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**Enrollment Patterns and  
Medical Expenditures for  
Medicaid Buy-In  
Participants in Five States**

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## **EXECUTIVE SUMMARY**

### **OVERVIEW**

During the last two decades, a number of public policies and judicial decisions have enhanced opportunities for individuals with disabilities to participate in all aspects of society, including employment. New treatments, medical devices, and technologies also have enabled individuals with disabilities to seek and maintain employment in all types of jobs. Despite these developments, the unemployment rate among adults with disabilities has increased.

One major deterrent to greater employment among adults with disabilities is the lack of adequate employer-based health insurance coverage. Because the presence of a pre-existing disability or chronic health condition may make adequate private coverage unavailable or very expensive, individuals with disabilities who want to work may have to obtain public health insurance (Medicaid, Medicare, or both) to pay for needed medical services. Many individuals with disabilities who already have Medicaid or Medicare because they receive Supplemental Security Income (SSI) or Social Security Disability Insurance (SSDI) benefits fear that earnings from employment will cause them to lose both their health insurance coverage and cash benefits. Still other individuals with disabilities who are enrolled in Medicaid may find that their conditions improve to the point where they no longer qualify for cash assistance, but they still require health insurance coverage that supports access to needed medical services.

The Buy-In option under Medicaid is part of an emerging system of initiatives designed to promote employment and economic self-sufficiency for individuals with disabilities. Under the federal legislation establishing this option, states can amend their Medicaid programs to enable individuals with disabilities to purchase (i.e., “buy into”) Medicaid coverage and so obtain access to basic medical care and special services, such as personal assistance. By making health insurance more available and affordable, policymakers hope to assist individuals with disabilities in their efforts to seek and maintain employment.

As of December 31, 2003, 27 states had implemented Medicaid Buy-In programs, with a total enrollment of more than 60,000, up 36 percent from the previous year. These states vary widely in the structural features of their Medicaid Buy-In programs and in participant earnings and medical expenditures. As part of their role in monitoring the Buy-In program, the Centers for Medicare & Medicaid Services (CMS) ask states to provide information on program structure, enrollment patterns, and participants’ premium payments, earnings, and medical expenditures.

### **STUDY PURPOSE**

CMS initiated the study described in this report to (1) examine selected policy questions related to participation in the Medicaid Buy-In program, and (2) assess the feasibility of examining these questions using information from federal databases.

Specifically, the study addressed the following policy questions:

- How many individuals were enrolled in the Buy-In program in 2001, how long they were enrolled, what were their demographic characteristics, and what types of chronic conditions did they have?
- What percentage of Buy-In participants were on Medicaid and Medicare before enrolling in the Buy-In program? To what extent did participants who left the Buy-In program also leave Medicaid?
- What were the Medicaid and Medicare expenditures for Buy-In participants?
- To what extent can structural features of each state's program explain the observed patterns of enrollment and medical expenditures?

Although it would have been technically possible to obtain most of the information from states to address these questions, we chose to examine the feasibility of using federal databases instead. The use of these databases could both expand the amount of information beyond what the states could provide easily and relieve states from some of their reporting burden. Specifically, we assessed the feasibility of integrating information from Medicaid and Medicare data files to examine enrollment patterns and medical expenditures of Medicaid Buy-In participants. Examining Medicare and Medicaid expenditures together is important because, in most states, more than three-quarters of Medicaid Buy-In participants also are enrolled in Medicare.

We used data from California, Iowa, Massachusetts, Minnesota, and Wisconsin because these states (1) had a Medicaid Infrastructure Grant (MIG), (2) had approved Medicaid Statistical Information System (MSIS) data files, and (3) used Buy-In codes in their MSIS files that indicated whether a beneficiary was a Buy-In participant in 2001. We focused on 2001 data because they were the most recent data available.

To address the selected policy questions, we gathered quantitative data on program enrollment and medical expenditures from two databases available at CMS: (1) the MSIS eligibility and claims files and (2) the Medicare enrollment database (EDB) and claims files. We developed descriptive tables presenting key findings and analyzed the descriptive findings in relation to the structural features of the five states' Buy-In, Medicaid, and other work-incentive programs. Because this is the first study of Buy-In participants to use federal databases, we also assessed the utility and quality of data from the MSIS and Medicare files in relation to such criteria as sample completeness, accuracy, and timeliness.

## **POLICY FINDINGS**

We found that the Medicaid Buy-In programs in the five study states were similar with respect to certain patterns of enrollment and medical expenditures. In all of these programs:

- Enrollment grew over time.
- A majority of participants (between 54 and 65 percent) were enrolled in Medicaid prior to enrollment in the Buy-In program in 2001.
- The two groups of chronic conditions for which participants were most likely to receive treatment were skeletal/connective tissue disorders and psychiatric conditions.
- Between 55 and 83 percent of participants had multiple chronic conditions.
- Relatively few participants (four to seven percent) had private insurance at the time of enrollment in the Buy-In program.
- Prescription drugs were the single most expensive Medicaid service and, for Buy-In participants who also were enrolled in Medicare, inpatient care was the most expensive Medicare service.
- Total per member per month (PMPM) costs (combining Medicaid and Medicare payments) were higher for participants who had Medicaid immediately before enrolling into the Buy-In program compared with participants who did not.

Although we found similarities in certain Buy-In program enrollment and expenditure patterns in the five study states, we also identified substantial differences among the programs. In many cases, one state was quite different from the other four, but the outlier was not always the same state. For example:

- Between 39 and 52 percent of Medicaid Buy-In participants in four of the five study states (Iowa, Massachusetts, Minnesota, and Wisconsin) were enrolled for all 12 months of 2001; in California, only 24 percent of the participants were enrolled for this period.
- Based on data from Medicare files, we found that more than 90 percent of Medicaid Buy-In participants were enrolled in Medicare at some point in 2001 in four of the five study states (California, Iowa, Minnesota, and Wisconsin); in Massachusetts, 64 percent of the participants were Medicare beneficiaries.
- PMPM Medicaid expenditures were between \$499 and \$609 in four of the five study states (California, Iowa, Massachusetts, and Wisconsin), but were more than \$1,200 in Minnesota.

There are many factors that could lead one state to be an outlier on a particular enrollment or expenditure variable. For example, program growth can be shaped by (1) the specific structural features of the Buy-In program (such as asset limits and premium levels), (2) characteristics of the states' Medicaid and other work-incentive programs (such as financial thresholds for Medicaid itself and Medicaid medically needy programs), and (3) the overall economy of the state. Medical expenditures for Buy-In participants also can be influenced by various parameters, such as the specific disabling conditions of the participants themselves and the

breadth of the state's Medicaid benefit package. The multiple interacting factors that affect Buy-In enrollment and the complexity of these interactions make it difficult to develop cross-state hypotheses about enrollment dynamics or expenditure patterns. Enrollment and expenditure patterns in the Medicaid Buy-In program are best analyzed in relation to the ways that work-incentive, cash benefit, and health insurance programs interact within each state.

## **FEASIBILITY FINDINGS**

We were able to develop a person-level database that integrated information from Medicaid and Medicare files for participants in the Medicaid Buy-In program in the five states. Our analyses indicated that the database met acceptable standards of completeness and accuracy. The major drawback to the database involved the time lag in the availability of Medicaid claims data. If these data become available in a more timely manner, the development of an integrated database will be enhanced substantially.

A database with integrated Medicaid and Medicare data has several methodological advantages over a database with either kind of data alone. Most important, it provides for a comprehensive assessment of Medicaid and Medicare expenditures and service use for dually enrolled individuals. This is significant because a very large proportion of Buy-In participants in most states are enrolled in Medicare. In addition, the integration of these two data files allows for more accurate identification of dually enrolled Buy-In participants. Integrating these data also yields additional diagnostic information, which can be helpful for identifying participants' chronic health conditions.

This study shows that federal databases can be used to generate descriptive information about participation in the Buy-In program that states cannot easily provide directly. The information on enrollment patterns and medical expenditures included in this study may be useful to CMS staff in their role of monitoring the Medicaid Buy-In program, and to staff in state Medicaid agencies who are working to develop or refine Buy-In programs. Furthermore, the use of federal databases could relieve some of the states' reporting burden without threatening the accuracy or reliability of the data.

## **CONCLUSION**

This study demonstrates the feasibility of using federal databases to address important policy questions related to the Medicaid Buy-In program. The person-level, integrated database developed for this study could contribute to a comprehensive reporting system on the employment and health insurance status of individuals with disabilities. Adding Social Security Administration (SSA) data to the database, which we hope to do in a later study, could substantially enhance its utility. Finally, this database can be used to track trends in Buy-In enrollment as Medicare begins to offer pharmaceutical coverage, a change which may reduce the attractiveness of the Buy-In program to some SSDI beneficiaries.



## I. INTRODUCTION

### A. POLICY CONTEXT

During the last two decades, a number of public policies and judicial decisions have enhanced opportunities for individuals with disabilities to participate in all aspects of society, including employment. New treatments, medical devices, and technologies also have enabled individuals with disabilities to seek and maintain employment in all types of jobs. Despite these developments, the unemployment rate among adults with disabilities has increased (Kaye 2002; Taylor 2001).

One major deterrent to employment for adults with disabilities is an absence of adequate employer-based health insurance coverage. As a result, working-age adults who become disabled may be forced to stop working to obtain public coverage because the severity and longevity of their condition makes private coverage to supplement employee-based insurance coverage either unavailable or prohibitively expensive. Moreover, characteristics of the public health insurance system perpetuate disincentives to employment. For example, many individuals who receive Social Security Disability Insurance (SSDI) benefits or Supplemental Security Income (SSI) but who could work (or work more) may not seek employment (or additional employment) for fear that higher earnings will cause them to lose their Medicaid or Medicare coverage and their cash benefits (Yelowitz 1998). Other individuals whose medical condition improves to the point where they no longer qualify for SSI or SSDI benefits may still need health insurance to cover basic medical needs so that they can stay healthy enough to work.

In response to this situation, Congress passed legislation in 1997 and 1999 establishing the national Medicaid Buy-In program as an important component in an emerging system of government-funded initiatives designed to promote employment and economic self-sufficiency

for individuals with disabilities. Under the federal legislation, states can amend their Medicaid programs so that individuals with disabilities who work can purchase Medicaid coverage for basic medical care and special services, such as personal assistance, that can help them stay employed. By making health insurance more available and affordable, policymakers hope to enhance access to medical care and also:

- Provide disabled adults with an extra incentive to seek employment
- Make it easier for workers with disabilities to stay employed
- Help disabled adults on public assistance to find work<sup>1</sup>

Since states began implementing Medicaid Buy-In programs, enrollment has steadily increased, reaching just over 60,000 as of December 31, 2003 in the 27 states with Medicaid Buy-In programs, up from about 44,000 in 25 states a year earlier.<sup>2</sup> States vary markedly in terms of the structural features of their Buy-In programs (Jensen 2003). For example, in one of the five states in this study (California), individuals are not eligible for the program if they have assets that exceed \$2,000; in three states (Iowa, Minnesota, and Wisconsin), the asset limit is above \$12,000; and in one state (Massachusetts), there is no asset limit. The methods used to calculate premium payments and the actual dollar amounts of the premiums also vary. For example, California sets the premium payment based on a sliding scale keyed to countable income; Massachusetts sets premiums based on increments of the family's income relative to the

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<sup>1</sup>These policy goals are shared by other federal and state initiatives that interact with the Buy-In program, including the Social Security Administration's (SSA) Ticket to Work and Benefit Outreach and Assistance programs, the Department of Labor's efforts to enhance the capacity of their one-stop centers to serve individuals with disabilities, and other components of the current administration's New Freedom Initiative.

<sup>2</sup>Information from quarterly reports submitted to CMS by states, provided by Steve Knapp, OICS/Acquisitions and Grants Group, CMS.

federal poverty limit. As we describe in Chapter III, the other three states use still other approaches to set premiums.

States also differ in how eligibility criteria for their Medicaid Buy-In programs intersect with eligibility criteria for the basic Medicaid program, the Medicaid medically needy program, and other work-incentive initiatives. For example, the Buy-In program will be more attractive to individuals with disabilities if a state has substantial restrictions on how much an individual can earn and still receive Medicaid through the SSI program (a figure known as the 1619(b) threshold). In contrast, the Buy-In program will be less attractive if a state has a high 1619(b) threshold. (High thresholds mean that individuals receiving SSI benefits and therefore Medicaid will have little incentive to enroll in the Buy-In program because they will not lose Medicaid coverage or pay premiums until their earnings pass a level that is high relative to states with more restrictive 1619(b) thresholds.) We discuss this issue further in Chapter III.

## **B. STUDY OBJECTIVES AND OVERVIEW**

Because the Medicaid Buy-In program is an important component in the overall federal effort to improve employment opportunities for adults with disabilities, the Centers for Medicare & Medicaid Services (CMS) are tracking program implementation carefully and monitoring program enrollment and characteristics of participants, including their earnings and medical expenditures. Policymakers and program administrators also are interested in understanding whether different program parameters and specific state policies may affect program participation, because this information can help states to develop or refine their Buy-In programs.

To achieve these objectives, CMS needs comprehensive data on program structure; enrollment patterns; and participants' earnings, premium payments, and medical expenditures.

For some of these variables, the states can easily provide the information to CMS, but for others, such as Buy-In participants' Medicare expenditures, information is not maintained at the state level. Examining Medicare and Medicaid expenditures together is important because in most states, more than three-quarters of Medicaid Buy-In participants are enrolled in Medicare.

CMS wants to identify data collection strategies that minimize the states' reporting burden and diminish state-to-state variation in reporting methods and sources. For this reason, in addition to examining key policy issues, we assessed the feasibility of integrating information from federal Medicaid and Medicare data files to examine enrollment patterns and medical expenditures of Medicaid Buy-In participants. Overall, this study illustrates how federal data could supplement, and perhaps replace, some data now provided to CMS by states in their annual reports on the Medicaid Buy-In program.

We used data from California, Iowa, Massachusetts, Minnesota, and Wisconsin because these states (1) had a Medicaid Infrastructure Grant (MIG), (2) had approved Medicaid Statistical Information System (MSIS) data files, and (3) used Buy-In codes in their MSIS files that indicated whether a beneficiary was a Buy-In participant in 2001. We focused on 2001 data because they were the most recent data available.

Specifically, the study addresses the following research questions related to enrollment:

- How many individuals were enrolled in the Medicaid Buy-In program in the selected states in 2001 and for how long?
- What were the demographic characteristics of enrollees and for what types of chronic conditions did they receive treatment?
- How much “churning” was there in state Medicaid Buy-In programs in 2001 (i.e., did many beneficiaries enroll, disenroll, and enroll again)?
- What percentage of Buy-In participants were on Medicaid and Medicare when they enrolled in the Buy-In program? To what extent did participants who left the Buy-In program also leave Medicaid?

The study also addressed the following research questions related to Medicaid and Medicare service use and expenditures:

- What services were Buy-In participants most likely to use?
- What were Medicaid and Medicare expenditures for Buy-In participants in each state?
- How did expenditures differ across types of services and subgroups of Buy-In participants?

In addition to addressing these questions quantitatively, we conducted a preliminary assessment of the extent to which features of the state's Buy-In and other work-incentive programs can be identified as influential factors in shaping a state's enrollment patterns. Insight into the possible relationships between structural features of a Buy-In program and participation patterns could help state policymakers refine their Buy-In programs or develop new ones where none now exist.

Finally, we examined the utility and quality of MSIS and Medicare files in terms of sample completeness, accuracy, and timeliness, and made recommendations for next steps in the development of a comprehensive and efficient system for tracking participation in the state Medicaid Buy-In programs.

## **C. PLAN OF THE REPORT**

Chapter II of this report introduces data sources and methods of integrating and analyzing the data, and Chapter III presents descriptions of the Buy-In programs in five states. Chapter IV describes enrollment patterns in the study states and our interpretation of these patterns in the context of each state's program and the larger Medicaid environment. In Chapter V, we discuss findings on the Buy-In participants' medical expenditures in the five states. Chapter VI includes an assessment of data quality and discusses the advantages and disadvantages of our overall

approach to developing an integrated database. The final chapter presents conclusions, discusses the implications of our findings for CMS and state policymakers and administrators, and identifies future research directions.

## II. DATA AND METHODS

### A. DATA SOURCES

The integrated database for our analysis includes both individual- and state-level data.

Specifically, individual-level data were drawn from the following files:

- ***MSIS Eligibility and Claims Files.*** Eligibility and paid claims files are two components of MSIS, a federally mandated program in which states provide quarterly data to CMS. MSIS was designed for research purposes, and all states must take their Medicaid Management Information System (MMIS) data and convert them into the uniform MSIS format. The eligibility file, which contains one record for each person covered by Medicaid, consists of demographic and monthly enrollment data. The paid claims files have records for each health care encounter paid for by Medicaid, and include information on service type, provider, dates, costs, and capitation payments. There are four types of claims files: inpatient, long-term care, prescription drugs, and other noninstitutional services. We used calendar year 2001 files because these were the most recent files available at the time of the study.
- ***Medicare EDB and Claims Files.*** The Medicare Enrollment Data Base (EDB) file, maintained by CMS, contains eligibility and enrollment data for people who are now or have ever been enrolled in Medicare. A source of information on demographic characteristics and geographic distribution of the entire Medicare population, the EDB is used primarily to establish the entitlement for Medicare beneficiaries and support the claims payment process nationwide. For our purpose, we first matched the Medicaid Buy-In enrollees to EDB records using their Social Security Number (SSN) and date of birth. For those with a positive match, we then extracted their Medicare claims information, including types of service, dates and costs, through the Data Extraction System (DESY).

State-level data for our analysis came from the following sources:

- ***Quarterly Progress Reports Submitted by Medicaid Infrastructure Grant (MIG) States to CMS.*** These reports describe the administrative features of each state's program and the total enrollment at the end of each quarter. They also summarize major state outreach activities in the quarter, which is an important element in our analysis of the association between program structural characteristics and enrollment.
- ***State Annual Buy-In Reports Submitted by MIG States to CMS in 2001 and 2002.*** These reports include program-level enrollment and participation data collected by states from their MMIS files, statewide or multi-agency eligibility systems, files supplied to them by the Social Security Administration (SSA), state billing and

collection records, and Unemployment Insurance (UI) data systems. The detailed list of data sources used by states for their annual Buy-In reports can be found elsewhere (Ireys et al. 2003).

- ***State-Sponsored Evaluations and Studies.*** We obtained state-specific studies of the Buy-In program for three of our five study states:
  - In California, the Medi-Cal Policy Institute of the California HealthCare Foundation funded a study of the California Medicaid Buy-In program. The study team examined factors affecting enrollment and estimated the impacts of certain program changes on enrollment and costs.
  - In Massachusetts, the Center for Health Policy and Research at the University of Massachusetts Medical School used both administrative and survey data for a study of enrollment and costs of care for low-income workers with disabilities, and their perceptions of their service needs and employment supports.
  - In Wisconsin, the Department of Health and Family Services sponsored a study of the state's Medicaid Purchase Plan (MAPP) for the three years following its inception in 2000. The reports from the evaluation present both a thorough process analysis and an analysis of program impacts, service use, and costs.

## **B. DATA INTEGRATION AND ANALYSIS**

Figure II.1 illustrates the steps we used for integrating the data and developing the report. The data-integration process began by first identifying Medicaid Buy-In participants in the five states' MSIS eligibility files using Buy-In codes.<sup>3</sup> Next, we extracted participants' identification information, including Social Security number, birth date, sex, race, and monthly enrollment data from the MSIS eligibility files and produced finder files for all five states. Then we used the finder files to extract Medicaid use and expenditure information from MSIS claims files. For people who were dually eligible, we also used the finder files to extract Medicare enrollment

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<sup>3</sup>So far, there are 12 states that have state-specific eligibility codes for Buy-In participants in their MSIS data. However, at the time of our study, some states did not have a MIG (e.g., Mississippi), or approved MSIS data files for the full year of 2001 (e.g., New Mexico). Other states did not use the available Buy-In codes in 2001 (e.g., Nebraska). Only California, Iowa, Massachusetts, Minnesota, and Wisconsin had all of the necessary characteristics.

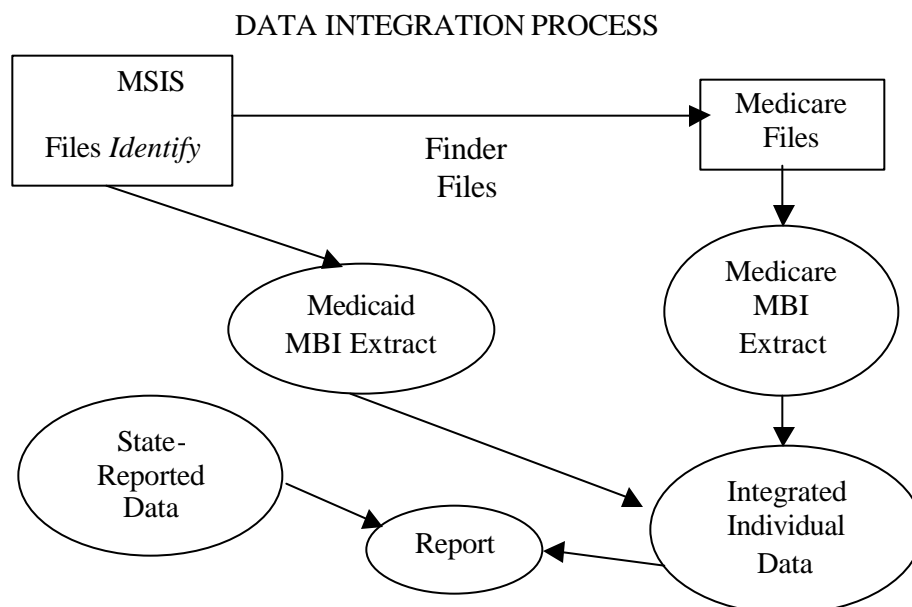


information, service use, and expenditures from Medicare EDB and claims files. We linked the demographic characteristics and Medicaid and Medicare service records, and created individual-level records that contained monthly enrollment and medical expenditure information for every Buy-In participant in each study state. By analyzing this integrated individual-level data, we were able to provide a comprehensive picture of enrollment patterns and medical expenditures of Buy-In participants covered by public programs in the five states.

In addition, we examined data available in state annual reports on the Buy-In program and state-specific evaluations. Using state-level data brought three major benefits:

- The state-reported data complemented and extended the individual-level data in analyses of trends in program development because multiple years of state-level data were available.
- State-reported data could be used as a comparison to assess the quality of the integrated individual-level data. Specifically, when a particular data element was available in both the individual-level data and state-reported data, we were able to examine the concordance between the two data sources.
- States' quarterly reports to CMS' MIG website, together with their evaluations and studies, provided critical information for our descriptions of the Buy-In programs in each of our study states.

FIGURE II.1



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### III. DESCRIPTIONS OF THE BUY-IN PROGRAMS IN FIVE STATES

All states with Medicaid Buy-In programs have established specific eligibility criteria that define the population of adults with disabilities eligible for the program and have made efforts to disseminate information about their programs. These program-specific eligibility criteria and outreach efforts shape enrollment patterns. For example, all else being equal, states with Buy-In programs that have generous asset limits (i.e., an individual is allowed assets such as a home or a car while still being eligible for the Buy-In program) and an aggressive outreach campaign will more likely experience higher rates of enrollment than states with strict asset limits and few outreach efforts.

In addition, enrollment in state Buy-In programs is driven by many other factors that can interact in complex ways. These broader environmental factors include (1) the general economic growth and employment trends in the state; (2) characteristics of the state's basic Medicaid program and eligibility criteria for relevant categories of Medicaid coverage, such as the medically needy program;<sup>4</sup> and (3) the availability and structural characteristics of other state work-incentive programs. Some of these factors promote enrollment in Buy-In programs and others constrain it. For these reasons, Buy-In programs that have some features in common can still have different enrollment patterns because of differences in other state-level factors.

In this chapter, we describe briefly the Buy-In program in each of our five study states, including the program's specific intent and its relation to other state programs designed to provide access to insurance coverage and promote employment. These descriptions, which are

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<sup>4</sup>The medically needy option was originally established to provide a pathway to Medicaid coverage for people who have extensive health care needs but start out with too much income to qualify for coverage.

based on material provided to CMS by the states and on available studies of the specific programs themselves, provide contextual information for interpreting the state-specific enrollment patterns and medical expenditures presented in Chapters IV and V, respectively and more generally for identifying specific factors or combinations of factors that promote Buy-In enrollment. As a foundation for the descriptions of the five states' Buy-In programs, we have assembled information on the trends of program enrollment from 2000 to 2002 (Figure III.1) and the relevant structural features of key public assistance programs in each state (Table III.1).

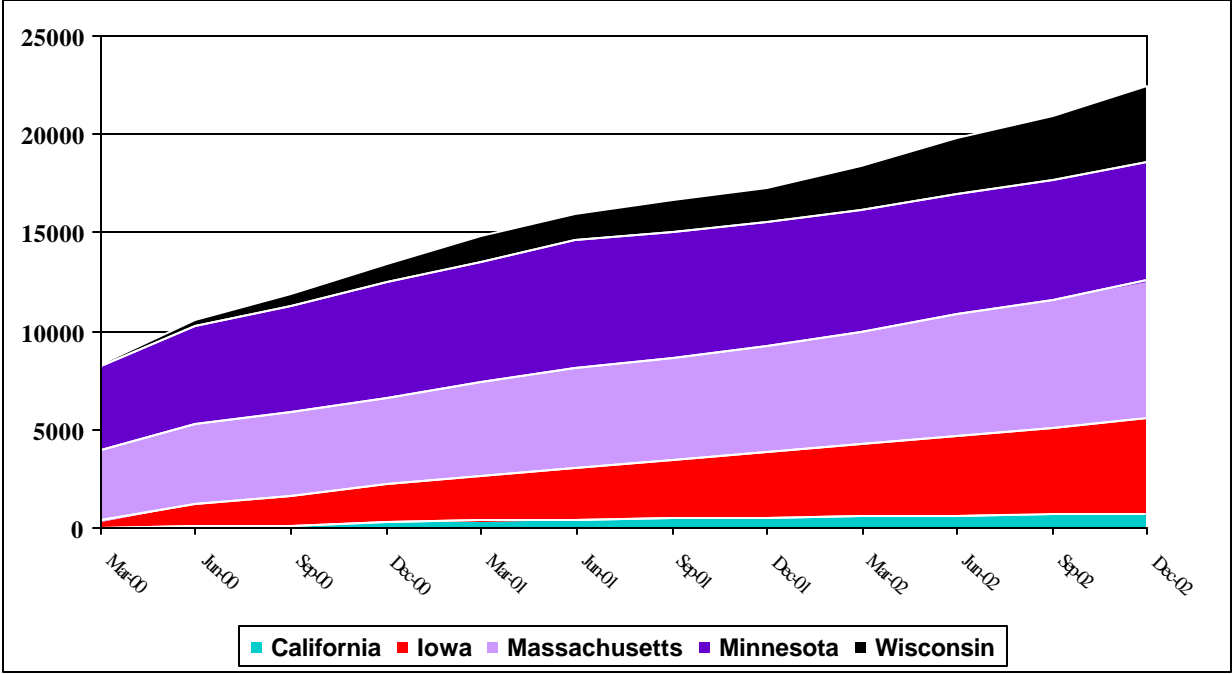
Based on state data submitted to CMS' MIG reporting website, Figure III.1 shows that total enrollment in the five states' Medicaid Buy-In program has increased substantially overall, but with large variations across states.

- The Buy-In program in California, the most populous state in the study, had the smallest program, beginning with 53 enrollees at the end of second quarter in 2000 and gradually reaching 669 enrollees by December 2002.
- Wisconsin's Buy-In program had enrolled 83 individuals at the end of first quarter in 2000; by the end of 2002, enrollment was up to almost 4,000 individuals.
- Buy-In enrollment in Iowa, one of the smaller study states, also increased quickly since implementation in 2000; by 2002, 4,890 participants were enrolled.
- Massachusetts and Minnesota launched their programs earlier than the other states, and already had substantial enrollment in the beginning of 2000. Their programs continued to grow, so that by the end of 2002 enrollment had reached 7,000 in Massachusetts and 6,000 in Minnesota.

Overall, about 22,000 individuals were enrolled in the Medicaid Buy-In programs in our five study states as of December 2002. Although the growth rate varied from state to state, the programs were still expanding at that point. Detailed factors driving each state's growth in enrollment are discussed below.

FIGURE III.1

BUY-IN ENROLLMENT TRENDS BY STATE, 2000 – 2002 QUARTERLY



SOURCE: State data submitted to CMS in quarterly progress reports

TABLE III.1

## STRUCTURAL FEATURES OF BUY-IN, MEDICALLY NEEDY, AND SSI PROGRAMS IN FIVE STATES, 2001

	California	Iowa	Massachusetts	Minnesota	Wisconsin
Implementation date	April 2000	March 2000	July 1997	July 1999	March 2000
Federal authority for the Buy-In program	BBA <sup>a</sup>	BBA	1115 Waiver <sup>b</sup>	TWWIIA <sup>c</sup>	BBA
Income eligibility for Buy-In program <sup>d</sup>	Net income, Up to 250% Federal Poverty Level (FPL)	Gross income Up to 250% FPL	No limit	No limit	Net income Up to 250% FPL
Resource (asset) limit for Buy-In program	\$2,000 individual <sup>e</sup> \$3,000 couples <sup>e</sup>	\$12,000 individual <sup>e</sup> \$13,000 couples <sup>e</sup>	No limit	\$20,000	\$15,000
Medically needy income limit per month, 2001 <sup>f</sup>	\$600 individual (84% FPL) \$934 couples (97% FPL)	\$483 individual (67% FPL) \$483 couples (50% FPL)	No limit	\$482 individual (67% FPL) \$602 couples (62% FPL)	\$592 individual (83% FPL) \$592 couples (61% FPL)
Combined Federal and state SSI income benefit per month, 2001	\$687	\$531	\$660	\$612	\$615
1619(b) income threshold per month, 2001 <sup>g</sup>	\$2,081 (291% FPL)	\$1,731 (242% FPL)	\$2,235 (312% FPL)	\$2,537 (354% FPL)	\$1,854 (259% FPL)
Buy-In premium payments begin at	0% FPL	150% FPL	150% FPL	200% FPL prior to December 2001, 100% FPL thereafter	150% FPL
Method to calculate monthly Buy-In premiums, co-pays, or other cost sharing	Sliding scale based on countable income	Based on gross earned and unearned income of the disabled individual	Based on two different sliding fee scales – one for enrollees with other health coverage and one for enrollees without it	Prior to December 2001: Based on 10% of countable income above 200% FPL; Beginning December 2001: Based on a sliding fee scale, ranging from 1-7.5% of income. No maximum income limit or maximum premium amount.	Based on (1) 3% of an individual's earned income, and (2) 100% of unearned income minus certain needs, expenses and other disregards. If the second calculation is less than \$25, the person pays \$0.
Medicaid eligibility review for Buy-In participants	Every 12 months	Every 12 months	Every 12 months	Every 6 months	Every 12 months
Protection for job loss, 2001 <sup>h</sup>	2 months	6 months	None	2 months	6 months
Buy-In participants at beginning/ end of 2001 (percent increase)	217 / 502 (131)	1,957 / 3,338 (71)	4,464 / 5,391 (21)	5,837 / 6,314 (8)	942 / 1,714 (45)

TABLE III.1 (*continued*)

SOURCES: MIG reporting website 2004, Crowley 2003, Wiener 2003

<sup>a</sup>The Balanced Budget Act of 1999.

<sup>b</sup>Under the 1115 waiver, the Secretary of Health and Human Services can allow states "to experiment, pilot or demonstrate projects which are likely to assist in promoting the objectives of the Medicaid statute." Massachusetts' Buy-In program was established under an 1115 waiver.

<sup>c</sup>The Ticket to Work and Work Incentives Improvement Act of 1999, usually referred to as the Ticket Act.

<sup>d</sup>Countable income for eligibility includes spousal income for all five states.

<sup>e</sup>Resource limit includes spousal resources.

<sup>f</sup>This is a state-established income threshold. Above this threshold persons who are eligible except for income must spend down incurred medical expenses to qualify for the medically needy program. See Crowley 2003.

<sup>g</sup>People whose earnings make them ineligible for further SSI cash payments may remain eligible for Medicaid under section 1619(b) of the Social Security Act if their earned incomes are below this specified limit.

<sup>h</sup>These protection provisions allow Buy-In participants to remain on the eligibility rolls for a period of time if they become unemployed.

## **A. CALIFORNIA**

The California Working Disabled Medi-Cal Buy-In program (CWD) was launched in April 2000 under the authority of the Balanced Budget Act of 1999. The enrollment in CWD (669 individuals as of December 31, 2002) has fallen far short of the state's original prediction of between 6,835 to 13,811 enrollees by the end of the second year (Jee and Menges 2003). The slow growth of CWD is most likely the result of two factors: (1) unintended enrollment disincentives inherent in the state's other public assistance programs and (2) CWD design and implementation features, including too few outreach activities.

Compared with other states, California has a very high combined federal and state SSI supplemental benefit (\$708 per month, relative to a \$552 federal benefit in 2003). It also has a relatively high income limit level (\$600 for an individual) in the medically needy program; therefore, individuals can have relatively high earnings (after medical bills are taken into account) and still have access to Medicaid. This relatively easy access to Medicaid means that the CWD program may not be an attractive pathway for workers with disabilities in California.

The CWD program has an income eligibility limit of 250 percent of the FPL (a ceiling that is used by many Buy-In programs), but it is one of the few programs that exempts disability income (i.e., SSDI benefits) from its counting methodology. This exemption should allow workers receiving large SSDI benefits to enroll in the CWD program. As a result, SSDI recipients who often have substantial assets, could be dissuaded from enrolling in a program that sets such a low asset limit.

The CWD program charges premiums ranging from \$20 to \$250 per month for an individual and \$30 to \$375 per month for couples. Although the premium is determined by a sliding scale based on income, all enrollees who have any income at all must pay a premium. This premium structure may act as a disincentive to enroll because (1) for participants with an income on the



high end of the scale, the premiums may appear to be unaffordable and (2) the medically needy program offers an attractive alternative pathway to Medicaid for those who have fewer health care needs.<sup>5</sup>

Another factor that may discourage eligible individuals from enrolling in CWD is the link between coverage and work. Individuals are required to provide proof of employment to enroll in the program and to remain eligible. Individuals who lose a job—even as a result of “good cause,” such as hospitalization—can retain their CWD coverage only for two months. This short coverage extension could discourage enrollment or cause involuntary disenrollment.

Weak outreach and dissemination efforts have further slowed program growth. According to surveys of enrollees and interviews with county eligibility workers, there is a lack of awareness about the program among potential participants and intake workers who staff Medicaid and other benefit program offices (Jee and Menges 2003).

## **B. IOWA**

Iowa’s Buy-In program, Medicaid for Employed People with Disabilities (MEPD), was launched in March 2000 under the authority of the Balanced Budget Act of 1999. The Iowa business community led efforts to pass the legislation, which was framed and marketed as a workforce issue rather than one of health insurance (Folkemer et al. 2002a). The state estimated that 700 individuals would enroll in the program by June 2002 (Folkemer et al. 2002a), but actual enrollment was 4,092 (Ireys, White, and Thornton 2003). The broader environment of employment supports for persons with disabilities, as well as several design and implementation features of the Buy-In program, may have contributed to enrollment growth.

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<sup>5</sup>In the medically needy program, individuals only share costs in months when they have received a service, instead of paying a monthly premium.

A high rate of employment among SSI beneficiaries in Iowa suggests an overall environment that supports employment for people with disabilities (Pickett 2002). Thus, compared with other states, people with disabilities in Iowa may be more likely to obtain and keep a job, and to find the MEPD program useful for maintaining health insurance coverage.

The Buy-In program offers an attractive pathway to Medicaid for people who want to work and are otherwise ineligible for Medicaid. Iowa's protected income level under the medically needy program is relatively low compared to other states, making it more difficult for individuals to qualify for basic Medicaid, and hence more likely to enroll in the MEPD (Crowley 2003). In fact, in 2001, half of all new participants in MEPD moved from the medically needy program (Hanes and Folkman 2003).

Specific design and implementation features of the MEPD may contribute to program growth. For example, the program has an asset limit that requires a premium only for enrollees whose income is above 150 percent of the FPL. In 2001, individuals paid a monthly premium based on their gross income according to a sliding-scale premium schedule with 11 premium brackets, ranging from \$0 to \$201. In 2002, only 29 percent of participants paid any premium at all, and the average monthly premium was \$35 (Ireys, White, and Thornton 2003). Also, compared with other states, Iowa's Buy-In program has generous protections related to job loss. Program participants who lose their jobs can remain in the program for up to six months if they show the intention to return to work.

### **C. MASSACHUSETTS**

CommonHealth, a component of Massachusetts' Medicaid program (MassHealth) for individuals with disabilities, was established as part of a 1115 waiver on July 1, 1997. Massachusetts' Buy-In program is part of the CommonHealth program, making it the oldest Buy-In program in the nation. The state's MIG is based at the University of Massachusetts

Medical School, which has conducted a variety of research projects using administrative, claims, and survey data to examine participation in the program (see, for example, Center for Health Policy and Research 2003a, 2003b).

From its inception, the Buy-In program was designed as an insurance plan for working adults with disabilities, with the expectation that all participants with incomes above 150 percent of the FPL would pay a premium that varies by income.<sup>6</sup> There are no income or asset limits, but participants must work 40 hours per month.<sup>7</sup>

Observers of the Buy-In program in Massachusetts have commented on the surprising growth in the number of participants, given the alternative Medicaid coverage options offered by the state to working individuals with disabilities.<sup>8</sup> Key considerations potentially limiting the program's growth include the following:

- The 1619(b) threshold was \$2,235 per month in 2001, which was exceeded by only seven other states across the country. This suggests that Massachusetts workers with disabilities who have relatively higher incomes could still maintain eligibility for Medicaid through the SSI program.
- Disabled individuals in Massachusetts who do not meet the CommonHealth work requirement are eligible for the non-working component of CommonHealth.

Overall, these factors in Massachusetts, along with the Buy-In program's explicit criterion for steady work, would suggest that the eligible population would be limited. However, Massachusetts' aggressive outreach campaign addresses the concern among adults with

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<sup>6</sup> In March 2003, this was changed so that all Buy-In enrollees would pay a base premium of \$15 per month plus an additional amount based on a sliding scale according to income.

<sup>7</sup>The BBA and TWWIA forbid setting limits on hours worked, but Massachusetts was able to do so under the 1115 waiver.

<sup>8</sup>Fishman and Cooper (2002, p. 25), for example, write "Notably, Medicaid buy-in enrollment has grown strongly even with attractive alternative eligibility pathways to Medicaid and buy-in requirements that together strictly limit the buy-in to the work incentives population."

disabilities that beginning or returning to work inevitably means losing publicly funded health insurance. One of the major milestones reported by the state is its distribution of new marketing materials designed to spread the word that individuals can work and keep their health insurance. In addition, the absence of asset and income limits in the Buy-In program means that workers with disabling conditions are still eligible despite having large assets or high incomes.

#### **D. MINNESOTA**

Minnesota's Buy-In program, Medicaid for Employed Persons with Disabilities (MA-EPD), was implemented in July 1999 under the Ticket Act of 1999. The MA-EPD extended Medicaid coverage to employed Minnesotans aged 16 to 65 with disabilities. Enrollment increased rapidly, reaching approximately 6,500 participants within two years. A substantial portion of these individuals had developmental disabilities.

There is no income eligibility threshold for this program, and it has a \$20,000 asset limit. Premiums are based on a sliding scale that starts at one percent of income for incomes equal to 100 percent of the FPL and increases to 7.5 percent of income for incomes of at least 300 percent of the FPL. Prior to December 2001, participants had to pay a premium if their income was above 200 percent of the FPL (Jensen 2003) but this was changed to 100 percent of the FPL in December 2001. As of January 2004, all participants must pay at least \$35 per month regardless of income.

Prior to July 2001, Minnesota had strict financial eligibility thresholds for its Medicaid and medically needy programs. These limits meant, for example, that nearly 6 in 10 SSDI recipients in Minnesota were ineligible for Medicaid (Jensen et al. 2002a). The low eligibility thresholds for these two programs created a pool of individuals with disabilities who did not have access to

Medicaid because of moderate to high earned income or assets, and who therefore would be potentially interested in the Buy-In program.<sup>9</sup>

Another factor that may contribute to high enrollment levels in Minnesota's Buy-In program is the lack of income-related eligibility restrictions. As noted above, the MA-EPD program has no income limit, which is the case for only one of the other four states (Massachusetts), and its resource limit of \$20,000 is second only to Massachusetts. MA-EPD participants are required to demonstrate that they have at least some earned income for each 30-day period while enrolled, and they may receive coverage up to four months without earnings if a medical condition is present.

#### **E. WISCONSIN**

Wisconsin established its Medicaid Purchase Plan (MAPP) in March 2000 under the Balanced Budget Act of 1997. Enrollment growth was modest during the program's first year of implementation, possibly because of factors such as:

- The enrollment process was cumbersome because county workers conducted the eligibility determination process manually until fall 2001, when the process was automated (APS Healthcare 2003).
- Training of county eligibility workers did not begin until after MAPP was implemented, and a survey of these workers found that only one in four thought that the MAPP training was sufficient (Innovative Resource Group 2002).
- Comments from program participants suggest that information about the program could be disseminated more effectively (APS Healthcare 2003).

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<sup>9</sup>Minnesota changed its Medicaid eligibility policy in July 2001, raising eligibility for basic Medicaid to the FPL (that is, the threshold was raised to \$716 for individuals in 2001, from \$612) and the medically needy program protected income level to 70 percent of the FPL (that is, to \$501 from \$482) (Jensen et al. 2002a). The state raised the medically needy protected income level again in July 2002 to 80 percent of the FPL. One effect of the increases in these eligibility thresholds was to reduce the pool of potentially eligible Buy-In participants. Possibly as a result of these changes, enrollment in the Buy-In program grew somewhat more slowly after 2001 than it did from 1999 to 2001.

Despite these obstacles, MAPP has three attractive features that may encourage future enrollment. The first feature is the absence of premium payments for the majority of participants (87 percent in 2002). Enrollees with incomes between 150 and 250 percent of the FPL paid premiums that ranged, for example, from \$25 to \$875 in July 2002 (Innovative Resource Group 2002). Second, MAPP has an asset limit of \$15,000, which is high relative to most other Buy-In states. Moreover, MAPP's "independence accounts" allow participants, once enrolled, to accumulate assets above the \$15,000 limit (APS Healthcare 2003).<sup>10</sup>

Third, to be eligible for MAPP, adults without earnings from work may choose to participate in health and employment counseling for up to a year, after which earnings from employment are required. However, the majority of MAPP participants have earnings from work when they enroll (APS Healthcare 2003). For MAPP participants with health problems that prevent them from working, Wisconsin waives the work requirement for up to 6 months, a more generous work protection than in some other states. However, information from a focus group suggests that this work protection feature may be less attractive in practice because (1) it requires participants to have been enrolled in the Buy-In program for at least six months and (2) it can be used only twice every three years (Innovative Resource Group 2001).

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<sup>10</sup>Only one percent of MAPP participants in June 2003 had elected this option.

#### **IV. ENROLLMENT AND PARTICIPANT PROFILING**

CMS currently monitors the Medicaid Buy-In program through the states' enrollment counts at the end of each quarter and their annual program reports. This information is useful for providing descriptive, state-level information and documenting general participation trends in the Buy-In program over time. However, available state-level information is limited in several respects. For example, it cannot be used to determine the percentage of participants who stay in the program for varying lengths of time, the age and gender of participants, or the characteristics of individuals who disenroll from the program.

Analyses of individual-level data will substantially enhance CMS' capacity to monitor the Medicaid Buy-In program. These data can provide additional details regarding such information as the demographic characteristics of program participants, their insurance status prior to and after enrollment in the Buy-In program, characteristics of disenrollees, and their medical expenditures for varying types of services. In these next two chapters, we analyze individual-level data available from CMS, particularly the MSIS and Medicare eligibility and claims files, to examine key questions related to enrollment and expenditures in the Buy-In program in our five study states.

Specifically, in this chapter, we try to answer several questions related to enrollment patterns in Buy-In programs:

- Who enrolled in the Buy-In program? What were their demographic characteristics (age, gender, and race/ethnicity) and what types of disabilities and chronic health conditions did they have?
- Did Buy-In participants have Medicaid coverage prior to their enrollment in Buy-In? Did they have prior Medicare and private insurance coverage?
- How many individuals were enrolled in the Buy-In program in 2001? For how long?
- What was the disenrollment rate?

- After disenrollment, did people reenroll in the Buy-In program during the same year? If they did not reenroll, to what extent did they also leave Medicaid?

Restricted by the availability of only one year of data, we chose different samples of Buy-In participants to answer the above questions. Our full sample includes individuals who enrolled in the program for at least one month in 2001. We used the full sample to examine characteristics of Buy-In participants, the duration of their enrollment, and their disenrollment rate. To compare participants' insurance status before and after enrollment, we used a restricted sample that included individuals who joined the program between February and December 2001. Finally, to study reenrollment patterns, we focused on enrollees who were in the Buy-In program at any time during January but disenrolled later in the year.

#### **A. DEMOGRAPHIC CHARACTERISTICS**

In 2001, most Buy-In participants were 21 to 64 years old, with an average age between 44 and 51; about half were female (Table IV.1). Participants in California were, on average, five to seven years older than participants in other states. In addition, 15 percent of California's participants were over 65 years old—a much larger percentage compared with the other states. This difference may result from the comparatively low rate of enrollment by younger working-age adults in California because of other attractive pathways to Medicaid (as discussed in Chapter III), thereby resulting in the enrollment of a proportionately larger number of older adults. This proportion is likely to decrease over time because age restrictions were added when the program's authority was changed in 2002 from the BBA to TWWIIA (Jee and Menges 2003), making the program eligible only to individuals under 65.

The states vary with respect to the percent of white Medicaid Buy-In participants (Table IV.1). In the three mid-western states, this percentage was greater compared to Massachusetts and California. Multiple factors may contribute to these differences, including racial differences



among the states' general populations and differences in the extent to which outreach efforts have targeted minority populations.

TABLE IV.1  
AGE, GENDER, AND RACIAL CHARACTERISTICS OF  
PARTICIPANTS IN FIVE STATE MEDICAID BUY-IN PROGRAMS IN 2001

	Percent in Each Age Group				Average Age in Years	Percent Male	Percent White
	< 21	21-44	45-64	65+			
California	1	31	54	15	51	52	74
Iowa	< 1	43	56	1	46	50	89
Massachusetts	1	50	46	3	44	50	60
Minnesota	1	50	49	1	44	52	92
Wisconsin	1	45	48	7	46	53	82

SOURCE: State MSIS eligibility files for calendar year 2001.

## B. DIAGNOSES OF BUY-IN PARTICIPANTS

To compare the chronic health conditions and disabilities of Buy-In participants across states, we used a standard methodology applicable to MSIS files. After evaluating several methods, we selected the Chronic Illness and Disability Payment System (CDPS) (Kronick et al. 2000) because it was developed specifically for Medicaid beneficiaries, is relatively easy to apply, and is familiar to state Medicaid agency staff. Using ICD-9 codes, the CDPS assigns beneficiaries into 18 primary chronic condition groups, including cardiovascular, psychiatric, diabetes, etc.<sup>11</sup> Some participants did not have a diagnosis that led them to be assigned to one of the 18 health status groups in 2001 because they (1) did not receive Medicaid-covered treatment

<sup>11</sup>These groups can be rolled up into fewer, broader categories or broken down into multiple subgroups that reflect varying levels of service intensity. A detailed list of CDPS categories is provided in appendix Table A.1.

for any chronic health condition (and hence had no opportunity to receive an ICD-9 code) or (2) received Medicaid-covered services but not for problems related to their chronic or disabling conditions (and hence were not given an ICD-9 code related to a chronic condition).

Across the five study states, 7 to 29 percent of the Medicaid Buy-In participants were not identified as having a CDPS chronic condition (Table IV.2). Between 10 and 17 percent were identified as having a single chronic condition and between 55 and 83 percent had multiple chronic conditions.

TABLE IV.2  
 MEDICAID BUY-IN PARTICIPANTS EVER ENROLLED IN FIVE  
 STATE MEDICAID BUY-IN PROGRAMS AND PERCENT WITH  
 CHRONIC CONDITIONS, 2001

	Total Ever Enrolled	Percent of Participants with Chronic Conditions		
		No Chronic Condition	One Chronic Condition	Two or More Chronic Condition
California	761	29	17	55
Iowa	4,030	10	12	78
Massachusetts	7,298	23	14	62
Minnesota	8,298	7	10	83
Wisconsin	2,031	11	12	76

SOURCE: State MSIS eligibility and claims files for calendar year 2001

Applying the CDPS to the MSIS claims files also allowed us to identify the specific chronic conditions of the Medicaid Buy-In participants for whom chronic conditions were reported. Across all five states, the following diagnoses were identified as the most frequent chronic conditions among the Medicaid Buy-In participants: skeletal and connective tissue disorders, psychiatric disorders, pulmonary disorders, skin disorders, and eye or vision disorders (Table IV.3). In all states, the largest percentage of participants had skeletal/connective tissue disorders or psychiatric conditions. For example, in Minnesota, 48 and 57 percent, respectively had these disorders.

TABLE IV.3

PERCENT OF MEDICAID BUY-IN PARTICIPANTS WITH  
SELECTED CHRONIC CONDITIONS IN FIVE STATES, 2001

	Total Ever Enrolled	Percent of Participants with the Following Chronic Conditions:				
		Skeletal & Connective	Psychiatric	Pulmonary	Skin	Eye
California	761	26	24	22	14	23
Iowa	4,030	46	45	40	33	42
Massachusetts	7,298	31	35	31	22	16
Minnesota	8,298	48	57	43	36	35
Wisconsin	2,031	40	46	30	26	32

SOURCE: State MSIS eligibility and claims files for calendar year 2001

NOTE: Numbers do not add up to 100 percent because many participants had multiple conditions. Not everyone had a chronic condition classified by CDPS.

Both Tables IV.2 and IV.3 indicate that in California fewer participants have multiple conditions and a smaller proportion of the participants have the selected chronic conditions. Conversely, 83 percent of participants in Minnesota have multiple conditions, 48 percent have skeletal and connective tissue disorders, and 57 percent have psychiatric conditions—figures that are higher compared with the other states. Various factors may have contributed to these differences. For example, state Buy-In programs may attract subgroups with somewhat different disabling conditions. States also may differ somewhat in their coding conventions. In addition, benefit packages available to Buy-In participants may vary across states, making the program attractive to different subgroups. Finally, and outreach to specific groups or informal ways of disseminating information among consumers and advocates could affect enrollment outcomes.

### C. INSURANCE STATUS

The Buy-In program is one of several pathways by which adults with disabilities can obtain Medicaid coverage, and many Buy-In participants already had access to Medicaid before they

enrolled in the program. Analyses of participants who joined the Medicaid Buy-In program show that between 54 and 65 percent of new Buy-In enrollees had Medicaid coverage prior to enrollment (Table IV.4). These enrollees moved from one option under Medicaid (for example, the medically needy program) to the Buy-In program, possibly because the switch brought financial savings or because their earned income or assets increased to a level that made them ineligible for the original option. Enrollment in the Buy-In program allowed them to earn more or accumulate additional assets without endangering their Medicaid coverage.

TABLE IV.4  
INSURANCE STATUS OF MEDICAID BUY-IN PARTICIPANTS  
PRIOR TO ENROLLMENT AND AT DISENROLLMENT, OR IN DECEMBER 2001

	Number of Individuals Enrolling	Percent with Medicaid Prior <sup>a</sup> to Enrollment	Percent with Medicaid and Private Insurance Prior <sup>a</sup> to Enrollment	Percent with Medicaid and Private Insurance at Disenrollment <sup>b</sup>	Percent Ever Enrolled in Medicare in 2001
California	484	54	7	17	82
Iowa	1,725	58	4	7	70
Massachusetts	2,741	65	7	14	47
Minnesota	2,354	64	7	14	77
Wisconsin	958	60	4	11	78

SOURCE: State MSIS eligibility files for calendar year 2001

NOTE: Number of individuals enrolling includes all individuals who joined the program in February-December 2001. January Buy-In enrollees were excluded because no data were available before January 2001.

<sup>a</sup> Defined as the month before enrollment

<sup>b</sup> Defined as the last month enrolled (if disenrolled) or December (if enrolled in December)

Some participants in the Buy-In program theoretically should be moving into jobs that offer private health insurance, and so one would expect to see some increase over time in the percentage of Buy-In participants who have private health insurance in addition to Medicaid.

Table IV.4 compares the percentage of Buy-In participants who have private insurance in addition to Medicaid coverage prior to enrollment and at disenrollment. In the month before enrollment, four percent of new Buy-In enrollees in two states (Iowa and Wisconsin) had Medicaid and private insurance; seven percent had both types of coverage in the other three states (California, Massachusetts, and Minnesota). In the month before disenrollment (or in December for those still enrolled in December), this percentage increased in all five states and at least doubled in four of the five states. For example, the percentage increased from 4 percent to 11 percent in Wisconsin. The data from Table IV.4 suggest that the Medicaid Buy-In program may be contributing to modest increases in the number of workers with disabilities who have access to employer-offered insurance coverage.

In addition to private insurance, Buy-In participants also can be covered by Medicare. Using the dual-status variable in the MSIS files, we found that, in four of the five states, between 70 and 82 percent of the Buy-In participants who enrolled in February through December 2001 had Medicare at some point during the year. Massachusetts had a much lower percentage of participants dually enrolled in Medicaid and Medicare, possibly because its requirement for a minimum of 40 hours of work per month may have made many SSDI beneficiaries who could not work these hours ineligible for the Buy-In program. Another possibility is that those who could work that much were unwilling to enroll in the program out of fear that they would lose their SSDI benefits if earnings increased above the cut-off level.

#### **D. DURATION OF ENROLLMENT**

Policymakers and program administrators often find it useful to know whether participants stay in the Medicaid Buy-In program for long or short periods of time. MSIS data from our five study states for 2001 indicate that between 24 and 52 percent of individuals who were ever enrolled in the Buy-In programs were enrolled for the full year (Table IV.5). For example, in

Minnesota 8,298 individuals were enrolled in the state’s Buy-In program at some point in 2001; of these, slightly more than half (52 percent) were enrolled for all of 2001. Somewhat fewer than half of the participants were enrolled for the full year in Iowa, Massachusetts, and Wisconsin (46, 41, and 39 percent, respectively). In these four states, more than half of the participants were in the program for 10 or more months (Table IV.5).

TABLE IV.5  
TOTAL NUMBER OF MEDICAID BUY-IN PARTICIPANTS IN 2001  
AND PERCENT DISTRIBUTION OF ENROLLMENT DURATION

	Total Ever Enrolled	Percent Enrolled for Full-Year	Percent Enrolled for the Following Months:			
			1-3	4-6	7-9	10-12
California	761	24	29	19	19	34
Iowa	4,030	46	16	15	13	55
Massachusetts	7,298	41	18	16	15	50
Minnesota	8,298	52	12	15	13	60
Wisconsin	2,031	39	17	17	15	51

SOURCE: State MSIS eligibility files for calendar year 2001

NOTE: The total ever enrolled includes all individuals who enrolled the program at least once at any time during 2001.

In contrast, 24 percent of participants in California’s Medicaid Buy-In program were enrolled for the full year and 34 percent were enrolled for 10 or more months. This lower percentage may reflect that fact that program enrollment was increasing in 2001 or that the program lacks strong job protections. As noted in Chapter III, participants can retain coverage for only two months if they lose their jobs.

#### **E. PATTERNS OF DISENROLLMENT AND REENROLLMENT**

As Table IV.6 shows, from 17 to 28 percent of those who were ever enrolled in 2001 disenrolled at least once in 2001. Iowa and Wisconsin had the lowest disenrollment rate (17

percent and 19 percent, respectively) possibly because of their strong provisions protecting against job loss. They both offer a grace period of six months for job loss, compared to either two months or none offered by the other three states.

TABLE IV.6  
DISENROLLMENT RATES AMONG MEDICAID BUY-IN PARTICIPANTS, 2001

	Total Ever Enrolled	Percent Disenrolled During the Year
California	761	28
Iowa	4,030	17
Massachusetts	7,298	27
Minnesota	8,298	27
Wisconsin	2,031	19

SOURCE: State MSIS eligibility files for calendar year 2001

NOTE: A disenrollment occurs when an individual who is listed as enrolled in the program in one month is not listed as enrolled in the following month.

Overall, these state figures provide a general index of disenrollment and a baseline from which to track disenrollment over time. For example, the addition of MSIS data for 2002 would allow us to document whether individuals who were enrolled in 2001 disenrolled in that same year or in 2002. Thus, if participants left the program in October 2001 and returned after four months, they would not be captured in our current analysis, but could be included in a future study that linked multiple years of data.

Currently available data enable us to examine only disenrollment and reenrollment patterns within 2001. Table IV.7 shows reenrollment patterns for participants who were enrolled in January 2001 and disenrolled later. For example, in California, there were 277 individuals enrolled in the state's Medicaid Buy-In program in January 2001. Of these, 97 disenrolled at least once in 2001, and five percent of these 97 disenrollees reenrolled in 2001.

TABLE IV.7

REENROLLMENT PATTERNS FOR JANUARY 2001 ENROLLEES  
WHO DISENROLLED AT LEAST ONCE

	Total Number of January Enrollees	January Enrollees who Disenrolled at Least Once	
		Total	Number Reenrolled (Percent)
California	277	97	15 (5)
Iowa	2,305	460	88 (4)
Massachusetts	4,557	1,571	118 (3)
Minnesota	5,944	1,655	262 (4)
Wisconsin	1,073	273	57 (5)

SOURCE: State MSIS eligibility files for calendar year 2001

Because only a small proportion of disenrollees return to the Buy-In program in the same year (Table IV.7), there is a concern about maintenance of Medicaid coverage for those who did not reenroll. Table IV.8 shows the Medicaid status two months after disenrollment of the participants who were enrolled in January 2001, and disenrolled at some point between February and October but did not return to the program before the end of the year. For example, in California 64 of the 277 January participants (23 percent) disenrolled at some point between February and October and did not reenroll in 2001. Of these 64, about two-thirds were on Medicaid two months after their disenrollment from the Buy-In, and five percent had both Medicaid and private insurance coverage.

Overall, patterns of “turnover” were quite similar across the five study states (Tables IV.7 and IV.8). The reenrollment rate among January enrollees who disenrolled was between three and five percent; excluding reenrollees, between 57 and 70 percent of disenrollees were still on Medicaid two months after disenrollment; and between four and six percent of the disenrollees had both Medicaid and private insurance coverage two months after disenrollment.



TABLE IV.8

MEDICAID STATUS OF JANUARY 2001 ENROLLEES WHO  
DISENROLLED IN FEB-OCT AND DID NOT REENROLL

January Enrollees who Disenrolled in Feb-Oct and did not Reenroll			
	Total	Percent Still on Medicaid 2 months Later	Percent on Medicaid, and Plus Private Insurance 2 Months Later
California	64	66	5
Iowa	310	57	4
Massachusetts	1,165	67	6
Minnesota	1,166	70	6
Wisconsin	165	63	6

SOURCE: State MSIS eligibility files for calendar year 2001

To learn which groups of participants were more likely to disenroll and to reenroll in 2001, we examined demographic characteristics, such as age, gender, race, and Medicare status among disenrollees and reenrollees. We found that:

- Across all five states, younger enrollees were more likely to disenroll and reenroll
- The disenrollment rate among black participants was higher than among other participants in all five states.
- In California and Minnesota, participants without Medicare were more likely to disenroll; no difference' were found in the other states.

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## V. MEDICAL EXPENDITURES

Individual-level MSIS claims files offer important data for analyzing medical expenditures for Medicaid Buy-In participants because they include standardized data elements related to diagnoses and services and can be used to compare expenditures across states. In addition, it is possible to link Medicaid and Medicare data for individuals who are enrolled in both programs. As a result, we have been able to generate comprehensive information on Medicaid and Medicare expenditures for Medicaid Buy-In participants. In this study, we focused on data for one year in a limited number of states, but the methods we used could be applied to all states with Buy-In programs over multiple years. Longitudinal analysis of MSIS and Medicare data across all states with Medicaid Buy-In programs would be especially useful to policymakers because it could document trends in Medicaid expenditures for all participants, assess differences across states, and identify groups of participants for whom expenditures either increased or decreased in relation to their employment.

In this chapter, we examine Medicaid and Medicare expenditures for Medicaid Buy-In participants by using 2001 MSIS and Medicare data from the five study states. Specifically, we address the following questions:

- What were the Medicaid expenditures of Buy-In participants?<sup>12</sup>
- Which services accounted for the greatest proportion of participants' Medicaid expenditures?

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<sup>12</sup>We include personal assistance service (PAS) as one of the specific services we examined, because PAS has become important for many individuals with disabilities who wish to seek and maintain employment. Later in this chapter we explain some of the complexities of determining states' definitions of personal assistance services.

- What were the patterns of Medicaid expenditures for participants with certain conditions such as psychiatric diagnoses?
- What were the Medicare expenditures for the Buy-In participants who were enrolled in Medicare?
- What were the total combined Medicaid and Medicare expenditures for Buy-In participants and how was this total distributed between Medicaid and Medicare in the five study states?
- Were medical expenditures different for participants who had prior Medicaid experience compared with participants who did not?

To answer these questions, we chose to examine per member per month (PMPM) expenditures for the fourth quarter group (defined as individuals who were enrolled in the Medicaid Buy-In program for the entire fourth quarter of 2001). This approach enabled us to take a stable snapshot across states of participants who were in the program for at least three months, and to compare our results with data provided by the states in their annual reports.

#### **A. MEDICAID EXPENDITURES FOR BUY-IN PARTICIPANTS**

We first examined Medicaid expenditures for Buy-In participants who were enrolled in the entire fourth quarter, keeping their fee-for-service (FFS) expenditures and monthly capitation payments separate. Across four of the five study states, total PMPM Medicaid FFS expenditures for Buy-In participants varied within a relatively narrow range, ranging from \$499 (California) to \$609 (Iowa) in 2001 (Table V.1). In Minnesota, PMPM expenditures for all services were twice as much (\$1,256). These data are consistent with our earlier findings that Medicaid Buy-In participants in Minnesota had more chronic conditions (and therefore had higher expenditures) than their counterparts in other states, particularly California. When we compared Medicaid FFS expenditures for Buy-In participants with Medicaid spending for all enrollees, we found that expenditures for Buy-In participants were usually higher compared with Medicaid enrollees in

TABLE V.1

PER MEMBER PER MONTH (PMPM) MEDICAID EXPENDITURES IN DOLLARS FOR  
4TH QUARTER BUY-IN PARTICIPANTS IN FIVE STATES, BY TYPES OF MEDICAL SERVICES, 2001

	Number of 4th Quarter Buy- In Participants	Expenditures for Specified Services						Total for All Services	Monthly Capitation Payments <sup>c</sup>
		Inpatient Services	Physician Services	Personal Assistance Services <sup>a</sup>	Home Health Care	Pharmacy	All Other Services <sup>b</sup>		
California	468	19	10	30	27	280	119	499	9
Iowa	3,153	54	41	0	15	345	152	609	51
Massachusetts	4,869	25	23	1	9	232	265	562	40
Minnesota	5,989	39	41	115	38	307	712	1,256	1
Wisconsin	1,517	37	6	16	4	279	157	500	37

SOURCE: State MSIS eligibility and claims files for calendar year 2001

NOTES: PMPM expenditures are calculated by summing payments (capitation payments are excluded) for all participants while they were enrolled in the Buy-In program and dividing the sum of payments by the total number of enrollment months for all enrollees. The denominator in the calculation of PMPM expenditures includes enrollment months for every enrollee regardless of whether the person had any claims or expenditures. For purposes of comparison, the average PMPM expenditures for fourth quarter participants that the five study states provided in their annual reports for 2002 (see Ireys et al. 2003) were: California \$559; Iowa \$722; Massachusetts \$441; Minnesota \$1,467; and Wisconsin \$919.

<sup>a</sup>States differ widely in their specific definitions of what constitutes a PAS for Medicaid coverage. We examined state-specific service codes in MSIS and descriptions of PAS in each state before determining the final list of procedure codes that were used to calculate expenditures for PAS. However, our identification procedure is only experimental and should be treated as preliminary.

<sup>b</sup>Other services include dental, transportation, hospice, lab, X-ray, case management, rehabilitation services, and others.

<sup>c</sup>The five states vary in the percent of Buy-In participants who were enrolled in managed care programs while they were in the Buy-In program. The percent of Buy-In participants in managed care plans (excluding PCCM, behavioral health, and dental managed care plans) in 2001 during their enrollment in the Buy-In program was 1.3 percent in California, less than 0.1 percent in Iowa, 4.9 percent in Massachusetts, .8 percent in Minnesota, and 2.2 percent in Wisconsin. In Iowa, 96.1 percent of the Buy-In participants were in managed behavioral health plans.

general. In addition, we found that the states that experienced higher total Medicaid spending also tended to have higher expenditures for Buy-In participants.<sup>13</sup>

In addition to total expenditures, we used the MSIS claims files to calculate PMPM Medicaid expenditures for five specific services (inpatient services, physician services, personal assistance services (PAS), home health care, and pharmacy costs) and for all other services as a group (Table V.1). We also calculated the percentage of total PMPM costs accounted for by each service (Table V.2). We paid special attention to PAS because it has become an important support service for many workers with disabilities. We define PAS to be services provided directly to individuals with disabilities to assist them in managing tasks essential for daily living or working.<sup>14</sup>

These tables show that in Minnesota, PMPM costs for personal assistance services were far higher than in any of the other four states and accounted for nine percent of total Medicaid expenditures. These data suggest—beyond the difference that may be explained by coding differences among states—that the Minnesota program may have enrolled a substantial number of individuals who used PAS. Minnesota’s costs for services in the “other” category are high

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<sup>13</sup>Using information from the Kaiser Family Foundation (KFF State Health Facts Online 2004) for 2000, we found that average monthly Medicaid expenditures per beneficiary (i.e., average total expenditures per beneficiary divided by 12) in 2000 were \$172 in California, \$380 in Iowa, \$405 in Massachusetts, \$452 in Minnesota, and \$388 in Wisconsin. These figures are not exactly comparable to the PMPM figures in Table V.1 but do provide a general indication of the differences between Medicaid expenditures for Buy-In participants and Medicaid beneficiaries in general. Future studies using MSIS files could provide more precise comparisons.

<sup>14</sup>Translating this general definition into an operational variable is difficult because the usual “Type of Service” codes from MSIS claims files are not very useful in identifying PAS. We used the state-specific service codes and descriptions to decide which codes should be treated as PAS. This is our first attempt at examining these service codes and because states vary widely in coding methods and the personal assistance services they cover, we expect to improve our understanding of these codes in the future by consulting with individual states.

probably because its Buy-In program includes a substantial number of individuals with developmental disabilities who require a wide range of services grouped into this category (e.g., physical therapy).

TABLE V.2

PER MEMBER PER MONTH (PMPM) MEDICAID EXPENDITURES AS PERCENT OF TOTAL DOLLARS FOR 4TH QUARTER BUY-IN PARTICIPANTS IN FIVE STATES, BY TYPES OF MEDICAL SERVICES, 2001

	Inpatient Services	Physician Services	Personal Assistance Services	Home Health Care	Pharmacy	All Other Services	All Services
California	4	2	6	5	56	24	100
Iowa	9	7	0	2	57	25	100
Massachusetts	4	4	0	2	41	47	100
Minnesota	3	3	9	3	24	57	100
Wisconsin	7	1	3	1	56	31	100

SOURCE: State MSIS claims files for calendar year 2001

NOTE: Percentages may not add up to 100 percent because of rounding. Other services include rehabilitation, physical therapy, dental transportation, hospice, lab, x-ray, and case management services.

Although California had a low total PMPM expenditure, it spent a proportionately large amount on personal assistance services (about six percent of total expenditures). California has been offering access to personal assistance services to individuals with disabilities for several years through multiple mechanisms such as waiver programs, Medicaid, and the state-funded In-Home Support Services (IHSS) program. Since 2002, California's Buy-In program has required that personal care services be extended to the beneficiary's place of employment if needed. Hence, it is not surprising that PAS expenditures were proportionately high.

Wisconsin also specifically covers PAS in its Buy-In program, but PMPM expenditures for this service were low compared with Minnesota and California, possibly because its Buy-In

participants are required to obtain prior authorization to receive more than 50 hours per month of PAS. This program feature may have restricted PAS utilization.

The PAS expenditures for Buy-In participants in Iowa and Massachusetts appear in Table V.1 as zero. Iowa's Medicaid program offers a PAS benefit only, through waiver options, which may explain its limited PAS expenditures. Based on interviews with program staff in Massachusetts, we found several inconsistencies between our PAS identification procedure and the state's PAS coding conventions. Hence, the data in Table V.1 for Massachusetts' PAS services may be inaccurate. Future efforts to report PAS expenditures will need to include interviews with Medicaid staff in order to ensure proper coding.

Table V.1 shows that PMPM Medicaid capitation payments differ from state to state, reflecting differential enrollment of beneficiaries with disabilities into Medicaid managed care plans. In Iowa, for example, almost all of the Buy-In participants (96.2 percent) were in behavioral health managed care plans while they were enrolled in the Buy-In program, which account for the high monthly capitation amount.

Pharmaceuticals were the single most expensive service in all five states (Table V.1). Expenditures for medications represent 24 to 57 percent of total Medicaid fee-for-service expenditures for Medicaid Buy-In participants in the five study states (Table V.2).

Because we studied PMPM expenditures only for the fourth quarter group, participants who stayed in the program for less than three months were excluded; these participants may have had medical expenditures that differed in nature or frequency from other participants. We examined this issue by calculating PMPM expenditures for the group of participants who were enrolled at any point in 2001 and found minimal differences. Consequently, we believe that the figures in Tables V.1 and V.2 are reasonably accurate estimates of PMPM expenditures for Medicaid Buy-In participants in the five study states.



## **B. MEDICAID EXPENDITURES FOR SELECTED SUBGROUPS OF PARTICIPANTS**

Together, the MSIS eligibility and claims files offer numerous opportunities to examine Medicaid expenditures for subgroups of Medicaid Buy-In participants. Analyses of subgroup differences can offer program administrators, policymakers, and researchers a nuanced picture of Medicaid expenditures and help ensure that the program is reaching the intended beneficiaries. For example, we can compare Medicaid expenditures across Buy-In participants in different demographic groups defined by age, gender, or race.

We conducted an analysis to compare PMPM Medicaid expenditures between participants aged 21-44 and those aged 45-64 and found higher Medicaid expenditures for the older age group on all types of medical services except PAS. This finding was expected because older participants are likely to be less healthy than their younger counterparts, assuming similar disabling conditions. Younger participants appear to be more likely to use PAS. The results of these analyses are in Appendix Table B.1.

We also can examine Buy-In participants' Medicaid expenditures by type of chronic condition. We examined, for example, PMPM expenditures for participants diagnosed with psychiatric conditions, including those who also had other chronic conditions (Table V.3). Compared with PMPM expenditures for the whole group of fourth quarter participants (Table V.1), expenditures for participants with psychiatric conditions were \$100 to \$200 higher. Drugs appear to account for a substantial portion of this difference.

Across the three states that had relatively higher PAS expenditures for all participants (California, Minnesota, and Wisconsin), we found somewhat different patterns in expenditures for participants with psychiatric disorders. In California, the PMPM PAS expenditures for participants with psychiatric disorders were \$4, compared to \$30 for all participants; in Minnesota, they were \$71, compared to \$115 for all participants. However, in Wisconsin, the

PMPM PAS expenditures for participants with psychiatric disorders were \$58, \$42 higher than for all participants, suggesting relatively high use of PAS by participants with psychiatric disorders.

TABLE V.3

MEDICAID FFS EXPENDITURES FOR 4TH QUARTER BUY-IN PARTICIPANTS WITH PSYCHIATRIC CONDITIONS IN FIVE STATES, BY TYPES OF MEDICAL SERVICES, 2001

	PMPM Medicaid FFS Expenditures (in \$)							
	Number of Participants	Inpatient Services	Physician Services	Personal Assistance Services <sup>a</sup>	Home Health Care	Pharmacy	All Other Services <sup>b</sup>	All Services
California	121	18	8	4	0	395	232	702
Iowa	1,481	60	44	0	14	451	165	736
Massachusetts	1,714	30	27	2	8	331	331	742
Minnesota	3,401	41	47	71	35	399	751	1,350
Wisconsin	720	49	6	58	2	395	163	674

SOURCE: State MSIS eligibility and claims files for calendar year 2001

NOTES: PMPM expenditures are calculated by adding payments (capitation payments are excluded) for all participants while they were enrolled in the Buy-In program and dividing the sum of payments by the total number of enrollment months for all enrollees. The denominator in the calculation of PMPM expenditures includes enrollment months for every enrollee regardless of whether the person has any claims or expenditures.

<sup>a</sup>States differ widely in their specific definitions of what constitutes a PAS for Medicaid coverage. We examined state-specific service codes in MSIS and descriptions of PAS in each state before determining the final list of procedure codes that were used to calculate expenditures for PAS. However, our identification procedure is preliminary and should not be treated as final.

<sup>b</sup>Other services include dental, transportation, hospice, lab, X-Ray, case management, rehabilitation services and others.

Total PMPM expenditures for individuals with psychiatric conditions varied across a relatively narrow range in four states (from \$674 to \$742) but were much higher in Minnesota (\$1,350). The variations in PMPM expenditures for pharmaceuticals also were small across all five study states (from \$331 to \$451). Despite focusing on this single chronic condition

category, we found substantial variations in expenditures across states for the other services. Differences in states' coverage policies and data reporting and differences in clinical characteristics of the enrolled population possibly account for these variations.<sup>15</sup>

### C. MEDICARE EXPENDITURES

Because most Buy-In participants are also enrolled in Medicare, a comprehensive understanding of their medical expenditures depends on incorporating Medicare data into the analyses. Overall, PMPM Medicare expenditures for dually-enrolled participants ranged from \$249 to \$383 across the five study states (Table V.4).

TABLE V.4  
PMPM MEDICARE EXPENDITURES IN DOLLARS FOR 4TH QUARTER  
BUY-IN PARTICIPANTS ENROLLED IN MEDICARE,  
BY TYPES OF MEDICAL SERVICES, 2001

	Number of 4th-Quarter Enrollees		PMPM Medicare FFS Expenditures							
	Total	With Medicare Expenditures	In-patient Services	Skilled Nursing Facility	Physician Services	DME	Out-patient Services	Home Health Care	Other Part B Services	All Services
California	468	438	175	11	20	10	58	3	106	383
Iowa	3,153	3,046	168	5	14	12	73	3	88	362
Massachusetts	4,869	3,163	124	3	12	11	62	10	91	313
Minnesota	5,989	5,749	142	2	13	17	60	4	79	316
Wisconsin	1,517	1,454	112	4	12	12	41	4	64	249

SOURCE: Medicare files, 2001

DME = Durable medical equipment

<sup>15</sup>Some states do not report services, such as transportation. In other states, dental and transportation services are capitated.

In all five states, inpatient services accounted for the largest dollar amounts (between \$112 and \$175 PMPM) and for the largest proportion of costs (between 40 and 46 percent) compared with the other services (Tables V.4 and V.5), a pattern that is consistent with the utilization patterns among general Medicare beneficiaries (KFF State Health Facts Online 2004).

The data in Tables V.4 and V.5 reflect much less cross-state variation in Medicare expenditures compared with Medicaid expenditures, suggesting that the large state variations in Medicaid expenditures result more from state differences in program structure or design than utilization of services.

TABLE V.5  
PMPM MEDICARE EXPENDITURES FOR 4TH QUARTER BUY-IN PARTICIPANTS ENROLLED IN MEDICARE, AS PERCENTAGE OF TOTAL PMPM MEDICARE EXPENDITURES, BY TYPE O SERVICE, 2001

	Inpatient Services	Skilled Nursing Facility	Physician Services	DME	Outpatient Services	Home Health Care	Other Part B Services	All Services
California	46	3	5	2	15	1	28	100
Iowa	46	1	4	3	20	1	24	100
Massachusetts	40	1	4	4	20	3	29	100
Minnesota	45	1	4	5	19	1	25	100
Wisconsin	45	2	5	5	16	1	26	100

SOURCE: Medicare files, 2001

NOTE: Sometimes, the percentages from all types of services do not add up to 100 percent, because of rounding.

DME = Durable medical equipment

#### **D. TOTAL COMBINED MEDICAID/MEDICARE EXPENDITURES**

When Medicaid fee-for-service, Medicaid capitation payments, and Medicare fee-for-service expenditures are combined, total PMPM medical expenditures in 2001 for Medicaid Buy-In participants who were also enrolled in Medicare ranged from \$788 in Wisconsin to

\$1,577 in Minnesota (Table V.6).<sup>16</sup> Minnesota had the largest enrollment and the highest medical expenditures per participant, making its Buy-In program the most expensive, in terms of claims paid, among the five study states. The least expensive program was in California, which had the lowest enrollment and the second lowest PMPM expenditure. Overall, Medicaid covered between 54 and 80 percent of total medical costs incurred by Medicaid Buy-In participants who were also enrolled in Medicare in 2001 (Table V.6).

TABLE V.6

TOTAL PMPM MEDICAL EXPENDITURES IN DOLLARS FOR 4TH QUARTER  
BUY-IN PARTICIPANTS ALSO ENROLLED IN MEDICARE, IN FIVE STATES, 2001

	Number of 4th- Quarter Enrollees with Medicare Expenditures	Total FFS Medicaid (Percent)	Medicaid Capitation Payments (Percent)	Total Medicare (Percent)	Total Combined Medicaid and Medicare (Percent)
California	438	465 (54)	9 (1)	383 (45)	857 (100)
Iowa	3,046	590 (59)	50 (5)	362 (36)	1,002 (100)
Massachusetts	3,163	642 (66)	18 (2)	313 (32)	973 (100)
Minnesota	5,749	1,259 (80)	1 (0)	316 (20)	1,577 (100)
Wisconsin	1,454	502 (64)	38 (5)	249 (32)	788 (100)

SOURCE: Medicare and MSIS files, 2001

One important policy question in relation to total medical expenses is whether participants who had Medicaid at enrollment into the Buy-In program had higher Medicaid and Medicare expenses compared with participants who did not. To address this question, we compared 2001 expenditures for participants who already had Medicaid coverage before entering the Buy-In (but had no private insurance coverage) with expenditures for those who did not. As Table V.7 shows, participants with Medicaid coverage prior to enrollment in the Buy-In program had much

<sup>16</sup>Services covered through private health plans or other public programs are not included in total medical expenditures.

higher medical expenditures. The difference lies primarily in the Medicaid part of the expenditures. In Minnesota, PMPM Medicaid expenditures were more than doubled when Buy-In participants were enrolled in Medicaid prior to enrollment in the Buy-In program. It is possible that beneficiaries with Medicaid prior to Buy-In enrollment may be in poorer health, and therefore more likely to use services than enrollees who do not have Medicaid at enrollment.

TABLE V.7

PMPM EXPENDITURES IN DOLLARS FOR 4TH QUARTER BUY-IN PARTICIPANTS  
ALSO ENROLLED IN MEDICARE WITH AND WITHOUT MEDICAID COVERAGE AT  
BUY-IN ENROLLMENT, FIVE STATES, 2001

	Prior Medicaid Status <sup>a</sup>	Total Enrollees	Medicaid Expenditures	Percent of Total	Medicare Expenditures	Percent of Total	Total Expenditures <sup>c</sup>
California	without Medicaid	120	\$259	42	\$343	56	\$611
	with Medicaid <sup>b</sup>	125	670	62	\$410	38	1,086
Iowa	without Medicaid	526	557	59	\$341	36	950
	with Medicaid	636	646	59	\$406	37	1,100
Massachusetts	without Medicaid	350	380	61	\$233	38	619
	with Medicaid	690	561	61	\$330	36	923
Minnesota	without Medicaid	531	650	71	\$268	29	919
	with Medicaid	801	1,388	82	\$296	17	1,692
Wisconsin	without Medicaid	261	350	54	\$292	45	654
	with Medicaid	369	559	66	\$254	30	843

SOURCE: Medicare files, 2001

NOTE: January Buy-In Enrollees are excluded.

<sup>a</sup> "Prior" is defined as the last month before enrollment.

<sup>b</sup> Enrollees with both Medicaid and private insurance prior to enrollment are excluded.

<sup>c</sup> This column includes FFS Medicaid, Medicaid Capitation Payments, and Medicare expenditures.

## **VI. ASSESSMENT OF DATA QUALITY**

Many Medicaid Buy-In participants are enrolled in multiple state and federal programs that provide cash benefits, health insurance coverage, or work incentives. As a result, developing comprehensive information on participants in the Buy-In program requires the integration of information from the different databases associated with these various programs. A few reports (e.g., Center for Health and Disability Policy 2004) have described efforts to use information from state databases to monitor participation in specific state Medicaid Buy-In programs, but we know of no other studies that have used federal databases for this purpose. Because this study may be the first to integrate federal Medicaid and Medicare data to describe patterns of enrollment in multiple state Buy-In programs and participants' medical expenditures, policymakers and other researchers will need information about the quality of the data used in the analyses and whether our methods yield accurate and reliable results. For example, results could be seriously biased if certain participants or types of medical expenditures are excluded from the analyses.

In this chapter we assess the quality of the integrated database that we developed, as well as the validity of our results. First, we examine the quality of the Medicaid and Medicare data files that we used and then discuss the technical aspects of assembling and integrating the data. We conclude by describing the critical challenges of using an integrated approach as a foundation for a routine tracking system that incorporates a range of federal data.

### **A. QUALITY OF THE DATA FILES USED IN THE STUDY**

Federal Medicaid and Medicare data files are created through very different reporting mechanisms and have different structural characteristics, but we used similar criteria to assess their overall quality and utility for examining participation in the Medicaid Buy-In program.

Specifically, we used the following three criteria: sample completeness, accuracy, and timeliness.

### **1. Sample Completeness**

An important step in assessing the quality of our dataset on Buy-In participants was to determine whether the dataset did not exclude anyone who should have been included. We assessed these criteria of sample completeness by comparing total Buy-In enrollment figures determined through the MSIS files with the total enrollment figures reported directly from the states. As described in Chapter II, we identified the population of individuals in five state Buy-In programs using state-specific Buy-In codes in the states' MSIS eligibility data files for calendar year 2001.<sup>17</sup> Also, states routinely provide CMS with quarterly counts of Buy-In participants.

The total count of individuals in each state identified in the MSIS files is quite close to that provided by the state quarterly enrollment reports to CMS in four of the five states (Table VI.1). Differences between the two figures are most likely the result of slight differences in reporting periods. Using the MSIS data files, we counted participants who were enrolled at any point in December 2001, whereas the states' quarterly data reflect the number of participants enrolled on December 31, 2001. As might be expected, in all states the CMS count is less than the MSIS count. The difference is greatest for California (11 percent). Several possible reasons could account for this finding. First some California participants who were on the program's rolls at the beginning of December disenrolled by the end of the month. Second California has many

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<sup>17</sup>In the absence of a state Buy-In code, the development of an integrated data set would have to start with a finder file generated by the state that then would be used to identify Buy-In participants in MSIS files for a given year. Such a finder file would need to have sufficient data elements (e.g., Medicaid number, date of birth, social security number, name, gender or some combination of these) to permit accurate identification of participants.



state-specific codes in MSIS, which introduces room for error in coding. Third, our coding of the MSIS data might differ somewhat from the state’s coding in its quarterly data. The enrollment counts differ by four percent in Iowa and less than one percent in the other three states. Overall, the extent of the concordance between the two data sources suggests that our counts appear to be reasonably accurate for most states.

TABLE VI.1

NUMBER OF PARTICIPANTS ENROLLED IN FIVE STATE MEDICAID BUY-IN PROGRAMS BY DATA SOURCE AND STATE, DECEMBER 2001

	Number of Buy-In Enrollees as Counted in:		Difference	
	MSIS Files (Ever Enrolled in December)	State Report to CMS (Enrolled on December 31)	N	%
California	566	502	64	11
Iowa	3,477	3,338	139	4
Massachusetts	5,415	5,391	24	< 1
Minnesota	6,320	6,314	6	< 1
Wisconsin	1,715	1,714	1	< 1

SOURCE: State MSIS eligibility files for calendar year 2001; State data submitted to CMS in quarterly progress reports

We made a similar comparison to determine whether we had accurately identified the subgroup of Buy-In participants who also were enrolled in Medicare. For this comparison, we used three sources: the results of our matching procedure described in Chapter III,<sup>18</sup> the state

<sup>18</sup>We used two data elements (date of birth and social security number) to match individuals in the MSIS files with individuals in the Medicare files. Specifically, we identified a Buy-In participant as having Medicare coverage if that participant was found in the Medicare files using both data elements. Less than one percent matched on one element but not the other, suggesting that we were identifying dually-enrolled participants with a high degree of accuracy and without a high degree of false positives. Some participants, of course, were not in Medicare and were not identified on either element.

annual reports for 2001, and a variable in the MSIS files that is often used to indicate dual status (i.e., simultaneous enrollment in Medicaid and Medicare). We assumed that our matching procedure would yield the most accurate results because it detects individuals for whom Medicare paid a claim for services.

Our matching procedure yielded the highest proportion of Buy-In individuals who have Medicare compared with the state annual report data and the dual-eligible variable in the MSIS files (Table VI.2). This finding may result from the fact that our matching procedure identified anyone who had ever been enrolled in Medicare in 2001, whereas the state annual report data identify individuals enrolled in Medicare at a particular time. Similarly, the MSIS variable may yield a lower percentage because it does not reflect Medicare enrollment over a full year. Other factors (e.g., state errors in coding dual status) also may contribute to the difference.

TABLE VI.2  
PERCENT OF BUY-IN PARTICIPANTS IDENTIFIED AS  
ENROLLED IN MEDICARE IN 2001 IN THREE DATA SOURCES, BY STATE

	Percent Identified as Having Medicare by:		
	Matching with Medicare Data	State Annual Report	Dual-Eligible Variable in MSIS Files
California	92	86	83
Iowa	96	84	80
Massachusetts	64	46	51
Minnesota	96	89	88
Wisconsin	95	79	84

SOURCE: State MSIS eligibility files for calendar year 2001; Medicare files for calendar year 2001; State data submitted to CMS in quarterly progress reports

Overall, our comparisons across data sources suggest that using either the dual variable in the MSIS files or the state annual report data may lead to an undercount of the number of Buy-In

participants who are covered by Medicare. This comparison demonstrates one example of the value added in conducting the analysis using federal rather than state data.

## **2. Accuracy of Data**

MSIS files are made available for research purposes only after they have been through an approval process in which the state must meet basic standards for reliability and completeness based on extensive data checks from an independent party. All of the state MSIS files used in this study were approved for use, and so met basic research standards. However, several other factors can affect the accuracy of reported medical costs.

First, state MSIS data files include many state-specific service and procedure codes in addition to the national codes used by all states. Therefore, analytic results for certain services may not be comparable across states because of variations in state-specific definitions. States are more likely to use state-specific codes for certain services, such as personal assistance services, than for others, such as hospital-based procedures. Furthermore, states may have several categories of personal assistance services that must be added together to calculate total expenditures for this service. As we note in Chapter III, we established specific definitions for personal assistance services using state-specific codes based on a review of available codebooks. Expenditure estimates for personal assistance services are accurate only to the extent that we successfully identified all relevant codes. Often, these codes are difficult to identify as a personal assistance service solely from the brief description in the codebook. In the future, analyses of PAS codes will need to be conducted in collaboration with state Buy-In staff to ensure that we identify a complete set of state-specific codes.

A second factor affecting accuracy involves the selection of the specific figures to use as the index for expenditures. In Chapter V, we used the amounts Medicaid paid on *original* claims, as taken from MSIS, in calculating Medicaid expenditures for individuals identified as Buy-In

participants. These expenditures include both payments for fee-for-service claims and payments for capitation premiums. We did not, however, create *adjusted* payments, meaning that we did not combine original claims with subsequent additions or subtractions and resubmissions. This step would have left us with the final amount actually paid (referred to as the adjusted payment) for each service, but would have taken considerably more analytic processing than this feasibility study warranted. Adjusted payments are considered slightly more accurate than payments based on original claims. Depending on the desired level of detail for a particular study, researchers may wish to use adjusted payments for reporting Medicaid expenditures for Buy-In participants.

Finally, certain types of expenditures in MSIS data files cannot be linked to individual beneficiaries; these “missing” expenditures include administrative expenses of the Medicaid program, disproportionate share hospital payments, and other provider-level payments. Thus, our estimates of total Medicaid expenditures for Buy-In participants did not account for their proportionate share of total administrative and provider-level payments.

Overall, Medicare’s standard analytic files are considered to be quite accurate, reflecting, on average, 98 percent of final payments (correspondence with Robyn Thomas at CMS, 6/25/2004). Medicare files, however, do not provide easy access to capitation payments for individuals enrolled in managed care plans. Considerable analytic processing is needed to determine capitation payments for an individual, and the accuracy of the final figure is uncertain. Hence, our estimates of total Medicare expenditures for Buy-In participants do not include capitation payments. This should not be a serious omission, considering that nationally only about 12 percent Medicare beneficiaries are enrolled in a managed care plan, but may affect certain states more than others.

### **3. Timeliness**

We used data from calendar year 2001 for this report, because these were the most recent Medicaid data available for a full year. States vary in how quickly they submit: (1) original quarterly files for approval, (2) updated files with adjusted payments, and (3) corrections based on problems identified during the quality review. As a result, there can be substantial delays in the availability of approved MSIS files for certain states. Medicare data are somewhat more timely. For example, we could have used 2002 Medicare data if Medicaid data had been available. The lag in the availability of approved Medicaid data may be the most serious drawback to developing integrated databases for Buy-In participants.

Completing an analysis of Medicare data depends primarily on time lags in the processing of data requests at the CMS Data Center. Entering and processing data requests through the Data Extraction System (DESY) can take a considerable amount of time. Among claims for all types of services, analyzing claims for carrier services (physician/supplier part B) and durable medical equipment requires the most time. The lag time for these files can be as much as five to six months after the request is entered.

### **B. TECHNICAL ASPECTS OF DATA INTEGRATION**

The major technical challenge in developing a database that integrates Medicaid and Medicare data relates to the complexity of the files. The structures of both sets of data files are quite complicated and governed by a complex set of rules. Abstracting certain data elements for selected individuals requires substantial experience in manipulating these files for research purposes. In particular, knowledge of the structural details of a particular state's Medicaid files (e.g., how they handle waiver costs) is important to ensure that appropriate states and appropriate data fields within each state file are selected in order to be consistent with a study's purpose. Once the data elements are abstracted, the integration of data from the two files into a new

database is technically straightforward. However, the lack of a data element for “name” in the Medicaid files makes the verification process more challenging because the researcher has only identification number and birth date to confirm the link between records from two different data files.

### **C. BENEFITS OF INTEGRATED DATA FOR MONITORING BUY-IN PARTICIPATION**

Analysis of the integrated data set used in this study has provided information on enrollment and medical expenditures of Buy-In participants that is not available elsewhere. This information will be useful to policymakers because it creates a more comprehensive picture of participants’ use of health services than reliance on either Medicaid or Medicare data alone. The integration of Medicare data is important because, in most states, more than 80 percent of Medicaid Buy-In participants are enrolled in Medicare, and Medicare expenditures can be a substantial proportion of the total for these participants.

The use of integrated data also can improve analytic accuracy. For example, adding Medicare data to Medicaid data improves the accuracy of identifying participants who have Medicare, rather than simply relying on a single variable in the Medicaid files. In addition, Medicare claims data include diagnostic codes that can be used to assign participants to chronic condition categories.

## VII. SUMMARY AND IMPLICATIONS

In many states, the Medicaid Buy-In program currently offers an affordable avenue to health insurance for many individuals with disabilities who work. It has become an important component of state and federal governments' efforts to enhance employment opportunities for individuals with disabilities, and to ensure that adults with disabilities do not lose access to necessary health insurance coverage when they go to work. The attractiveness of this pathway depends not only on the eligibility criteria and structural features of the Buy-In program itself but also on the structure of the state's overall Medicaid program, other work-incentive programs, and the extent to which outreach efforts have been successful in alerting potential participants to the benefits of the Buy-In program.

The federal legislation establishing the Medicaid Buy-In program provides states with substantial latitude in development and implementation. It is not surprising, then, that states vary widely with respect to patterns of enrollment in the Buy-In program (Ireys, White and Thornton 2003; Jensen et al. 2002b). Understanding the reasons behind the enrollment pattern in each state—and the implications both for program growth and participants' earnings and medical expenditures—requires an appreciation of the particular features of each state's Buy-In program as it relates to other state and federal policies designed to promote work and protect access to medical coverage. States with structurally similar Buy-In programs can have different enrollment and expenditure patterns because of state differences in eligibility for Medicaid through traditional pathways and other work-incentive programs.

This study provides quantitative information on Medicaid Buy-In participation and participants' medical expenditures in five states based on analysis of person-level, calendar-year 2001 data from MSIS and Medicare files. We interpret our analyses in light of the structural

features of the states' Buy-In programs and their other work-incentive policies. We believe that this is the first study to use combined Medicaid and Medicare data from multiple states to examine patterns of enrollment and medical expenditures for participants in state Medicaid Buy-In programs. Based on our analyses, we have identified factors affecting enrollment and medical expenditures, but additional work with data from other states will be needed to develop more specific hypotheses about how these factors affect enrollment dynamics across multiple states. Overall, our findings should be interpreted with caution because the study used data from only five states. Moreover, administrative and claims files have limitations. For example, these types of files cannot provide information on the use of health services that are not covered by Medicaid or Medicare. Also, the time lag in the availability of some of these files can be substantial, thus restricting our ability to provide information in a timely matter.

In this chapter, we summarize our policy-related findings, comment on our experience with the methods used to conduct the study, and discuss the implications of our results for federal and state monitoring of the Medicaid Buy-In program, and for future research.

## **A. MAJOR POLICY FINDINGS AND IMPLICATIONS**

As others have reported (Ireys, White and Thornton 2003; Folkemer et al. 2002b), enrollment in the Medicaid Buy-In program has grown in all of the five states we studied. The rate of growth since program inception has varied considerably across these states from modest to vigorous. Growth in the enrollment of the five Medicaid Buy-In programs included in this study signals the program's overall importance to individuals with disabilities who want to increase their earned income while maintaining access to Medicaid.

Enrollment patterns are driven by a complex calculus that varies across states. As others have noted (Folkemer et al. 2002b), the structural features of a state's Buy-In program, its basic Medicaid program, and its other work-incentive programs all interact to promote or inhibit



enrollment in the Buy-In program. Even states that appear to have similar features in their Buy-In, Medicaid, and work-incentive programs can have different Buy-In enrollment patterns, depending on state differences in the extent and success of outreach efforts.

The multiple interacting factors affecting Buy-In enrollment make it difficult to reach generalizations or test hypotheses about enrollment dynamics. Nonetheless, based on our descriptions of the five state programs and analyses of their Buy-In programs, we found that several features of a state's Medicaid programs and employment-related policies are associated with increased enrollment in the Medicaid Buy-In program. These features include the following:

- More restricted access to Medicaid through avenues other than the Buy-In program including:
  - Low financial eligibility thresholds for traditional Medicaid and medically needy programs before Buy-In implementation
  - Low 1619(b) earnings thresholds
  - Low SSI combined federal and state supplement cash benefits
- Fewer restrictions on access to the Buy-In program including:
  - Low average premium levels
  - Less cost sharing
  - Generous income thresholds
  - Generous assets limits
  - Low restrictions on other eligibility criteria, such as hours of work
  - Generous protections for temporary loss of employment
  - Easy eligibility determination process
- Extensive outreach activities including:
  - Comprehensive awareness campaigns
  - Training to enhance knowledge about the Buy-In program among eligibility workers

These conclusions are largely consistent with other studies (Fishman and Cooper 2002; Goodman and Livermore 2004; Jensen et al. 2002).

Our study also led to descriptive information about participants in the Medicaid Buy-In program in five states. Key findings include the following:

- Between 40 and 50 percent of Buy-In participants in four of the five study states were enrolled for all 12 months in 2001; in California, 24 percent were enrolled for this period.
- Across all five states, 17 to 28 percent of participants who were enrolled at any point in 2001 disenrolled at some point in 2001; more than half of them remained on Medicaid two months after disenrollment.
- Across all five states, 54 to 65 percent of participants who were ever enrolled in 2001 had Medicaid coverage before enrollment in the Buy-In program.
- A large majority of participants who were ever enrolled in 2001 also were enrolled in Medicare at some point in the year.
- Across all five states, from 55 to 83 percent of participants who were ever enrolled in 2001 had multiple chronic health conditions. The two groups of chronic conditions most frequently diagnosed were skeletal/connective tissue disorders and psychiatric conditions.

Findings on medical expenditures for Buy-In participants while they were on the Buy-In program in 2001 included the following:

- In four of the five states, total Medicaid fee-for-service PMPM payments for participants while they were enrolled in the Buy-In program were approximately \$500 to \$600.
- In all five states, medication was the single most expensive service, with PMPM costs varying from \$280 to \$345.
- Across the five states, total Medicare PMPM costs varied from \$249 to \$383, with inpatient costs making up the largest percentage of the total amount.
- Medicaid payments made up the larger proportion of the combined Medicaid and Medicare expenditures in all five states, accounting for 54 percent to 80 percent of total medical costs, depending on the state.
- In all five states, combined Medicaid and Medicare costs were higher for participants who were covered by Medicaid before enrollment in the Buy-In program compared with participants who were not.

In addition, it would appear that Buy-In participants in certain states are using personal assistance services more than participants in other states. Further work is needed to determine how many individuals are actually using PAS services in states with substantial PAS expenditures and what role this service is playing in helping Buy-In participants to work.

One of the most interesting implications of our findings involves the role that Medicaid drug coverage now plays in providing possible incentives for enrollment in the Buy-In program. As our analyses show, prescription drugs accounted for the largest proportion of total Medicaid PMPM costs by a large margin. A topic for a future study could involve the ways in which the drug benefits assist Buy-In participants in their work efforts, especially for participants with chronic psychiatric conditions.

New Medicare drug coverage will provide adults who are dually enrolled in Medicaid and Medicare with comprehensive drug benefits as long as they remain dually enrolled. Although their prescription drug costs will be covered by Medicare, these individuals will need to remain in Medicaid to maintain their dual status. Although it is difficult to predict the effects of the new Medicare coverage on Medicaid Buy-In enrollment, the Buy-In program probably will remain an attractive pathway to Medicaid for many workers with disabilities.

## **B. MAJOR METHODOLOGICAL FINDINGS AND IMPLICATIONS**

The design and implementation of this study benefited substantially from individuals who had extensive analytic and programming experience with Medicaid and Medicare files. This experience was essential in helping to (1) select states that not only had Medicaid Buy-In codes but also had claims files that were suitable for the study's purpose, (2) avoid variables that were unreliable, and (3) extract required data efficiently. With the appropriate experiential background, other researchers also should be able to develop the integrated data files necessary to conduct the kinds of analyses reported in this study.

A database with integrated Medicaid and Medicare data has several methodological advantages over a database with either kind of data alone. Most important, it provides for a comprehensive assessment of medical expenditures and service use for dually-eligible individuals. This is significant because a very large proportion of Buy-In participants in most states are also enrolled in Medicare. In addition, the integration of these two data files allows for more accurate identification of dually enrolled Buy-In participants. Integrating these data also yields additional diagnostic information which can be helpful for identifying participants' chronic health conditions.

The information on enrollment patterns and medical expenditures included in this study may be useful to CMS staff in their role of monitoring the Medicaid Buy-In program and to staff in state Medicaid agencies who are working to develop or refine Buy-In programs. This study shows that federal databases can be used to generate descriptive information about participation in the Buy-In program that states cannot easily provide directly, such as participants' Medicare expenditures.

Furthermore, the use of federal databases could potentially relieve some of the states' reporting and research burdens without threatening the accuracy or reliability of the data. For example, states would not have to report the number of continuously enrolled participants (as now required on their annual reports) because this information can be obtained from the MSIS eligibility files. Other data elements required in states' annual Buy-In reports are derived from the states' own MMIS databases, and this information is also obtainable using MSIS files. These data elements include enrollment trends, Medicaid eligibility status prior to enrollment in Buy-In, SSDI status, other health care coverage, and Medicaid expenditures.

### **C. POSSIBLE NEXT STEPS**

Our work demonstrates the feasibility of developing a database on enrollment and medical expenditures that integrates Medicaid and Medicare data. Although we used data from only five states, we encountered no obstacles that would prevent the development of such a database for all states with Medicaid Buy-In programs, assuming that each state was able to generate appropriate finder files (i.e., a list of participants along with information that would allow them to be identified in the MSIS files). This person-level, integrated database could be an important component of a comprehensive reporting system on the employment of people with disabilities, but it would be enhanced substantially by adding data from Social Security Administration (SSA) files.

SSA data would allow us to examine SSI and SSDI enrollment for participants in the Medicaid Buy-In program, together with primary disabling conditions and educational attainment. SSA data also would provide longitudinal information on reported earnings for beneficiaries and the general nature of the work history for SSDI beneficiaries who are Buy-In participants. An integrated database also could help to define probabilities of employment relative to need for medical care. For example, it would be possible to examine the likelihood of employment in relation to expenditures for particular medical services. Overall, the development of such a comprehensive database could help CMS, states, and other stakeholders to monitor earnings as well as medical expenditures for all Buy-In participants.

Not everyone with a disability who is working or wants to work will enroll in the Medicaid Buy-In program. Although a database on Buy-In participants will be an important component of a broader system for tracking employment of individuals with disabilities, other sources of data will be needed as well, such as information on individuals who use the 1619 provisions or who are in medically needy programs. Developing integrated, state-specific, individual-level files

that cover the full spectrum of individuals with disabilities will be a critical step toward tracking employment within this group.

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## **APPENDIX A**

### **CHRONIC ILLNESS AND DISABILITY PAYMENT SYSTEM CATEGORIES WITH SAMPLE DIAGNOSIS**

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**Table 2**  
**Chronic Illness and Disability Payment System Categories with Sample Diagnoses**

Diagnostic Category	Sample Diagnoses
<b>Cardiovascular</b>	
Very High	Heart transplant status or complications
Medium	Congestive heart failure, cardiomyopathy, tricuspid and pulmonary valve disease
Low	Endocardial disease, myocardial infarction, angina, coronary atherosclerosis, dysrhythmias
Extra Low	Hypertension
<b>Psychiatric</b>	
High	Schizophrenia
Medium	Bipolar affective disorder
Low	Other depression, panic disorder, phobic disorder
<b>Skeletal and Connective</b>	
Medium	Chronic osteomyelitis, aseptic necrosis of bone
Low	Rheumatoid arthritis, osteomyelitis, systemic lupus, traumatic amputation of foot or leg
Very Low	Osteoporosis, musculoskeletal anomalies, thoracic and lumbar disc degeneration
Extra Low	Osteoarthritis, skull fractures, other disc and vertebral disorders
<b>Nervous System</b>	
High	Quadriplegia, amyotrophic lateral sclerosis and other motor neuron disease
Medium	Paraplegia, muscular dystrophy, multiple sclerosis
Low	Epilepsy, Parkinson's disease, cerebral palsy, migraine, cerebral degeneration
<b>Pulmonary</b>	
Very High	Cystic fibrosis, lung transplant, tracheostomy status, respirator dependence
High	Respiratory arrest or failure, primary pulmonary hypertension, selected bacterial pneumonias
Medium	Other bacterial pneumonias, chronic obstructive asthma, adult respiratory distress syndrome
Low	Viral pneumonias, chronic bronchitis, asthma, COPD, emphysema
<b>Gastrointestinal</b>	
High	Peritonitis, hepatic coma, liver transplant
Medium	Regional enteritis and ulcerative colitis, chronic liver disease and cirrhosis, enterostomy
Low	Ulcer, hernia, GI hemorrhage, intestinal infectious disease, intestinal obstruction
<b>Diabetes</b>	
Type 1 High	Type 1 diabetes with renal manifestations or coma
Type 1 Medium	Type 1 diabetes without complications or with neurological or ophthalmic complications
Type 2 Medium	Type 2 or unspecified diabetes with complications, proliferative diabetic retinopathy
Type 2 Low	Type 2 or unspecified diabetes without complications
<b>Skin</b>	
High	Decubitus ulcer
Low	Other chronic ulcer of skin
Very Low	Cellulitis, burn, lupus erythematosus
<b>Renal</b>	
Very High	Chronic renal failure, kidney transplant status or complications
Medium	Acute renal failure, chronic nephritis, urinary incontinence, cystostomy or urinostomy
Low	Kidney infection, kidney stones, hematuria, urethral stricture, bladder disorders
<b>Substance Abuse</b>	
Low	Opioid, barbiturate, cocaine, amphetamine abuse or dependence, drug psychoses
Very Low	Alcohol abuse, dependence, or psychosis
<b>Cancer</b>	
High	Lung cancer, ovarian cancer, secondary malignant neoplasms, leukemia, multiple myeloma
Medium	Mouth, breast or brain cancer, malignant melanoma, radiation or chemotherapy
Low	Colon, cervical, or prostate cancer, carcinomas in situ
<b>Developmental Disability</b>	
Medium	Severe or profound mental retardation
Low	Mild or moderate mental retardation, Down's syndrome
<b>Genital</b>	
Extra Low	Uterine and pelvic inflammatory disease, endometriosis, hyperplasia of prostate

See footnotes at end of table.

**Table 2—Continued**  
**Chronic Illness and Disability Payment System Categories with Sample Diagnoses**

Diagnostic Category	Sample Diagnoses
<b>Metabolic</b>	
High	Panhypopituitarism, pituitary dwarfism, non-HIV immunity deficiencies
Medium	Kwashiorkor, marasmus, and other malnutrition, parathyroid, and adrenal gland disorders
Very Low	Other pituitary disorders, gout
<b>Pregnancy</b>	
Incomplete	Normal pregnancy, complications of pregnancy
Complete	Normal delivery, multiple delivery, delivery with complications
<b>Eye</b>	
Low	Retinal detachment, choroidal disorders, vitreous hemorrhage
Very Low	Cataract, glaucoma, congenital eye anomaly, corneal ulcer
<b>Cerebrovascular</b>	
Low	Intracerebral hemorrhage, precerebral occlusion, hemiplegia, cerebrovascular accident
<b>Infectious Disease</b>	
AIDS, High	AIDS, pneumocystis pneumonia, cryptococcosis, Kaposi's sarcoma
Infectious, High	Staphylococcal or pseudomonas septicemia, cytomegaloviral disease
HIV, Medium	Asymptomatic HIV infection
Infectious, Medium	Other septicemia, pulmonary or disseminated candida, toxoplasmosis, typhus
Infectious, Low	Poliomyelitis, oral candida, herpes zoster, parasitic intestinal infections
<b>Hematological</b>	
Extra High	Congenital factor VIII and factor IX coagulation defects (hemophilia)
Very High	Hemoglobin-S sickle-cell disease
Medium	Other hereditary hemolytic anemias, aplastic anemia, splenomegaly, agranulocytosis
Low	Other white blood cell disorders, purpura, other coagulation defects

NOTES: COPD is chronic obstructive pulmonary disease. GI is gastrointestinal. HIV is human immunodeficiency virus. AIDS is acquired immunodeficiency syndrome. CDPS is Chronic Illness and Disability Payment System. CDPS also includes categories for infants and a more detailed categorization for pregnancy. A complete description of CDPS diagnostic categories by ICD-9-CM codes is available at <http://www.medicine.ucsd.edu/fpm/cdps/>. ICD-9-CM is *International Classification of Diseases, 9th Revision, Clinical Modification* (Public Health Service and Health Care Financing Administration, 1980).

SOURCE: Kronick, R., et al., San Diego, California, 2000.

**APPENDIX B**

**MEDICAID PMPM EXPENDITURES FOR THE ENTIRE 4TH QUARTER  
GROUP OF PARTICIPANTS (AND PERCENT OF TOTAL PMPM)  
BY STATE AND AGE GROUP**

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TABLE B.1

MEDICAID PMPM EXPENDITURES FOR THE ENTIRE 4TH QUARTER  
 GROUP OF PARTICIPANTS (AND PERCENT OF TOTAL PMPM)  
 BY STATE AND AGE GROUP

		Number of participants	Inpatient	Physician	Personal Assistance Service	Home Health	Drugs	Total FFS
21-44 age group	California	150	\$11 (2)	\$9 (2)	\$44 (9)	0 (0)	\$253 (53)	\$474
	Iowa	1337	37 (6)	34 (6)	0 (0)	10 (2)	370 (62)	597
	Massachusetts	2385	20 (4)	20 (4)	3 (1)	5 (1)	236 (42)	563
	Minnesota	2923	43 (3)	38 (3)	147 (12)	34 (3)	284 (22)	1,277
	Wisconsin	659	22 (4)	4 (1)	41 (8)	8 (2)	281 (55)	513
45-64 age group	California	271	\$24 (4)	\$11 (2)	\$18 (3)	\$46 (8)	\$315 (57)	\$549
	Iowa	1802	66 (11)	46 (7)	0 (0)	19 (3)	329 (53)	618
	Massachusetts	2274	31 (5)	27 (5)	4 (1)	14 (2)	233 (40)	578
	Minnesota	3043	35 (3)	44 (4)	117 (9)	42 (3)	325 (26)	1,233
	Wisconsin	750	48 (9)	7 (1)	41 (8)	1 (0)	294 (57)	513