



Lessons from Medicare's Demonstration Projects on Disease Management, Care Coordination, and Value-Based Payment

An important part of the national debate about how to manage federal spending in the decades ahead has focused on spending for Medicare, which is expected to account for a large and ever-increasing share of the federal budget. Medicare provides health insurance to almost everyone who is 65 or older and to people under age 65 who receive Social Security Disability Insurance benefits (after a waiting period) or have certain serious health conditions. Many observers point out that improving the effectiveness of Medicare spending might allow both for reductions in federal spending from its projected path and for improved health care for Medicare beneficiaries.

Since 1967, the program has had the authority to conduct demonstrations that examine new ways to deliver and pay for health care. That authority was extended in 2010, under the Patient Protection and Affordable Care Act (Public Law 111-148), with the creation of the Center for Medicare and Medicaid Innovation within the Centers for Medicare & Medicaid Services (CMS). Under that law, CMS can expand a demonstration—and even implement it nationwide—without further approval from the Congress if the Secretary of Health and Human Services determines that such expansion would either reduce spending without reducing quality of care or improve quality of care without increasing spending.

In the past two decades, CMS has conducted two broad categories of demonstrations aimed at enhancing the quality of health care and improving the efficiency of health care delivery in Medicare's fee-for-service program.

- **Disease management and care coordination demonstrations** have sought to improve the quality of care of beneficiaries with chronic illnesses and those whose health care is expected to be particularly costly.
- **Value-based payment demonstrations** have given health care providers financial incentives to improve the quality and efficiency of care rather than payments based strictly on the volume and intensity of services delivered.

This Congressional Budget Office (CBO) issue brief reviews the outcomes of 10 major demonstrations—6 in the first category, 4 in the second—that have been evaluated by independent researchers.¹ The types of programs in those demonstrations could be implemented nationally either through the innovation center or through further legislation.

The evaluations show that most programs have not reduced Medicare spending: In nearly every program involving disease management and care coordination, spending was either unchanged or increased relative to the spending that would have occurred in the absence of the program, when the fees paid to the participating organizations were considered. Programs in which care managers had substantial direct interaction with physicians

1. For more complete discussions of the demonstration projects, see Lyle Nelson, *Lessons from Medicare's Demonstration Projects on Disease Management and Care Coordination*, Congressional Budget Office Working Paper 2012-01 (January 2012), and *Lessons from Medicare's Demonstration Projects on Value-Based Payment*, Congressional Budget Office Working Paper 2012-02 (January 2012).

and significant in-person interaction with patients were more likely to reduce Medicare spending than other programs, but on average even those programs did not achieve enough savings to offset their fees.

Results from demonstrations of value-based payment systems were mixed. In one of the four demonstrations examined, Medicare made bundled payments that covered all hospital and physician services for heart bypass surgeries; Medicare's spending for those services was reduced by about 10 percent under the demonstration. Other demonstrations of value-based payment appear to have produced little or no savings for Medicare.

Demonstrations aimed at reducing spending and increasing quality of care face significant challenges in overcoming the incentives inherent in Medicare's fee-for-service payment system, which rewards providers for delivering more care but does not pay them for coordinating with other providers, and in the nation's decentralized health care delivery system, which does not facilitate communication or coordination among providers. The results of those Medicare demonstrations suggest that substantial changes to payment and delivery systems will probably be necessary for programs involving disease management and care coordination or value-based payment to significantly reduce spending and either maintain or improve the quality of care provided to patients.

Disease Management and Care Coordination

In six major demonstrations, organizations were paid to provide disease management or care coordination to beneficiaries in Medicare's fee-for-service program (see Table 1). The demonstrations comprised 34 programs operated by disease management companies, which provide such services to private insurers and employers; hospital-based health systems; and other health care providers. In some cases, providers formed partnerships with disease management companies or other organizations.

The programs used nurses as care managers to educate patients about their chronic illnesses, encourage them to follow self-care regimens, monitor their health, and track whether they received recommended tests and treatments.² In most programs, the care managers were not integrated into physicians' practices, and their contact with patients was primarily by telephone. In some programs, however, the care managers either were employed

in physicians' offices or had direct interaction with physicians through other means (such as accompanying patients to visits with their doctors). The care managers in such programs also typically had considerable in-person interaction with patients, in addition to telephone contact. Some programs attempted to provide additional education and monitoring when patients were discharged from a hospital, but most were limited by a lack of timely data on patients' hospitalizations. A few programs placed monitoring devices in beneficiaries' homes to electronically transmit information about patients' symptoms and physiological measurements to care managers.

Most programs targeted beneficiaries who had at least one chronic condition, and most used various criteria to exclude beneficiaries who were not expected to be high users of health care services. In some demonstrations, each program was allowed to develop its own criteria for eligibility. For example, many programs restricted participation to beneficiaries who had a recent hospital stay, high past Medicare expenses, high anticipated Medicare expenses (as estimated by predictive modeling), or some combination of those factors. The demonstrations generally excluded beneficiaries receiving hospice services and those in treatment for complex conditions, such as end-stage renal disease, that were unrelated to the interventions being tested. Some programs excluded beneficiaries who were in long-term care facilities or who had cognitive impairments.

Effects on Hospital Admissions and Spending

All of the demonstration programs that focused on disease management and care coordination sought to reduce hospital admissions by maintaining or improving Medicare beneficiaries' health, and because hospitalizations are expensive, that reduction was expected to be the key mechanism for reducing Medicare spending. For many of the programs, the estimated effects on hospital admissions and spending are quite imprecise because they had so few enrollees. On average, the 34 care coordination and disease management programs had little or no effect on hospital admissions or *regular* Medicare spending (that is, excluding the programs' fees), although the

2. The terms disease management and care coordination generally are used interchangeably in programs that provide such services, although some experts reserve the latter term for programs that also seek to improve the flow of information among providers and assist patients as they make transitions from one care setting to another (from the hospital to home, for example).

Table 1.**Medicare Disease Management and Care Coordination Demonstrations**

Demonstration	Number of Programs	Fees at Risk ^a	Target Population
Medicare Coordinated Care Demonstration	15	No	Various; most commonly patients with CHF, CAD, chronic lung disease, or diabetes
Medicare Health Support Pilot	8	Yes	Patients with CHF or diabetes
Demonstration of Care Management for High-Cost Beneficiaries	6	Yes	Various; all with high Medicare costs before the demonstration, high predicted costs, or both; some with particular chronic conditions
Demonstration of Disease Management for Dual-Eligible Beneficiaries ^b	1	Yes	Dual-eligible beneficiaries with CHF, CAD, or diabetes
Demonstration of Informatics for Diabetes Education and Telemedicine	1	No	Patients with diabetes
Demonstration of Disease Management for Severely Chronically Ill Beneficiaries	3	Yes	Patients with advanced-stage CHF, CAD, or diabetes

Source: Congressional Budget Office.

Note: CHF = congestive heart failure; CAD = coronary artery disease.

- a. In demonstrations in which fees were at risk, the programs were allowed to keep only that portion of the fees that was offset by a reduction in Medicare spending. In the Demonstration of Care Management for High-Cost Beneficiaries, the programs were not allowed to keep the entire fee unless they reduced Medicare spending for their beneficiaries by at least 5 percent, net of the fee.
- b. Dual-eligible beneficiaries are covered by Medicare and Medicaid at the same time.

estimated effects varied considerably from one program to another. Nineteen programs had no more than a 5 percent effect on hospital admissions in either direction (see Figure 1); eleven reduced admissions by at least 6 percent—seven by 6 percent to 15 percent and four by 15 percent or more. For four programs, hospital admissions increased by at least 6 percent; for two of those programs, admissions rose by at least 15 percent. Fewer programs reduced regular Medicare spending than cut the number of hospital admissions.

To reduce *total* Medicare spending (that is, after including the fees), a disease management or care coordination program was required to cut expenditures by more than enough to offset its fee. In four demonstrations, the fees were at risk—that is, the participating programs were allowed to retain their fees only to the extent that those fees were offset by reductions in regular Medicare spending.³ CMS has not released information about how much money the programs were allowed to retain, but the evaluations imply that most would have been required to return substantial portions. The evaluations indicate that

only 2 of the 18 programs with fees at risk reduced total Medicare spending noticeably, 1 program increased total spending, and the others had no discernible effect on total spending. Most of the 16 programs whose fees were not at risk increased total Medicare spending, although for some there was no discernible effect.

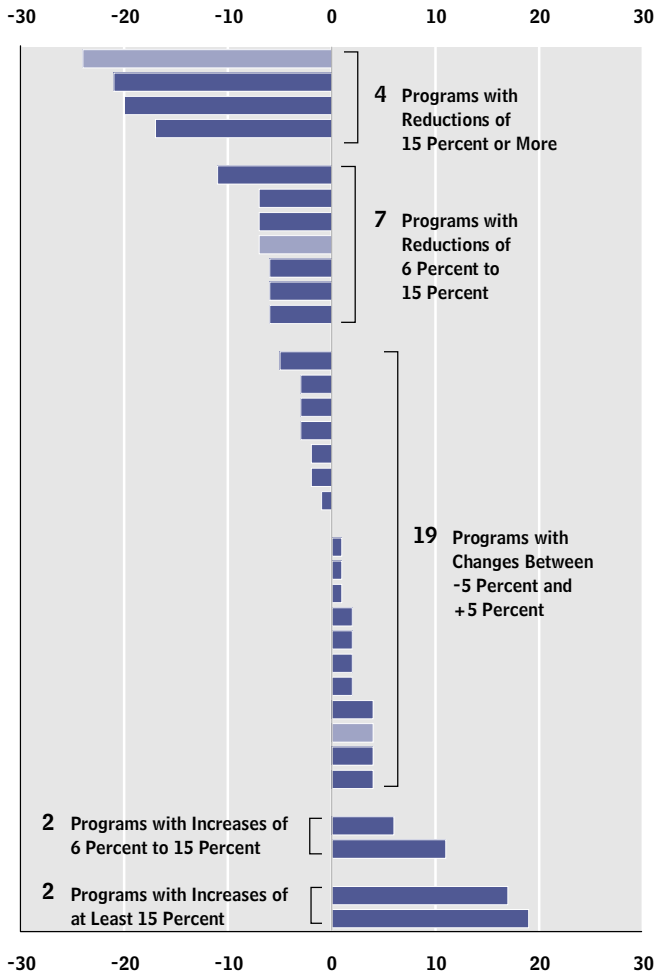
The 34 programs did not have systematic effects on measures of the process of delivering health care. Those measures varied from one demonstration to another but typically included the percentage of beneficiaries who received general preventive services (such as influenza vaccinations) and services recommended for people with a given condition (such as annual eye examinations for people with diabetes). Although the programs increased the percentage of beneficiaries who reported being taught self-management skills, they had little or no effect on the

3. The programs in one demonstration could not retain the entire fee unless they reduced Medicare spending by at least 5 percent, net of the fee.

Figure 1.

Effects of 34 Disease Management and Care Coordination Programs on Hospital Admissions

(Percentage change in hospital admissions)



Source: Congressional Budget Office.

Note: Bars with lighter shading represent programs with fewer than 400 enrollees. The estimates for those programs are less precise than the estimates for the other programs.

percentage who reported that they were adhering to prescribed self-care regimens.

Factors Associated with Reduced Hospital Admissions and Spending

Programs whose fees were at risk had greater financial incentives to reduce hospital admissions and spending. Among the 34 programs, however, the 18 whose fees were at risk produced little or no effect on hospital admissions or regular Medicare spending and were similar in

that respect to the 16 programs whose fees were not at risk (see Table 2). Other design elements or program features—such as the extent and type of care managers' interactions with physicians and patients—apparently were more important determinants of whether reductions in hospital admissions and spending occurred.

Hospital admissions fell by an average of 7 percent and regular Medicare spending declined by an average of 6 percent for programs in which care managers had substantial direct interactions with physicians. In contrast, there was no effect, on average, on hospital admissions or spending resulting from programs in which care managers had little or no direct interaction with physicians. The estimated average reductions in regular spending for those programs were insufficient to yield net savings for Medicare, however, because the programs would have had to reduce regular expenditures by 13 percent, on average, to offset their fees.

Significant in-person interaction between care managers and patients also was associated with reductions in hospital admissions and regular Medicare spending.⁴ Hospital admissions were lower by an average of 7 percent, and regular Medicare spending was reduced by an average of 3 percent, for programs in which care managers had substantial interaction with patients in person and by telephone. Programs in which the interaction was primarily by telephone exhibited little or no effect, on average, for either outcome. Again, however, the estimated average reductions in regular spending for those programs were insufficient to yield net savings for Medicare because the programs also would have had to reduce regular expenditures by 13 percent, on average, to offset their fees.

Value-Based Payment Demonstrations

Independent evaluations have been conducted for three major demonstrations that tested interventions designed to improve the quality and efficiency of care delivered in the Medicare fee-for-service program by altering the financial incentives available to providers:

- In the Physician Group Practice (PGP) Demonstration, 10 large practices were permitted to keep some of the estimated savings if they reduced total Medicare spending for their patients;

4. In four of the eight programs in which care managers had substantial in-person interaction with patients, the care managers also had substantial direct interaction with physicians.

Table 2.

Effects of Program Design on Hospital Admissions and Regular Medicare Spending in the Disease Management and Care Coordination Demonstrations

Design Feature	Number of Programs	Average Effects (Percent)		Change in Regular Medicare Spending Needed to Offset Programs' Fees ^b (Percent)
		Hospital Admissions	Regular Medicare Spending ^a	
Program Fees Put at Risk				
Yes	18	0	-1	-11
No	16	-2	1	-13
Substantial Direct Interaction Between Care Managers and Physicians				
Yes	7	-7	-6	-13
No	27	0	0	-11
Interaction Between Care Managers and Patients ^c				
By telephone and in person	8	-7	-3	-13
Primarily by telephone	23	1	0	-11
All Programs	34	-1	0	-11

Source: Congressional Budget Office.

- a. Regular Medicare spending excludes fees paid to the programs.
- b. The estimates in this column exclude one program that operated under a fixed overall budget instead of being paid a per-enrollee fee.
- c. This classification excludes three programs that relied primarily on the use of home-monitoring devices that electronically transmit information about patients' symptoms and other data about patients' health status to care managers.

- In the Premier Hospital Quality Incentive Demonstration, 278 hospitals were offered bonuses if their scores on quality-of-care measures were in the top tier of participating hospitals; and
- In the Medicare Participating Heart Bypass Center Demonstration, Medicare made bundled payments to cover all inpatient hospital and physicians' services for coronary artery bypass graft surgeries conducted at seven participating hospitals.

Preliminary results also are available for the first year of a fourth project—the Home Health Pay-for-Performance Demonstration—which allowed 273 home health agencies to keep some of the estimated savings if they reduced total Medicare spending for their patients and met certain criteria regarding quality of care.

The four demonstrations differed considerably from one another in terms of the number and types of participating organizations and the financial incentives offered

(see Table 3). The PGP, Premier, and Home Health demonstrations sought to increase quality and efficiency by giving bonuses to health care providers that met several criteria for the quality of care or reduced Medicare spending. The Heart Bypass demonstration, by contrast, sought to improve quality and efficiency by aligning the financial incentives offered to hospitals and physicians through a system of bundled payments; participating institutions and physicians were not eligible for bonus payments tied to quality of care or efficiency of delivery.

The criteria used to judge performance differed in the three demonstrations in which providers could receive bonuses. Each group of physicians in the PGP demonstration could share in the estimated savings if the group reduced total Medicare spending for its patients, and the share was higher if the group met certain targets for quality of care. In the Home Health demonstration, the estimated savings achieved in each region were distributed to the home health agencies in the region with the highest quality scores and the greatest improvement in such scores.

Table 3.**Value-Based Payment Demonstrations**

Demonstration	Participating Organizations	Incentive Offered	Effects on Medicare Spending
Pay for Performance			
Physician Group Practice	10 Physician group practices	Keep some of estimated reductions in total Medicare spending, partly on the basis of quality of care	Little or none
Premier Hospital Quality Incentive	278 Hospitals	Receive bonus for meeting quality-of-care targets	None
Home Health Pay-for-Performance	273 Home health agencies	Keep estimated reductions in total Medicare spending, if quality-of-care targets are met	Little or none in the first year ^a
Bundled Payments			
Medicare Participating Heart Bypass Center	7 Hospitals and relevant physicians ^b	Bundled payments negotiated for coronary bypass surgeries	10 percent decline in spending on bypass surgery

Source: Congressional Budget Office.

- a. Results are available only for the first year of the two-year demonstration
 b. Physicians who treated heart bypass patients while they were hospitalized.

However, the bonuses paid to hospitals in the Premier demonstration depended only on quality scores and not on whether savings were achieved.

Effects on Spending and Quality of Care

The Heart Bypass demonstration was the only value-based payment demonstration that yielded significant savings for the Medicare program. Bundled payments reduced Medicare's expenditures for heart bypass surgeries by about 10 percent, and there were no apparent adverse effects on patients' outcomes. By contrast, the PGP demonstration had little or no net effect on Medicare spending, after accounting for the bonuses paid, and the Premier demonstration had no net effect on Medicare spending. The evaluators reported that those two demonstrations slightly improved quality of care based on the measures adopted for those demonstrations. Preliminary results for the Home Health demonstration indicate that it had little or no effect on Medicare spending or quality of care in the first year.

The Heart Bypass demonstration yielded savings because Medicare was able to negotiate bundled-payment rates with the seven hospitals and the relevant physicians on

their medical staffs that were lower than the separate payments that they otherwise would have received. Indeed, a key criterion used to choose hospitals for the demonstration was the savings projected on the basis of their proposed bundled-payment rates. Hospitals and physicians were willing to accept discounted payments because of competitive pressures in their markets. Each hospital that applied for the demonstration anticipated that being named a Medicare Participating Heart Bypass Center would help boost its volume of bypass surgeries and that participating in the demonstration could improve its chances of being chosen by Medicare to participate in any subsequent national program of bundled payments. Those hospitals also anticipated that the alignment of their financial incentives with those of physicians would result in more efficient delivery of care.

In the PGP demonstration, 5 of the 10 physician groups received bonuses in the third and fourth years because they achieved estimated savings, 4 groups received bonuses in the second and fifth years, and 2 groups received bonuses in the first year. Although CMS has announced the amount paid in bonuses to each physician group in each year, those figures do not reveal the effects

of the demonstration on overall Medicare spending. A detailed analysis of the demonstration is currently available only for the first two years. That analysis showed that, for patients in the 10 group practices during the second year, average Medicare spending excluding the bonuses paid to physician groups was about 1 percent below projections; with bonuses included, average Medicare spending was just 0.1 percent below projections—about \$7 per beneficiary. First-year savings were estimated to be smaller, and similar estimates are not yet available for other years or for individual practices.

Moreover, those estimates probably overstate the amount of savings attributable to the demonstration because some of the physician groups appear to have changed diagnostic coding practices in a way that increased the risk scores of their patients relative to those of a comparison group.⁵ (Risk scores measure expected spending per patient. Changes in risk scores from the base period to each year of the demonstration were used to adjust the spending projections.) Several group practices reported that they began encouraging physicians to code all appropriate diagnoses on claims in order to identify and manage the care of patients with chronic illnesses and to increase the accuracy of their risk-adjusted spending projections. Consequently, risk scores increased more rapidly for the patients in the demonstration groups than for patients in the comparison groups. The evaluation could not determine how much of that difference was attributable to changes in coding by the group practices, but the data reported by some groups indicate that at least some of the increase in risk scores resulted from such a change in coding.

Factors Associated with Reduced Spending

The key factor associated with success in the demonstrations of value-based payments was the nature of the incentive offered to providers. The bundled-payment demonstration achieved savings for the Medicare program, but the demonstrations that paid bonuses to providers on the basis of their quality scores, estimated savings, or both, produced little or no savings. The estimated savings in the Heart Bypass demonstration were in the range of 5 percent to 10 percent for five of the

seven hospitals and were about 20 percent for the other two. Those differences were attributable to variations in the discounts that hospitals and physicians were willing to offer Medicare in their bundled-payment rates, which depended on such factors as the competitiveness of the local markets and providers' strategic business decisions.

Other Lessons

The results of the demonstrations illustrate the challenges of developing, implementing, and evaluating policies that reduce Medicare expenditures while improving or maintaining quality of care. Given the heterogeneity of the demonstrations and their constituent programs, other features may be associated with success or failure that were tested only in a few settings or noted only in a few public reports. The following approaches taken in various projects have been cited by observers as helpful in attaining the demonstrations' goals:

- **Gather timely data on the use of care, especially hospital admissions.** Programs that collected timely data on when their patients' health problems developed or became exacerbated and where they were treated seemed better able to coordinate and manage their patients' care. Those efforts could be strengthened if CMS improved its capability to provide programs with timely data on their patients' use of services.
- **Focus on transitions in care settings.** Programs that smoothed transitions (for example, by providing additional education and support to patients moving from a hospital to a nursing facility or between a primary care provider and a specialist) tended to have fewer hospital admissions.
- **Use team-based care.** Demonstrations that provided close collaboration between care managers and physicians—especially those with larger teams that included pharmacists, who could help patients manage their medications—appeared to have fewer hospital admissions.
- **Target interventions toward high-risk enrollees.** Programs that targeted interventions to beneficiaries they identified as being at greatest risk of being hospitalized—on the basis of medical condition, prior hospitalization, or predictive modeling—appeared to have fewer hospital admissions.

5. To arrive at a projection for Medicare spending, average spending for a physician group's patients was calculated for a base year (before the demonstration) and then increased by a factor that matched growth in average spending for a comparison group of beneficiaries in the local market area.

■ **Limit the costs of intervention.** To achieve federal budgetary savings, a program's fees or bonuses must be smaller than its reductions in regular Medicare expenditures. There was nearly a threefold difference in the Medicare fees paid to different organizations that combined telephone and in-person contact to coordinate care, an indication that some organizations were able to deliver such interventions much more efficiently than others.

The Medicare demonstrations reviewed here also offer several lessons for designing and evaluating demonstrations in the future. First, rigorous evaluations that use randomized designs or well-matched comparison groups offer the best chance for identifying the effects of any particular intervention. Medicare savings could be over- or underestimated if the comparison group does not strictly match the demonstration group; as a result, policymakers might inadvertently choose to expand some unsuccessful programs but terminate some successful ones. A rigorous design need not require a rigid or lengthy evaluation process. Indeed, a rigorous design that leads quickly to concrete answers can facilitate rapid-cycle learning by showing where strategies are or are not working effectively. Second, evaluation findings should be reported consistently and promptly. If demonstrations are to serve as models for practice, the results should be current and comparable. Third, to the extent possible, the number of Medicare beneficiaries in a demonstration should be large enough to yield estimates that are sufficiently precise to permit conclusions to be drawn about the programs'

effects on costs, the use of care, and health outcomes. Fourth, demonstrations that create incentives for participating providers to improve their diagnostic coding practices must account for the fact that similar incentives for improved coding do not apply to the comparison group. If that fact is not accounted for, improper conclusions could be drawn about the effects of the demonstration on Medicare spending. Last, publicly available reports should provide as much information as possible—and as consistently as possible—on the features of the programs being tested. Such information is critical to explaining why some programs succeed or fail, and it can be critical to policymakers, health care providers, and organizations that seek to increase the value of care delivered to Medicare beneficiaries.

This brief was prepared by Lyle Nelson of CBO's Health and Human Resources Division. Useful comments were provided by Randall Brown of Mathematica Policy Research, Michael Chernew and David Cutler of Harvard University, and Mary Kapp of the Centers for Medicare & Medicaid Services. The assistance of external reviewers implies no responsibility for the final product, which rests solely with CBO. This brief and other CBO publications are available at the agency's Web site (www.cbo.gov).

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