

**The New York Chronic Illness Demonstration Project**

**Final Report on an Evaluation of Six Pilot Coordinated  
Care Projects for High-Needs Medicaid Recipients**

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## Overview

Coordinated care programs are designed to assist individuals with multiple chronic conditions who might require attention from several doctors, risking duplicative tests or prescriptions for contraindicated medications. Such programs try to reduce these risks by helping individuals optimize their use of the health care system and represent an important policy tool for high-needs Medicaid recipients.

In 2007, the New York State legislature approved funding for the Chronic Illness Demonstration Project (CIDP) to provide coordinated care to chronically ill Medicaid recipients. In 2009, six CIDP projects began providing services to individuals with a high likelihood of being hospitalized. The projects used care managers to assess clients' health care and social service needs, educate them on their medical conditions, coordinate care across providers, and help them make and keep medical appointments. Projects also attempted to facilitate individuals' access to appropriate care. The state's goal was to help individuals use more primary and preventive care, in turn reducing emergency room and hospital use and helping to control Medicaid costs.

This report presents results of a study of CIDP conducted by MDRC. The study had two components: an impact analysis of the effects of the projects on health care used through Medicaid, and an implementation analysis of the services provided and challenges faced by the projects.

### Key Findings

- **The projects faced a number of challenges implementing the program.** Effective working relationships with other providers and timely information on hospitalization and emergency department visits were difficult to obtain. In addition, inaccurate contact information and residential instability made it difficult to find and enroll individuals in services. Because only 10 percent of eligible individuals enrolled, staff spent time and resources building relationships with a large number of community partners in an effort to locate and serve eligible Medicaid recipients.
- **The program did not appear to reduce Medicaid costs or care from hospitals and emergency departments.** The frequency of primary care visits, hospital admissions, emergency department visits, and use of prescription medications were similar for CIDP-eligible Medicaid recipients and a control group. If anything, the program appeared to increase Medicaid costs slightly, reflecting the costs of providing coordinated care.
- **The projects could have been improved in several ways.** More effective programs have had frequent in-person contact, focused on the transition from hospital to home, and had close interaction between care managers and primary care providers. No CIDP project adopted all these principles. There was variation across projects in most of these areas, although in general they came closer to meeting these standards than did other recent demonstrations.

Although the results suggest the program had little effect on Medicaid costs in its first two years, it is possible that the effects would have emerged after the second year. It is also possible that the program increased the quality of care, the use of social services, or patient satisfaction with care, but the study did not measure these variables.



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## Preface

Within the Medicaid system, individuals with multiple chronic conditions make up 87 percent of those in the top percentile of Medicaid spending. Many individuals in this high-needs group make extensive use of the emergency room and have repeated hospital stays, which can drive up the cost of care. These problems may be exacerbated by the fee-for-service Medicaid system, which provides little incentive for health care providers to avoid duplicative care, to provide preventive care, or to keep track of the entirety of a patient's health care needs.

One promising idea for helping this high-needs group is the use of health care professionals — care managers — to assess an individual's health care needs and to work with doctors to make sure those needs are being addressed. Many states have some form of coordinated care for Medicaid recipients, but few rigorous studies have been conducted on the effects of such services for a broad group of recipients facing multiple chronic conditions. This report helps to fill the gap by presenting results from the New York Chronic Illness Demonstration Project (CIDP), a set of six pilot programs that was recently operated across New York State. Conceived by the New York State Department of Health (DOH), the six programs provided services to more than 2,300 Medicaid recipients with a high risk of being hospitalized.

The evaluation provided an opportunity to see how the effects of coordinated care would vary across different types of organizations and program structures. Programs were led by a wide range of organizations, from a university-affiliated medical group to a national for-profit health insurer. They also varied across a number of dimensions, including the intensity of services they provided, care manager background, experience in the local community, and access to integrated systems of care for their clients. Because New York has been moving individuals into Medicaid managed care over time, CIDP also presents an opportunity to compare the health care use and Medicaid costs of coordinated care in the fee-for-service system with managed care.

Overall, the results were somewhat disappointing: CIDP resulted in increased Medicaid costs, especially due to hospital inpatient care. Since CIDP shares many of the characteristics of health homes that were established by the Affordable Care Act, the results may provide some lessons for implementing that new model of care, and they could suggest caution in expecting health homes to transform the health care system. But because CIDP providers struggled to recruit, enroll, and serve eligible recipients, and because partway through the demonstration DOH began enrolling some control group members into managed care, these results should also be interpreted with caution.

Gordon L. Berlin  
President, MDRC



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The Authors



## Executive Summary

Coordinated care programs are designed to address and circumvent problems that can arise when individuals with multiple chronic conditions seek health care. Such individuals might need to see several specialists, which can result in duplicative tests or prescriptions for contraindicated medications, especially if there is no primary care provider or if that provider is not keeping track of their overall health care use. In addition, complications from untreated or undetected conditions might necessitate emergency care or hospitalization, increasing health care costs. Coordinated care programs attempt to minimize these problems by using care managers to assess individuals' health care and social service needs and help them make appropriate use of the health care system before a medical emergency occurs. These projects may be an important policy tool for Medicaid recipients with complex health care needs, who make up 87 percent of Medicaid recipients in the top percentile of Medicaid spending.<sup>1</sup>

In 2007, the New York State legislature approved funding for the Chronic Illness Demonstration Project (CIDP) to provide coordinated care to chronically ill Medicaid recipients. The state hoped these services would help individuals navigate the health care system and use more primary and preventive care in order to reduce emergency department and hospital use and help control Medicaid costs. From 2009 through 2012, six projects provided coordinated care services in various parts of the state.

This report presents results of a study of CIDP conducted by MDRC that had two components: an impact analysis of the effects of the projects on health care used by Medicaid recipients, and an implementation analysis of the services that projects provided and the challenges they faced. The study is part of a four-state Rethinking Care Program developed by the Center for Health Care Strategies to design and test care-management interventions for high-needs Medicaid beneficiaries. In addition to New York, the Rethinking Care Program included pilot tests in Colorado (also evaluated by MDRC), Pennsylvania, and Washington.

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<sup>1</sup>Richard G. Kronick, Melanie Bella, and Todd P. Gilmer, *The Faces of Medicaid III: Refining the Portrait of People with Multiple Chronic Conditions* (Hamilton, NJ: Center for Health Care Strategies, 2009).

## **Project Implementation**

### **Overview of the Projects**

#### *The Six Projects Varied in Location and Leadership*

Table ES.1 provides information about the six projects, summarized below.

1. Healthy Partners of Erie, a project run by State University of New York-Buffalo Family Medicine, an eight-practice medical school group that serves 100,000 patients a year in its primary care clinics
2. Hospital 2 Home, a project run by the New York City Health and Hospitals Corporation, a multibillion-dollar public hospital health care system that serves more than 1.3 million patients annually
3. Live Healthy Care Management, which is operated in New York City by OptumHealth of United Healthcare, a national health plan that insures over 60 million individuals
4. Nassau Wellness Partners in Nassau County (a New York City suburb on Long Island), run by Federated Employment & Guidance Services, Inc., a nonprofit human services system
5. Pathways to Wellness in New York City, run by the Institute for Community Living, Inc., a nonprofit human service provider
6. Westchester Cares Action Project, run by Hudson Health Plan, a regional nonprofit health maintenance organization serving 100,000 members annually in Westchester County (a New York City suburb north of the Bronx)

#### *The New York State Department of Health (DOH) Imposed a Number of Requirements on the Projects*

To facilitate referrals and the coordination of services, projects were required to have formal relationships with other providers and to have a method of tracking and sharing data across providers. To establish these relationships, DOH required projects to use a prescribed memorandum of understanding and to have a plan to use electronic health records with registries, decision support, and reminders on evidence-based care. In addition, DOH required that data on benchmarks be reported in a uniform way, although the specific requirements were not finalized until after the projects had begun operations. At enrollment, projects were also

**Chronic Illness Demonstration Project (CIDP)**

**Table ES.1**

**Description of CIDP Prime Contractors and Partner Organizations**

	Healthy Partners of Erie	Hospital 2 Home	Live Healthy Care Management Project	Nassau Wellness Partners	Pathways to Wellness	Westchester Cares Action Project
Prime contractor	UB Family Medicine	NYC Health and Hospitals Corporation	OptumHealth, of UnitedHealthcare	Federated Employment & Guidance Services, Inc.	Institute for Community Living, Inc.	Hudson Health Plan
Type of organization	Medical school faculty practice group	Public hospital health care system	Insurance company	Nonprofit health and human services system	Nonprofit human services organization	Nonprofit health maintenance organization
Catchment area	Erie County	Sections of lower Manhattan, northern Brooklyn, and western Queens	Sections of Queens and the Bronx	Nassau County	Sections of northern Manhattan and western Brooklyn	Westchester County

SOURCE: Information compiled from site-visit interviews and documents from programs.

required to use a specific consent form. Once individuals were enrolled in services, health assessments were to be conducted within 30 days of the client enrolling in care coordination — assessing specific areas, in some cases with specific instruments — and care plans developed within 90 days of enrollment. Finally, projects were required to have in-person meetings with each enrollee at least quarterly and to have at least one type of contact (such as a phone call) each month.

### *Each Prime Contractor Was Funded to Provide Services for Three Years Starting in 2009*

In addition to start-up costs, projects were funded through monthly care-coordination fees ranging from \$205.00 to \$308.33 for each eligible client who met participation criteria. To provide projects with an incentive to reduce Medicaid costs, prime contractors could lose 20 percent of this fee for each client whose Medicaid costs did not decrease as a result of the intervention. To provide an incentive to follow requirements, a project could lose an additional 10 percent of the fee for not meeting certain of them, such as regular contact with clients. Finally, projects could receive part of a savings pool if they reduced aggregate Medicaid costs for enrollees by at least 15 percent.

### **Project Structure**

#### *The Projects Based Their Care-Coordination Models on both Experience and on Theoretical Models*

Especially important was Wagner’s Chronic Care model, which emphasizes the interaction of an informed patient with an integrated, team-based health care system. The Wagner model emphasizes the importance of regular, scheduled appointments with care providers that should focus on prevention and that should be followed up with provider-initiated care.<sup>2</sup> Motivational interviewing — a clinical style used with clients to elicit and activate their own good motives for changing their behavior — was one commonly identified evidence-based practice.<sup>3</sup> Many projects outlined a stepped-care approach in which care-coordination services were planned based on severity or degree of disease.<sup>4</sup>

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<sup>2</sup>Edward H. Wagner, “Chronic Disease Management: What Will It Take to Improve Care for Chronic Illness?” (*Effective Clinical Practice* 1, 1: 2-4, 1998).

<sup>3</sup>Stephen Rollnick, William R. Miller, and Christopher C. Butler, *Motivational Interviewing in Health Care: Helping Patients Change Behavior* (New York: The Guilford Press, 2008).

<sup>4</sup>Michael Von Korff and Bea Tiemens, “Individualized Stepped Care of Chronic Illness” (*Western Journal of Medicine* 172: 133-137, 2000).

### *Care Coordination Was Provided by Multidisciplinary Care Teams.*

These teams were often led by nurses and licensed clinical social workers, although direct contact with individuals was usually provided by staff members with case management, social service, or other health care backgrounds. Care teams also included members who provided support to the care team or their clients, such as housing coordinators, medical consultants, physicians, and peer support specialists (individuals who had progressed in their own recovery from substance abuse or mental health disorders and were trained to assist other individuals with those disorders).<sup>5</sup>

### *Projects Developed Integrated Networks of Services*

Projects developed networks to help locate and enroll individuals and to provide clients with access to a continuum of health, mental health, substance abuse, and social services. The networks included many types of organizations, such as Federally Qualified Health Centers, hospitals, and a wide variety of local nonprofit organizations providing prevention or treatment services. Projects noted several challenges in developing these networks. In particular, the requirement that projects execute a prescribed memorandum of understanding before sharing patient information with partners made it difficult for some projects to turn existing relationships into formal ones for the demonstration. This in turn made it difficult for them to receive timely notification of emergency department visits and hospitalizations and to provide access to needed services.

### *There Was Substantial Variation in Caseloads Across the Projects*

Hospital 2 Home had the lowest caseload, with an average of 23 clients per care manager, while the Live Healthy Care Management Project had the highest caseload, with an average of 89 clients per direct-service staff member.

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<sup>5</sup>Center for Substance Abuse Treatment, *What Are Peer Recovery Support Services?* (Rockville, MD: Substance Abuse and Mental Health Services Administration, U.S. Department of Health and Human Services, 2009).

## **Outreach and Enrollment**

### *CIDP Targeted a Group of Fee-for-Service Medicaid Recipients Who Had a High Probability of Being Hospitalized*

Individuals were eligible for CIDP if they were receiving fee-for-service Medicaid and had a high probability of being hospitalized in the coming year, which was determined by a predictive model developed by John Billings at New York University. The three New York City-based projects were each funded to serve 500 individuals at any one time, while the other three projects were each funded to serve 250 individuals.

### *Projects Struggled to Enroll Enough Individuals*

Project catchment areas contained many more eligible individuals than the projects could serve, so only a minority of eligible individuals needed to be enrolled to meet their enrollment targets.<sup>6</sup> Even so, the projects struggled to meet their eligibility goals, citing missing or inaccurate contact information as a key reason for low enrollment, along with the difficulty of serving a group that included many homeless individuals and others with unstable housing. The DOH-prescribed consent form, which was written at a high reading level, may also have made it more difficult to enroll individuals. In the end, projects enrolled between 8 percent and 20 percent of eligible individuals. Having a small number of clients spread across a wide catchment area and utilizing many health care providers also required programs to spend resources building relationships with a large number of community partners and service providers.

### *Eligible Individuals Had Substantial Health Care Needs*

Because they had a high probability of being hospitalized, it is not surprising that the average person eligible for CIDP had a history of high health care use, incurring nearly \$50,000 in Medicaid resources on average in the year before becoming eligible for CIDP (compared with about \$30,000 for the average New York Medicaid recipient with disabilities).<sup>7</sup> More than half of the cost was for hospitalization. A substantial portion had been diagnosed with substance abuse (60 percent), mental health problems (50 percent), and cardiovascular disease (40 percent), and a large proportion had multiple chronic conditions.

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<sup>6</sup>A “catchment area” is the area from which a program or service draws clients.

<sup>7</sup>Kaiser Family Foundation, “Medicaid Payments per Enrollee, FY2010” (website: <http://kff.org/medicaid/state-indicator/medicaid-payments-per-enrollee/2010>).

## **Care Coordination**

### *Care Coordination Included Assessments, Care Planning, Education, and Linking Individuals to Services*

The first step in care coordination was an assessment, which helped staff determine their clients' medical, behavioral, and social service needs. Next, staff developed care plans that outlined what would be done to address the identified needs. Staff then began one-on-one work with clients around a variety of issues. For example, care managers used these meetings to make sure clients had a regular source of care and to provide referrals for primary care, social services, peer support, mental health services, and patient education. Finally, the meetings allowed care managers to provide educational information about the chronic conditions an individual faced (sometimes supplementing these one-on-one sessions with group meetings and written educational materials).

### *Many Individuals Sought Care out of the CIDP Network*

As noted above, projects sought to connect clients to medical homes in order to better coordinate their care, but found that many clients already had a regular source of care, often out of the projects' networks of medical homes. Staff also reported that some clients did not like the location of the projects' preferred medical homes. As a result, projects had clients seeking care from a large number of medical homes, but few from providers within the CIDP network, which made it difficult to coordinate care efficiently. Despite these challenges, most projects were actively engaged in the relationship between clients and their primary care providers, for example, by arranging appointments and by giving providers copies of care plans.

### *Average Face-to-Face Contacts per Month Varied Widely Among Projects*

Pathways to Wellness reported close to three in-person contacts per month and Nassau Wellness Partners also averaged more than one in-person contact each month. Live Healthy Care Management reported an average of almost one face-to-face contact per month, which suggests its high caseload did not have an adverse effect on the level of in-person contact. By comparison, Westchester Cares Action Project averaged the DOH minimum of one face-to-face contact per quarter.

## **Impact Analysis**

To estimate the effects of the projects on health care use and costs, two broad approaches were used. Catchment areas for the three New York City projects were divided randomly by zip code into program group and control group areas, and projects were sent information only for eligible individuals who lived in program group zip codes. Catchment areas for the other projects (in the

two New York City suburbs and in the Buffalo area) had too few eligible individuals to allow them to be divided in this way. For those projects, control groups were chosen from other zip codes in the state that had similar demographics and that also had Medicaid recipients with similar histories of health care use. This research design was feasible because resources for care management were limited and DOH was unable to fund services for everyone who might be eligible.

A goal of CIDP was to change the health care environment in program group areas, but the Medicaid environment was also changing in control group areas. In particular, DOH began to require the enrollment of individuals who were not in CIDP into Medicaid managed care, which paid a managed care organization a fixed fee each month regardless of how much care an individual used. As a result, by the end of the first year, 21 percent of the control group was in Medicaid managed care compared with 14 percent of the program group. Differences in outcomes between the program and control groups thus do not represent the effects of CIDP compared with “usual care” but the effects compared with some combination of usual care and managed care. Since one of the goals of managed care is to reduce health care costs by reducing providers’ incentives to provide unnecessary care, it is possible that the program group had higher Medicaid costs and more health care use than the control group because CIDP resulted in smaller decreases in unnecessary care than did managed care.

All outcomes were measured using New York Medicaid data. Following the logic that CIDP should have increased primary care in order to reduce hospital admissions, emergency department use, and costs, a range of outcomes that included costs and measures of health care use were examined, including the number of hospital inpatient days, the number of emergency department visits, and the number of primary care visits. Results from a period of two years were examined because health care use might plausibly rise initially as care managers assessed clients’ health before falling as chronic ailments stabilized.

***CIDP Did Not Appear to Reduce Medicaid Costs, Hospital Admissions, or  
Emergency Department Use***

Table ES.2 provides estimates of the effects of CIDP pooled across the six projects. As shown under “Estimated Effect” in the table, CIDP appears to have increased Medicaid costs by about 3 percent (\$1,259) in the first year and 4 percent (\$1,489) in the second year. The increased costs consisted almost entirely of increased costs for hospital inpatient care. One foundation of CIDP was the idea that coordinated care could connect individuals to medical homes that would increase the use of primary care and reduce emergency department visits. Table ES.2 suggests that the project may have been successful in the first regard. In each year, the projects increased the number of visits for primary care by 0.6 per person. However, the

**Chronic Illness Demonstration Project (CIDP)**

**Table ES.2**

**Estimated Impacts of CIDP Participation on Health Care Costs  
Pooled Across Projects**

Outcome	Program Group	Control Group	Estimated Effect	P-Value
<b><u>Year 1</u></b>				
Total costs (\$)	40,933	39,674	1,259	0.014 **
Hospital admissions	16,731	16,068	663	0.054 *
Emergency department	573	529	44	0.002 ***
Average number of events				
Hospital admissions	2.4	2.4	0.1	0.164
Hospital inpatient days	11.7	11.1	0.6	0.002 ***
Emergency department visits	3.0	3.0	0.0	0.798
Primary care visits	13.2	12.6	0.6	0.100 *
Specialist visits	5.2	4.9	0.3	0.098 *
Mental health treatments	7.5	6.6	0.9	0.050 **
Substance use treatments	12.1	12.5	-0.4	0.173
Prescription medications filled	7.0	6.9	0.1	0.250
<b><u>Year 2</u></b>				
Total costs (\$)	40,478	38,990	1,489	0.021 **
Hospital admissions	15,156	14,176	980	0.018 **
Emergency department	473	448	25	0.255
Average number of events				
Hospital admissions	2.1	2.2	0.0	0.756
Hospital inpatient days	10.7	10.8	-0.1	0.781
Emergency department visits	2.7	2.8	-0.1	0.228
Primary care visits	10.9	10.3	0.6	0.034 **
Specialist visits	5.0	5.1	-0.2	0.410
Mental health treatments	6.7	5.9	0.8	0.040 **
Substance use treatments	13.5	14.1	-0.6	0.220
Prescription medications filled	6.6	6.5	0.1	0.417
Sample size	16,929	22,092		

SOURCE: MDRC calculations based on Medicaid claims and encounter data from the New York State Department of Health.

NOTE: A two-tailed t-test was applied to differences between the outcomes for the program and control groups. Statistical significance levels are indicated as follows: \*\*\* = 1 percent, \*\* = 5 percent, \* = 10 percent.

second half of this formula did not play out: CIDP did not significantly reduce emergency department use in either year, and it significantly increased the number of hospital stays in the first year. There were few significant effects on other measures of health care use, although the projects appeared to increase the number of mental health-related encounters in each year.

There are two reasons to be cautious about these results. First, although randomizing zip codes in New York City should have resulted in program and control group members that were roughly comparable, the same might not hold true for projects outside the city. Since eligible Medicaid recipients in those three projects were compared with similar individuals in zip codes from around the state, it is possible there were some systematic unobserved differences between the two groups that did not show up in prestudy information. If that is true, the results presented above may be biased in one direction or the other. As noted below, however, there was not systematic variation in estimated effects by project.

The higher rate of participation in Medicaid managed care for the control group also provides reason for caution in interpreting the results. In the short term, Medicaid costs for managed care enrollees equal the monthly fees that are paid to managed care organizations for the provision of care. Because DOH and the managed care organizations agreed ahead of time on the size of these payments, they might not reflect the real costs of the resources that individuals in the managed care system used. The higher costs under CIDP may thus be an artifact of the payment system rather than a reflection of true differences in the costs of care. Although the results in Table ES.2 suggest that CIDP also resulted in more health care use, the data on health care use under managed care may be less reliable than similar data from the fee-for-service system. This is because providers in the fee-for-service system are reimbursed based on the care they provide — giving them an incentive to report the care accurately — while information on health care use under managed care is not used for reimbursement. The impacts of CIDP might thus be influenced by differences in data quality between the fee-for-service and managed care systems.

### *Impacts Did Not Appear to Vary Systematically by Project*

As discussed earlier, implementation varied in some important ways across the projects, as did enrollment rates. For example, some projects assigned their care teams smaller caseloads and had more frequent in-person contact with clients. These differences did not translate into differences in program effectiveness, however. In fact, there was little indication that any of the projects achieved the ultimate project goal of reducing Medicaid costs.

### *CIDP Did Not Reduce Medicaid Costs for Any Subgroup*

Although CIDP did not appear to reduce costs overall, it may have been more effective for some subgroups than others. To examine this, the study compared impact estimates for those

with a higher and a lower risk of future hospitalization, those with and without a previous diagnosis for a major psychiatric disorder, and those with and without prior treatment related to drug and alcohol use. These comparisons did not show evidence that CIDP reduced Medicaid costs, hospital admissions, or emergency department use for any of the subgroups.

### *CIDP Did Not Appear to Be Effective for Those Who Enrolled in the Projects*

These early results represent the effects of CIDP for those who were eligible for its services, but because only about 10 percent of the eligible group ever enrolled in a project they severely underestimate the effects for those who did enroll. Two methods (one based on the entire eligible group and one based on only those who actually received services) were used to estimate the effects of CIDP for people who did enroll. Both sets of results suggest that the effects of CIDP on health care use were larger for enrollees than for the eligible group — as would be expected — but neither set of results indicates that the projects reduced health care costs, hospitalization, or emergency department use. In short, CIDP enrollees may have spent more days in the hospital, were more likely to receive primary care, and increased their use of other types of health care, but this increase in services added to costs over the two-year follow-up period rather than reducing costs as intended.

## **Discussion**

The results presented here suggest that CIDP may have increased Medicaid costs over two years rather than reducing them. Those increases came primarily through the increased cost of hospital admissions and the cost of providing coordinated care, although the fact that the control group was more likely to move into Medicaid managed care (which might have reduced their costs) may also explain the higher costs associated with CIDP. These effects did not vary consistently across the projects, and Medicaid costs were not reduced for any subgroup that was examined.

Although CIDP was designed with the best information at hand, results may have been disappointing because the projects did not have many of the characteristics of coordinated care programs found to be effective only after CIDP had begun. For example, several successful programs studied in the Medicare Coordinated Care Demonstration (MCCD) — a random assignment study of 15 coordinated care projects for Medicare recipients — targeted patients at substantial risk of needing hospitalization and used a combination of assessments, care plans, and coaching. All of this was also done in CIDP, but the successful MCCD programs were distinct in that they had frequent in-person contact, access to timely information about hospital and emergency department admissions, and close interaction between care managers and primary care providers; they also relied primarily on nurses within multidisciplinary teams. In CIDP, no project espoused all these principles. There was variation among them in their level of

in-person contact, access to timely information about hospital admissions and emergency department use, contact with primary care, and staffing arrangements.

Projects also faced a variety of challenges that stemmed from the demonstration design. These included inflexibility with memoranda of understanding for partners, uniform data-collection requirements defined after projects started, and incomplete eligibility or contact information. The effects of these challenges on project implementation are evident. For example, care teams typically had significant enrollment and care-management responsibilities that were often difficult to balance. The DOH requirement that projects execute a prescribed memorandum of understanding before sharing patient information with partners made it difficult for some projects to convert existing relationships into formal ones for the demonstration and to develop formal relationships with hospitals, which were expected to provide timely notification of emergency department visits and hospitalizations and access to needed services. Finally, the small number of clients served by any particular health care provider required projects to spend resources building relationships with a larger number of community partners and service providers.

Finally, the research suffered from several major limitations. First, only about 10 percent of eligible individuals enrolled in CIDP services, making it difficult to obtain precise estimates of the effects of the programs, especially for key subgroups of individuals. In addition, the study did not have detailed information on the intensity of the coordinated care services received by those who did enroll in CIDP, making it difficult to know whether the disappointing results are due to lack of engagement in services, or due to a lack of effectiveness of the services that were often used. Finally, the study provided information only on outcomes that were available from Medicaid claims. In particular, the coordinated care programs were intended to increase the use of social services and the quality of care, neither of which was examined by the study. Thus, the generally negative findings on Medicaid use and costs may not tell the full story of the intervention.

In short, CIDP may have been more effective in reducing costs if the projects had been provided with additional resources and support to increase enrollment (allowing for greater efficiencies in areas such as developing relationships with health care providers), if they had designed more intensive services targeted more specifically to clients with conditions that might have responded best to care coordination, and if they had been subject to fewer bureaucratic requirements, which took considerable resources away from other project activities. In addition, limitations of the study's design and length may have led it to miss some key impacts, especially those related to social services and quality of care.

## Introduction

Coordinated care programs are designed to address and circumvent problems that can arise when individuals with multiple chronic conditions seek health care. Such individuals might need to see several specialists, which can result in duplicative tests or prescriptions for contraindicated medications, especially if there is no primary care provider or if that provider is not keeping track of their overall health care use or needs. In addition, complications from untreated or undetected conditions might necessitate emergency care or hospitalization, increasing health care costs. Coordinated care programs attempt to minimize these problems by using care managers to assess individuals' health care and social service needs and help them make appropriate use of the health care system before a medical emergency occurs. These projects may be an important policy tool for Medicaid recipients with complex health care needs, who make up 87 percent of Medicaid recipients in the top percentile of Medicaid spending.<sup>1</sup>

This report presents the results of a study conducted by MDRC of the New York Chronic Illness Demonstration Project (CIDP), which included six pilot projects of coordinated care designed to change health care use and reduce Medicaid costs for a group of chronically ill Medicaid recipients. The six projects — three in New York City and three elsewhere in the state — were run by a variety of organizations, which included a managed care plan, a nonprofit social service provider, and several health care organizations. CIDP was a multiyear partnership of the New York State Department of Health (DOH), the Center for Health Care Strategies, John Billings at New York University, local health plans and providers, and other stakeholders, and was created to improve care for high-needs Medicaid recipients. It was part of the four-state Rethinking Care Program developed by the Center for Health Care Strategies to design and test care-management interventions for high-needs Medicaid beneficiaries. In addition to New York, the Rethinking Care Program included pilot tests in Colorado (also evaluated by MDRC), Pennsylvania, and the state of Washington.

The goal of CIDP was to increase the use of preventive care and to uncover unmet medical and social service needs in order to reduce the need for hospital admissions and the use of emergency department care. CIDP targeted a group of fee-for-service Medicaid recipients who had a high probability of being hospitalized, according to a predictive model developed by John Billings and Tod Mijanovich at New York University.<sup>2</sup> Between March 2010 and February 2013, the projects served 2,355 Medicaid recipients.

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<sup>1</sup>Kronick, Bella, and Gilmer (2009). Results refer to Medicaid recipients diagnosed with three or more chronic conditions.

<sup>2</sup>Billings and Mijanovich (2007).

The MDRC study had two components. The first, an impact analysis, estimated the effects of CIDP on different types of health care provided through the Medicaid system and on Medicaid costs. To estimate these effects in New York City, CIDP catchment areas were randomly divided so that the projects could enroll only individuals who lived in certain zip codes.<sup>3</sup> For the other three projects, the analysis compared the outcomes of eligible individuals in the projects' catchment areas with those of similar Medicaid recipients elsewhere in the state. Results indicate that CIDP may have increased Medicaid costs over two years, primarily through increased hospital admissions and hospital costs, but also as a result of the cost of providing coordinated care. Consistent with the goals of the demonstration, the projects appear to have increased the use of primary care. They do not appear to have reduced the use of emergency departments, however, and they had few substantial effects on other aspects of health care use.

The second component of the study was an implementation analysis, which sought to understand the design of the projects and how they operated. The implementation study suggests some reasons why the project may have had few effects. In particular, care managers struggled to locate individuals and engage them in coordinated care services over a sustained period of time. This diverted resources from providing coordinated care services, and the low number of enrollees meant that few were concentrated in any one area or near any one health care provider. In addition, most care management was provided by telephone, while recent research suggests that intensive in-person contact may be needed in order for care coordination to be effective.<sup>4</sup> Finally, DOH imposed a number of requirements on the projects, some of which made it difficult to establish formal relationships with other health care providers in the community or to obtain timely information on hospital admissions and emergency department use. This limited their ability to intervene with clients at times when the clients might have been most amenable to change.

The remainder of the report summarizes the research on coordinated care programs, describes the study design, the study sample, and the projects, and presents the estimated effects of the projects.

## **Background on Coordinated Care Programs**

Coordinated care interventions are intended to increase the appropriate use of medical care while reducing unnecessary emergency department visits, hospital admissions, and other medical services. To meet patient needs, care managers — who are usually nurses or master's-

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<sup>3</sup>A “catchment area” is the area from which a program or service draws clients.

<sup>4</sup>Brown (2009).

level clinicians — undertake a number of activities. They might, for example, encourage patients to seek proper treatment, help them make appointments with health care professionals, make sure they keep appointments and take prescribed medications, or educate them about treatment effectiveness.<sup>5</sup> Effective care managers will also address a patient’s social service needs, which might be related to unstable housing or to affording enough food, services that are vital to maintaining health and adhering to any project.<sup>6</sup> Care managers might also work directly with primary care providers, giving them information that is designed to help them monitor a patient’s overall health care use and communicate with other health care providers.

Many states have some form of coordinated care for Medicaid recipients, but the interventions differ in how coordinated care is defined and who is targeted. For example, Illinois uses nurses, social workers, behavioral health workers, and clinic-based staff to provide care management to adults with disabilities and children with persistent asthma. Oklahoma provides patient education and care-management services to recipients of Temporary Assistance for Needy Families and to aged, blind, and disabled Medicaid recipients. Iowa, Kansas, New Hampshire, Rhode Island, Texas, Virginia, Washington, and Wyoming provide care management via telephone and educational materials to Medicaid recipients with chronic illnesses such as asthma, diabetes, and congestive heart failure. North Carolina uses a system of local provider networks to support and manage high-cost, high-risk Medicaid recipients.<sup>7</sup>

Although several of these state coordinated care projects have been studied, rigorous statistical methods were not used in the studies, leading to questions about the validity of the results. For example, a study in Oregon found that disease management via telephone for Medicaid recipients with asthma decreased emergency department visits and increased office visits. However, that study compared outcomes for a group of Medicaid recipients before and after they were part of the disease-management project. Because it did not have a control group of individuals who did not receive project services, it is unclear how much of the change over time was a result of the project and how much would have happened even without the intervention.<sup>8</sup> A study of disease management for congestive heart failure, diabetes, asthma, and hypertension in Florida found improvement in a range of health behaviors and outcomes, such as fewer hospital stays and emergency department visits,<sup>9</sup> but it compared people who volunteered with those who did not, and it is likely that volunteers differ from others in ways that

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<sup>5</sup>Rittenhouse and Robinson (2006); Wagner et al. (2001).

<sup>6</sup>Berenson and Howell (2009).

<sup>7</sup>All practices cited in this paragraph are from Arora et al. (2008) except for those of Illinois and North Carolina. For Illinois see Saunders (2008). For North Carolina see Arora et al. (2008) and Community Care of North Carolina (2008).

<sup>8</sup>Linden, Berg, and Wadhwa (2007).

<sup>9</sup>Morisky, Kominski, Afifi, and Kotlerman (2008); Afifi, Morisky, Kominski, and Kotlerman (2007).

would affect the results of the study.<sup>10</sup> In Virginia, a chronic disease management project for Medicaid recipients was found to reduce emergency department visits, hospital admissions, and physician office visits within the first two years.<sup>11</sup> But while that study compared those who received the intervention with a control group that had similar demographics and preintervention health care use, it did not use random assignment to create the two groups. Although the program group and control group looked similar, such methods can only adjust for observed differences between the groups, and cannot adjust for unobserved differences such as motivation or health care preferences.<sup>12</sup> In other contexts, this kind of control group has been found to produce unreliable estimates of the effects of social service projects.<sup>13</sup>

Several recent studies of coordinated care for Medicaid recipients have used a more rigorous, random assignment design. In Indiana, a chronic disease management program reduced Medicaid spending for individuals with congestive heart failure but did not decrease Medicaid spending for those with diabetes.<sup>14</sup> Random assignment was also used in the Rethinking Care Program pilot test in Washington described in the introduction to this report.<sup>15</sup> This project focused on a subset of aged, blind, and disabled Medicaid recipients who exhibited evidence of mental illness or chemical dependency and who were identified as being at high risk of having future high medical expenses. A community-based, multidisciplinary care-management team led by registered nurses used in-person and telephone support to enable clients to address their own health care needs and to enhance the coordination, communication, and integration of services across safety net providers (providers who offer health services to low-income populations and others without health insurance). However, the intervention did not generally show statistically significant changes in health care use during the first two years — meaning that the observed changes were not large enough to confidently be attributed to the program. Finally, MDRC recently conducted random assignment studies of two Denver-area pilot coordinated care projects for Medicaid recipients with disabilities. As mentioned earlier, these projects were also part of the Rethinking Care Program. The Colorado projects had little effect on health care use, although both increased the use of providers who were not medical doctors, such as optometrists and podiatrists, and one increased the use of specialty care.<sup>16</sup>

Randomized controlled trials have also been used to study coordinated care projects outside the Medicaid system for severely ill patients with specific chronic conditions, such as

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<sup>10</sup>Bell, Orr, Blomquist, and Cain (1995).

<sup>11</sup>Zhang et al. (2008).

<sup>12</sup>Rosenbaum and Rubin (1983).

<sup>13</sup>Michalopoulos, Bloom, and Hill (2004).

<sup>14</sup>Holmes et al. (2008).

<sup>15</sup>Bell et al. (2012).

<sup>16</sup>Michalopoulos, Manno, Kim, and Warren (2013); Michalopoulos, Manno, Warren, and Somers (2013).

diabetes mellitus, asthma, depression, coronary artery disease, and congestive heart failure.<sup>17</sup> These studies have shown that such projects can improve health outcomes for patients with those conditions. For instance, studies have shown that coordinated care helps to control diabetes, reduces problems from cardiovascular disease, and reduces hospitalization for patients with congestive heart failure.<sup>18</sup> In addition, coordinated care has increased the use of preventive care, such as cancer screening, and improved the overall health of the elderly, while reducing their emergency department visits.<sup>19</sup> Coordinated care has encouraged patients with depression to talk to mental health specialists, reduced their depression, and improved work performance and job retention.<sup>20</sup> Among Medicaid recipients, there is evidence that in-person care management is effective when it targets conditions such as diabetes, asthma, and congestive heart failure, but less effective when targeting coronary artery disease.<sup>21</sup>

Although most rigorous studies of coordinated care have focused on individuals who are suffering from particular chronic conditions such as depression or diabetes, there is some evidence that broad-based projects can be effective. In particular, a randomized trial of telephone support for nearly 200,000 individuals insured through one of seven employers found evidence of reduced health care costs, primarily through reduced hospitalizations.<sup>22</sup> It is not clear, however, that this approach would work for the current study's more vulnerable group, which is unlikely to be employed, has low income and complex health care needs, and is relying on public rather than commercial health insurance.

Another source of positive findings for broader groups comes from the Medicare Coordinated Care Demonstration, a random assignment study of 15 coordinated care projects for Medicare recipients.<sup>23</sup> Of the 15 projects included in that demonstration, 3 included patients with a broad set of diagnoses, while the remainder focused on either one or a small number of chronic conditions. The study found that the projects generally succeeded in providing health

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<sup>17</sup>Mattke, Seid, and Ma (2007); Wagner et al. (2001).

<sup>18</sup>For effects on diabetes, see Chin et al. (2007); Dorr et al. (2005); Glazier, Bajcar, Kennie, and Willson (2006); Sidorov et al. (2002); Villagra and Ahmed (2004). For effects on cardiovascular disease, see Harris et al. (2003); Sequist et al. (2006). For effects on congestive heart failure, see DeWalt et al. (2006); Gorski and Johnson (2003).

<sup>19</sup>For effects on preventive care see Dietrich et al. (2006); Dietrich et al. (2007). For effects on the overall health of the elderly see Counsell et al. (2007).

<sup>20</sup>Mohr et al. (2008); Wang et al. (2007).

<sup>21</sup>Arora et al. (2008); Warsi et al. (2004).

<sup>22</sup>Wennberg et al. (2010).

<sup>23</sup>Brown et al. (2007); Chen et al. (2008); Peikes, Chen, Schore, and Brown (2009).

education but had few effects on individuals' overall satisfaction with care, adherence to care, health care use, or health care costs.<sup>24</sup>

Although the Medicare Coordinated Care Demonstration projects had few effects overall, 3 of the projects reduced hospital admissions and health care costs over a four-year period. Comparing these 3 projects with the other 12 suggests that six structural and operational components influence the effectiveness of coordinated care for Medicare recipients.<sup>25</sup>

1. **Targeting.** Success is more likely when coordinated care targets patients at substantial risk of needing hospitalization in the coming year.
2. **In-person contact.** The most successful projects averaged nearly one in-person contact per month during the patient's first year in the project.
3. **Access to timely information about hospital and emergency department admissions.** Connecting with patients shortly after flare-ups of chronic conditions that require hospitalization or emergency department visits is critical to providing transitional care and avoiding readmissions.
4. **Close interaction between care managers and primary care providers.** Occasional face-to-face interaction with physicians and ensuring that all project patients who are seeing a particular physician are assigned to the same care manager creates a strong working relationship.
5. **Services provided.** The most successful projects assessed patients' needs, developed care plans, and coached patients on managing their conditions and taking medications properly. Successful projects were also more likely to provide social support, such as help with access to resources like transportation and housing assistance.
6. **Staffing.** More successful projects relied primarily on registered nurses to deliver the bulk of the intervention, and their median caseload was 70. The role of social workers is important but it is unclear whether they need to be care managers.

Although these lessons from the Medicare Coordinated Care Demonstration projects are intriguing, it is unclear whether they would apply to the group served in CIDP, which is

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<sup>24</sup>Peikes, Chen, Schore, and Brown (2009).

<sup>25</sup>Brown (2009).

younger and more likely to have behavioral health problems than the group studied in that demonstration.

As the discussion above indicates, there has been a great deal of research on the effects of coordinated care for specific chronic conditions. However, there have been few rigorous evaluations of coordinated care projects for a diverse set of high-needs Medicaid recipients with multiple chronic conditions. This gap in the research is particularly important because more than 20 states have some form of coordinated care for Medicaid recipients.<sup>26</sup>

## **Overview of the Demonstration and Evaluation**

In 2007, the New York State legislature approved funding for CIDP. As noted earlier, the goal of the three-year demonstration was to provide care coordination to help individuals establish a medical home and make greater use of primary and preventive care.<sup>27</sup> The state hoped the interventions would lead to a better ability to navigate the health care system and to increased use of primary care, which would reduce emergency room and hospital use, helping to control costs for high-need beneficiaries, and ultimately leading to better health outcomes.

In 2008, DOH used a competitive process to choose seven prime contractors to run demonstrations. Of the seven demonstrations, six eventually enrolled clients and one did not move past the planning stage. Table 1 lists each project by name, the prime contractor, and the catchment areas in which the projects served clients. Three demonstrations were implemented in New York City and three were implemented elsewhere in the state — in Nassau County (on Long Island), in Westchester County (just north of the Bronx), and in Erie County (Buffalo).

The six prime contractors included two nonprofit human services systems with a strong focus on behavioral health (Institute for Community Living, Inc. and Federation Employment & Guidance Service, Inc.), a multibillion-dollar public hospital health care system that serves more than 1.3 million patients annually (New York City Health and Hospitals Corporation), a national health plan that insures over 60 million individuals (OptumHealth of United Healthcare), a regional nonprofit health maintenance organization (HMO) serving 100,000 members annually (Hudson Health Plan), and an eight-practice medical school group that

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<sup>26</sup>Arora et al. (2008); Rosenman et al. (2006).

<sup>27</sup>American College of Physicians (2014) states that a “medical home,” also known as a patient-centered medical home, is a “care delivery model in which patient treatment is coordinated through a primary care physician to ensure they receive the necessary care, where they need it, and in a manner they can understand.” NCQA (n.d.) says strengthened physician-patient relationships replaced episodic care with the implementation of coordinated care, in which the physician takes responsibility for patient care, including arranging appropriate care with other clinicians as needed.

## Chronic Illness Demonstration Project

### Table 1

#### Description of CIDP Prime Contractors and Partner Organizations

	Pathways to Wellness	Hospital 2 Home	Live Healthy Care Management	Nassau Wellness Partners	Westchester Cares Action Project	Healthy Partners of Erie
Prime contractor	Institute for Community Living, Inc.	NYC Health and Hospitals Corporation	OptumHealth, of UnitedHealthcare	Federated Employment & Guidance Services Inc.	Hudson Health Plan	UB Family Medicine
Type of organization	Nonprofit human services organization	Public hospital health care system	Insurance company	Nonprofit health and human services system	Nonprofit HMO	Medical School faculty practice group
Catchment area	Sections of northern Manhattan and western Brooklyn	Sections of lower Manhattan, northern Brooklyn, and western Queens	Sections of Queens and Bronx Counties (New York City)	All of Nassau County (New York City suburb)	Westchester County (New York City suburb)	All of Erie County, including city of Buffalo (upstate New York)
Established in the catchment area	1950s	19th century at one location, 1980s at others	No prior experience in services area	1930s	1985	1994
Risk-sharing partners <sup>a</sup>	A for-profit behavioral health care management organization (shared); a nonprofit rehabilitation agency; two nonprofit mental health and behavioral health services agencies; a hospital	None	None	A for-profit behavioral health care management organization (shared); a public hospital and community health care system	A behavioral health maintenance organization	None

SOURCE: Information compiled from site-visit interviews and documents from programs

NOTES: Kings County is coextensive with the borough of Brooklyn.

<sup>a</sup>Partners served two primary roles. They ensured participants' access to necessary services not available through the prime contractor. They also shared some of the financial risk associated with not decreasing health care expenditures for the clients in their project.

serves 100,000 patients a year in its primary care clinics (State University of New York Buffalo Family Medicine).

As discussed in more detail later in this report, the projects could share any savings in Medicaid costs that were attributable to their project, but were also at risk of being paid less if the project did not reduce Medicaid costs or did not meet some quality criteria specified by the state. Three of the demonstrations shared this financial risk with other agencies. Risk-sharing partners included a for-profit behavioral health care management organization, several other nonprofit organizations, and a hospital. The partnerships brought different things to the projects. For example, Pathways to Wellness and Nassau Wellness Partners partnered with the same for-profit behavioral health care management organization that provided project-management support, clinical supervisory staff, a medical consultant, and information technology to both projects. Pathways to Wellness used additional risk-sharing partners to provide staff for certain locations, and a hospital partner served as a medical home for clients. Westchester Cares Action Project shared risks with an organization with which it had worked for more than a decade. Their CIDP partnership brought together behavioral and medical project management and the use of the partner's information-management system.

The six prime contractors had varied levels of prior experience with the target population and catchment areas, although most had long-standing service relationships in their catchment areas. For example, NYC Health and Hospitals Corporation had provided medical care in its communities for at least 30 years through its various hospitals. In comparison, OptumHealth had no prior experience in its catchment area, but did have a history of working with Medicaid recipients elsewhere in the country.

Most projects established offices in their catchment areas. For example, Hospital 2 Home had an office in each of its three hospital-based locations and Pathways to Wellness operated offices in each of its catchment areas. In contrast, Live Healthy Care Management based staff in its home offices when they were not in the community with clients.

To estimate the effects of CIDP on health care use and Medicaid costs, two broad approaches were used. In New York City, each of the three projects identified a catchment area that it intended to serve.<sup>28</sup> Before the projects began providing services, MDRC randomly

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<sup>28</sup>The catchment areas proposed by the Institute for Community Living, Inc. (Pathways to Wellness) and the NYC Health and Hospitals Corporation (Hospital 2 Home) both included five zip codes: 10009 and 10016 in Manhattan and 11205, 11206, and 11221 in Brooklyn. All of these were given to Hospital 2 Home, which had identified a smaller area. In addition, a decision was later made to move seven additional zip codes from Pathways to Wellness to Hospital 2 Home: 10001, 10002, 10029, and 10035 in Manhattan and 11207, 11213, and 11233 in Brooklyn.

assigned the zip codes in each catchment area into program group and control group zip codes. Projects were sent lists of eligible individuals who lived in program group zip codes, but not of those who lived in control group areas.

The catchment areas for the other three projects contained too few eligible individuals to allow the areas to be divided between program group and control group areas. For each of those projects, a control group was chosen from similar zip codes around the state. The goal in choosing the control group areas was to match catchment areas of the three projects along several dimensions, including characteristics of projected eligible clients (number, risk scores, and prior Medicaid costs) and characteristics of the areas from the decennial census (for example, density and poverty rates). Briefly, the Westchester Cares Action Project catchment area was matched primarily to areas in nearby counties, including Rockland, Dutchess, and Orange Counties. In addition, the control group included several zip codes from Brooklyn that were not in the catchment areas of any of the New York City projects. The Nassau Wellness Partners catchment area was matched to parts of Staten Island and Suffolk County. The Healthy Partners of Erie catchment area was matched to parts of the Rochester, Syracuse, and Binghamton areas, with one zip code from Jefferson County.

### **Demonstration Requirements**

DOH was rather prescriptive in the care-coordination models it was interested in funding. The following paragraphs describe in greater detail two key demonstration requirements: integrated treatment systems and improved use of health information technology.<sup>29</sup>

#### *Integrated System of Care and Community Provider Network*

A major component of the CIDP design was an integrated system of care using community provider networks. The projects were required to have formal relationships (memoranda of understanding) with entities in their catchment areas that provided medical and behavioral health care and social services. The partnerships were intended to provide easier and coordinated access to licensed providers (including hospitals), extended or convenient hours or same-day appointments, access to providers who spoke a client's language or had translation capability, telephone access to a care manager at any time, community outreach and monitoring, community-based social services, and coordination of care and services after critical events, such as emergency department visits or hospitalizations. The projects outlined plans for their networks in their proposals based on their existing relationships and anticipated catchment areas.

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<sup>29</sup>New York State Department of Health (2008).

### *Information Technology*

DOH also required the projects to use enhanced information technology for three purposes. The first purpose was to track or share utilization data and care needs across providers, coordinate referrals and documentation of services, notify care coordinators of critical events, and provide performance monitoring and feedback. A second purpose required that they have a plan to use electronic health records with registries, decision support, and reminders on evidence-based care. Finally, information technology was intended to help projects submit data to allow DOH to assess whether the contractor was meeting project objectives, time frames, and performance standards.

### **Contracts and Demonstration Start-Up**

Each prime contractor entered a contract to operate its project for three years ending in March 2012. The awards included funds to cover operations for the three-month period between the time contracts were awarded and the time projects began enrolling participants. Projects reported that start-up costs were higher than anticipated, however, which created financial difficulties for many of the prime contractors and required some to use substantial in-kind contributions.

During the start-up period, projects developed organizational structures and plans for service delivery that adhered to DOH guidelines, and had almost daily contact with their DOH contract managers in developing the plans. Projects used this time to locate office space, develop information technology, and hire and train staff. This period was also used to formalize relationships with partners in their care networks.

Projects were funded primarily through monthly care-coordination fees that were paid by DOH for each client who met participation criteria in a given month and who was verified by DOH to be eligible. The monthly fee ranged from \$205.00 to \$308.33 per client and was designed to cover expenses associated with providing the care-coordination services outlined in each project's proposal.

Finally, each project's results could determine whether the fee paid to it would be reduced or increased. In particular, prime contractors could lose 20 percent of the monthly care-coordination fee in contract years two and three for each client whose annual care expenses exceeded the average cost of similar individuals who were not in that project. Prime contractors could lose another 10 percent of the monthly care-coordination fee if they did not conduct health assessments within 30 days of a client's enrollment, or if they did not conduct the

required number of contacts with an individual.<sup>30</sup> As discussed earlier, three of the projects shared these financial risks with partnerships that they formed for the demonstration. Finally, prime contractors and their risk partners could receive part of a shared savings pool if they met quality reporting requirements and had annual aggregate expenses that were below 85 percent of the expenditures of similar individuals not in the project in contract years two and three.<sup>31</sup>

## **Enrollment**

Individuals were initially eligible for CIDP if they were on fee-for-service Medicaid and had “risk scores” of 0.5 (a 50-percent chance of hospitalization) or higher. The risk score indicated the predicted probability of a person being hospitalized in the coming year for medical, mental health, substance use, or surgical conditions, based on an algorithm developed by John Billings and Tod Mijanovich at New York University. Over time, the projects struggled to enroll the number of individuals they were funded to serve, so the state lowered the eligible risk score to 0.4 and then to 0.3. Names of eligible individuals in the program group zip codes were provided to each prime contractor by DOH starting in summer 2009, with refresher lists provided each quarter until summer 2011.

Enrollment into the demonstrations occurred from August 2009 through September 2011; individuals were served until March 2012. The three New York City-based projects were each funded to serve 500 individuals at any one time, while the other three projects were each funded to serve 250 individuals. More details about enrollment are provided later in this report.

## ***Catchment-Area Demographics***

As noted earlier, projects were run in various parts of New York City, in suburbs outside of New York City, and in upstate New York. Table 2 shows that the community context varied widely across the counties in the demonstration. While all of the project counties were more densely populated than either the country overall or the state of New York, density within project counties differed greatly; the densest CIDP county (New York County) was more than 70 times as dense as the least dense county (Erie County). In addition, the counties were home to diverse residents, although this too varied by county. In Bronx and Queens Counties, the majority of residents spoke a language other than English in their homes, but only 9.9 percent of Erie County residents did so.

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<sup>30</sup>New York State Department of Health (2008).

<sup>31</sup>To meet quality reporting requirements, prime contractors were responsible for providing documentation of a completed initial health assessment and updated individualized service plans for 95 percent of clients within three months of the client’s enrollment.

**Chronic Illness Demonstration Project (CIDP)**

**Table 2**

**Social and Economic Characteristics of the CIDP Service Areas**

Characteristic	Erie County	Nassau County	Westchester County	New York County	Kings County	Bronx County	Queens County	New York State	United States
<b><u>Demographics and economy</u></b>									
Population	919,040	1,339,532	949,113	1,585,873	2,504,700	1,418,733	2,230,722	19,378,102	301,237,703
Population density <sup>a</sup>	881	4,705	2,205	69,468	35,369	32,904	20,554	411	87
Median annual household income (\$)	49,977	97,049	81,093	68,370	45,215	34,300	56,780	57,683	52,175
Residents below the federal poverty level (%)	14.2	5.8	9.3	17.5	22.7	29.3	14.4	14.2	13.2
Language other than English spoken at home (%)	9.9	28.1	32.0	40.3	44.2	56.8	56.4	29.8	13.2
High school graduate, age 25 and over <sup>b</sup> (%)	89.4	90.1	87.4	85.5	28.1	69.2	80.0	84.9	85.2
Bachelor's degree or higher, over age 25 (%)	30.2	41.4	44.8	58.1	29.8	18.0	29.9	32.8	27.9
Unemployment rate (%)	5.9	4.8	5.6	6.6	6.1	7.9	6.5	5.7	6.4
Public transportation use <sup>c</sup> (%)	4.2	15.1	19.7	57.5	59.6	57.8	51.3	26.6	4.9
<b><u>Housing (%)</u></b>									
1-unit, detached	56.5	76.5	45.5	0.6	5.8	6.4	19.7	41.8	61.6
1-unit, attached	3.2	2.5	5.3	0.9	8.2	4.6	8.3	4.8	5.7
Less than 10 units in structure	31.7	11.2	22.5	8.6	46.8	21.8	39.1	23.7	13.3
10 or more units in structure	7.2	9.6	26.6	89.7	39.0	66.9	32.7	27.1	12.7
<b><u>Health insurance (%)</u></b>									
Medicaid <sup>d</sup>	17.4	8.2	11.9	NA	NA	NA	NA	22.9	14.1
Uninsured	7.7	9.0	11.1	11.4	13.6	15.6	16.8	11.4	15.1
<b><u>Supplemental Security Income (SSI) receipt (%)</u></b>									
Recipients per total population	3.5	2.4	2.9	4.5	5.1	7.3	3.7	3.4	3.4
Blind or disabled recipients per total population	3.0	1.0	1.0	4.0	4.0	6.0	2.0	3.0	3.0

SOURCES: U.S. Census Bureau, 2009 American Community Survey; U.S. Census Bureau: State and County QuickFacts, 2010; U.S. Social Security Administration, Office of Retirement and Disability Policy, Supplemental Security Record, 2008.

NOTES: NA = Not available. Kings County is coextensive with the borough of Brooklyn.

<sup>a</sup>Persons per square mile.

<sup>b</sup>Includes high school equivalency.

<sup>c</sup>Percentage of all workers, age 16 and over, who use public transportation (excluding taxicab) to travel to work.

<sup>d</sup>The New York State Department of Health only reports Medicaid enrollees for New York City. In 2009, 34 percent of New York City residents were enrolled in Medicaid.

Counties also varied in their economic and housing characteristics. Poverty rates were lower than the state average in Nassau and Westchester Counties but higher than the state average in New York City. In addition, residents of the counties outside New York City were more likely to live in single-family homes, while New York City residents were more likely to live in large apartment buildings. The prevalence of large apartment buildings in parts of New York City created challenges in enrolling individuals into CIDP, since project staff members reported difficulty getting into large apartment buildings (especially in Bronx County). The use of public transportation also varied across counties: the majority of workers in New York City used public transportation to travel to work but less than 20 percent of workers in the counties outside New York City used public transportation (and only 4.2 percent did so in Erie County).

Counties also varied substantially in terms of health care coverage and access. For example, between 8 percent and 17 percent of residents of Erie, Nassau, and Westchester Counties received Medicaid, compared with 34 percent of New York City residents. Less than 10 percent of adults in all of the counties received Supplemental Security Income (SSI), which provides cash assistance for low-income individuals with disabilities, with the greatest percentage of SSI recipients in Bronx and Kings Counties.

As is shown in Table 3, the general health of the population varied across counties. While residents of Bronx and Kings Counties exceeded the state and national average rates for several types of hospital discharges, residents of Erie County exceeded the state and national average rates for several types of mortality. On the other hand, residents of Westchester and Queens Counties tended to be healthier, with rates of hospitalizations for drug-related problems, cerebrovascular disease, and diabetes, as well as deaths due to lung cancer, cirrhosis, and diabetes, lower than the state and national averages.

### *Catchment-Area Service Environment*

Project staff members reported that primary care and hospital medical services were available in the communities where their clients lived. Table 4 presents three measures of access. One measure is the presence of Federally Qualified Health Centers (FQHCs), which provide comprehensive and primary care services for underserved urban and rural populations with a sliding-scale fee. Designated FQHCs (under section 330 of the Public Health Services Act) qualify for enhanced reimbursement from Medicare and Medicaid.<sup>32</sup> Along with some hospitals or health systems, FQHCs are considered part of the health care safety net system and

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<sup>32</sup>U.S. Department of Health and Human Services (2014a).

**Chronic Illness Demonstration Project (CIDP)**

**Table 3**

**Health Characteristics of the CIDP Service Area**

Characteristic	Erie County	Nassau County	Westchester County	New York County	Kings County	Bronx County	Queens County	New York State	United States
<b><u>Health</u></b>									
AIDS cases <sup>a</sup>	6.8	5.9	11.3	36.8	29.1	45.1	15.2	15.2	41.8
<b><u>Hospitalizations</u></b>									
Drug-related hospitalization <sup>a</sup>	26.8	18.2	23.1	44.4	26.9	57.7	13.8	27.7	32.7
Discharge rate for cardiovascular disease <sup>a</sup>	185.8	207.7	164.5	150.9	188.3	192.6	171.2	178.2	128.4
Discharge rate for cerebrovascular disease <sup>a</sup>	34.2	30.3	27.5	21.9	26.3	31.0	24.9	27.9	33.0
Discharge rate for coronary heart disease <sup>a</sup>	45.1	55.7	44.7	48.3	56.8	44.9	52.4	48.3	19.3
Discharge rate for hypertension <sup>c</sup>	3.7	7.9	6.4	8.2	11.8	18.2	9.1	7.9	9.1
Discharge rate for asthma <sup>a</sup>	12.9	14.9	14.4	22.9	30.7	60.9	18.3	20.3	14.3
Discharge rate for diabetes <sup>a</sup>	17.3	17.0	15.5	19.1	29.6	41.9	19.8	20.1	20.6
<b><u>Mortality</u></b>									
Deaths due to lung and bronchus cancer <sup>b</sup>	66.9	45.2	43.2	37.4	31.2	32.1	32.4	45.6	63.5
Deaths due to breast cancer (female) <sup>b</sup>	35.2	29.0	27.6	26.0	24.2	24.6	21.5	26.6	21.9
Deaths due to cerebrovascular disease (stroke) <sup>b</sup>	58.1	31.5	31.9	22.0	18.7	27.9	20.3	31.0	41.9
Deaths due to disease of the heart <sup>b</sup>	263.6	302.1	209.7	182.3	224.9	201.4	232.2	230.9	193.6
Deaths due to cirrhosis <sup>d</sup>	9.7	5.8	6.7	5.5	5.8	7.7	5.7	7.2	10.3
Deaths due to diabetes <sup>b</sup>	28.6	13.6	13.5	17.1	22.8	26.5	17.2	19.2	22.4
Deaths due to chronic lower respiratory disease <sup>b</sup>	51.1	23.6	24.9	20.7	16.9	24.4	19.5	30.7	44.7

SOURCES: New York State Community Health Data Set 2008, County Health Indicator Profiles 2009; CDC/NCHS National Hospital Discharge Survey, 2010; Drug Abuse Warning Network 2008; National Vital Statistics Reports, 2013; United States Cancer Statistics: 1999-2010 Incidence and Mortality Web-Based Report; 2009-2011 SPARCS Data, 2013; 2008-2010 Cancer Registry Data, 2013.

NOTES: Kings County is coextensive with the borough of Brooklyn.

<sup>a</sup>Rate per 10,000 people.

<sup>b</sup>Rate per 100,000 people.

<sup>c</sup>Rate per 10,000 people, age 18 and older.

<sup>d</sup>Rate per 100,000 people. National average also includes deaths due to chronic liver disease.

**Chronic Illness Demonstration Project (CIDP)**

**Table 4**

**Health Care Access Characteristics of the CIDP Service Areas**

Characteristic	Erie County	Nassau County	Westchester County	New York County	Kings County	Bronx County	Queens County	New York State	United States
<b><u>Hospital availability</u></b>									
Number of hospitals	11	12	15	20	17	10	10	231	4,999
Hospitals per square mile	0.01	0.04	0.03	0.88	0.01	0.18	0.06	0.00	0.00
Number of hospital beds	2,863	4,317	3,315	9,977	7,420	3,794	2,415	58,821	800,566
Hospital beds per square mile	2.54	15.16	7.70	439.52	76.57	66.56	13.55	1.25	0.21
<b><u>Federally Qualified Health Centers (FQHCs)</u></b>									
Number of FQHCs <sup>a</sup>	4	5	14	86	74	92	29	443	6,672
FQHCs per square mile	0.00	0.02	0.03	3.79	0.76	1.60	0.16	0.01	0.00
<b><u>Health Professional Shortage Areas (HPSAs)<sup>b</sup></u></b>									
Number of HPSAs	34	10	1	121	186	176	101	1,004	14,700
HPSAs per square mile	0.03	0.04	0.00	5.33	1.92	3.09	0.57	0.02	0.00

SOURCES: New York State Hospital Profile, May 2014, New York State Department of Health; American Hospital Directory, October 2012; Health Resources and Services Administration Data Warehouse, U.S. Department of Health and Human Services; Fast Facts on US Hospitals, American Hospital Association, January 2014; American Hospital Association Annual Survey of Hospitals, 2011; Key Health Center Data by State, National Association of Community Health Centers, 2008; Shortages: HPSA by State and County, May 2014, U.S. Department of Health and Human Services.

NOTES: Kings County is coextensive with the borough of Brooklyn.

<sup>a</sup>Number of FQHCs in the United States does not include FQHC look-alikes.

<sup>b</sup>Based on population groups and including primary care, dental, and mental health shortage areas.

provide health care services to low-income populations or individuals without health insurance.<sup>33</sup> A second measure of health care access is whether an individual lives in a health professional shortage area (HPSA). The United States Health Resources and Service Administration identifies HPSAs as areas with 3,500 or more people per primary care physician, 5,000 or more people per dentist, or 30,000 or more people per psychiatrist. Finally, Table 4 reports the availability of hospitals and hospital beds.

According to Table 4, New York County has over 100 times as many hospital beds per square mile as Erie County, roughly consistent with New York City's greater population density. At the same time, the ratio of hospital beds to square miles in each of the project service areas was greater than the state average, indicating that clients living in these counties were generally in closer proximity to hospitals than other New York State residents. FQHCs were more prevalent in New York City than in the counties outside New York City and were more concentrated there than across the state or country. Similarly, each of the New York City counties had more HPSAs than the other counties. HPSAs were most concentrated per square mile in Manhattan and the Bronx.

It is possible that control group members received similar care-management services to program group members if many of them received care through a medical home, which is designed to provide care in a timely manner (including nights and weekends).<sup>34</sup> It seems unlikely that many individuals sought care with such providers, however, because the uptake into these new models in New York State was slow.<sup>35</sup>

## **Outreach and Study Sample**

Each quarter, John Billings from New York University used a predictive algorithm to determine who was eligible for CIDP based on their probability of being hospitalized in the coming year. Each project received a list of eligible individuals in its catchment area for the quarter. Because there was often a long delay between when the list was generated and when it was sent to the projects, each project verified that individuals were still eligible by using at least two state databases.<sup>36</sup> Once eligibility was confirmed, projects sent letters to beneficiaries telling them of

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<sup>33</sup>Wynn, Coughlin, Bondarenko, and Bruen (2002).

<sup>34</sup>Beal et al. (2007).

<sup>35</sup>According to the New York State Department of Health (2013b), by the end of 2010, there were about 1,000 patient-centered medical homes recognized by the National Committee on Quality Assurance in all of New York State.

<sup>36</sup>The databases are ePACES and eMedNY. Both systems, developed for the New York State Department of Health, allow users to view or submit Medicaid claims in a secure manner.

their eligibility and how to get involved.<sup>37</sup> After sending the letters, projects generally tried to call eligible individuals for whom they had phone numbers, since letters were most often not enough to encourage recipients to enroll in the projects. However, phone numbers were not available for most of those on the lists. Phone call attempts were followed by attempts to make face-to-face contact, which were either prearranged by telephone or were unplanned if the individual had not been reached by phone. Peer specialists (trained individuals who have similar mental health, substance abuse, or other recovery needs)<sup>38</sup> were used in several projects to help locate and enroll beneficiaries. Care managers who served as the primary contacts with clients were primarily responsible for locating and enrolling new clients.

Projects often used other resources to help locate individuals. For example, Hospital 2 Home developed a Patient Alert System through the Health and Hospitals Corporation's information technology system to provide real-time e-mail alerts to the care teams when an eligible beneficiary was at an associated emergency department or clinic. Projects also used their community partners to identify and locate eligible individuals, having partners search their databases to identify better contact information, though success depended on how easily the databases could be searched.

Enrollment meetings took many forms and often occurred in a beneficiary's home or at an agreed-upon location within the community (including doctor's offices or hospitals). This was a time for staff to explain the project and answer questions. Project staff described the importance of building trust during this initial engagement, which could include working to address an immediate need (such as refilling a prescription or securing a doctor's appointment) prior to the individual's consent to enroll.

Table 5 shows the success rate of each project for the first two project years in terms of contacting individuals and enrolling them in the intervention. The table shows that the projects generally met their first-year enrollment goals, but not their second-year goals. For example, Pathways to Wellness enrolled 252 clients in the first year to meet its target of 222, but enrolled only 209 in the second year despite a target of 500. The table also indicates that the projects enrolled a small minority of eligible individuals. For example, in the first year, Hospital 2 Home was provided a list of more than 1,500 eligible individuals, of which it was able to contact only about 500 and enroll fewer than 200.

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<sup>37</sup>Initially, all projects sent letters that were on DOH letterhead and signed by a state administrator. Over time, however, projects customized their letters.

<sup>38</sup>Center for Substance Abuse Treatment (2009).

**Chronic Illness Demonstration Project (CIDP)**

**Table 5**

**CIDP Outreach and Enrollment Efforts for Years 1 and 2**

	Hospital 2 Home		Pathway to Wellness		Live Healthy Care Management Program		Nassau Wellness Partners		Westchester Cares Action Program		Healthy Partners of Erie <sup>a</sup>	
	Number Reported	Percentage of Eligibles	Number Reported	Percentage of Eligibles	Number Reported	Percentage of Eligibles	Number Reported	Percentage of Eligibles	Number Reported	Percentage of Eligibles	Number Reported	Percentage of Eligibles
<b><u>Year 1</u></b>												
Eligible clients on list from DOH	222		222		222		111		111		111	
Eligible clients successfully contacted	1,542		1,698		2,164		442		628		887	
Clients enrolled	523	33.9	301	17.7	745	34.4	145	32.8	NR	NR	246	27.7
<b><u>Year 2</u></b>												
Eligible clients on list from DOH	500		500		500		250		250		250	
Eligible clients successfully contacted	2,206		2,321		3,481		854		429		U	
Clients enrolled	959	43.5	U		737	21.2	U		275	64.1	U	
	349	15.8	209	9.0	467	13.4	120	14.1	166	38.7	U	

SOURCE: These data are based on the CIDP annual reports due to the New York State Department of Health (DOH) on June 1, 2010 and June 1, 2011. "Eligible clients on list from DOH" refers to names on the eligible lists that DOH provided each project, which were based on what was reported in the annual reports. These figures do not represent official enrollment for which projects may have been reimbursed.

NOTES: U = Unknown; NR = Not Reported.

<sup>a</sup>Healthy Partners of Erie reported cumulative information for two years total. Eligibility and contact and enrollment information for Year 2 only is not known.

As suggested in Table 5, enrolling the target population was more difficult than expected. In the first year of operations, projects reported a range of attempted contacts per person enrolled, from 3.9 to 16.9. The nature of these contacts is not known; it could have included a mix of mailings, phone calls, and in-person visits. Although the overall demonstration met its first-year enrollment target, enrollment success was not uniform across the projects. Furthermore, targets for the second year were not reached. Through the entire demonstration period, enrollment rates ranged from about 8 percent for Hospitals 2 Home and Live Healthy Care Management, to about 10 percent for Healthy Partners of Erie, to just under 13 percent for Institute for Community Living and Nassau Wellness Partners, to nearly 20 percent for Westchester Cares Action Project.

The New York City projects argued that their recruitment problems resulted from not knowing initially which parts of their catchment areas would be assigned to the program group. This made it difficult to know where to develop network partnerships that might help in locating people. In addition, the list of names sent to the projects included individuals who were not eligible for the study as well as inaccurate and incomplete contact information, which required staff to spend extra time confirming eligibility. Finally, projects cited the DOH-required consent form as an obstacle to recruitment because of its difficult readability. As a result, developing effective outreach strategies consumed considerable resources and was not as successful as desired.

Table 6 compares the demographics, previous health care use, and most common chronic conditions of CIDP-eligible individuals in the program and control group zip codes for the three New York City projects, while Table 7 compares program and control group areas for the other three projects. Overall, eligible individuals were 45 to 50 years old and slightly more likely to be male than female; about half were African-American. The criteria for choosing eligible individuals meant that the average person had a greater than 50 percent chance of being hospitalized in the coming year. Reflecting the high needs of this group, the average person used more than \$50,000 in Medicaid resources in the year prior to the demonstration in New York City and nearly \$50,000 in Westchester and Nassau County, of which about half was for hospitalization.

In terms of chronic conditions, the most common diagnoses were for alcohol and drug use and major mental disorders (major affective disorders, schizophrenia, and psychoses), each of which accounted for 40 percent to 60 percent of the sample. Another three-quarters had been diagnosed with an ambulatory care-sensitive condition and a sizable number with HIV/AIDS. In part, CIDP was motivated by a need to help individuals with multiple chronic

**Chronic Illness Demonstration Project (CIDP)**

**Table 6**

**Selected Demographics, Health Care Use, and Chronic Health Conditions,  
Year Before Study Entry, by Program for New York City Programs**

Characteristic	Hospital 2 Home			Pathways to Wellness			Live Healthy Care		
	Program	Control		Program	Control		Program	Control	
	Group	Group		Group	Group		Group	Group	
<b><u>Demographics</u></b>									
Average age (years)	48.7	46.8	***	48.6	48.3		48.6	48.0	
Male (%)	64.7	65.5		62.9	60.3		58.1	58.2	
African-American (%)	53.3	56.2		55.9	60.1		49.1	48.1	
<b><u>Health care use</u></b>									
Predicted probability of hospitalization	59.5	57.0	***	58.0	56.9	**	57.0	57.2	
Total Medicaid costs in prior year (\$)	52,179	45,614	***	52,337	54,101		52,484	52,138	
Costs for hospitalizations (\$)	27,379	25,798		27,488	26,957		27,564	26,209	
<b><u>Chronic conditions diagnosed in the prior year</u></b>									
Average number of chronic conditions	1.4	1.3	**	1.4	1.4		1.6	1.5	*
Multiple chronic conditions (%)	40.8	35.8	**	40.2	41.0		46.4	42.7	**
Previous diagnoses (%)									
Major mental	38.6	37.5		39.1	35.1		35.3	37.4	
Alcohol-related	41.5	45.2		39.5	35.1	*	32.8	35.3	
Drug-related	60.3	62.2		56.7	51.8		51.1	58.1	**
Ambulatory care sensitive	76.7	75.0		78.0	76.4		79.6	79.3	
AIDS/HIV	23.2	19.1		27.6	28.7		23.8	28.3	*
Disability-related	10.8	10.2		10.6	11.2		11.6	10.6	
Sample size	5,645	5,671		2,987	2,777		4,351	9,683	

SOURCE: MDRC calculations based on Medicaid claims data from the New York State Department of Health.

NOTE: A two-tailed t-test was applied to differences between the baseline characteristics of the program and control groups. Statistical significance levels are indicated as follows: \*\*\* = 1 percent, \*\* = 5 percent, \* = 10 percent.

**Chronic Illness Demonstration Project (CIDP)**

**Table 7**

**Selected Demographics, Health Care Use, and Chronic Health Conditions,  
Year Before Study Entry, by Program for Upstate New York Programs**

Characteristic	Nassau Wellness Partners		Westchester Cares Action Program		Healthy Partners of Erie	
	Program Group	Control Group	Program Group	Control Group	Program Group	Control Group
<b><u>Demographics</u></b>						
Average age (years)	48.9	46.7 ***	48.5	48.9	46.1	45.8
Male (%)	58.1	59.2	54.8	53.7	59.3	46.7 ***
African-American (%)	34.8	34.3	49.9	37.2	44.5	34.8
<b><u>Health care use</u></b>						
Predicted probability of hospitalization	56.1	56.2	53.8	54.4	55.7	53.2 *
Total Medicaid costs in prior year (\$)	47,769	43,911 *	46,723	47,923	28,406	31,923
Costs for hospitalizations (\$)	26,712	21,122 ***	23,865	22,088	13,233	13,294
<b><u>Chronic conditions diagnosed in the prior year</u></b>						
Average number of chronic conditions	1.6	1.4 **	1.5	1.6	1.4	1.5
Multiple chronic conditions (%)	46.7	39.3 **	42.8	47.1	40.1	41.3
Previous diagnoses (%)						
Major mental	33.8	35.0	45.8	44.9	37.7	44.8 **
Alcohol-related	31.3	36.9 *	31.2	29.1	39.1	31.1 ***
Drug-related	41.4	54.1 ***	47.9	43.5	56.4	46.5 ***
Ambulatory care sensitive	78.3	76.2	79.4	79.5	76.3	80.5 **
AIDS/HIV	7.6	17.8 ***	15.3	7.3 ***	10.9	11.0
Disability-related	14.5	11.0 **	10.9	11.3	12.8	10.2 **
Sample size	1,191	1,249	1,356	1,245	1,399	1,467

SOURCE: MDRC calculations based on Medicaid claims data from the New York State Department of Health.

NOTE: A two-tailed t-test was applied to differences between the baseline characteristics of the program and control groups. Statistical significance levels are indicated as follows: \*\*\* = 1 percent, \*\* = 5 percent, \* = 10 percent.

conditions, and roughly two in five sample members had been diagnosed with multiple conditions in the prior year.

As noted earlier, catchment areas for the New York City programs were randomly divided between a set of zip codes that were assigned to the projects, and from which the program group was formed, and a set that served as a control group. Because of randomization, the program and control group areas should have similar characteristics. As expected, most characteristics are similar between the program and control groups. For example, the average age of every group was between 45 and 50 years old, and between about 50 percent and 60 percent of each group was male. Because so many people were eligible for these projects, however, even fairly small differences were statistically significant. For example, the average program group member in Hospital 2 Home was 48.7 years old, compared with 46.8 years for the control group, but that difference was significant at the 1 percent level.

Some key differences showed up in the New York City programs despite the randomization of zip codes. Although many of the significant differences are small in magnitude, there was a substantial difference in prior costs between the Hospital 2 Home program and control groups, with Medicaid costs of more than \$52,000 for the program group and about \$45,600 for the control group. Although the results that follow are adjusted for this difference, it could indicate an imbalance that affects the Hospital 2 Home results.

More differences show up between program and control group members for the projects outside New York City. This is not surprising. Although control group areas for these projects were chosen to match the characteristics of eligible individuals in the project catchment areas as closely as possible, the control group was not chosen randomly. Of 14 characteristics shown in Table 7, for example, 9 were significantly different between the Nassau Wellness Partners program and control groups, including significantly higher prior Medicaid costs for the program group, but more substance use diagnoses for the control group. Likewise, there were 7 significant differences between the Healthy Partners of Erie program and control groups, including a higher rate of substance use for the program group. As noted above, the results adjust for all of these differences, but they could be symptoms of other underlying differences between the groups that could not be corrected with a regression adjustment.

## **Project Structure**

Although they were designed to adhere to a circumscribed list of requirements, the projects had some flexibility in how they structured their care-coordination models and project operations. This section — primarily based on interviews with project staff members and a review of documents developed by the projects for the state — describes the projects' administrative activities and organizational structure, including staffing, integrated system of care and commu-

nity provider network, information technology, and quality improvement. These components support the implementation of the service delivery system, described later in the report.

The projects based their care-coordination models on both experience and on theoretical models, especially Wagner’s Chronic Care model. According to this model, individuals with chronic diseases require regular, scheduled appointments with their care providers. These visits should focus on prevention, including assessment and education about treatment guidelines and support for the patient, and should be followed-up with provider-initiated care.<sup>39</sup> Motivational interviewing — a clinical style used to help clients elicit and activate their own good motivations for making behavioral change — was one commonly identified evidence-based practice.<sup>40</sup> Many projects outlined a stepped-care approach where care-coordination services were planned based on severity or degree of disease.<sup>41</sup> The idea behind this approach is that simpler interventions are used if they produce good outcomes, but intensive ones are used if not, until the right level of care is found.

## **Staffing**

Projects used similar staffing arrangements, as summarized in Table 8.

### *Day-to-Day Management and Supervision*

Responsibility for day-to-day management of care teams fell to supervisors, most of whom had a health care or social work background. Each supervisor reported to an executive within the organization. The Hospital 2 Home management model was slightly more complicated because a project director and manager were located in one of its locations and provided overall support, but site coordinators provided day-to-day management at other locations.

Few projects used individual supervision, but instead relied on at least monthly group supervision meetings, during which staff members could troubleshoot difficult cases with their peers or get advice from other medical personnel. The Hospital 2 Home supervision meetings always included assigned physicians and chronic disease registry coordinators.<sup>42</sup> A chronic disease registry is an information-management system designed to help physicians taking care of patients with chronic diseases. Live Healthy Care Management also instituted monthly

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<sup>39</sup>Wagner (1998).

<sup>40</sup>Rollnick, Miller, and Butler (2008). The counselor uses empathetic listening as the client negotiates the discrepancy between goals and his or her potentially self-destructive nature.

<sup>41</sup>Korff and Tiemens (2000).

<sup>42</sup>U.S. Department of Health and Human Services (2014b).

**Chronic Illness Demonstration Project (CIDP)**

**Table 8**

**CIDP Staffing Arrangements**

Staff Type	Pathways to Wellness	Hospital 2 Home	Live Healthy Care Management Project	Nassau Wellness Partners	Westchester Cares Action Project	Healthy Partners of Erie
Day-to-day management	Project director	Site coordinator at each site (3)	Executive director	Project director	Nurse supervisor	Project director
Care teams						
Number of teams	4	3	2	2	1	1
Team leaders	4 clinical care coordinators (nurses with bachelor's degrees)	3 social work coordinators (licensed clinical social workers)		2 clinical care coordinators (nurses with master's degrees)		Nurse care manager (registered nurse)
Primary direct service staff	10 field care managers (at least bachelor's level with social services background)	20 community-based care managers (experience in community or with population)	2 behavioral nurses (registered nurses); 2 clinical nurses (registered nurses); 2 social workers (licensed clinical social workers)	4 field care managers (bachelor's level with case management or community experience)	3 field care managers (registered nurse or licensed clinical social worker); 2 integrated care coordinators (at least bachelor's degrees in social work or human services)	2 practice enhancement assistants (at least associate's level with experience in health care or with population)
Other team staff	2 part-time peer support specialists		2 outreach coordinators; 2 part-time peer support specialists	2 part-time peer support specialists	1 full-time peer support specialist	Social service coordinator (master's-level social services background)

(continued)

**Table 8 (continued)**

Staff Type	Pathways to Wellness	Hospital 2 Home	Live Healthy Care Management	Nassau Wellness Partners	Westchester Cares Action Project	Healthy Partners of Erie
Team support	Associate director; medical consultant; information technology (IT) consultant; administrative support	Housing coordinator; project director; project manager; physicians; administrative support	Network governance liaison	Outreach coordinator; medical consultant; IT consultant; administrative support	Executive director (Hudson Health Plan); 2 project directors (Hudson Health Plan and partner)	Data specialist

SOURCE: Information compiled from site-visit interviews and documents from programs.

meetings with physicians from the Bronx-Lebanon Hospital Center to review shared cases and to consult on other cases with no affiliation to the hospital or its clinics.

All projects were required to provide ongoing training for their staff. Common training topics included motivational interviewing, community resources, information technology systems, and cultural competency. Staff supervision also integrated training topics on a regular basis.

### *Care Teams*

Care coordination was provided by a combination of staff members making up “care teams.” Each project had at least one care team; Pathways to Wellness had the most care teams with four. Four projects had multiple teams that worked with clients in specific counties or specific areas of a county. In Pathways to Wellness, each team was also employed by a different partner organization, although Pathways to Wellness management assumed day-to-day responsibility.

Teams were multidisciplinary and often led by nurse-trained staff with multiple members working directly with clients. In the majority of projects, the more clinically trained staff members primarily provided oversight rather than direct service. Pathways to Wellness, Nassau Wellness Partners, and Healthy Partners of Erie care teams were led by bachelor’s- or master’s-level nurses or by registered nurses, while the three Hospital 2 Home teams were led by licensed clinical social workers. In these four projects, the nurse or social-work-trained staff served in more administrative, supervisory, and consultation roles than as the primary contact for clients.

The staff members who served as primary contacts to clients formed the core of each care team. Within the Live Healthy Care Management and Westchester Cares Action projects, direct-service staff members were registered nurses and licensed clinical social workers. Direct-service staff members for the other projects were not necessarily clinically trained, but had case management, social service, or health care backgrounds, and experience working with the client population or in the community. Project-management staff members described ideal care managers as having characteristics such as being resilient, outgoing, pleasant, and persistent, in conjunction with having experience in the community or with the client population. Some project directors argued that having a college degree was not the most important qualification for a care manager.

Care teams sometimes included additional members who provided support to the team or their clients. For example, four projects included peer support specialists, who are individuals who have progressed in their own recovery from substance abuse or a mental health disorder and are trained and willing to assist other individuals with chemical dependency or mental

health disorders.<sup>43</sup> The roles that peer support specialists played varied, but included recruitment and enrollment and educating clients about their diseases or lifestyles.

### *Caseloads*

Caseloads varied from 23 clients per care manager for Hospital 2 Home to 89 for Live Healthy Care Management. As noted earlier, the Medicare Coordinated Care Demonstration found that more successful projects had median caseloads of 70 clients, which suggests that most projects were adequately staffed.

The average caseload size deviated from what was intended for two reasons. First, most projects experienced turnover, particularly in the care team leader and direct-service staff positions. Clients often had to be assigned to other care managers while replacement staff were hired, which caused the caseloads to be higher than desired. Second, the lower than expected enrollment resulted in lower caseloads than intended in projects that maintained their original staffing levels (Hospital 2 Home and Westchester Cares Action Project, for example). Other projects reduced their staffing levels to maintain caseloads, but being understaffed reduced the care teams' ability to achieve optimal interaction with their clients.

### *Team Support*

Each project had additional staff providing supplemental support either to the clients or to the service delivery staff. Hospital 2 Home had access to a full-time housing coordinator who assisted staff to secure housing for homeless clients. Several project care teams regularly consulted on client cases with medical consultants or physicians who worked for the prime contractor or partner organization. Nassau Wellness Partners employed outreach workers to assist the care teams with recruitment and enrollment functions.

## **Integrated Systems of Care and Community Provider Networks**

Care teams relied on other providers to develop an integrated network of health, behavioral health, and social services. The networks included many types of organizations, such as Federally Qualified Health Centers, hospitals, and a wide variety of local nonprofits providing prevention or treatment services to address issues of physical health, mental health, substance abuse, peer support, housing, advocacy, pharmaceuticals, durable medical necessities, case management, social services, or criminal justice involvement.

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<sup>43</sup>Center for Substance Abuse Treatment (2009).

The projects planned to build their integrated networks from existing relationships and based on the service areas they identified in their proposals to DOH. For example, Hospital 2 Home included an existing integrated network of the Health and Hospitals Corporation, while Nassau Wellness Partners and Pathways to Wellness had prime contractors and risk-sharing partners that offered a wide range of services. In contrast, Live Healthy Care Management was run by a health insurance company without an existing delivery system and had to develop a network from scratch.

Prime contractors took different approaches to developing their networks. Some projects developed formal partnerships with select providers to develop deep working relationships with these entities. Other projects executed formal agreements with a large number of entities, preferring to take a more expansive approach to developing their networks. For the most part, network development centered on relationships that would support locating and enrolling clients rather than relationships to improve the system of care, though the latter was important to DOH.

Projects encountered several problems in developing networks. First, DOH required them to execute a prescribed memorandum of understanding before sharing patient information. Potential network providers were not allowed to make changes to the document to address concerns about language regarding liability and being held harmless. This inflexibility made it difficult for some projects to shift from existing, but less formal, relationships into more formal ones for the demonstration. Furthermore, hospitals were expected to be a key part of the network to support timely notification of emergency department visits and hospitalizations and to provide access to other services, such as medical specialty and behavioral health services. Some projects experienced difficulty in executing formal agreements with hospitals. For example, one prime contractor that was a relatively small community project had trouble developing a working relationship with a large, bureaucratic hospital system. Projects did not have resources to build these relationships while carrying out recruitment and service delivery.

Clients were often located in different regions of the assigned target areas and using different service providers than initially anticipated in the proposals to DOH. Furthermore, there were not large concentrations of clients seeking services in any given facility. Even for Hospital 2 Home, which itself is a system of existing integrated networks at each of its three sites, a number of clients obtained services outside the system. The mismatch of clients and their providers required projects to reach out to providers unexpectedly and to establish relationships after enrollment began; this was challenging, since staff members had to be focused on providing services to their enrolled clients at that point. The lack of client concentration within a given service setting, coupled with the projects' inability to establish financial incentives for providers in their networks, made it difficult for projects to persuade providers to become involved.

### *Data and Information Technology*

Despite project efforts to develop information technology to comply with DOH requirements, information technology systems were never fully realized. For example, projects never developed the ability to electronically share information across providers in their networks. In addition, all projects struggled to develop systems to support DOH reporting requirements efficiently, in part because benchmarks and data requirements were not defined until after project start-up. To complicate matters, historic Medicaid claims data provided by DOH were not easily integrated into existing data systems, so most projects had to set up separate databases to accommodate this information.

Developing information systems to record enrollment efforts, client information, and care-coordination activities required considerable effort. Even so, half of the projects modified existing information systems. The resulting level of sophistication varied widely. For example, Live Healthy Care Management adapted OptumHealth's existing telephonic case management system to use it in a community-based, face-to-face model. The system offered flexibility since it could be modified internally to capture care-coordination efforts, assessments, and client histories. However, a separate Access database was used to track enrollment activity. The Westchester Cares Action Project also adapted its partner's system to collect more comprehensive information about enrollment and care-coordination activities. The system had alert features to remind staff when follow-up was needed or to identify who had provided consent to share information (for example, a spouse). It also had a built-in assessment tool to help staff determine what biological, psychological, or social issues required immediate attention.

The Hospital 2 Home information technology infrastructure included two different systems: Health and Hospitals Corporation's Electronic Health Record, used by each hospital facility in the system, and the Hospital 2 Home stand-alone system adapted from Health and Hospitals Corporation's existing managed care project. The latter contained information about clients and their care-coordination activities. The former included a patient alert system that provided an automated e-mail when someone on the eligible program group list or an existing client checked in to an emergency department or clinic, or was admitted to a facility within the hospital system.

In contrast to the projects already mentioned, Pathways to Wellness and Nassau Wellness Partners shared a vendor that was responsible for meeting their information technology needs, which required both projects to adopt a new system. Aside from staff training, substantial adaptation was required to make it workable for field-based (not telephonic) staff, and many of the changes had to be made by the vendor, rather than by in-house personnel, which delayed its use. Due to limitations with the system, a separate database to track outreach and enrollment activities, diagnoses, medical homes, and changes of address had to be developed.

Unlike the other projects, Healthy Partners of Erie stored its information in multiple locations and in different formats, including in portable document format (PDF), as Word documents, as Excel spreadsheets, and in an Access database. Its information-storage system made it particularly challenging to extract information for DOH reporting.

### *Quality Assurance*

Each project described quality assurance plans in its proposal and start-up documents. All plans included a quality assurance committee, ongoing staff training, review of data entry for accuracy, and staff supervision that included case conferences (interdisciplinary meetings between providers used to identify or clarify issues with a client, review progress toward goals, strategize solutions, and adjust care plans).<sup>44</sup> Ongoing quality assurance efforts centered on case conferences, which provided a forum to solve problems and assure quality care was provided. For all projects, this was an opportunity to bring in additional clinical resources, such as physicians and mental health providers, who worked in primary medical homes or partner organizations.

The case-conference aspect of quality assurance appeared to be well established, but other aspects remained underdeveloped. Among the underdeveloped quality assurance approaches were appropriate care standards or best practices, specific metrics to evaluate clinical outcomes, and client or provider satisfaction measures. Westchester Cares Action Project and Live Healthy Care Management staff members described using relevant items from the Healthcare Effectiveness Data and Information Set to monitor and measure performance on the dimensions of care and service. Likewise, Hospital 2 Home staff used metrics supported by the Health and Hospital Corporation's Chronic Disease Registry and other tools to determine if clients were receiving age-appropriate preventive care.

Project staff spent a great deal of time focused on meeting reporting requirements and project standards, time that was taken away from establishing their intended quality assurance activities; the level of effort required to do outreach and enrollment also detracted from time spent on quality assurance. And the limited functionality of information systems and data-gathering tools, as well as the delayed availability of claims data, further hampered the full implementation of quality assurance plans.

### **Conclusions**

The projects faced numerous challenges in fulfilling the requirements outlined by DOH. Some of these challenges were attributable to demonstration design features while

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<sup>44</sup>New York State Department of Health (2013a).

others were related to how the projects designed their systems and allocated their resources. The biggest challenges related to their integrated systems of care and information technology systems. These will be discussed more in the next section, which describes the implementation of service delivery.

## **Project Implementation**

Care-coordination services generally followed the same process across projects. The first step was an assessment, which helped staff to determine a client's medical and other needs. Next, staff developed care plans that outlined what would be done to address the needs. With preliminary assessment and planning complete, staff then began one-on-one work with clients to facilitate connections with medical homes or medical providers, educate clients about their diseases or conditions, and make referrals to housing or other social service resources clients required.

This section describes these services, paying particular attention to differences among them (see Table 9). The study had limited information regarding the frequency, intensity, and content of service delivery, so much of this discussion relies on information gathered from quarterly reports submitted to DOH and from conversations with project staff members.

### **Assessment and Care Planning**

#### *Assessment*

Assessments provided a tool for determining client needs. DOH required the assessments within 30 days of the client enrolling in care coordination. Follow-up assessments were done at predetermined intervals or after the client experienced a trigger event, such as an emergency department visit or hospitalization.

In order to follow this DOH requirement, projects completed comprehensive health assessments that collected information in eight domains, including physical health, quality of life, and readiness for change. Projects were required to use specific tools to assess three of the domains: depression was assessed using the Patient Health Questionnaire, quality of life using the 12-item Short Form health survey,<sup>45</sup> and readiness for change using the Patient Activation Measure.<sup>46</sup> Projects had to report results of these assessments to DOH. For other domains, projects created their own needs assessment tools, often pulling questions from other established assessments, such as the CHAOS scale, Milliman Chronic Care Guidelines, or other

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<sup>45</sup> Ware, Kosinski, and Keller (1996).

<sup>46</sup> Hibbard et al. (2004).

**Chronic Illness Demonstration Project (CIDP)**

**Table 9**

**Differences in Service Delivery**

Service Type	Pathways to Wellness	Hospital 2 Home	Live Healthy Care Management	Nassau Wellness Partners	Westchester Cares Action Project	Healthy Partners of Erie
Assessment and care planning	Assessment by field care managers with the support of nurses; care planning by nurses; copies of care plans given to clients	Assessment by community-based care managers; care plans developed by community-based care managers and enrollees; care plans include short- and long- term goals; copies of care plans may be shared with clients; goals are explicitly agreed upon	Assessment and care planning by nurses and social workers; care plans include short- and long- term goals; copies of care plans given to clients	Assessment by field care managers with the support of nurses; care planning by nurses; copies of care plans given to clients	Assessment and care planning by field care managers; care plans include short- and long- term goals; copies of care plans may be shared with clients; goals are explicitly agreed upon	Assessment by practice enhancement assistants; reported back to nurse care managers and social service coordinators; care plans developed by nurse care managers; clinical and behavioral issues addressed with enrollees by nurse care managers telephonically; care plans not shared with clients
Actual caseload (intended caseload) <sup>a</sup>	38 (50)	23 (25)	89 (86)	45 (50)	40 (45)	50 (45)
In-person contact	Face-to-face primarily by nonnurse care managers	Face-to-face primarily by nonnurse care managers	Face-to-face primarily by nurses or licensed social workers	Face-to-face primarily by nonnurse care managers	Face-to-face primarily by nurses or licensed social workers	Face-to-face primarily by nonnurse care managers

(continued)

**Table 9 (continued)**

Service Type	Pathways to Wellness	Hospital 2 Home	Live Healthy Care Management	Nassau Wellness Partners	Westchester Cares Action Project	Healthy Partners of Erie
Percentage of contacts that are in person	71.8	31.5	31.8	44.8	15.6	6.4
Relationships with medical homes	Reserves appointments or physicians; attends appointments with clients	Reserves appointments or physicians; attends appointments with clients	Reserves appointments or physicians; attends appointments with clients	Attends appointments with clients	Attends appointments with clients	Reserves appointments or physicians
Patient education	Care team; groups, peer connections	Care team; groups	Care team; groups, peer connections	Care team; peer connections	Care team; peer connections	Care team

SOURCE: Information compiled from site-visit interviews and documents from programs.

NOTE: <sup>a</sup> Averaged across 2010 and 2011, based on data provided in quarterly reports to the New York State Department of Health; reported per primary direct service staff.

sources.<sup>47</sup> See Appendix A for a complete list and description of the required domains, with examples of questions from one health assessment tool. Westchester Cares Action Project used a unique assessment tool: the INTERMED-Complexity Assessment Grid,<sup>48</sup> which was integrated into its information technology system. This licensed tool documented self-reported biological, psychological, and social situations as well as the ability to navigate the health system. Information was scored along the four domains for priority of care and color-coded based on the priority of the rating. This coding was used to develop care-plan goals; scores were reassessed at least every six months.

Projects varied in how they administered the health-risk assessment. Assessments were usually completed in person, although some staff conducted the three required tools over the phone, entering responses directly into the computer to facilitate reporting to DOH. Nurses sometimes conducted assessments, but they were usually conducted by other staff, some of whom had social work experience. Assessments were sometimes initiated during the enrollment meeting to allow staff to provide support to a new client immediately, but in other cases were completed in separate meetings or across multiple meetings.

Care managers also varied in their approaches to administering the health assessment. Some asked questions in the order that they were listed in their assessment form, while others tried to make the assessment process like a conversation rather than an interrogation. If a client was not receptive to engagement, staff sometimes completed the health-risk assessment in stages. Care managers generally worked to establish trust prior to inquiring about intimate personal details.

In general, health-risk assessments confirmed that the CIDP target population experienced many chronic conditions. Common health conditions reported by CIDP staff were HIV, diabetes, hypertension, congestive heart failure, renal disease, and asthma. Clients reported needing immediate health or mental health care, including for alcohol or drug use, psychiatric problems, and often for compounding issues from multiple chronic and comorbid conditions.<sup>49</sup>

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<sup>47</sup>CHAOS is a 15-item instrument designed to be administered to parents to assess the level of confusion and disorganization in the child's home environment. There is no adult version, so it is often adapted for use with adults. See Matheny (1995). As described in MCG (2014), Milliman Chronic Care Guidelines provide evidence-based guidance on managing patients with chronic conditions, including tools for assessing a patient's conditions to develop care plans, information for addressing complex medical conditions, tools for developing care plans, and patient education resources.

<sup>48</sup>Huyse (2009).

<sup>49</sup>“Comorbidity” refers to the presence of one or more additional diseases or disorders in addition to a primary disease or disorder.

During the assessments, clients also identified critical nonmedical needs, such as housing, assistance to perform activities of daily living, and remedies for social isolation.<sup>50</sup> For example, one client required assistance to identify new housing because his landlord had asked him to leave his current apartment. The same man also sought support to learn about acquiring life insurance and developing a living will. Health-risk assessments also uncovered a great deal of trauma in clients' lives that could have influenced their existing medical, behavioral, or social patterns. Individuals who experienced more exposure to emotional, physical, or sexual abuse and household dysfunction during childhood are more likely to experience health risks for alcoholism, drug abuse, depression, and suicide, severe obesity, and sexually transmitted disease.<sup>51</sup> Adverse early childhood experiences were common among the CIDP population and were reported by many interviewed care managers. For example, one 29-year-old Hispanic male client described himself as being diagnosed with post-traumatic stress disorder after witnessing his father decapitate his mother when he was four years old. Years later, this man struggled with depression, anxiety, and addictions to opiates, marijuana, and amphetamines. He also suffered from a seizure disorder and had been living in a men's shelter for more than six months.

### *Care Planning*

With assessment information in hand, the care team began preparing a care plan, which DOH required within 90 days of enrollment. Care plans outlined the needs and associated goals of clients related to physical and behavioral health, chemical dependence, and social services. As an example, the Pathways to Wellness and Nassau Wellness Partners care plan outlined a problem, an intervention to address the problem, a goal, and a target date for accomplishing the goal. For a client with sobriety problems, an intervention might involve staff persuading the client of the importance of sobriety and making appropriate community referrals. A goal might be having the client remain sober and free of substance use. Westchester Cares Action Project's care plans included short-term and long-term goals that were developed based on the results of the INTERMED-Complexity Assessment Grid tool described above; red color-coded items required immediate attention while items coded in green were more controlled and could be triaged.

Projects had similar philosophies regarding care planning. Three projects (Pathways to Wellness, Nassau Wellness Partners, and Healthy Partners of Erie) developed care plans that focused on the top three needs, primarily short term in nature, to be addressed, whereas care

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<sup>50</sup>“Activities of daily living” refers to self-care activities typically completed within an individual's place of residence. Examples include bathing or showering, dressing, eating, personal hygiene and grooming, or moving from one place to another.

<sup>51</sup>Felitti et al. (1998).

plans for the other three projects included both short-term and long-term goals.<sup>52</sup> Care planning required care managers to set priorities for their work with clients. For example, a care manager would not work to establish a medical home for a client who was without stable housing or food, or who had a medical emergency, until those more pressing needs were addressed. With some projects, it was clear that the client's own view of priorities were to be addressed before other needs identified by staff. If it was challenging to convince clients about the importance of working toward a specific goal, motivational interviewing was used.

Although they were based on the assessments, care plans sometimes used information available from a client's family or doctors. All projects valued the importance of clients buying into the care plan, but few provided clients with copies of the care plans or required clients to sign them.

Sometimes in Pathways to Wellness and Nassau Wellness Partners, and always in Healthy Partners of Erie, someone other than the person who completed the assessment developed the care plan, although in Pathways to Wellness and Nassau Wellness Partners, the initial assessor was involved in the plan development.

### **Care Coordination**

As noted previously, care coordination involves providing clients with health care referrals and other support, such as patient education or counseling, with the goal of improving patient outcomes and reducing health care costs. This section describes the care-coordination activities CIDP staff conducted with or on behalf of their clients.

#### *In-Person Contact*

Per DOH requirements, clients were to receive in-person contact at least once per quarter, with at least two contacts of any kind (such as a phone call) each month or one face-to-face per month. Box 1 provides a detailed account of one care manager's interactions with a client over a period of about six months. This example is not representative of the average care manager-client relationship, but it does highlight the variety of efforts care managers made with clients and their primary care providers and other medical providers.

Only two projects — Live Healthy Care Management and Westchester Cares Action Project — emphasized regular in-person contact between registered nurses or licensed social

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<sup>52</sup>This was the initial focus of care planning. Care plan documentation was limited, however, by the technology used to capture care plan information; it may have improved over time as the information-management systems were adapted to accommodate more user-friendly features.

## Box 1

### An Example of Care Coordination

According to her care manager, Patricia has a complicated medical history. In 2004, she was diagnosed with type 2 diabetes. A year later she was diagnosed with breast cancer that required a mastectomy; she also underwent a radical hysterectomy due to the discovery of a large cervical tumor during the mastectomy preoperation exam. At the same time, early kidney disease was detected. By 2007, Patricia's kidney disease had progressed, which was thought to be due to chemotherapy. Her hypertension and diabetes were poorly controlled despite treatment adherence. In 2008, Patricia had gastric bypass surgery as a means to control her diabetes, but she experienced post-op complications requiring a two-month hospitalization. At discharge, her diabetes was under control without medication, but in 2009 she was diagnosed with end-stage renal disease.

Care coordination through CIDP began in summer 2009 with a face-to-face visit to Patricia's home. The care manager followed up on their first meeting by providing information on social support and community services and provided self-management education over the telephone. Throughout September and October, the care manager conducted one case conference, five face-to-face meetings, and three telephone calls to discuss care planning and connect Patricia to social support services. In November 2009, the care manager focused on Patricia's renal condition, making multiple calls and coordinating with the client's medical specialists to discuss the care plan.

In late November and throughout December, the care manager worked with medical specialists to educate Patricia about medical decisions she needed to make regarding renal disease treatment and the impact on her daily activities. Following a surgery that Patricia was hesitant to get, the care manager continued to arrange educational resources for her, including a referral to the National Kidney Foundation. After Patricia had expressed concern over an emergent health issue for which she had no primary care provider, she agreed to establish a medical home; the care manager made arrangements with the new provider and accompanied Patricia to medical appointments. In late January, Patricia contacted her medical home when she experienced severe leg pain, and subsequently reported to the emergency department. The care manager worked with Patricia's special kidney medical team to train her to make earlier interventions to avoid future emergency department visits for the same issue.

About a month and a half after the surgery, the care manager prepared Patricia for the start of peritoneal dialysis through coordination with a dialysis nurse, including making sure all necessary equipment and supplies were delivered to Patricia's home. Patricia continued to be reluctant about the treatment and reported increased feelings of stress. The care manager worked with the dialysis team to find additional support for the client and her husband.

NOTE: A pseudonym is used to protect the privacy of the CIDP client.

workers and their clients. This model aligned with the Medicare Coordinated Care Demonstration, which used registered nurses to deliver the bulk of the interventions. In contrast, Healthy Partners of Erie used a telephonic nurse care-management model in which only nonclinical staff met with clients in person. In the remaining three projects (Pathways to Wellness, Hospital 2 Home, and Nassau Wellness Partners), in-person contact with clients was the primary responsibility of nonclinical staff, but clinically trained supervisors often participated in these meetings.

As Table 9 shows, projects reported a wide range in the number of in-person meetings as a percentage of the total contacts with or on behalf clients. Pathways to Wellness consistently reported the highest percentage of in-person contacts with clients and Healthy Partners of Erie reported the lowest. Some of this variation might be explained by differences in the service-delivery approaches. For example, Westchester Cares Action Project Integrated Care Coordinators called clients weekly — the only project with this frequent a rate of contact; the higher level of contacts that were not in person brought down the average rate of contacts made in person. Differences could also be attributed to changes in staffing levels or the degree to which direct-service staff had to be involved in recruiting or enrolling new clients.

Projects did not report contact data to DOH for their first year of operations in the quarterly reports used to calculate contact rates, but some data from three projects are available for part of the second year. Based on these data, the projects are seen to have varied widely in their use of face-to-face contacts (not presented in Table 9). Pathways to Wellness reported the most in-person contact with clients, with almost three contacts per month taking place at clients' homes and others taking place elsewhere in the community. Nassau Wellness Partners also averaged more than one in-person contact each month. In comparison, Westchester Cares Action Project averaged the DOH minimum of one face-to-face contact per quarter. Live Healthy Care Management reported an average of almost one face-to-face contact per month, which suggests its high caseload did not adversely affect its level of in-person contact. Data provided by the Hospital 2 Home or Healthy Partners of Erie do not provide enough information to report on in-person contacts.

The location and purpose of in-person contact varied depending on the needs of the client. The location and setup of two project offices made them amenable for clients to stop by, whereas Live Healthy Care Management did not have an identifiable office for such purposes. However, in all projects except Healthy Partners of Erie, care managers visited clients in their homes to discuss their health, address medical needs, provide referrals for nonmedical needs, or provide education regarding particular issues. Care managers also met with clients in physician's offices to attend appointments as a support, advocate, or liaison for the client. This was one way care managers developed relationships with providers. In addition, care managers reported meeting clients at various community-based organizations as a support or advocate.

The example provided in Box 1 illustrates how a care manager visited a client at home and also accompanied her to appointments with physicians and social service providers.

### *Other Forms of Engagement*

Simply meeting in person with clients once a quarter or more was not sufficient to keep them engaged in CIDP or to allow care managers to keep track of a transient population. Care managers had to encourage ongoing engagement in other ways. They reported improved engagement when they were available to clients whenever a need surfaced, although they needed to be persistent in showing clients their willingness to provide support at any time. Projects also described specific techniques to promote engagement with clients. For example, Westchester Cares Action Project mailed clients personalized birthday cards. Another project described how little gestures went a long way in solidifying care managers' relationships with their clients. For example, one care manager bought a client a Sudoku book to help him better tolerate waiting for appointments. Regardless of rapport and persistence, clients were sometimes difficult to keep engaged, as the example in Box 2 shows.

Staff members described challenges in balancing care-coordination responsibilities with recruitment and enrollment tasks. For example, care managers reported to the research team that they spent more time coordinating services and less time providing direct counseling or supports in the later months or years of a client's involvement in CIDP. This suggests that the needs of clients changed over time and that clients may have developed an improved ability to support themselves.

### *Connections with Medical Homes and Medical Providers*

As noted earlier, one of the primary goals of CIDP was to connect clients to a medical home as a means to improve their health outcomes and therefore reduce their medical costs. Box 3 provides an example of how, by collaborating with other health care professionals and connecting with other sources of support, primary care providers tried to improve the lives of individuals with multiple chronic conditions. Projects partnered with Federally Qualified Health Centers and other clinics providing primary and preventive care to build a network of preferred medical homes. Care coordination also required coordination of or assistance in finding specialty medical, behavioral health, and other medical services, reminding clients of appointments, and attending appointments with clients. When informed of it, care coordination also involved working with hospitalized clients or those seeking care in the emergency department to avoid readmission.

Projects expected many clients to need a medical home, but a number of clients already had providers whom they regularly saw for medical care. Most of these providers were not in the projects' networks of medical homes. Furthermore, staff reported that some clients did not

## Box 2

### **Challenges to Improving Health Outcomes: An Example of a Transient Client**

Deanna, a 41-year-old African-American woman with a history of congestive heart failure, hypertension, and depression, had a history of homelessness, preferring to “couch surf” than stay in a shelter. She had two teenage children, one of whom had her own child. From the point of enrollment in September 2009, Deanna and her care manager developed a good rapport.

Unlike many clients, Deanna called her care manager on multiple occasions seeking help. For three months, Deanna and her care manager were in contact nearly once every two weeks and met face-to-face monthly. During this time, the care manager set Deanna up with a medical home within the multiservice agency (operated by CIDP) that employed the case manager, where Deanna attended appointments with medical and psychological professionals.

However, Deanna’s engagement in CIDP stopped without warning in January 2010. The care manager tried to reach Deanna every few days throughout January, but the phone number on file was no longer in service. Attempts to contact Deanna’s family and emergency contact were also dead ends. In February 2010, Deanna called her care manager to assure her that she was okay and that she was moving around frequently. But a month later, Deanna had not been in touch with the care manager again and she has remained unreachable since.

NOTE: A pseudonym is used to protect the privacy of the CIDP client.

like the location of the projects’ preferred medical homes and therefore chose to seek care elsewhere. As a result, projects had a large number of medical homes for just a few clients and few clients who sought care from providers within the CIDP network. This made it difficult to coordinate care efficiently, support the efforts of the medical homes, and realize any potential economy of scale.

Regardless of whether medical homes were in the CIDP network, most projects were actively engaged in the relationships between clients and their primary care providers or medical homes, although lower levels of staff time were dedicated to relationship building than anticipated. As a first step in engagement, several projects (Pathways to Wellness, Hospital 2 Home, Live Healthy Care Management, and Westchester Cares Action Project) provided primary care providers with copies of the CIDP care plan or discussed it with the providers, but fewer asked providers for input during the assessment process.

### Box 3

#### **CIDP Client Example: The Value of Primary Care Providers**

Sandra was an African-American, high school-educated mother of adult children; she was in her 60s. She attended church regularly and had a network of friends, which significantly influenced her decision to remain in public housing despite its dangerous environment. Though she walked independently, Sandra was overweight and got tired and short of breath from walking just two blocks. Sandra was also HIV positive and was compliant with the treatment her HIV team of specialty doctors prescribed. She struggled with multiple other chronic conditions, however: diabetes, hypertension, asthma, and coronary artery disease. Her poor health prohibited her from doing the volunteer work she loved.

CIDP began outreach to Sandra in summer 2009. After two phone calls, Sandra agreed to meet with a care manager and was enrolled about one month after the first call. A peer specialist and care manager met Sandra for enrollment; this meeting lasted about 30 minutes. About a week later, the care manager met twice with Sandra again to perform a health assessment; this combination of meetings lasted more than 90 minutes. The assessment results indicated that there was room for improvement in physical health and that she might have mild depression. It was not revealed in her first health assessment, however, that Sandra was HIV positive; this came out later.

Based on her initial assessment, the care manager developed a care plan that included the goal of establishing routine primary care and engaging in behavioral health treatment. Shortly after enrolling, Sandra was hospitalized, and her care manager met with her in the hospital. They revised her care plan to include establishing a medical home.

As a first step, Sandra agreed to establish a medical home with a local health center; the goal was to establish a relationship with a primary care provider there who could collaborate with her HIV team while directing the care of her other conditions. After two appointments with her new primary care provider and multiple rounds of blood work, Sandra's new physician developed a medication management plan, which resulted in improved asthma symptoms, more stable blood sugar, and reduced daytime fatigue. Sandra also met with a nutritionist, ophthalmologist, and podiatrist, based on referrals from the primary care provider.

During her first five months in CIDP, Sandra had contact with the care manager more than once a week by phone and met in person more than twice per month, on average. Sandra frequently reached out to her care manager for help in resolving issues. After several months in CIDP, the care manager reported Sandra was well enough to resume the volunteer efforts that her health had previously prevented.

NOTE: A pseudonym is used to protect the privacy of the CIDP client.

Evidence of provider relationships can be seen in three projects that arranged either dedicated physician time or reserved appointments with at least one medical facility in the network. Pathways to Wellness had two network medical homes, Maimonides Medical Center and Healthcare Choices, where clients could get same-day or next-day appointments. Hospital 2 Home clients at the Manhattan and Queens locations had access to dedicated physicians, specific clinic hours, and extended appointment times. Finally, Live Healthy Care Management developed a relationship with Bronx-Lebanon's Martin Luther King, Jr. Clinic, which offered specific clinic hours for CIDP clients and expedited specialty care. In most cases, relationships with providers were not as substantial as expected because staff spent more time on enrollment than on network relationships and because there was not a groundswell of CIDP clients at any one provider.

Healthy Partners of Erie's relationship with primary care providers and medical homes was somewhat different than that of the other projects. The nurse care manager assisted clients with making appointments, made appointment reminders, and followed up with clients after their appointments, but she rarely directly interacted with primary care physicians. Healthy Partners of Erie was unique in that practice enhancement assistants were intended to have somewhat regular interaction with primary care provider offices to conduct chart reviews of clients. These chart reviews were designed to influence provider practice by providing feedback to physicians about best practices they may have overlooked. However, this plan was never fully implemented, so Healthy Partners of Erie's influence on providers was minimal.

### *Patient Education*

All care managers provided their clients with an array of educational opportunities, including individual or group meetings and written educational materials. The patient-education methods used by projects were similar to each other in many respects. All staff members described using motivational interviewing techniques to increase clients' commitment to change. All projects provided clients reading material on educational topics and had follow-up telephone discussions about the information. Most projects engaged in some face-to-face education, often while escorting clients to medical appointments.

Three projects organized group sessions for educational purposes. One held group meetings at a project office and another conducted group education sessions within residential treatment facilities where many of their clients lived. Two projects referred clients to the Visiting Nurse Service of New York — a nonprofit organization in New York City that provides a variety of nursing services in patients' homes — for additional and in-home education on postoperative care. Many projects also provided education to family members and caretakers to answer questions or reinforce healthy behavior.

Although educational materials differed across the projects, the materials focused on similar content. Topics included disease-specific and general wellness education, medication management, self-management skills, and appropriate uses of emergency departments and primary care providers. Written material was provided about smoking cessation, appropriate diet or nutrition, information about treatment options, or diseases such as diabetes. For example, for the client detailed in Box 1, the care manager consulted with numerous dialysis health educators to find proper training and support for the client. Group education meetings covered a wide variety of topics, including diabetes self-management and wellness self-management, stress management, and hepatitis B and C.

Four projects used peer support specialists to reinforce client education. They were particularly useful for clients needing psychological support or treatment for addiction. Peer support specialists were trained individuals who had progressed in their own recovery from substance abuse or a mental health disorder and were willing to assist other individuals with chemical dependency or mental health disorders. The peers used their own experiences to educate and help empower clients. As one example of peer education, a Westchester Cares Action Project peer accompanied a client with diabetes to the grocery store to teach that client how to read labels and purchase the most appropriate foods. Staff members of various projects also said that peers accompanied clients to 12-step meetings.

### *Referrals and Other Service Links*

Because the CIDP prime contractors and risk partners provided few services directly to clients aside from care coordination, referrals were an important means to facilitate client access to social and medical services. Referrals were commonly made for primary care, social services, peer support, mental health services, and patient education, and projects favored making referrals to services within their integrated networks.

Projects did not vary systematically in the ways they provided referrals or other service links. The roles staff played in referrals ranged from “cool” to “hot” and included providing information about providers or organizations to clients, making appointments and escorting clients to them, and following up with clients. The degree of support varied depending on the client’s need and the referral type.

Aside from making referrals, projects also helped clients gain access to services by arranging transportation, translating information from a provider, and applying for cell phones for them to stay in touch with providers and care managers. Projects helped clients complete applications for various services by supplying documents, assisting in completing forms, and acquiring necessary signatures. Of all the support provided, arranging for transportation (medically necessary or otherwise) was the support activity most frequently reported by all projects. While the extent of patient advocacy varied, it is important to note that literature on mental

illness suggests that self-management better allows patients to gain information and contribute to the decision-making process, which in turn improves health outcomes and the ability to cope with an illness.<sup>53</sup>

Project staff also worked with case managers in residential treatment facilities and in shelters, with medical and mental health providers, and with social workers with whom clients were involved for other reasons. Staff described working with judicial representatives, landlords, and legal professionals on behalf of their clients. Care managers also coordinated with family members of clients, for example to find proper housing after release from incarceration. In addition, at least three projects (Westchester Cares Action Project, Hospital 2 Home, and Healthy Partners of Erie) provided their clients with clothing, winter coats, and toiletries as needed. Healthy Partners of Erie described providing these items as an incentive for clients to meet in person.

### *Claims Data and Reassessments*

After a client enrolled in CIDP and a care manager developed a care plan, the care team was provided the client's historical Medicaid claims data so they could see where the client received medical treatment. These data often presented new information, which care managers tried to confirm with clients, often using motivational interviewing techniques to get them to volunteer the information. Care managers noted that as clients developed a stronger and more trusting relationship, they increased the amount of information they disclosed to their care managers, sometimes revealing co-occurring conditions such as HIV. Care managers noted the general usefulness of the claims data, but suggested the data would have been more helpful to have had up front.

DOH required reassessments after trigger events such as emergency department visits or hospitalizations. However, these reassessments were difficult to conduct in a timely manner given the limited connection between projects and hospitals and the lack of data sharing. In most projects, notifications of emergency department visits or hospitalizations were rare. Three projects (Live Healthy Care Management, Nassau Wellness Partners, and Healthy Partners of Erie) made arrangements with one hospital each to review admissions or emergency-department-visit lists for clients daily or weekly, but the arrangement often relied on someone at the hospital to do voluntarily. Hospitals 2 Home, however, had a computerized alert system that notified care managers when clients presented at a Health and Hospitals Corporation clinic or hospital, which presumably resulted in more timely reassessments. In all other cases, care managers primarily relied on calls from clients or their friends or families about trigger events,

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<sup>53</sup>Jonikas et al. (2011).

and these notifications usually occurred after discharge. The lack of timely notification made it difficult for project staff to support the enrollee and make efforts to ensure proper continuity of care, for example by assisting with discharge planning. Lack of notification also made it nearly impossible to know when a reassessment was needed.

### *Duration of Services*

By summer 2011, projects had some clients who had been engaged in CIDP for at least 18 months. Staff suggested different factors that contributed to this successful, sustained engagement, including having good relationships, having one central phone number and one location so clients could always reach someone, and meeting a client's needs immediately.

It did not appear that care managers stopped working with clients once they met certain benchmarks (that is, clients did not “graduate” from services), but it was more often the case that clients chose to stop receiving services. Clients who were still in CIDP at the end of the demonstration period could become part of DOH's Health Homes project, which began in 2012 to provide care management to encourage reductions in future health care costs among a subset of the Medicaid population, including many of the individuals who were in CIDP.

### **Implementation Lessons and Conclusions**

As discussed earlier, results from the Medicare Coordinated Care Demonstration suggest that successful programs targeted those with a high risk of hospitalization, used frequent in-person contact, had access to timely information on hospital and emergency department care, had contact with primary care providers, provided comprehensive services, and had low caseloads. In CIDP, no single project successfully incorporated all of these components, as shown in Table 10. All projects targeted a population at substantial risk of future hospitalization and all provided a comprehensive set of services (assessment of need, development of care plans, education and social support, and access to additional resources). However, the projects varied in their level of in-person contact, access to timely information, contact with primary care providers, and staffing arrangements. Still, in general the projects came closer to meeting these standards than other recent demonstrations.

Since DOH set the goal of just one in-person contact per quarter, it is not surprising that not all projects had in-person contact with their clients as frequently as the Medicare Coordinated Care Demonstration principles suggest is optimal. CIDP staffing models influenced the caseload size and probably affected the levels of face-to-face time; the transient nature of the population was also a deterrent to in-person contact. Although most projects included nurses as team leaders or in other management positions, only two projects had trained clinical staff delivering the bulk of direct services, per the guidelines discussed above. In the majority of projects, nurses filled more of a supervisory or consultant role, only meeting with clients as needed.

**Chronic Illness Demonstration Project (CIDP)**

**Table 10**

**Applying Brown's Medicare Coordinated Care Demonstration (MCCD) Principles to CIDP**

Project	Targeting	In-Person Contact	Access to Timely Information	Contact with Primary Care	Services Provided	Staffing	Median Caseload of 70
	Substantial Risk of Hospitalization in 12 Months	One In-Person Contact per Month	Connecting with Patient Shortly After Emergency Department Visit or Hospitalization	Occasional Face-to-Face Contact with Care Managers and Physicians	Need Assessment, Care Plan, Education, Social Support, Access to Resources	Registered Nurses and Social Workers	
Pathways to Wellness	X	X		X	X		X
Hospital 2 Home	X	Unable to report	X	X	X		X
Live Healthy Care Management	X	Almost 1 per month		X	X	X	
Nassau Wellness Partners	X	X		X	X		X
Westchester Cares Action Project	X	1 per quarter		X	X	X	X
Healthy Partners of Erie	X	Unable to report			X		X

SOURCE: Information compiled from site-visit interviews and documents from programs.

NOTE: An X indicates the project met the MCCD criterion.

As discussed above, one common difficulty for projects was establishing relationships with hospitals to obtain timely information about emergency department visits or hospitalizations. Projects described challenges to securing formal memoranda of understanding with hospitals and other community providers. Having an economy of scale, or more clients using particular entities, might have improved this process. There also may not have been sufficient staff resources dedicated to building these relationships, in part due to the resources required for recruitment and enrollment. Furthermore, though all projects were willing to have face-to-face encounters with primary care physicians (most likely by escorting clients to appointments), in most cases this was not the nurse's role but the role of another member of the care team (often a nonclinical staff person). This is counter to the findings of the Medicare Coordinated Care Demonstration, which suggested the importance of registered nurses providing the bulk of services.

The demonstration design itself introduced additional challenges. The design meant that New York City projects were assigned only a subset of their catchment areas, that DOH required specific forms to be used in formalizing relationships with partners and obtaining consent from clients, that uniform data-collection requirements were defined after project start-up, and that eligibility and contact information were often incomplete or incorrect. These challenges affected projects in a number of ways. For example, projects had difficulty developing working relationships with what should have been such key partners as hospitals. Due to generally low enrollment and the lack of concentration of clients within any particular medical home, projects also did not wield much leverage with providers. In addition, care teams typically had significant enrollment and care-management responsibilities that were often difficult to balance. In general, the system of care and the community provider network constituted the most challenging components to implement well. Despite these more systematic issues, however, the projects devoted a great deal of resources and effort to support their clients in improving their health outcomes.

## **Estimated Effects of CIDP**

The second component of this study is an analysis of the effects of the projects on health care use and Medicaid costs. This section describes how these estimates were obtained as well as data sources and outcomes before presenting the results.

### **Impact Analysis Design**

As noted earlier, catchment areas for the New York City projects were divided at random into program group areas, for which the projects were sent lists of eligible individuals, and control group areas, whose residents were not eligible for CIDP. The catchment areas for the other three projects were matched to similar zip codes around the state.

Random assignment of zip codes for the New York City projects ensured that eligible Medicaid beneficiaries in the program group and control group areas should have been similar in all respects at the time of randomization except that one group could be recruited to receive CIDP services. Likewise, comparable zip codes were chosen for the non-New York City projects because eligible beneficiaries looked similar in the CIDP and comparison area zip codes before any services were received. The first approach for estimating project impacts was therefore an intent-to-treat analysis that compared everyone in the program group to everyone in the control group. To increase statistical precision, these impacts were regression adjusted.<sup>54</sup>

As discussed earlier, only about 10 percent of individuals who were eligible for CIDP enrolled in the projects. As a result, the intent-to-treat results severely understate the effects of coordinated care on those who enrolled, which can make it difficult to find statistically significant impacts of the intervention. Nevertheless, it is the starting point for examining the effects of CIDP because estimates for the New York City projects will be unbiased (since zip codes were randomized). If these results show large changes in Medicaid use, there is a high degree of confidence that the changes resulted from CIDP.

To try to isolate the effects of CIDP on those who enrolled in the projects, two approaches were used. First, an instrumental variable analysis was used to adjust the intent-to-treat effects for differences in participation rates. If the projects were effective, projects that were able to enroll a higher proportion of individuals would have produced larger intent-to-treat effects. For example, the Westchester Cares Action Project enrolled nearly 20 percent of those who were eligible for its project, compared with less than 10 percent for Hospitals 2 Home and Live Healthy Care Management. If CIDP services were effective, the intent-to-treat effects for the Westchester Cares Action Project should be about twice as large as those for Hospitals 2 Home and Live Healthy Care Management.

The second method for estimating the effect of CIDP on enrollees was to match enrollees to individuals in the control group with similar health care histories and demographics. Although this approach may be intuitive, it can produce biased results if individuals who enrolled in CIDP were different in unobserved ways from those who did not enroll. Despite the possibility of bias, this method presents the most direct estimate of the effects of being enrolled in CIDP. It also provides a robustness check: if CIDP's effects were similar using all three

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<sup>54</sup>Covariates in the regression adjustment include race, age, gender, prior costs, and a set of prior diagnoses (including those related to cardiac conditions, injury, pulmonary, diabetes, behavioral health, and other chronic conditions [asthma, diabetes, hypertension, heart attack, ischemic heart disease, congestive heart failure, stroke, liver disease, renal disease, organic brain syndrome, chronic obstructive pulmonary disease, and other major lung disease]). The covariates also included an indicator of the number of chronic conditions previously diagnosed.

methods (intent-to-treat, instrumental variables, and matching), this would suggest that the results represent the true effects of CIDP. In contrast, if one approach presented more positive results than the other methods, it would make it more difficult to know which method was producing the most accurate findings.

### **Data Sources and Outcomes**

Data for the impact analysis came from New York Medicaid claims data for individuals in fee-for-service Medicaid and from encounter data for individuals who were later enrolled in Medicaid managed care.<sup>55</sup> The impact analysis includes a range of outcomes that could be examined using these data and reflects the logic of the coordinated care model.

- **Emergency department visits.** Because there is general agreement that coordinated care should reduce emergency department visits, the analysis explores the impact of the projects on such visits.
- **Hospital admissions.** Individuals were eligible for CIDP because they had a substantial risk of being hospitalized in the next year. CIDP was designed to reduce hospitalization for this group in several ways. First, by encouraging the use of preventive care, the projects could have reduced the severity of illness (compared with the control group) and thus reduced the need for hospital admissions. The projects could also have encouraged the use of other appropriate care in ambulatory settings rather than in hospitals, and, since emergency department visits often result in being admitted to the hospital, reducing emergency department use might directly affect hospitalization. Finally, by working intensively with patients after they were released from hospital care, the projects could have reduced the likelihood that individuals were rehospitalized.
- **Outpatient care.** Although the projects were intended to result in fewer hospital stays, they were expected to initially increase visits to primary care physicians. This could have reduced the use of specialty care, or it might have been that care management uncovered unmet needs that warranted such care. The impact analysis therefore examines the effects of the projects on the use of various types of outpatient care, including visits to primary care physicians, visits to nonphysician providers, and visits to specialists.

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<sup>55</sup>For managed care organizations that receive a fee for each patient regardless of the care provided, each service rendered is considered an “encounter.”

## Intent-to-Treat Estimates

Table 11 provides estimates of the intent-to-treat effects of CIDP on costs — both overall and for hospital admissions and emergency department use — as well as several measures of events, including number of hospital admissions and hospital days, number of emergency department visits, number of outpatient visits for primary and specialty care, number of treatments for mental health and substance use issues, and number of prescription medications filled. Results in Table 11 are pooled across the six projects.

As indicated previously, individuals eligible for CIDP used a lot of health care. In each year, Medicaid costs averaged about \$40,000 per person. Consistent with how they were chosen for the study, about 40 percent of Medicaid costs were for hospitalization. Moreover, the average sample member had 2.4 hospital stays in the first year for more than 11 days on average. In addition, the average sample member had more than one primary care visit and one instance of substance use treatment each month.

Table 11 indicates that the projects increased overall costs by about 3 percent (\$1,259) in the first year and 4 percent (\$1,489) in the second year. The increased costs of hospitalizations alone made up more than half of the overall increase in costs. Increased costs also resulted from the monthly care-coordination fees paid to the projects for providing CIDP services.

One foundation of CIDP was the idea that coordinated care could connect individuals to medical homes that would increase the use of primary care and reduce emergency department visits. Table 11 suggests that the project might have been successful in the first regard. In each year, the projects increased the number of visits for primary care by 0.6 per person. However, the second half of this formula did not play out: projects did not significantly reduce the use of emergency departments in either year, and they significantly increased the number of hospital stays in the first year. Otherwise, there were few significant effects on other measures of health care use, with the exception that the projects appeared to increase the number of mental health treatments in each year.

As discussed earlier, implementation and enrollment varied in some important ways across the projects, which may have led to variation in impacts across the projects. This is explored in Table 12, which shows the estimated intent-to-treat effects for each of the six projects. For each project, the estimated effect is presented by year, along with a measure of statistical significance. The last column of the table uses daggers to indicate when impacts varied significantly across projects. Appendix B shows the program group and control group levels for each project as well as p-values for the statistical tests of impacts by project.

The table indicates that there was substantial variation in impacts across the projects in several respects. This variation was not consistent across outcomes, however, and the results do

**Chronic Illness Demonstration Project**

**Table 11**

**Estimated Impacts of CIDP Participation on Health Care Costs  
Pooled Across Projects**

Outcome	Program Group	Control Group	Estimated Effect	P-Value
<b><u>Year 1</u></b>				
Total costs (\$)	40,933	39,674	1,259	0.014 **
Hospital admissions	16,731	16,068	663	0.054 *
Emergency department	573	529	44	0.002 ***
Average number of events				
Hospital admissions	2.4	2.4	0.1	0.164
Hospital inpatient days	11.7	11.1	0.6	0.002 ***
Emergency department visits	3.0	3.0	0.0	0.798
Primary care visits	13.2	12.6	0.6	0.100 *
Specialist visits	5.2	4.9	0.3	0.098 *
Mental health treatments	7.5	6.6	0.9	0.050 **
Substance use treatments	12.1	12.5	-0.4	0.173
Prescription medications filled	7.0	6.9	0.1	0.250
<b><u>Year 2</u></b>				
Total costs (\$)	40,478	38,990	1,489	0.021 **
Hospital admissions	15,156	14,176	980	0.018 **
Emergency department	473	448	25	0.255
Average number of events				
Hospital admissions	2.1	2.2	0.0	0.756
Hospital inpatient days	10.7	10.8	-0.1	0.781
Emergency department visits	2.7	2.8	-0.1	0.228
Primary care visits	10.9	10.3	0.6	0.034 **
Specialist visits	5.0	5.1	-0.2	0.410
Mental health treatments	6.7	5.9	0.8	0.040 **
Substance use treatments	13.5	14.1	-0.6	0.220
Prescription medications filled	6.6	6.5	0.1	0.417
Sample size	16,929	22,092		

SOURCE: MDRC calculations based on Medicaid claims and encounter data from the New York State Department of Health.

NOTE: A two-tailed t-test was applied to differences between the outcomes for the program and control groups. Statistical significance levels are indicated as follows: \*\*\* = 1 percent, \*\* = 5 percent, \* = 10 percent.

**Chronic Illness Demonstration Project (CIDP)**

**Table 12**

**Estimated Impacts of CIDP Participation on Health Care Use and Costs**

Outcome	Nassau Wellness Partners	Hospital 2 Home	Westchester Cares Action Program	Pathways to Wellness	Healthy Partners of Erie	Live Healthy Care Management	
<b>Year 1</b>							
Total costs (\$)	-877	3,316 ***	1,639	-44	-198	733	†
Hospital admissions	-582 ***	1,837	1,512 ***	-918	-441	651	††
Emergency department	-81 *	90 ***	20	33	-32	52 **	††
Average number of events							
Hospital admissions	0.08	0.16 *	-0.04	0.10	-0.21 *	0.06	
Hospital inpatient days	0.51	0.46	-0.45	0.14	0.60	1.23 ***	
Emergency department visits	0.13	-0.09	0.18	0.24 *	-1.91 ***	0.25 *	†††
Primary care visits	-0.60	1.78 ***	4.19 ***	0.35	-1.49 *	-0.21	†††
Specialist visits	0.22	0.35	-0.01	1.05 *	-0.15	0.22	
Mental health treatments	-1.84	0.57	-2.92 **	1.59	2.26 ***	1.87 *	†††
Substance use treatments	-1.14	-0.45	-0.97	-0.47	-0.76	0.09	
Prescription medications filled	0.02	0.63 ***	0.01	-0.01	-0.79 ***	-0.07	†††
<b>Year 2</b>							
Total costs (\$)	220	1,461	1,637	3,787 **	364	919	
Hospital admissions	1,012	1,106	2,677 *	1,173	76	658	
Emergency department	-40	-25	89 *	-14	-44	92 ***	†
Average number of events							
Hospital admissions	0.03	0.00	-0.02	0.05	-0.24	-0.03	
Hospital inpatient days	0.20	-0.61	1.24	-0.51	0.91	0.08	
Emergency department visits	0.49	-0.50 **	-0.07	-0.19	-0.84 *	0.16	†
Primary care visits	-2.25 **	1.46 ***	1.51	1.58 **	-0.76	-0.12	†††
Specialist visits	-0.72	0.34	0.19	0.42	-0.27	-0.77 **	
Mental health treatments	-0.83	0.24	-0.75	0.30	2.18 **	1.84 **	
Substance use treatments	-3.48 **	-1.64 *	1.79	0.95	2.94 **	-0.89	†††
Prescription medications filled	-0.63 **	0.52 ***	-0.50 *	0.24 **	-0.13	-0.11	†††
Sample size	2,440	11,316	2,601	5,764	2,866	14,034	

(continued)

**Table 12 (continued)**

SOURCE: MDRC calculations based on Medicaid claims and encounter data from the New York State Department of Health.

NOTES: Statistical significance levels for two-tailed t-test applied to differences between the outcomes for the program and control groups are indicated as follows: \*\*\* = 1 percent, \*\* = 5 percent, \* = 10 percent. Statistical significance levels applied to differences in estimated effects across projects are indicated as follows: ††† = 1 percent, †† = 5 percent, † = 10 percent.

not suggest that some projects were more successful than others at consistently altering health care use or reducing Medicaid costs. Regarding costs, for example, several projects had relatively modest effects on costs, but Hospital 2 Home was estimated to have increased costs by more than \$3,300 per person, of which \$1,800 was from increased hospital costs. This estimate is especially large when considering that only about 10 percent of individuals eligible for the Hospital 2 Home project were ever enrolled.

Regarding the type of care individuals used, there was significant variation across the projects in estimated effects on mental health treatments and emergency department visits in Year 1, substance use treatments in Year 2, and primary care visits and prescription medications filled in both years. However, Hospital 2 Home is estimated to have substantially increased prescription medications in both years, but Healthy Partners of Erie is estimated to have substantially reduced them in Year 1 while Nassau Wellness Partners and Westchester Cares Action Program substantially reduced them in Year 2. This lack of consistency makes it difficult to know what to make of these results and suggests that differences in impacts across the projects are not due to differences in how CIDP was implemented.

There are two reasons to be cautious about these results. First, although randomizing zip codes in New York City should have resulted in program and control group members who were roughly comparable, the same might not hold true for projects outside the city. Since eligible Medicaid recipients in those three projects were compared with similar individuals in zip codes from around the state, it is possible there were some systematic unobserved differences between the two groups that did not show up in prestudy information. If that is true, the results presented above may be biased in one direction or the other. As noted below, however, there was not systematic variation in estimated effects by project.

The higher rate of participation in Medicaid managed care for the control group also provides reason for caution in interpreting the results. In the short term, Medicaid costs for managed care enrollees equal the monthly fees that are paid to managed care organizations for the provision of care. Because DOH and the managed care organizations agreed ahead of time on the size of these payments, they might not reflect the real costs of the resources that individuals in the managed care system used. The higher costs under CIDP may thus be an artifact of the payment system rather than a reflection of true differences in the cost of care. Although the results in Table ES.2 suggest that CIDP also resulted in more health care use, the data on health care use under managed care may be less reliable than similar data from the fee-for-service system. This is because providers in the fee-for-service system are reimbursed based on the care they provide — giving them an incentive to report the care accurately — while information on health care use under managed care is not used for reimbursement. The impacts of CIDP might thus be influenced by differences in data quality between the fee-for-service and managed care systems.

## Effects for Subgroups

A key question for many types of interventions is whether the benefits are larger for some groups than for others. This section compares the project's effects across three pairs of subgroups.

- **By predicted probability of hospitalization.** CIDP was designed to reduce Medicaid costs for the highest-needs beneficiaries, but individuals entered the study with probabilities ranging from 30 percent to 100 percent of being hospitalized in the next year. Since Medicaid costs are generally higher for those who are more likely to be hospitalized, the effects of the projects might have been higher for that group as well. At the same time, the highest-needs individuals might have been so ill that they were already using appropriate care, and care coordination might produce little effect for this group. To examine this contrast, this section compares impacts for those with a predicted probability of being hospitalized in the next year that is greater than 50 percent with those with a predicted probability between 30 percent and 50 percent.
- **By mental health diagnosis.** Studies of care management have shown benefits for individuals diagnosed with depression.<sup>56</sup> In addition, to the extent that mental health conditions can be managed through prescription medications, coordinated care can be an excellent method of helping individuals manage their conditions. Without such management, however, it may be difficult to help those with mental health diagnoses treat their other health conditions. To examine this contrast, impacts for those who had been diagnosed with a major psychological illness in the past year were compared with impacts for those who had not. For this analysis, a major psychological illness included major affective disorders (such as bipolar disorder), schizophrenia, and psychoses.
- **By substance abuse diagnosis.** Substance abuse is extremely difficult to treat successfully and without such treatment it can be difficult to help those with serious substance abuse problems manage other health conditions. Thus, the impacts of the intervention may be larger for those who do not have a substance abuse problem. To examine this contrast, this section compares impacts for those who had been treated for an alcohol or drug-related disorder in the year before being eligible for CIDP with those who had not.

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<sup>56</sup>Mohr et al. (2008); Wang et al. (2007).

Table 13 compares impacts across these three sets of subgroups for each of the first two contract years and for three outcomes: total costs, which may be the best summary measure of the effects of the intervention on the Medicaid system; number of hospital days, which is a key driver of costs and an outcome that the CIDP was intended to affect; and number of primary care visits, because increasing primary care was possibly vital to other project effects. For each outcome and year, three impact comparisons are made: 1) between those with a risk score of 0.3 to 0.5 and those with a risk score greater than 0.5; 2) between those with and without a diagnosis of a major psychological disorder; and 3) between those with and without a diagnosis related to alcohol or drug use. For each comparison, daggers are used to indicate whether the difference in impacts was statistically significant. Estimates for the full set of outcomes are shown in Appendix C.

If the ultimate goal of CIDP was to reduce Medicaid costs, Table 13 does not show success for any of the subgroups. For each subgroup for each year, the estimated effect of CIDP was to increase total costs. While there was a significant difference in the estimated effects by mental health diagnosis, costs were estimated to have increased for both groups. Likewise, there is little evidence that CIDP was more successful in increasing primary care visits for any subgroup.

There is evidence of differences in project effects on hospital stays by subgroup, although CIDP did not reduce hospital days for any group. Instead, the increase in hospital days in the first year was smaller for some groups than for others. In particular, CIDP increased hospital days less for those with low risk scores than for those with higher risk scores, less for those who had not been diagnosed with a major psychiatric disorder, and less for those who had not been diagnosed with a major substance abuse disorder. The increase in health care use as a result of CIDP thus seems concentrated in more needy subgroups.

### **Effects for CIDP Enrollees**

The next two sets of results are intended to represent the effects for those who actually enrolled in CIDP. As discussed above, one set of results is based on an instrumental variables analysis, which relates the impact by site to the participation rate in CIDP for that site. A second set of results is based on a matched comparison of enrollees to individuals with similar demographics and health care histories.

Table 14 shows the instrumental variable estimates by year for costs and for events, pooled across the six projects. Because these estimates represent the effects for those who enrolled in CIDP and the intent-to-treat results in Table 11 represent the effects for everyone who was eligible for CIDP, the instrumental variable results should be much larger, and Table 14 shows that this is the case. For example, the estimated effect on total Medicaid costs for enrollees in Year 1 is \$9,268 compared with the intent-to-treat impact of \$1,259. In Year 2, CIDP is estimated to have increased total Medicaid costs by more than \$14,000 per enrollee.

**Chronic Illness Demonstration Project (CIDP)**

**Table 13**

**Estimated Impacts of CIDP on Health Care Costs and Use  
Pooled Across Projects, By Subgroup**

Outcome	Total Costs (\$)	Hospital Inpatient Days		Number of Primary Care Visits	
<b><u>Year 1</u></b>					
By risk score					
0.3 to 0.5	668	0.25	†††	0.75	†
Greater than 0.5	1,577	1.17		-0.17	
By mental health diagnosis					
Does not have a diagnosis	693	†	††	0.23	
Has a diagnosis	1,592	0.88		0.34	
By substance use diagnosis					
Does not have a diagnosis	524	0.26	†††	0.58	
Has a diagnosis	1,359	0.88		0.07	
<b><u>Year 2</u></b>					
By risk score					
0.3 to 0.5	1,145	-0.32		0.20	
Greater than 0.5	1,243	0.28		0.42	
By mental health diagnosis					
Does not have a diagnosis	1,333	-0.28		-0.02	†
Has a diagnosis	736	0.32		0.92	
By substance use diagnosis					
Does not have a diagnosis	2,013	0.12		0.52	
Has a diagnosis	552	-0.14		0.24	

SOURCE: MDRC calculations based on Medicaid claims and encounter data from the New York State Department of Health.

NOTE: A statistical test was applied to differences between impacts for each pair of subgroups. Statistical significance levels are indicated as follows: †††= 1 percent, †† = 5 percent, † = 10 percent.

The instrumental variable results also show substantial increases in health care use among enrollees. For example, CIDP increased hospital inpatient days by 2.5 per enrollee in Year 1 and 3.0 in Year 2. Likewise, the impact for those who enrolled in the project was estimated to be 4.1 primary care visits on average in Year 1 and 3.1 visits in Year 2. In general, the results show substantial increases across a wide range of health care events.

A second means of estimating the effect of CIDP on those who enrolled is to match enrollees to similar individuals from the control group. Although this is an intuitive approach to the issue, it should be noted that the results can be biased if enrollees differ systematically from

**Chronic Illness Demonstration Project (CIDP)**

**Table 14**

**Estimated Impacts of CIDP Participation on Health Care Costs:  
Instrumental Variable Results, Pooled Across Programs**

Outcome	Enrolled	Not Enrolled	Estimated Effect
<b><u>Year 1</u></b>			
Total costs (\$)	49,076	39,808	9,268 ***
Hospital admissions	21,035	16,131	4,904 ***
Emergency department	790	536	255 ***
Average number of events			
Hospital admissions	2.8	2.4	0.4 ***
Hospital inpatient days	13.7	11.2	2.5 ***
Emergency department visits	3.4	3.0	0.4 **
Primary care visits	16.8	12.7	4.1 ***
Specialist visits	4.8	5.0	-0.2
Mental health treatments	9.4	6.8	2.6 *
Substance use treatments	13.1	12.2	0.9
Prescription medications filled	8.9	6.8	2.0 ***
<b><u>Year 2</u></b>			
Total costs (\$)	52,928	38,834	14,094 ***
Hospital admissions	22,028	14,152	7,876 ***
Emergency department	746	436	311 ***
Average number of events			
Hospital admissions	2.6	2.1	0.5 ***
Hospital inpatient days	13.6	10.6	3.0 ***
Emergency department visits	3.4	2.7	0.7 **
Primary care visits	13.6	10.5	3.1 ***
Specialist visits	4.0	5.2	-1.2 **
Mental health treatments	8.7	6.1	2.7 **
Substance use treatments	14.6	13.8	0.9
Prescription medications filled	8.2	6.5	1.7 ***
Sample size	16,929	22,092	

SOURCE: MDRC calculations based on Medicaid claims and encounter data from the New York State Department of Health.

NOTE: A two-tailed t-test was applied to differences between the outcomes for the program and control groups. Statistical significance levels are indicated as follows: \*\*\* = 1 percent, \*\* = 5 percent, \* = 10 percent.

control group members in ways that cannot be observed. For example, projects may have had an easier time enrolling individuals who were not homeless, but the study did not have information on homelessness from Medicaid claims that were used to perform the match.

Table 15 presents results from this analysis, pooled across projects. Although these estimates of the effects of CIDP for enrollees do not perfectly match the instrumental variable results presented in Table 14, they are broadly consistent. Both sets of results indicate that CIDP substantially increased Medicaid costs for enrollees. Table 15 indicates that CIDP increased Medicaid costs by more than \$11,000 per year per CIDP enrollee, compared with similar control group members. Nearly half of this increase is due to hospital admissions (although unlike Table 14, Table 15 does not show significant increases in the number of hospital admissions or the average number of hospital days per enrollee). When CIDP had an effect on health care use for enrollees, it appears to have increased it. Table 15 suggests that in Year 1, for example, CIDP resulted in more primary care visits. In both years, the results suggest that CIDP resulted in more mental health treatments and more prescription medications being filled.

## **Discussion**

The results in this report provide little evidence to suggest that CIDP met its intended goals of increasing the use of primary care in order to reduce either hospitalizations, the unnecessary use of emergency care, or Medicaid costs. If anything, the results suggest that CIDP somewhat increased Medicaid costs, in large part due to increased costs from hospital admissions and the costs of providing the project's coordinated care services.

There are several possible explanations for these findings. First, increased hospital admissions may simply reflect the reality that individuals who were eligible for CIDP were extremely sick. One of the first steps in the intervention was to conduct a health assessment, which might have uncovered unmet medical needs that required hospitalization. MDRC's study of coordinated care projects in Colorado for Medicaid recipients with disabilities likewise found increased use of care, particularly of specialty care, suggesting the programs had uncovered unmet health care needs or had met social service needs that allowed individuals to go to the doctor.

Medicaid costs were also higher because CIDP increased the number of recipients who received case management. In the second year of the demonstration, for example, 13 percent to 14 percent of individuals who were eligible for CIDP received Medicaid case management in a typical month, compared with 7 percent of the control group. Since the projects were paid \$200 to \$300 per month to provide coordinated care services, monthly care-coordination fees paid to CIDP could also explain the increase in costs of several thousand dollars per enrollee per year.

**Table 15****Estimated Impacts of CIDP Participation on Health Care Costs  
for Enrollees Matched to Control Group Members, Pooled Across Projects**

Outcome	Program Group	Control Group	Estimated Effect	
<b><u>Year 1</u></b>				
Total costs (\$)	54,040	42,922	11,118	***
Hospital admissions	20,836	15,566	5,270	***
Emergency department	755	594	162	***
Average number of events				
Hospital admissions	2.5	2.5	0.0	
Hospital inpatient days	12.4	11.8	0.7	
Emergency department visits	3.2	3.4	-0.2	
Primary care visits	16.9	13.7	3.2	***
Specialist visits	5.1	5.3	-0.2	
Mental health treatments	10.6	6.9	3.7	***
Substance use treatments	13.6	11.9	1.7	*
Prescription medications filled	9.3	7.7	1.6	***
<b><u>Year 2</u></b>				
Total costs (\$)	53,006	41,800	11,205	***
Hospital admissions	18,786	13,411	5,375	***
Emergency department	595	488	107	
Average number of events				
Hospital admissions	2.1	2.3	-0.3	
Hospital inpatient days	10.8	11.8	-1.1	
Emergency department visits	2.7	3.1	-0.4	
Primary care visits	14.5	13.0	1.5	
Specialist visits	5.3	6.3	-1.0	
Mental health treatments	9.1	6.5	2.6	*
Substance use treatments	17.6	15.5	2.1	
Prescription medications filled	8.6	7.6	1.0	***
Sample size	1,233	1,233		

SOURCE: MDRC calculations based on Medicaid claims and encounter data from the New York State Department of Health.

NOTE: A two-tailed t-test was applied to differences between the outcomes for the program and control groups. Statistical significance levels are indicated as follows: \*\*\* = 1 percent, \*\* = 5 percent, \* = 10 percent.

Finally, costs may have been higher under CIDP because DOH began to require CIDP-eligible individuals in control group areas to enroll in managed care programs. According to state Medicaid data, by the end of the second year of the demonstration, the control group was nearly 10 percentage points more likely to be in Medicaid managed care than the program group. The capitated payments used in managed care may have reduced the cost of care and use of the health care system.<sup>57</sup> Thus, CIDP's effects on health care costs may have been smaller if the control group had remained in the fee-for-service system.

An analysis of how the projects were implemented tried to shed some light on why the projects were not more effective. One set of recommendations for operating coordinated care projects suggests that the projects should target individuals who have recently been hospitalized, should have substantial in-person contact, should have access to timely information on health care use, should have contact with primary care providers, and should use multidisciplinary care teams. In some respects, CIDP did well on this set of recommendations. For example, CIDP did target a population at substantial risk of hospitalization and projects used multidisciplinary care teams.

In other respects, CIDP fell somewhat short of best practices. For example, most projects included nurses as managers, but only two had trained clinical staff delivering the bulk of direct services. Likewise, DOH required that the projects have at least one in-person contact per quarter, but this was a lower rate than was maintained in more successful coordinated care programs. The projects also had difficulty establishing relationships with hospitals to assure access to timely information about emergency department visits or hospitalizations. Thus, they could not target services at those being released from the hospital, although several prior studies have found that individuals may be most amenable to change at that time.

Projects also faced a variety of challenges that stemmed from the demonstration design. These included inflexibility with memoranda of understanding for partners, uniform data-collection requirements that were not defined until after project start-up, and incomplete eligibility or contact information. The effects of these challenges on project implementation are evident. For example, care teams typically had significant enrollment and care-management responsibilities that were often difficult to balance. DOH's requirement that projects execute a prescribed memorandum of understanding before sharing patient information with partners made it difficult for some projects to convert existing relationships into formal ones for the demonstration and to develop formal relationships with hospitals, which were expected to provide timely notification of emergency department visits and hospitalizations and to provide access to needed services. Finally, having a small number of clients being served by any

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<sup>57</sup>“Capitation” is an arrangement that pays providers a set fee for each patient regardless of the care provided.

particular health care provider required projects to spend resources building relationships with a larger number of community partners and service providers.

The study could not examine every possible outcome that might have resulted from CIDP. In particular, there is little information on the quality of services provided in the different projects. Likewise, the study could not examine whether CIDP increased individuals' satisfaction with care, improved their use of social services, or improved their health. Finally, results are presented only through the second year, and it is possible that a longer intervention is needed to produce reductions in hospital admissions, emergency department use, and costs.

Despite these limitations, results from CIDP are consistent with a growing set of results in places like Colorado and Washington that suggest broad-based coordinated care interventions for high-needs Medicaid beneficiaries are difficult to implement and unlikely to result in reduced Medicaid costs.



**Appendix A**

**Required Elements for Health Assessments and Sample  
Questions**



## Chronic Illness Demonstration Project (CIDP)

### Appendix Table A.1

#### Required Elements for Health Assessments and Example Questions

<p><b>Physical health:</b> medical history, medication, home health services, nutrition, preventive health, and limitations of activities due to medical conditions.</p>	<ul style="list-style-type: none"> <li>• Have you been diagnosed with any of the following conditions? Diabetes, congestive heart failure, coronary artery disease, chronic obstructive pulmonary disease, asthma, HIV/AIDS, back pain, cancer, depression, other, none.</li> <li>• How many times did you visit the emergency room last year?</li> <li>• What medications — over the counter and prescribed — do you take?</li> <li>• Which of the following preventive screenings have you had in the last year? PSA, mammogram, pap smear, colonoscopy, bone density scan, none.</li> </ul>
<p><b>Mental health, substance abuse or chemical dependency:</b> feelings of nervousness, anxiety, or little interest in doing things. PHQ-9 measures depression, substance use (alcohol, tobacco, illicit drugs).</p>	<ul style="list-style-type: none"> <li>• Do you smoke cigarettes or use any other forms of tobacco?</li> <li>• Over the last two weeks, how often have you been bothered by feeling tired or having little energy? Not at all, several days, more than half the days, nearly every day. (from the PHQ-9)</li> </ul>
<p><b>Quality of life and functional status:</b> ability to complete activities of daily living independently such as dressing, bathing, preparing meals, and moving around. Uses SF-12 to gauge overall functioning and well-being.</p>	<ul style="list-style-type: none"> <li>• What is patient, family, or caregiver’s assessment of bathing? This refers to ability to wash entire body, not just hands and face, as part of grooming. (Milliman Chronic Care Guidelines)</li> <li>• During the past 4 weeks, how much of the time have your physical health or emotional problems interfered with your social activities (like visiting friends, relatives, etc.)? All of the time, most of the time, some of the time, a little of the time, none of the time. (from the SF-12)</li> </ul>
<p><b>Care satisfaction:</b> rating of medical care received and staff who worked with client.</p>	<ul style="list-style-type: none"> <li>• Rate your satisfaction with the medical care that you have received.</li> </ul>

(continued)

**Appendix Table A.1 (continued)**

<p><b>Availability of social support:</b> social support or concerns, non-health care-related needs such as food, utilities, transportation, legal issues, involvement with social services, opportunities for socialization.</p>	<ul style="list-style-type: none"> <li>• Does patient get invitations to go out and do things with other people? As much as patient would like; almost as much as patient would like; some, but patient would like more; less than patient would like, much less than patient would like; uncertain. (Duke-UNC Functional Social Support Questionnaire)</li> <li>• What significant psychosocial stressors are present? Problems at work or job loss; social disruption or isolation; involvement in or exposure to illegal activities; personal loss; unstable living situation; multiple family or others living in home; excessive conflict with parent, other family member, or caregiver; abusive situation; significant school problems (that is, failing school, disciplinary problems, or inability to attend school); other; none; uncertain. (Milliman Chronic Care Guidelines)</li> </ul>
<p><b>Life control or chaos:</b> life is organized, predictable, makes appointments.</p>	<ul style="list-style-type: none"> <li>• My daily activities from week to week are unpredictable. Strongly agree, agree, unsure, disagree, strongly disagree. (modified CHAOS scale)</li> </ul>
<p><b>Engagement with system:</b> asked to provide input in treatment plan, talk about medicines and their effects, have copy of treatment plan.</p>	<ul style="list-style-type: none"> <li>• Over the past 6 months, when I received care for my chronic conditions, I was given choices about treatment to think about. None of the time, a little of the time, some of the time, most of the time, always.</li> </ul>
<p><b>Readiness for change:</b> using the Patient Activation Measure (PAM) to gauge the knowledge, skills, and confidence of managing one’s own health and health care</p>	<ul style="list-style-type: none"> <li>• I am confident I can tell my health care provider concerns I have even when he or she does not ask. Strongly agree, agree, disagree, strongly disagree. (from the PAM-13)</li> </ul>

SOURCE: Sample of health assessments obtained from projects in the demonstration.

**Appendix B**

**Estimated Impacts of CIDP Participation by Project**



**Chronic Illness Demonstration Project (CIDP)**

**Appendix Table B.1**

**Estimated Impacts of CIDP Participation on Health Care Use and Costs:  
Healthy Partners of Erie**

Outcome	Program Group	Control Group	Estimated Effect	P-Value
<b><u>Year 1</u></b>				
Total costs (\$)	33,668	33,867	-198	0.53
Hospital admissions	11,563	12,004	-582	0.00 ***
Emergency department	518	550	-81	0.10 *
Average number of events				
Hospital admissions	1.68	1.89	0.08	0.59
Hospital inpatient days	10.62	10.02	0.51	0.55
Emergency department visits	3.28	5.19	0.13	0.65
Primary care visits	8.53	10.02	-0.60	0.34
Specialist visits	5.46	5.61	0.22	0.77
Mental health treatments	9.12	6.86	-1.84	0.14
Substance use treatments	10.20	10.96	-1.14	0.45
Prescription medications filled	7.17	7.96	0.02	0.93
<b><u>Year 2</u></b>				
Total costs (\$)	31,247	30,882	220	0.93
Hospital admissions	9,742	9,667	1,012	0.55
Emergency department	449	494	-40	0.61
Average number of events				
Hospital admissions	1.47	1.71	0.03	0.87
Hospital inpatient days	9.98	9.08	0.20	0.85
Emergency department visits	2.80	3.64	0.49	0.30
Primary care visits	7.47	8.23	-2.25	0.01 **
Specialist visits	5.09	5.36	-0.72	0.36
Mental health treatments	8.15	5.97	-0.83	0.54
Substance use treatments	12.31	9.37	-3.48	0.02 **
Prescription medications filled	7.01	7.14	-0.63	0.03 **
Sample size	1,399	1,467		

SOURCE: MDRC calculations based on Medicaid claims and encounter data from the New York State Department of Health.

NOTE: A two-tailed t-test was applied to differences between the outcomes for the program and control groups. Statistical significance levels are indicated as follows: \*\*\* = 1 percent, \*\* = 5 percent, \* = 10 percent.

**Chronic Illness Demonstration Project (CIDP)**

**Appendix Table B.2**

**Estimated Impacts of CIDP Participation on Health Care Use and Costs:  
Hospital 2 Home**

Outcome	Program Group	Control Group	Estimated Effect	P-Value
<b><u>Year 1</u></b>				
Total costs (\$)	42,383	39,067	3,316	0.53
Hospital admissions	18,037	16,200	-582	0.00 ***
Emergency department	611	520	-81	0.10 *
Average number of events				
Hospital admissions	2.53	2.36	0.08	0.59
Inpatient days	11.82	11.36	0.51	0.55
Emergency department visits	2.84	2.92	0.13	0.65
Primary care visits	13.80	12.02	-0.60	0.34
Specialist visits	5.39	5.04	0.22	0.77
Mental health treatments	6.73	6.16	-1.84	0.14
Substance use treatments	12.90	13.35	-1.14	0.45
Prescription medications filled	7.01	6.38	0.02	0.93
<b><u>Year 2</u></b>				
Total costs (\$)	40,737	39,276	220	0.93
Hospital admissions	15,810	14,704	1,012	0.55
Emergency department	456	481	-40	0.61
Average number of events				
Hospital admissions	2.22	2.22	0.03	0.87
Hospital inpatient days	10.94	11.55	0.20	0.85
Emergency department visits	2.56	3.06	0.49	0.30
Primary care visits	11.24	9.78	-2.25	0.01 **
Specialist visits	5.57	5.23	-0.72	0.36
Mental health treatments	5.88	5.64	-0.83	0.54
Substance use treatments	13.67	15.31	-3.48	0.02 **
Prescription medications filled	6.61	6.09	-0.63	0.03 **
Sample size	5,645	5,671		

SOURCE: MDRC calculations based on Medicaid claims and encounter data from the New York State Department of Health.

NOTE: A two-tailed t-test was applied to differences between the outcomes for the program and control groups. Statistical significance levels are indicated as follows: \*\*\* = 1 percent, \*\* = 5 percent, \* = 10 percent.

**Chronic Illness Demonstration Project (CIDP)**

**Appendix Table B.3**

**Estimated Impacts of CIDP Participation on Health Care Use and Costs:  
Live Healthy Care Management**

Outcome	Program Group	Control Group	Estimated Effect	P-Value
<b><u>Year 1</u></b>				
Total costs (\$)	41,652	40,919	733	0.53
Hospital admissions	17,296	16,644	-582	0.00 ***
Emergency department	564	512	-81	0.10 *
Average number of events				
Hospital admissions	2.56	2.50	0.08	0.59
Hospital inpatient days	11.99	10.76	0.51	0.55
Emergency department visits	2.91	2.67	0.13	0.65
Primary care visits	14.17	14.38	-0.60	0.34
Specialist visits	4.65	4.43	0.22	0.77
Mental health treatments	7.87	6.00	-1.84	0.14
Substance use treatments	12.07	11.98	-1.14	0.45
Prescription medications filled	7.02	7.09	0.02	0.93
<b><u>Year 2</u></b>				
Total costs (\$)	41,599	40,680	220	0.93
Hospital admissions	15,558	14,900	1,012	0.55
Emergency department	505	413	-40	0.61
Average number of events				
Hospital admissions	2.25	2.28	0.03	0.87
Hospital inpatient days	10.79	10.71	0.20	0.85
Emergency department visits	2.69	2.53	0.49	0.30
Primary care visits	11.30	11.41	-2.25	0.01 **
Specialist visits	4.25	5.02	-0.72	0.36
Mental health treatments	7.27	5.43	-0.83	0.54
Substance use treatments	13.31	14.20	-3.48	0.02 **
Prescription medications filled	6.68	6.79	-0.63	0.03 **
Sample size	4,351	9,683		

SOURCE: MDRC calculations based on Medicaid claims and encounter data from the New York State Department of Health.

NOTE: A two-tailed t-test was applied to differences between the outcomes for the program and control groups. Statistical significance levels are indicated as follows: \*\*\* = 1 percent, \*\* = 5 percent, \* = 10 percent.

**Chronic Illness Demonstration Project (CIDP)**

**Appendix Table B.4**

**Estimated Impacts of CIDP Participation on Health Care Use and Costs:  
Nassau Wellness Partners**

Outcome	Program Group	Control Group	Estimated Effect	P-Value
<b><u>Year 1</u></b>				
Total costs (\$)	37,106	37,982	-877	0.53
Hospital admissions	13,691	14,273	-582	0.00 ***
Emergency department	479	560	-81	0.10 *
Average number of events				
Hospital admissions	2.51	2.43	0.08	0.59
Hospital inpatient days	13.11	12.60	0.51	0.55
Emergency department visits	3.14	3.01	0.13	0.65
Primary care visits	9.24	9.84	-0.60	0.34
Specialist visits	6.11	5.89	0.22	0.77
Mental health treatments	6.38	8.23	-1.84	0.14
Substance use treatments	11.52	12.66	-1.14	0.45
Prescription medications filled	6.71	6.68	0.02	0.93
<b><u>Year 2</u></b>				
Total costs (\$)	38,400	38,180	220	0.93
Hospital admissions	13,598	12,586	1,012	0.55
Emergency department	431	471	-40	0.61
Average number of events				
Hospital admissions	2.14	2.11	0.03	0.87
Hospital inpatient days	11.75	11.55	0.20	0.85
Emergency department visits	3.18	2.68	0.49	0.30
Primary care visits	7.65	9.90	-2.25	0.01 **
Specialist visits	4.97	5.69	-0.72	0.36
Mental health treatments	7.14	7.97	-0.83	0.54
Substance use treatments	9.96	13.44	-3.48	0.02 **
Prescription medications filled	5.89	6.52	-0.63	0.03 **
Sample size	1,191	1,249		

SOURCE: MDRC calculations based on Medicaid claims and encounter data from the New York State Department of Health.

NOTE: A two-tailed t-test was applied to differences between the outcomes for the program and control groups. Statistical significance levels are indicated as follows: \*\*\* = 1 percent, \*\* = 5 percent, \* = 10 percent.

**Chronic Illness Demonstration Project (CIDP)**

**Appendix Table B.5**

**Estimated Impacts of CIDP Participation on Health Care Use and Costs:  
Pathways to Wellness**

Outcome	Program Group	Control Group	Estimated Effect	P-Value
<b>Year 1</b>				
Total costs (\$)	42,763	42,807	-44	0.53
Hospital admissions	17,323	18,241	-582	0.00 ***
Emergency department	598	564	-81	0.10 *
Average number of events				
Hospital admissions	2.47	2.37	0.08	0.59
Hospital inpatient days	11.34	11.20	0.51	0.55
Emergency department visits	3.06	2.82	0.13	0.65
Primary care visits	13.36	13.01	-0.60	0.34
Specialist visits	5.70	4.65	0.22	0.77
Mental health treatments	7.64	6.05	-1.84	0.14
Substance use treatments	12.00	12.48	-1.14	0.45
Prescription medications filled	7.00	7.01	0.02	0.93
<b>Year 2</b>				
Total costs (\$)	43,844	40,058	220	0.93
Hospital admissions	16,333	15,161	1,012	0.55
Emergency department	464	478	-40	0.61
Average number of events				
Hospital admissions	2.21	2.16	0.03	0.87
Hospital inpatient days	10.63	11.13	0.20	0.85
Emergency department visits	2.56	2.75	0.49	0.30
Primary care visits	11.59	10.01	-2.25	0.01 **
Specialist visits	5.36	4.94	-0.72	0.36
Mental health treatments	5.87	5.57	-0.83	0.54
Substance use treatments	14.94	13.99	-3.48	0.02 **
Prescription medications filled	6.87	6.63	-0.63	0.03 **
Sample size	2,987	2,777		

SOURCE: MDRC calculations based on Medicaid claims and encounter data from the New York State Department of Health.

NOTE: A two-tailed t-test was applied to differences between the outcomes for the program and control groups. Statistical significance levels are indicated as follows: \*\*\* = 1 percent, \*\* = 5 percent, \* = 10 percent.

**Chronic Illness Demonstration Project (CIDP)**

**Appendix Table B.6**

**Estimated Impacts of CIDP Participation on Health Care Use and Costs:  
Westchester Cares Action Program**

Outcome	Program Group	Control Group	Estimated Effect	P-Value
<b><u>Year 1</u></b>				
Total costs (\$)	38,281	36,643	1,639	0.53
Hospital admissions	15,237	13,725	-582	0.00 ***
Emergency department	548	529	-81	0.10 *
Average number of events				
Hospital admissions	2.06	2.10	0.08	0.59
Hospital inpatient days	10.81	11.26	0.51	0.55
Emergency department visits	3.44	3.26	0.13	0.65
Primary care visits	13.51	9.32	-0.60	0.34
Specialist visits	5.13	5.13	0.22	0.77
Mental health treatments	7.54	10.46	-1.84	0.14
Substance use treatments	11.78	12.74	-1.14	0.45
Prescription medications filled	6.81	6.80	0.02	0.93
<b><u>Year 2</u></b>				
Total costs (\$)	35,812	34,175	220	0.93
Hospital admissions	13,735	11,059	1,012	0.55
Emergency department	449	360	-40	0.61
Average number of events				
Hospital admissions	1.71	1.73	0.03	0.87
Hospital inpatient days	9.82	8.58	0.20	0.85
Emergency department visits	2.75	2.82	0.49	0.30
Primary care visits	11.36	9.85	-2.25	0.01 **
Specialist visits	5.41	5.22	-0.72	0.36
Mental health treatments	8.02	8.78	-0.83	0.54
Substance use treatments	14.45	12.66	-3.48	0.02 **
Prescription medications filled	6.01	6.51	-0.63	0.03 **
Sample size	1,356	1,245		

SOURCE: MDRC calculations based on Medicaid claims and encounter data from the New York State Department of Health.

NOTE: A two-tailed t-test was applied to differences between the outcomes for the program and control groups. Statistical significance levels are indicated as follows: \*\*\* = 1 percent, \*\* = 5 percent, \* = 10 percent.

**Appendix C**

**Estimated Impacts of CIDP by Risk Score, Mental Health  
Diagnosis, and Substance Abuse Diagnosis**



**Chronic Illness Demonstration Project (CIDP)**

**Appendix Table C.1**

**Estimated Impacts of CIDP on Health Care Use and Costs, by Risk Score at Baseline**

Outcome	Risk Score Between 0.3 and 0.5				Risk Score Greater Than 0.5					
	Program Group	Control Group	Estimated Effect	P-Value	Program Group	Control Group	Estimated Effect	P-Value		
<b>Year 1</b>										
Total costs (\$)	37,589	36,921	668	0.192	43,767	42,190	1577	0.064	*	
Hospital admissions	13,891	13,450	442	0.164	19,163	18,330	833	0.189		
Emergency department	503	490	13	0.350	638	556	82	0.000	***	†††
Average number of events										
Hospital admissions	1.8	1.9	0.0	0.584	2.9	2.8	0.1	0.181		
Hospital inpatient days	8.8	8.6	0.3	0.211	14.2	13.1	1.2	0.004	***	†††
Emergency department visits	2.7	2.8	-0.1	0.317	3.3	3.1	0.2	0.159		
Primary care visits	13.7	12.9	0.7	0.173	12.5	12.7	-0.2	0.715		†
Specialist visits	5.3	5.0	0.3	0.126	5.3	4.7	0.6	0.062	*	
Mental health treatments	7.5	6.5	1.0	0.015	**	7.4	6.5	0.9	0.138	†
Substance use treatments	12.4	12.6	-0.3	0.494	11.9	12.2	-0.3	0.344		
Prescription medications filled	7.2	7.1	0.1	0.419	6.8	6.8	0.0	0.639		
<b>Year 2</b>										
Total costs (\$)	36,980	35,836	1145	0.157	42,536	41,293	1243	0.160		
Hospital admissions	12,261	11,331	930	0.062	*	17,049	16,026	1023	0.077	*
Emergency department	413	394	19	0.296	503	470	33	0.264		†
Average number of events										
Hospital admissions	2	2	-0.1	0.247	2	2	0.0	0.964		
Hospital inpatient days	7.8	8.2	-0.3	0.296	12.7	12.4	0.3	0.486		
Emergency department visits	2.3	2.4	-0.1	0.320	2.9	3.0	-0.1	0.542		
Primary care visits	11.1	10.9	0.2	0.657	10.7	10.2	0.4	0.199		
Specialist visits	5.2	5.1	0.1	0.746	5.1	5.2	-0.1	0.835		
Mental health treatments	6.8	5.9	0.8	0.032	**	6.5	5.8	0.7	0.141	†
Substance use treatments	13.8	14.8	-1.0	0.147	13.4	13.5	-0.1	0.803		
Prescription medications filled	6.9	6.8	0.1	0.553	6.4	6.5	0.0	0.704		
Sample size	7,703	10,363			9,226	11,729				

(continued)

### Appendix Table C.1 (continued)

SOURCE: MDRC calculations based on Medicaid claims and encounter data from the New York State Department of Health.

NOTES: A two-tailed t-test was applied to differences between the outcomes for the program and control groups. Statistical significance levels are indicated as follows: \*\*\* = 1 percent, \*\* = 5 percent, \* = 10 percent. A statistical test was applied to differences in impacts between subgroups. Statistical significance levels are indicated as follows: ††† = 1 percent, †† = 5 percent, † = 10 percent.

**Chronic Illness Demonstration Project (CIDP)**

**Appendix Table C.2**

**Estimated Impacts of CIDP on Health Care Use and Costs, by Previous Diagnosis of Major Psychiatric Disorder**

Outcome	Did Not Receive a Diagnosis				Received a Diagnosis					
	Program Group	Control Group	Estimated Effect	P-Value	Program Group	Control Group	Estimated Effect	P-Value		
<b>Year 1</b>										
Total costs (\$)	40,616	39,923	693	0.349	41,209	39,617	1592	0.030	**	†
Hospital admissions	16,719	16,418	301	0.556	16,548	15,647	901	0.088	*	
Emergency department	583	528	55	0.001	560	525	35	0.117		†††
Average number of events										
Hospital admissions	2.4	2.4	0.0	0.886	2.4	2.4	0.1	0.380		
Hospital inpatient days	11.1	10.6	0.5	0.051	12.7	11.8	0.9	0.025	**	††
Emergency department visits	3.1	3.0	0.1	0.566	2.9	2.9	0.0	0.878		
Primary care visits	12.3	12.0	0.2	0.604	14.3	14.0	0.3	0.616		
Specialist visits	5.6	4.9	0.7	0.024	4.7	4.6	0.1	0.601		†
Mental health treatments	2.8	2.6	0.2	0.154	15.1	12.9	2.2	0.052	*	
Substance use treatments	12.3	12.9	-0.5	0.100	11.7	11.7	0.1	0.876		
Prescription medications filled	6.7	6.6	0.0	0.840	7.5	7.4	0.2	0.107		
<b>Year 2</b>										
Total costs (\$)	40,702	39,369	1333	0.161	39,728	38,993	736	0.459		
Hospital admissions	15,647	14,637	1010	0.078	14,325	13,648	677	0.301		
Emergency department	495	444	50	0.046	424	438	-14	0.666		
Average number of events										
Hospital admissions	2	2	-0.1	0.223	2	2	0.0	0.888		
Hospital inpatient days	10.2	10.4	-0.3	0.316	11.6	11.3	0.3	0.537		
Emergency department visits	2.6	2.7	-0.1	0.473	2.7	2.8	-0.1	0.490		
Primary care visits	10.4	10.4	0.0	0.951	11.5	10.6	0.9	0.032	**	†
Specialist visits	5.3	5.3	0.0	0.964	4.9	4.9	0.1	0.835		
Mental health treatments	2.9	2.7	0.2	0.206	12.4	10.8	1.7	0.060	*	
Substance use treatments	14.2	14.8	-0.7	0.228	12.6	12.7	-0.1	0.833		
Prescription medications filled	6.3	6.4	0.0	0.832	7.1	7.0	0.1	0.462		
Sample size	10,497	13,717			6,432	8,375				

(continued)

**Appendix Table C.2 (continued)**

SOURCE: MDRC calculations based on Medicaid claims and encounter data from the New York State Department of Health.

NOTES: A two-tailed t-test was applied to differences between the outcomes for the program and control groups. Statistical significance levels are indicated as follows: \*\*\* = 1 percent, \*\* = 5 percent, \* = 10 percent. A statistical test was applied to differences in impacts between subgroups. Statistical significance levels are indicated as follows: ††† = 1 percent, †† = 5 percent, † = 10 percent.

**Chronic Illness Demonstration Project (CIDP)**

**Appendix Table C.3**

**Estimated Impacts of CIDP on Health Care Use and Costs, by Previous Receipt of Alcohol or Drug Treatment**

Outcome	Did Not Receive Treatment				Did Receive Treatment			
	Program Group	Control Group	Estimated Effect	P-Value	Program Group	Control Group	Estimated Effect	P-Value
<b>Year 1</b>								
Total costs (\$)	40,855	40,331	524	0.531	40,839	39,480	1359	0.042 **
Hospital admissions	15,814	15,666	148	0.802	17,190	16,418	772	0.082 *
Emergency department	559	529	30	0.053 *	585	526	59	0.004 *** †††
Average number of events								
Hospital admissions	2.0	2.0	0.0	0.765	2.7	2.6	0.0	0.549
Hospital inpatient days	9.5	9.3	0.3	0.448	13.1	12.2	0.9	0.002 *** †††
Emergency department visits	2.9	3.0	0.0	0.743	3.0	3.0	0.1	0.486
Primary care visits	11.2	10.6	0.6	0.228	14.2	14.1	0.1	0.909
Specialist visits	6.3	5.6	0.7	0.037 **	4.7	4.3	0.3	0.179 †
Mental health treatments	10.6	9.8	0.9	0.137	5.4	4.4	1.0	0.073 *
Substance use treatments	7.9	8.2	-0.2	0.028 **	14.7	15.1	-0.3	0.455 †
Prescription medications filled	7.3	7.3	0.0	0.915	6.8	6.7	0.1	0.262
<b>Year 2</b>								
Total costs (\$)	42,198	40,185	2013	0.105	39,195	38,643	552	0.458
Hospital admissions	15,305	13,914	1391	0.072 *	15,025	14,452	573	0.218
Emergency department	451	436	15	0.379	476	445	31	0.314
Average number of events								
Hospital admissions	2	2	0.0	0.689	2	2	-0.1	0.242
Hospital inpatient days	9.3	9.2	0.1	0.773	11.6	11.8	-0.1	0.695
Emergency department visits	2.6	2.7	-0.1	0.496	2.7	2.8	-0.1	0.443
Primary care visits	10.5	9.9	0.5	0.251	11.1	10.8	0.2	0.487
Specialist visits	5.8	5.8	0.1	0.873	4.7	4.7	0.0	0.948
Mental health treatments	9.9	8.8	1.0	0.062 *	4.7	4.1	0.6	0.141
Substance use treatments	8.3	8.4	0.0	0.872	16.7	17.4	-0.7	0.340
Prescription medications filled	7.1	7.0	0.0	0.837	6.3	6.3	0.0	0.918
Sample size	6,705	8,399			10,224	13,693		

(continued)

**Appendix Table C.3 (continued)**

SOURCE: MDRC calculations based on Medicaid claims and encounter data from the New York State Department of Health.

NOTES: A two-tailed t-test was applied to differences between the outcomes for the program and control groups. Statistical significance levels are indicated as follows: \*\*\* = 1 percent, \*\* = 5 percent, \* = 10 percent. A statistical test was applied to differences in impacts between subgroups. Statistical significance levels are indicated as follows: ††† = 1 percent, †† = 5 percent, † = 10 percent.

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## About MDRC

MDRC is a nonprofit, nonpartisan social and education policy research organization dedicated to learning what works to improve the well-being of low-income people. Through its research and the active communication of its findings, MDRC seeks to enhance the effectiveness of social and education policies and programs.

Founded in 1974 and located in New York City and Oakland, California, MDRC is best known for mounting rigorous, large-scale, real-world tests of new and existing policies and programs. Its projects are a mix of demonstrations (field tests of promising new program approaches) and evaluations of ongoing government and community initiatives. MDRC's staff bring an unusual combination of research and organizational experience to their work, providing expertise on the latest in qualitative and quantitative methods and on program design, development, implementation, and management. MDRC seeks to learn not just whether a program is effective but also how and why the program's effects occur. In addition, it tries to place each project's findings in the broader context of related research — in order to build knowledge about what works across the social and education policy fields. MDRC's findings, lessons, and best practices are proactively shared with a broad audience in the policy and practitioner community as well as with the general public and the media.

Over the years, MDRC has brought its unique approach to an ever-growing range of policy areas and target populations. Once known primarily for evaluations of state welfare-to-work programs, today MDRC is also studying public school reforms, employment programs for ex-offenders and people with disabilities, and programs to help low-income students succeed in college. MDRC's projects are organized into five areas:

- Promoting Family Well-Being and Children's Development
- Improving Public Education
- Raising Academic Achievement and Persistence in College
- Supporting Low-Wage Workers and Communities
- Overcoming Barriers to Employment

Working in almost every state, all of the nation's largest cities, and Canada and the United Kingdom, MDRC conducts its projects in partnership with national, state, and local governments, public school systems, community organizations, and numerous private philanthropies.