Mercy focused on providing education and information to the beneficiary (vs. intensively working with the clinical staff), and they had generally regular in-person contact with the beneficiary versus just telephone-based communication. They also both had relatively complete information on hospital utilization for their beneficiaries—for Mercy, it was because the program was run by the hospital, and for HQP, it was because the program worked to establish relationships with area hospitals (Schore et al. 2011). Both Mercy and HQP program participants reported receiving medication self-management training.

### **Case study: Lower hospitalization rates do not necessarily lead to lower program spending**

The Care Level Management (CLM) program reduced both hospitalizations and readmissions in the second half of the demonstration. However, these reductions in acute hospitalizations did not correspond to lower Medicare spending, meaning either that the remaining hospitalizations were more costly or the program enrollees used more ambulatory services, more post-acute care services, or other types of care.

Further implicating the cost-effectiveness of the program, CLM was a very intensive intervention, consisting of visiting physicians making home visits along with nurse practitioners. The per member per month fee for CLM was about twice as high as the other programs in the CMHCB—12 percent of comparison group spending. The high cost of the intervention means that the program would have to significantly reduce utilization (including hospital and emergency department visits) to recoup the program fees, which it was not able to do (McCall et al. 2010a).

Mercy, a hospital-based program in Iowa, was able to reduce hospitalizations and appeared to lower Medicare spending (by about 9 percent) for the intervention group. However, the fees paid to Mercy were equal to twice this amount—meaning that overall, the program increased the cost to Medicare.

### **Case study: Findings from the Medicare demonstrations can shape future interventions for the Medicare population**

Of the interventions tested in MHS, only Aetna showed some success in reducing hospital utilization for all conditions. Notably, Aetna’s success was not necessarily correlated with a higher-than-average contact with the beneficiary (five programs had more frequent contacts between the care manager and the beneficiary, while two had the same or less frequent contacts). However, Aetna did report that some of its care managers made visits to medical practices and offered to collaborate with the staff. Most analyses of the care coordination models have generally found that a well-functioning relationship between the care manager and the physician or other practitioners is key (Bott et al. 2009, Brown 2009, Nelson 2012).

Aetna has stated that its experience in MHS with having the care managers reach out to the medical practices provided the impetus for the embedded case manager intervention, in which Aetna trains and pays for nurses and embeds them in the physician or medical practices to coordinate care for its high-cost Medicare Advantage beneficiaries (Barr et al. 2010, Hostetter 2010). This is one example of the Medicare demonstrations informing further improvements to the care delivery system—even if the demonstration itself did not succeed in significantly reducing Medicare expenditures.

### **Case study: Programs changed over time to improve results for later groups**

Many of the programs in the CMHCB, MCCD, and MHS demonstrations changed their target population, the type

of intervention, or their fees as the intervention got under way (Bott et al. 2009). One program in the MHS, the Health Buddy Consortium (HBC), did not initially succeed at reducing admissions but changed its target population and appeared to have reduced hospital admissions for the refresh population.

For its original sample, HBC did not show significant improvement in hospitalizations, emergency department visits, or rehospitalizations. For the refresh population, HBC targeted a higher severity population than the original group—using the presence of inpatient, outpatient, and physician claims to identify diabetes, heart failure, and chronic obstructive pulmonary disease—and higher utilization thresholds. It also targeted beneficiaries with the highest number of comorbid conditions first, so that it was possible to obtain a higher severity group than in the original population.

In the refresh group, HBC also excluded beneficiaries with certain conditions that it had requested be carved out of the original population—among them dementia, substance abuse, and mental health issues (McCall et al. 2011a). For the refresh group, HBC was able to achieve a rate of hospitalization 26 percent lower than would have been expected and this difference was significant at the 5 percent level (McCall et al. 2011a).

---

## **Challenges of establishing an effective care coordination intervention**

---

What is the overall take-away from the demonstration findings? It is hard to associate specific features with success, because the design of successful programs was often similar to the design of programs that were unsuccessful. This indicates the difficulty of identifying one key attribute (or set of attributes) that improves care coordination. Furthermore, some interventions that have shown modest results in the context of the Medicare demonstrations work very well for some providers. This finding indicates that a one-size-fits all approach—on the premise that the same component works in different settings—may not be appropriate.

### **More evidence on care coordination models is warranted**

First, there is still an open question about what the key elements of an effective care coordination strategy would entail. There is evidence that some specific interventions (transitions, teaching self-management techniques, and

some care coordination elements) have shown promising results (Brown 2009). In addition to identifying good tools, the knowledge base could be expanded on what care coordination techniques should be used in what circumstances and for which beneficiaries. There is evidence about the utility of some tools at certain points—care transition interventions for frail individuals are one example. But more evidence about what works and the specific setting and population for which it is effective would be helpful.

### **Applying a promising intervention in a system that has not been designed to accommodate it is unlikely to work**

Effective care coordination requires a set of care coordination tools in concert with transformation of the health care delivery system to accept and wrap around these tools. Even if there were very high confidence that these interventions worked, if the system is not redesigned to work with the care coordination intervention, it is unlikely to succeed.

Care coordination models have evolved over time. First, they focused on disease management interventions that worked only with the beneficiary, targeting specific diseases, and little to no interface with the health care system. The lack of success of these interventions then led to other models, such as embedded models that place care managers in direct contact with the medical practice or care teams that perform outreach to medical providers so that the care manager can ally their activities with the direct medical care. Specific events (such as transitions between settings) have also been the focus of specific efforts.

Running in parallel are efforts to improve medical practices through efforts such as the primary care medical home and the chronic care model. These practice transformation efforts focus on emphasizing beneficiary-centered care and improving access to medical care when needed.

The findings to date indicate that each approach may be necessary but not sufficient. Therefore, both components (a set of well-established tools to improve care coordination and a well-functioning health system that can accept those tools) may be necessary to improve the delivery of coordinated care.

Without the well-functioning health system that is modified to accept and incorporate care coordination tools, applying a care coordination intervention to a system that cannot make good use of it is unlikely to improve care

delivery. Improving information technology systems to make them interoperable, for example, will not necessarily improve information flow across providers unless they also change their processes so that recipients are able to receive the information and make use of it (see text box on pp. 50–51 for further discussion).

Conversely, without a set of care coordination tools to work across settings or providers, a health care system may deliver excellent, coordinated care within its borders but lack a whole-person orientation because it does not have an easy way to communicate with other providers or does not facilitate access to outside community supports. Some integrated systems do embody both of these components, ensuring that the care coordination tools are available and that the environment supports using them.

Some elements of the MGH CMP were similar to other programs that were not successful. However, one notable difference is that the CMP made a significant, concerted effort to redesign the way information flowed around the medical practices and the other health care settings and to restructure physician practices so they fully accommodated the care management activities.

### **Challenges specific to the Medicare program**

The Medicare program also faces specific operational challenges in applying care coordination models more broadly. First, to be successful in Medicare an intervention must be replicable in different environments (achieving similar levels of success in rural and urban areas, concentrated markets and diffuse markets, and with beneficiaries facing different challenges). Second, models of care delivery that rely on significant patient engagement can be challenging to employ in populations with dementia and other cognitive difficulties. Third, making sure that beneficiaries stay with the intervention poses a particular challenge for Medicare—for example, a model may work in a network-based delivery system but may be less successful if the beneficiary can seek care from any willing provider. Fourth, it may be difficult to target those beneficiaries for whom care coordination is necessary and could potentially be cost-effective.

### **Applicability in different settings**

Care coordination in FFS Medicare needs to occur in a variety of settings—rural and urban, areas with and without strong provider consolidation, and for beneficiaries in facilities as well as the community. However, one model may not work for all settings. For example, a hospital-based care coordination intervention

may work best for managing transitions from the hospital to the community. A primary care practice-based nurse care coordinator may work best for coordinating care for ill beneficiaries. Generally, the Medicare demonstrations have not been prescriptive about the type of care coordination or care management activities run by each program, recognizing that replicating an identical model may not be feasible or desirable.

### **Identifying beneficiaries in need of care coordination**

The care coordination demonstrations in Medicare generally were most likely to recoup their costs if the intervention was targeted to people whose Medicare spending was about twice the average—high enough so that potential existed for an avoidable hospitalization but not so high that hospitalizations were likely unavoidable because of the patient’s advanced condition (Brown 2009, Peikes et al. 2009). Of these targeted beneficiaries in the middle range of spending, a substantial number were expected to have lower spending in the subsequent year, even if no intervention occurred. This tendency to “regress toward the mean” was noted in all the evaluations of the FFS Medicare demonstrations (Cromwell et al. 2011).

The need for care coordination is greatest for high-cost Medicare beneficiaries with multiple chronic conditions. For the chronically ill group, there are multiple opportunities to avoid additional hospitalizations that further dependence and increase health care costs. Compared with the overall Medicare population, the group with the highest 10 percent of spending in 2008 averaged 2 inpatient hospital admissions per year, compared with 0.3 per year among the overall population. They also had more than twice as many outpatient hospital visits (10 in the high-spending group compared with 4 in the overall population) and many more covered skilled nursing facility days (16 days in the high-spending group compared with 1.8 days in the overall population). And this high-cost group often remains high—one-third of this population remained in the top 10 percent of spending in the subsequent year (see online Appendix C for more information (<http://www.medpac.gov>)).

These findings may suggest that different care coordination approaches could be appropriate along a continuum. For beneficiaries who have not received intensive services but who have one or more chronic conditions, care coordination efforts may operate along the lines of those tested in the Medicare care coordination demonstrations—focusing on helping beneficiaries

manage and understand their treatment and reconcile medications and other instructions about their care. For those very-high-spending beneficiaries who already have multiple chronic conditions and many hospitalizations, care coordination efforts could focus on making sure information is communicated between providers, managing the patient’s symptoms, and closely monitoring patients during transitions between the hospital, home, and other settings. Over time, beneficiaries may shift from one group to another as their disease burden changes.

### **Patient engagement and activation**

Patient engagement and activation are a key part of many care coordination models. These efforts include teaching beneficiaries how to recognize worsening symptoms, how to seek assistance when needed, and how to take a more active role in their health. However, many models specifically exclude patients with mental illnesses and dementia because patient activation with these populations is more challenging. This is a significant issue in Medicare: Of the Medicare population in the highest decile of spending in 2008, one-quarter had Alzheimer’s disease or dementia, and more than 30 percent had been diagnosed with clinical depression (see online Appendix C for more information (<http://www.medpac.gov>)).

### **Retaining beneficiaries**

Another challenge is retaining beneficiaries’ participation in a FFS setting. In a care coordination model based around a physician’s office, an intervention is most effective when beneficiaries receive a substantial portion of their services from that provider to minimize the number of transfers and hand-offs. One option is to have beneficiaries designate the provider’s office as their primary resource for medical care. The Commission’s June 2006 report discussed tying the care management fee paid to a medical clinician to the beneficiary’s designation of the provider as the beneficiary’s primary physician (Medicare Payment Advisory Commission 2006). The medical provider would then have a financial incentive to ensure the beneficiary seeks care from that clinician first so that they can coordinate the beneficiary’s care across providers.

---

## **Care coordination and Medicare payment policy**

---

The FFS system has evolved over many years to a system that emphasizes increasing volume of services and

## Improving communication

Communication between and across providers is often poor, and communication between the care managers, the medical staff, and the beneficiary is also often weak. Communication systems to transfer information from a hospital to an ambulatory setting (such as discharge instructions and test results) or from one provider to another (such as the medical record) are often not sent in the first place or the receiving practitioner does not use them.

All the Medicare demonstrations emphasized improving communication between the beneficiary, the providers, and/or the care manager (or all three). Some programs instituted high-tech systems to remotely monitor the beneficiary's health status—for example, the Health Buddy device used by the Health Buddy Consortium asked the beneficiaries how they felt and relayed that information back to care managers. However, even when this level of real-time patient information is available, providers are often not set up to use the information, and the beneficiaries still may not know whether their symptoms warrant a visit to the emergency room. The information technology was available and in use, but the systems were not always reorganized to make full use of the information.

Information technology in concert with process changes could help in two specific situations in which good communication is important.

### Improving communication when many providers are involved

Electronic health information systems have the potential to improve communication across settings or providers, such as when a beneficiary is being treated by a number of specialists as well as a primary care physician, or when a beneficiary is discharged from the hospital to a community setting. However, a better information system by itself is unlikely to improve care unless the systems are interoperable, the providers involved establish protocols for how they will communicate key information to each other, and processes are in place to augment the information provided in the electronic medical record so that all pertinent information can be shared across providers.

The responsibility for communicating effectively with other providers is borne by the provider at the front end of the process (such as the hospital discharging a patient) as well as the provider at the back end (such as the community physician). Process changes to easily communicate medical information could include the following:

- **Emphasizing team-based care**—The medical practice transformation models (such as the medical home and the chronic care model) emphasize team-based care, with the primary care physician managing a team of service providers and other staff, both inside and outside the medical practice. These types of approaches emphasize communication across providers and settings—that the people caring for the beneficiary are a team and must coordinate like one.

Some models of care delivery establish specific procedures for ensuring constant and well-organized information flow between the different providers involved in a beneficiary's care. For example, in some Program of All-Inclusive Care for the Elderly (PACE) plans, the medical and social staff at the day care center meet to discuss beneficiaries' needs each day before the beneficiaries arrive. In the Care Management Program, the care managers established what they called "virtual rounds" or weekly emails about the beneficiaries enrolled in the program to all the providers involved in each patient's care (McCall et al. 2010c). However, in a less centralized system or in the ambulatory setting, these tools may not work as effectively because the providers may not know who else is caring for a beneficiary, and establishing these types of protocols can be expensive. Coordinating care requires significant effort both to identify the other providers involved and to overcome the tendency for medical decision making to occur as a set of separate, discrete events.

- **Establishing a beneficiary-owned medical record**—The Care Transitions Intervention establishes a medical record owned by the beneficiary, who can bring it to medical

(continued next page)

## Improving communication (continued)

appointments so that key information is transmitted from one provider to another. These types of solutions, however, require that the providers are accepting of the information in the record, that they are willing to enter pertinent medical information into the record, and that the beneficiary brings it to all appointments.

### Improving communication when a beneficiary's condition worsens

Another situation in which communication is important and often breaks down occurs when a beneficiary starts to feel worse and decides whether to go to the emergency room. Many care coordination interventions focused on averting acute events—being able to recognize when a beneficiary's condition was worsening and getting the person access to medical care so that a hospitalization could potentially be avoided. If the beneficiary was admitted to the hospital or went to the emergency department, the care manager could meet him or her there and help coordinate the care and figure out the plan after discharge. Ideally, the intervention to facilitate this type of communication would include two components: changing the beneficiary's behavior and changing the provider or care manager's behavior. That way, if one process fails, the other process would act as a backup.

On the beneficiary side, the program could emphasize to beneficiaries that they can call the care manager and may be able to schedule a medical appointment quickly. This situation would require not only that the care manager be connected to the medical staff but that the

medical staff would be able to pivot quickly to schedule an appointment. This requires three key features of care coordination models: care managers who are closely allied with the medical practice, medical practices that are able to easily accommodate scheduling an appointment for a declining patient (and see the benefit in doing so), and deep trust between the care manager and the beneficiary.

On the provider and care manager side, the care manager should know that a beneficiary went to the hospital or the emergency department. However, in the Medicare demonstrations this process was either ad hoc (because the programs had established relationships with some local hospitals, but it was dependent on the program to establish these relationships) or delayed (because the programs were notified only when a hospital claim was filed).

Relying on these ad hoc or delayed methods of getting information about beneficiaries may not be optimal, and other examples may be illustrative. For example, in many cases private insurers know in real time if their enrollees are hospitalized because the hospital or the enrollee must call for prior notification or prior authorization. In the PACE program, the site is also the payer and has established networks with hospitals, and the PACE sites work with hospitals to alert them if one of their enrollees comes to the hospital. One option to consider is whether there are tools that the Medicare program could develop so that hospitals can easily alert care managers if a beneficiary is admitted to the hospital or shows up in the emergency department. ■

does not offer good incentives for improving quality or working across providers or settings. Under FFS, no one entity is accountable for care coordination; this places the burden on beneficiaries, their families, and caregivers to coordinate their care and navigate between different providers, often without the training, medical knowledge, or resources to do so.

Therefore, it is not surprising that Medicare demonstrations that applied a care coordination intervention to the FFS system had only intermittent success at improving quality or reducing spending. These

care coordination interventions must work against strong incentives and patterns of behavior in FFS that push in the opposite direction.

The Commission believes that in the FFS setting the approaches most likely to achieve significant improvement in care coordination are those that: (1) fundamentally change the FFS incentive to provide more, rather than better, care and (2) ensure that providers have the flexibility to deploy their resources in the ways that best improve care for their beneficiaries. Some of the new payment models, such as the shared savings payment

approach for accountable care organizations (ACOs) or bundled payment initiatives, can move the Medicare program toward these goals. These models have the potential for providers to work to improve care across settings.

However, these payment models are only in the beginning stages and represent a fundamental change in how the Medicare program pays for services; it will likely take time before they become prevalent in the health care system. In the interim it may be necessary to consider other approaches to improving care coordination within FFS and in the process bolstering the current system by explicitly supporting primary care. Furthermore, experiences with care coordination approaches in FFS can help lay the groundwork for improved care coordination in new delivery models of care (such as ACOs).

### **Establishing additional billing codes for care coordination**

In Medicare's physician fee schedule, care coordination activities are generally included in the description for evaluation and management (E&M) billing codes, with the exception of two codes for hospital discharge activities. One policy option that has been discussed is to add codes or expand the existing codes to more fully capture the resources required to coordinate care for patients with multiple chronic conditions (Coleman and Berenson 2004).

The advantage of an approach to expand the current fee schedule codes to more fully capture care coordination activities is that it could be designed to be budget neutral within the fee schedule. However, the risk is that these types of proposals could increase spending if the billing volume is higher than projected. Another disadvantage to this approach is that it may be difficult to document whether care coordination activities occur. In addition, unless the policy is designed carefully, there is the risk that many different providers would attempt to bill for a single beneficiary's care coordination.

### **Paying a provider's office a per beneficiary payment for care coordination**

Under this policy, Medicare could make a per beneficiary monthly payment to a provider group for coordinating beneficiaries' care. This is akin to the payment reform element in medical home models.

A primary care practice can undertake significant care coordination activities that are not specifically paid for

under FFS. Creating a per beneficiary per month payment can provide support to primary care without further fragmenting payment into a series of discrete activities. And the payment could be targeted—so that instead of a payment for all beneficiaries, it could be established only for those beneficiaries with substantial medical challenges requiring significant management.

Primary care services generally consist of cognitive activities such as E&M services. As an illustration, a visit could include reviewing the patient's current symptoms, taking a patient's medical history, performing a physical exam, eliciting the patient's preferences regarding treatment, making medical decisions, reconciling medication and instructions from other medical providers, and providing medical counseling (including shared decision making) and behavioral counseling (such as smoking cessation). Activities that take place after the medical visit could include communicating with other providers to obtain or send medical records and discuss treatment, communicating with beneficiaries or their families, or conferencing with other medical providers involved in a beneficiary's care (Medicare Payment Advisory Commission 2008). Care coordination models such as the primary care medical home explicitly provide a payment to cover primary care activities—reflecting that some of the activities listed are not specifically paid for under Medicare, and that some of the care coordination activities that primary care clinicians and other practitioners provide occur without a face-to-face appointment with the beneficiary.

The benefit of such a policy is that it inserts the care coordination role into the physician's office or provider group, directly integrating coordination activities with patient care. The physicians and other medical personnel are part of the same staff as the care manager, which facilitates establishing roles and protocol. A further benefit of such a policy is that it provides direct support for the types of activities that primary care practitioners do to coordinate care. If it succeeds at targeting primary care, this policy could also slow the erosion in the primary care base and dampen the financial incentive for new medical graduates to elect procedural specialties over primary care.

A drawback of this policy is that small physician groups may not have a sufficient number of high-cost beneficiaries to make it financially viable to hire staff dedicated to care coordination or to expend the effort to transform their office so that they can better deploy care coordination tools. In addition, this option could fail on

cost and quality grounds unless the provider receiving the payment actively manages the beneficiary's care by acting as a first point of contact, facilitating referrals, and knowing what other services the beneficiary is receiving.

### **Paying an outside entity a per beneficiary payment for care coordination**

This policy is similar to the policy above, but a payer (such as Medicare or a private insurer) would make payments to an outside entity, who would then take on the responsibility of coordinating care. The care manager could be located either in or outside the medical practice. The physician's office responsible for the patient's care could also receive an incentive payment to cover the additional responsibility of engaging with the care management organization or care manager (Medicare Payment Advisory Commission 2006).

On the one hand, this policy would be most effective with smaller provider groups that do not have the start-up resources to invest in care coordination by themselves but wish to coordinate care. The policy also places the financial risk on the care management organization, which should have the expertise to identify and enroll beneficiaries for whom the intervention could be cost-effective. On the other hand, the care management organization remains separate from the clinical staff, which could hamper coordination. Some models (such as the Guided Care and the Aetna case manager models) attempt to address this barrier by placing the care manager directly in the physician's office. However, doing so requires coordination among payers and buy-in from physicians' offices and would also rely on beneficiaries seeking most of their care through the designated medical practice. For the Medicare program, new resources would be needed to support this approach.

### **Transitional care payment**

Given the evidence on transitional care to date, an established transition payment could be made to a care manager who would work with the beneficiaries during their hospitalization and as they move to the community or other setting. This type of policy could also work in tandem with incentives for hospitals to reduce unnecessary hospitalizations, for example. The advantage of a transitional care approach is that the models appear to show some success in randomized clinical trials and target a specific situation where beneficiaries face vulnerability. The disadvantages of such an approach are that it would require establishing a set of criteria for those entities or individuals who could bill for a transitional care payment.

For example, it may be desirable to ensure that the care manager has to meet a certain level of training or education, but then the Medicare program would need to oversee these standards.

### **Using payment policy to pay for outcomes resulting from coordinated care**

Another way to use payment policy for care coordination is to create a financial incentive for outcomes that result from coordinated care (or a penalty for outcomes that result from fragmented care, such as hospital readmissions or unnecessary use of the emergency department). Under this design, the financial incentive has the potential to motivate providers to improve their care processes or they otherwise incur a financial penalty. Under current law, a payment penalty for hospitals for excess readmissions will be implemented starting in 2013.

The benefit of using this type of policy to encourage care coordination is that it is less prescriptive. It is likely that different interventions work in different settings, and providers could use their experiences to shape the right intervention for their specific population. For example, in some regions, high use of the emergency department may result from poor hand-offs between hospitals and ambulatory providers. In other regions, high use of the emergency department may result from a lack of access to ambulatory care outside of traditional office hours. In both situations, the result is the same but the root causes are different. Imposing a payment policy related to unnecessary use of the emergency department would allow providers in each community to organize their own targeted intervention. Furthermore, these types of payment policies can be designed so that they reduce Medicare spending.

On the other hand, it may not be appropriate to assume that negative incentives will be sufficient to move lower quality providers to improve their care coordination. Providers may not have the resources to reorganize their care processes or may not be able to find willing partners. For example, if a provider group wishes to establish a care coordination intervention in concert with a hospital, it may need start-up funding, and the hospital may view the negative penalty as not being sufficient to overcome the financial incentive to admit a relatively low-cost patient.

### **Payment reforms that could change the incentive for coordinated care**

Other types of payment reforms (beyond directly penalizing poor outcomes or rewarding good outcomes)

may also change the incentives for care coordination. For example, ACOs consist of a group of providers assuming responsibility for the quality and cost of care delivered to their panel of patients (Medicare Payment Advisory Commission 2009). Bundled payments around a hospitalization would have Medicare pay a single amount to a group of providers (potentially hospitals, physician groups, and post-acute care providers) for a specific episode of illness requiring hospitalization (Medicare Payment Advisory Commission 2008). CMS is currently rolling out multiple models of both the ACO and bundling reforms. Under these payment models, the incentive exists for providers to take responsibility to coordinate care for their patients, particularly if doing so would reduce costs or improve quality. Furthermore, under both models, providers can arrange themselves in cooperative groups, facilitating information transfer. Within the ACO program, the incentives are stronger for ACOs bearing financial risk (or two-sided risk). However, if coordinating care costs money for providers in the short term, and the gain is recouped over the long term, the incentive to deliver coordinated care may remain limited as it is in FFS Medicare. Furthermore, the Physician Group Practice demonstration, which was one example of a bonus-only ACO, resulted in improved quality but had questionable effects on cost (Medicare Payment Advisory Commission 2009).

---

## Conclusion

---

The evidence from the Medicare demonstrations to date has demonstrated the limitation of taking a specific care coordination intervention and inserting it into the Medicare FFS system when the delivery system has not been reorganized to accommodate and wrap around the intervention. Some models of care coordination have shown improvements in quality and/or reductions in Medicare spending. However, it is difficult to see how these specific interventions can be widely inserted into Medicare FFS and achieve similar outcomes, despite their evidence base. The incentives in FFS Medicare generally push toward higher volume, with only intermittent incentives for quality, and payment silos further fragment care delivery. As a result, a specific care coordination intervention in a FFS setting must overcome substantial financial pressure going the opposite way. For these reasons, the Commission views other payment models as more amenable to fostering innovations in care coordination.

Furthermore, there is evidence that many care coordination interventions are site and operator dependent—that is, if the same activities were carried out by different care managers in a different setting the outcomes would be different. And finally, the interventions do not lend themselves to standardization, because the programs must be adaptable so they can work with beneficiaries facing unique challenges.

There is ongoing work that will help build the evidence base about what types of interventions work for which types of beneficiaries so that providers can choose appropriate tools to coordinate care. At the federal level, in addition to the activity occurring at CMMI, the Patient-Centered Outcomes Research Institute will evaluate health care delivery system interventions as one part of its overall mission of patient-centered outcomes research. Finally, there is a significant ongoing effort by private payers and providers that could furnish additional evidence on payment reforms—such as the Alternative Quality Contract run by Blue Cross/Blue Shield of Massachusetts or the warranty approach pursued by Geisinger and other payers.

If providers are given the flexibility through the payment system to achieve a set of outcomes with leeway on how to do so, they can use the current evidence base for care coordination to select the interventions that are most appropriate for their populations. Overall, a broader payment system would provide the flexibility for providers to choose the right tools for their populations and would support, facilitate, and permit the innovations that will improve care.

While payment reforms that fundamentally change the incentives to provide more care offer the most promise for care coordination, they are unproven and will not be fully operational for a number of years. Also of significant concern to the Commission is the potential for further erosion in primary care to worsen the care coordination that currently occurs. For these reasons, policies to encourage care coordination within the FFS system may be an interim step as Medicare begins to move toward more global approaches to payment. ■

## Endnotes

---

- 1 This analysis includes only full-year, FFS Medicare beneficiaries.
- 2 Physicians or other health professionals may bill for care plan oversight of hospice and home health patients without having a face-to-face encounter with the beneficiary. Care plan oversight can include coordination with an interdisciplinary team or pharmacists, reviewing patient status reports, modifying the plan of care, or reviewing lab reports and records. The unit of service for care plan oversight is a full month, and the services must add up to at least 30 minutes to be billable. A monthly capitation payment is also made to physicians treating patients with end-stage renal disease who are on maintenance dialysis. There must be at least one face-to-face visit per month between the physician and the patient (unless waived by the Medicare contractor); however, the payment is for a full month of renal evaluation and management services provided to the beneficiary (a physician may also bill for less than a full month under separate codes). If the patient receives home dialysis, the monthly capitation payment is based on the age of the beneficiary, and if the patient receives dialysis in a center, the monthly capitation payment is based on the age of the beneficiary and the number of visits per month. Some Current Procedural Technology codes for non-face-to-face encounters do exist, such as a telephone call between a physician or other health professional and a patient; however, these encounters are not billable under the Medicare fee schedule.
- 3 While not discussed here, other care delivery mechanisms mentioned in this context are capitated models for Medicare beneficiaries with chronic conditions, such as the Medicare Advantage (MA) special needs plans (SNPs) and the Program of All-Inclusive Care for the Elderly. These models are run by an insurer or provider who receives a capitated payment to deliver all care under the Medicare benefit (some also have fully integrated financing with Medicaid for dual-eligible beneficiaries). Some of these plans use care management tools along the lines of the models discussed here—for example, Evercare, an MA institutional SNP, uses an embedded care manager model for its enrollees.

## References

---

- Agency for Healthcare Research and Quality, Department of Health and Human Services. 2011a. *National healthcare disparities report 2010*. Rockville, MD: AHRQ.
- Agency for Healthcare Research and Quality, Department of Health and Human Services. 2011b. *National healthcare quality report*. Rockville, MD: AHRQ.
- Agency for Healthcare Research and Quality, Department of Health and Human Services. 2012. Innovation profile: Community-based teams, real-time information, and financial incentives help physician practices improve preventive, health maintenance, and chronic care. <http://innovations.ahrq.gov/content.aspx?id=2666>.
- Anderson, G., and J. R. Knickman. 2001. Changing the chronic care system to meet people's needs. *Health Affairs* 20, no. 6 (November–December): 146–160.
- Baicker, K., and A. Chandra. 2004. Medicare spending, the physician workforce, and beneficiaries' quality of care. *Health Affairs Web Exclusives* (January–June): W4–184–197.
- Barr, M. S., S. M. Foote, R. Krakauer, et al. 2010. Lessons for the new CMS innovation center from the Medicare Health Support program. *Health Affairs* 29, no. 7 (July): 1305–1309.
- Berdot, S., M. Bertrand, J. Dartigues, et al. 2009. Inappropriate medication use and risk of falls—A prospective study in a large community-dwelling elderly cohort. *BMC Geriatrics* 9: 30.
- Bodenheimer, T. 2006. Primary care—Will it survive? *New England Journal of Medicine* 355, no. 9 (August 31): 861–864.
- Bodenheimer, T. 2008. Coordinating care—A perilous journey through the health care system. *New England Journal of Medicine* 358, no. 10 (March 6): 1064–1071.
- Bodenheimer, T., and H. H. Pham. 2010. Primary care: Current problems and proposed solutions. *Health Affairs* 29, no. 5 (May): 799–805.
- Bott, D. M., M. C. Kapp, L. B. Johnson, et al. 2009. Disease management for chronically ill beneficiaries in traditional Medicare. *Health Affairs* 28, no. 1 (January–February): 86–98.
- Boult, C., A. F. Green, L. B. Boult, et al. 2009. Successful models of comprehensive care for older adults with chronic conditions: Evidence for the Institute of Medicine's "Retooling for an Aging America" report. *Journal of the American Geriatrics Society* 57, no. 12 (December): 2328–2337.
- Boult, C., L. Reider, B. Leff, et al. 2011. The effect of guided care teams on the use of health services: Results from a cluster-randomized controlled trial. *Archives of Internal Medicine* 171, no. 5: 460–466.
- Brown, R. 2009. *The promise of care coordination: Models that decrease hospitalizations and improve outcomes for Medicare beneficiaries with chronic illnesses*. Princeton, NJ: Mathematica Policy Research, Inc.
- Brown, R., D. Peikes, A. Chen, et al. 2007. *The evaluation of the Medicare Coordinated Care Demonstration: Findings for the first two years*. Princeton, NJ: Mathematica Policy Research.
- Center for Medicare & Medicaid Innovation, Centers for Medicare & Medicaid Services, Department of Health and Human Services. 2012. *One year of innovation: Taking action to improve care and reduce costs*. Baltimore, MD: CMS Innovation Center.
- Chronic Condition Warehouse. 2012. Summary statistics, cost & utilization. <http://www.ccwdata.org/summary-statistics/cost-utilization/index.htm>.
- Coleman, E. A. 2003. Falling through the cracks: Challenges and opportunities for improving transitional care for persons with continuous complex care needs. *Journal of the American Geriatrics Society* 51, no. 4 (April): 549–555.
- Coleman, E. A., and R. A. Berenson. 2004. Lost in transition: Challenges and opportunities for improving the quality of transitional care. *Annals of Internal Medicine* 141, no. 7 (October 5): 533–536.
- Coleman, E. A., C. Parry, S. Chalmers, et al. 2006. The care transitions intervention: Results of a randomized controlled trial. *Archives of Internal Medicine* 166, no. 17 (September 25): 1822–1828.
- Congressional Budget Office. 2004. Letter to the Honorable Don Nickles: An analysis of the literature on disease management programs. October 13.
- Creditor, M. C. 1993. Hazards of hospitalization of the elderly. *Annals of Internal Medicine* 118, no. 3 (February 1): 219–223.
- Cromwell, J., M. Trisolini, G. C. Pope, et al. 2011. *Pay for performance in health care: Methods and approaches*. Research Triangle Park, NC: RTI Press.
- Elhauge, E. 2010. *The fragmentation of U.S. health care: Causes and solutions*. New York, NY: Oxford University Press.

- Finucane, M. L., P. Slovic, J. H. Hibbard, et al. 2002. Aging and decision-making competence: An analysis of comprehension and consistency skills in older versus younger adults considering health-plan options. *Journal of Behavioral Decision Making* 15, no. 2: 141–164.
- Fireman, B., J. Bartlett, and J. Selby. 2004. Can disease management reduce health care costs by improving quality? *Health Affairs* 23, no. 6 (November–December): 63–75.
- Forrest, C. B., G. B. Glade, A. E. Baker, et al. 2000. Coordination of specialty referrals and physician satisfaction with referral care. *Archives of Pediatric and Adolescent Medicine* 154, no. 5 (May): 499–506.
- Gandhi, T. K., D. F. Sittig, M. Franklin, et al. 2000. Communication breakdown in the outpatient referral process. *Journal of General Internal Medicine* 15, no. 9 (September): 626–631.
- Gandhi, T. K., S. N. Weingart, J. Borus, et al. 2003. Adverse drug events in ambulatory care. *New England Journal of Medicine* 348, no. 16 (April 17): 1556–1564.
- Gillick, M. R., N. A. Serrell, and L. S. Gillick. 1982. Adverse consequences of hospitalization in the elderly. *Social Science & Medicine* 16, no. 10: 1033–1038.
- Graf, C. 2006. Functional decline in hospitalized older adults. *American Journal of Nursing* 106, no. 1 (January): 58–67, quiz 67–58.
- Gurwitz, J. H. 2004. Polypharmacy: A new paradigm for quality drug therapy in the elderly? *Archives of Internal Medicine* 164, no. 18 (October 11): 1957–1959.
- Hostetter, M. 2010. *Quality matters case study: Aetna's embedded case managers seek to strengthen primary care*. New York: The Commonwealth Fund.
- Institute of Medicine. 2011. New data on geographic variation. <http://iom.edu/Activities/HealthServices/GeographicVariation/Data-Resources.aspx>.
- Konetzka, R. T., and R. M. Werner. 2009. Disparities in long-term care: Building equity into market-based reforms. *Medical Care Research and Review* 66, no. 5 (October): 491–521.
- Kripalani, S., F. LeFevre, C. O. Phillips, et al. 2007. Deficits in communication and information transfer between hospital-based and primary care physicians: Implications for patient safety and continuity of care. *Journal of the American Medical Association* 297, no. 8 (February 28): 831–841.
- Kutner, M., E. Greenberg, Y. Jin, et al. 2006. *The health literacy of America's adults: Results from the 2003 National Assessment of Adult Literacy*. Washington, DC: Department of Education.
- Mattke, S., M. Seid, and S. Ma. 2007. Evidence for the effect of disease management: Is \$1 billion a year a good investment? *American Journal of Managed Care* 13, no. 12 (December): 670–676.
- McCall, N., and J. Cromwell. 2011. Results of the Medicare Health Support disease-management pilot program. *New England Journal of Medicine* 365, no. 18 (November 3): 1704–1712.
- McCall, N., J. Cromwell, C. Urato, et al. 2010a. *Evaluation of Medicare Care Management for High Cost Beneficiaries (CMHCB) demonstration: Care level management (CLM)*. Research Triangle Park, NC: RTI.
- McCall, N., J. Cromwell, and C. Urato. 2010b. *Evaluation of Medicare Care Management for High Cost Beneficiaries (CMHCB) demonstration: VillageHealth's Key to Better Health (KTBH)*. Research Triangle Park, NC: RTI International.
- McCall, N., Jerry Cromwell, and C. Urato. 2010c. *Evaluation of Medicare Care Management for High Cost Beneficiaries (CMHCB) demonstration: Massachusetts General Hospital and Massachusetts General Physicians Organization (MGH)*. Research Triangle Park, NC: RTI International.
- McCall, N., J. Cromwell, and C. Urato. 2010d. *Evaluation of Medicare Care Management for High Cost Beneficiaries (CMHCB) demonstration: Texas Senior Trails (TST)*. Research Triangle Park, NC: RTI International.
- McCall, N., J. Cromwell, K. Smith, et al. 2011a. *Evaluation of Medicare Care Management for High Cost Beneficiaries (CMHCB) demonstration: The Health Buddy Consortium (HBC)*. Research Triangle Park, NC: RTI International.
- McCall, N., J. Cromwell, C. Urato, et al. 2011b. *Evaluation of Medicare Care Management for High Cost Beneficiaries (CMHCB) demonstration: Montefiore Medical Center's Care Guidance program (CGP)*. Research Triangle Park, NC: RTI International.
- Medicare Payment Advisory Commission. 2004. *Report to the Congress: New approaches in Medicare*. Washington, DC: MedPAC.
- Medicare Payment Advisory Commission. 2006. *Report to the Congress: Increasing the value of Medicare*. Washington, DC: MedPAC.

- Medicare Payment Advisory Commission. 2008. *Report to the Congress: Reforming the delivery system*. Washington, DC: MedPAC.
- Medicare Payment Advisory Commission. 2009. *Report to the Congress: Improving incentives in the Medicare program*. Washington, DC: MedPAC.
- Medicare Payment Advisory Commission. 2010. *Report to the Congress: Aligning incentives in Medicare*. Washington, DC: MedPAC.
- Medicare Payment Advisory Commission. 2011a. Moving forward from the sustainable growth rate (SGR) system. Letter to the Congress. October 14.
- Medicare Payment Advisory Commission. 2011b. *Report to the Congress: Medicare and the health care delivery system*. Washington, DC: MedPAC.
- Medicare Payment Advisory Commission. 2012. *Report to the Congress: Medicare payment policy*. Washington, DC: MedPAC.
- Naylor, M. D., L. H. Aiken, E. T. Kurtzman, et al. 2011. The care span: The importance of transitional care in achieving health reform. *Health Affairs* 30, no. 4 (April): 746–754.
- Naylor, M. D., D. Brooten, R. Campbell, et al. 1999. Comprehensive discharge planning and home follow-up of hospitalized elders: A randomized clinical trial. *Journal of the American Medical Association* 281, no. 7 (February 17): 613–620.
- Naylor, M. D., D. A. Brooten, R. L. Campbell, et al. 2004. Transitional care of older adults hospitalized with heart failure: A randomized, controlled trial. *Journal of the American Geriatrics Society* 52, no. 5 (May): 675–684.
- Nelson, L. 2012. *Lessons from Medicare's demonstration projects on disease management and care coordination*. Washington, DC: Congressional Budget Office.
- Patient-Centered Primary Care Collaborative. 2007. Joint principles of the patient-centered medical home. American Academy of Family Physicians, American Academy of Pediatrics, American College of Physicians and American Osteopathic Association. <http://www.pcpcc.net/content/joint-principles-patient-centered-medical-home>.
- Peikes, D., A. Chen, J. Schore, et al. 2009. Effects of care coordination on hospitalization, quality of care, and health care expenditures among Medicare beneficiaries: 15 randomized trials. *Journal of the American Medical Association* 301, no. 6 (February 11): 603–618.
- Schoen, C., R. Osborn, S. K. How, et al. 2009. In chronic condition: Experiences of patients with complex health care needs, in eight countries, 2008. *Health Affairs* 28, no. 1 (January–February): w1–16.
- Schoen, C., R. Osborn, P. T. Huynh, et al. 2005. Taking the pulse of health care systems: Experiences of patients with health problems in six countries. *Health Affairs Supplemental Web Exclusives* (July–December): W5–509–525.
- Schore, J., D. Peikes, G. Peterson, et al. 2011. *Fourth report to Congress on the evaluation of the Medicare coordinated care demonstration*. Princeton, NJ: Mathematica.
- Starfield, B., L. Shi, and J. Macinko. 2005. Contribution of primary care to health systems and health. *Milbank Quarterly* 83, no. 3: 457–502.
- Thorpe, K., and L. Ogden. 2009. Creating the virtual integrated delivery system. Health Affairs blog. October 5. <http://healthaffairs.org/blog/2009/10/05/creating-the-virtual-integrated-delivery-system/>.
- Were, M. C., X. Li, J. Kesterson, et al. 2009. Adequacy of hospital discharge summaries in documenting tests with pending results and outpatient follow-up providers. *Journal of General Internal Medicine* 24, no. 9 (September): 1002–1006.