



U.S. Department of Health and Human Services
Assistant Secretary for Planning and Evaluation
Office of Disability, Aging and Long-Term Care Policy



**A PROFILE OF MEDICAID
INSTITUTIONAL AND
COMMUNITY-BASED
LONG-TERM CARE SERVICE
USE AND EXPENDITURES
AMONG THE AGED AND
DISABLED USING MAX 2002:
FINAL REPORT**

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Office of the Assistant Secretary for Planning and Evaluation

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EXECUTIVE SUMMARY

Since 1982, states have increasingly utilized Section 1915(c) waivers and optional state community-based programs to shift long-term care for the aged and disabled from institutions to the community. New rules introduced under the Deficit Reduction Act (DRA) of 2005 provide states with even more flexibility to provide home and community-based long-term care services to their low-income populations. Two overarching goals underlie these policies: (1) to provide long-term care services more cost-effectively; and (2) to give aged and disabled people more options in how they receive their care. As baby boomers enter their senior years and increase the need for long-term care services nationally, information about how Medicaid community long-term care programs have functioned in the past will be critical for assisting states in choosing how to utilize the new options provided under the DRA. Until recently, only limited aggregate data and some national surveys have been available to examine Medicaid community-based long-term care service use and compare it with use of institutional care. The Medicaid Analytic eXtract (MAX) data system produced by Centers for Medicare & Medicaid Services now enables much more detailed analyses of long-term care utilization and expenditures at the person level.

This study evaluates the potential of using MAX Person Summary files to examine how successfully states have rebalanced their long-term care systems and how Medicaid enrollees who utilize community-based long-term care services differ from people in institutions. For 37 states we believe have reliable MAX long-term care data, we: (1) compare utilization-based measures of the balance of community versus institutional long-term care with traditional expenditure-based measures; (2) contrast patterns of long-term care service utilization and expenditures of aged and disabled subgroups; (3) examine the detailed service types that compose community-based long-term care; and (4) summarize other services used and costs incurred by long-term care users. Each analysis highlights the utility of using person-level data available in MAX to extend our knowledge of how home and community-based long-term care services are used across the country.

KEY FINDINGS ABOUT MEDICAID LONG-TERM CARE SERVICE USE IN 2002

The findings presented in this report suggest that there is significant variation across measures, across states, and across population subgroups in patterns of institutional and community-based long-term care use and expenditures. While our national estimates are based on MAX data from only 37 states, our results suggest that further person-level analyses are warranted. In comparing expenditure with utilization-based measures, we find that:

- Only 34 percent of Medicaid long-term care expenditures paid for persons served were for community-based services in 2002, while almost 59 percent of long-term care users used community-based services.

- National estimates mask significant variation across states. Community-based services accounted for over 60 percent of long-term care expenditures in Alaska and New Mexico but less than 12 percent in the District of Columbia and Mississippi. Use of community-based services among long-term care users ranged from 87 percent in Alaska to 23 percent in Indiana.
- While the utilization-based measure was larger than the expenditure measure in every state, there was significant variation across states in how the two measures compared. Illinois and Alabama ranked 31st and 32nd out of the 37 states in the percent of expenditures that were for community-based services but ranked 10th and 8th, respectively, in the percent of long-term care users who used community-based services. In contrast, the two measures of long-term care balance were most similar in New Mexico, which ranked 1st and 3rd in expenditures and use of community-based services.

Our subgroup analyses for aged and disabled enrollees suggest that:

- Institutional and community long-term care expenditures were much more balanced among young disabled Medicaid enrollees than their aged counterparts in 2002. Over half of long-term care expenditures were for community-based services among disabled enrollees but less than 20 percent were for community-based care among those over 65. Community-based service expenditures as a share of total long-term care expenditures ranged from 50 percent for people under age 65, 31 percent for people between ages 65 and 74, 21 percent for people between ages 75 and 84, and 13 percent for those age 85 and older. Rates of community-based service utilization were higher but followed a similar pattern by age.
- The primary distinguishing factor between people using community-based and those using institutional long-term care was age. Eighty percent of people using only institutional care were over age 65, compared with 63 percent of those using both types of services, and 43 percent of those using community services only. Compared with people using community-based services, a higher percentage of people in institutions were non-Hispanic White, female, dual Medicare and Medicaid enrollees, and enrolled in Medicaid for only part of the year--all factors associated with age.

Service type decompositions suggest that MAX data could be used to gain much better understanding of the types of community-based services that are used in Medicaid:

- For example, residential care--community-based services provided in residential settings (excluding home health, adult day care, and private duty nursing)--made up over 6 percent of total long-term care and about 23 percent of community-based long-term care expenditures reported as service types in 2002. However, because waiver services are often not reported as specific service types but

grouped with all “Other” services in MAX, the usefulness of MAX for detailed analyses of the composition of Medicaid waiver services is limited.

Finally, our examination of non-long-term care Medicaid service use provides a broader perspective of the types of individuals that use Medicaid long-term care:

- People using both institutional and community-based services (6 percent of long-term care users) had higher average *total* Medicaid expenditures (\$46,055) than users of institutional care only (\$38,844) or community care only (\$24,966). The high overall expenditures for people using both types of long-term care were due to hospitalization: almost half used Medicaid inpatient services in 2002 compared with about a quarter of other long-term care users. Because short nursing facility stays for acute conditions after hospitalization are covered by Medicare but may include Medicaid cost-sharing, use of both community and institutional care among dual enrollees may reflect stays primarily paid by Medicare rather than Medicaid.
- Overall, aged and disabled enrollees using Medicaid long-term care services accounted for 7.7 percent of all full-benefit Medicaid enrollees in our 37 sample states but represented over 50 percent of their total Medicaid expenditures (including fee-for-service and managed care premiums paid).

THE POTENTIAL OF MAX DATA FOR UNDERSTANDING PATTERNS OF LONG-TERM CARE

While more current data are available at the aggregate level, MAX 2002 provides the most detailed and current person-level information on all Medicaid enrollees and the services they used during a calendar year. As illustrated by our study findings, MAX can be used to address Medicaid long-term care policy questions that require knowledge about patterns of utilization and expenditures incurred by individuals. MAX could potentially be used to examine whether new enrollees, new long-term care users, or others are utilizing community-based services, and with the use of claims files, how individuals’ use of community services is associated with their future patterns of care.

Several factors that limit the usefulness of MAX data--its timeliness, its completeness, and reporting errors--have greatly improved in recent years and are expected to continue to do so. However, the utility of MAX to examine Medicaid institutional and community-based long-term care services nationally will greatly depend on improvements made by states in the accuracy and detail of long-term care data they report to the Medicaid Statistical Information System (the source data for MAX) and enhancements to MAX coding of community long-term care. We recommend the development of more detailed service-level information for services covered under Section 1915(c) waivers and state plans in future editions of MAX.

I. BACKGROUND AND OBJECTIVES

Medicaid is the largest insurer for long-term care services in the United States, covering over 60 percent of long-term care users and accounting for 45 percent of nursing home expenditures in 2002 (CMS 2006b). As health care and nursing home costs have risen nationally, states have made significant efforts to limit these costs within their state Medicaid programs (Grabowski et al. 2004). One key method used to try to control long-term care costs has been to shift long-term care provision from traditional institutional care to the community.

Studying the effects of these policy changes has been challenging because most data measuring Medicaid long-term care--for example, data reported in Form 64--are at the aggregate state level. Because expenditures depend on both utilization and service costs, aggregate expenditure measures may mask important differences in the cost and utilization rate of community relative to institutional services. Furthermore, aggregate summaries cannot be used to examine patterns of long-term care use for subgroups of Medicaid enrollees, which is essential for targeting new interventions. Meanwhile, survey data typically enable the estimation of national but not state-level summaries of use of and expenditures for Medicaid long-term care services. Because state Medicaid programs vary widely in the people they cover, services they provide, and cost of care, national measures alone provide little information about how people utilize the long-term care services that are available to them.

Since 1999, Centers for Medicare & Medicaid Services (CMS) has produced and made publicly available Medicaid administrative data collected from each state and the District of Columbia. The Medicaid Analytic eXtract (MAX) provides calendar year, person-level, eligibility and claims information for all Medicaid enrollees in the United States. In this report we examine the potential for using these data to examine long-term care use and expenditures in ways not possible using aggregate or survey data. The statistics presented in this report provide detailed information about patterns of institutional and community-based service use and expenditures for 37 states that we believe have reliable long-term care information in MAX 2002.

Our results have potential policy implications but must be interpreted in the context of Medicaid policies in place in 2002. This chapter briefly describes the federal and state long-term care policies that affect Medicaid long-term care service provision, summarizes what is known to date about utilization of these services, and describes our goals to examine Medicaid community and institutional long-term care patterns in 2002 using MAX in this report.

FEDERAL AND STATE LONG-TERM CARE POLICIES

Historically, Medicaid had a reputation of having an “institutional bias” stemming from the requirement that all states provide nursing home care to their enrollees

whereas most community-based long-term care services can be provided at state option. Like nursing home care, provision of basic home health services has also been mandatory but there is a great deal of variability in other types of institutional and community-based long-term care services that states choose to cover in their programs. Table I.1 shows the optional long-term care services covered by state Medicaid programs in 2002, including those provided via waivers and managed care programs. (For detail, see Doty 2000, Schneider et al. 2002, and Smith et al. 2000).

In general, most aged or disabled people receiving Supplemental Security Income (SSI) benefits are eligible for full Medicaid benefits including long-term care services covered in their state.¹ However, states have some flexibility regarding additional populations eligible for Medicaid services. States have the option to cover all aged and disabled at higher income thresholds up to 100 percent of the federal poverty level, to cover medically needy individuals who have higher incomes but may have significant medical expenses, and/or cover only institutional care for people up to 300 percent of the SSI limit (known as the “300 percent rule”).

Since 1982, states have increasingly utilized Section 1915(c) waivers to expand community-based service coverage for their aged and disabled enrollees eligible for institutional care. The goals of the Section 1915(c) waivers and related legislation were to provide states with the flexibility to find more cost-effective ways to provide long-term care and to give aged and disabled people more options in the type of long-term care services they use. States can choose to cover only certain services under waivers. They can also limit the populations covered under waivers to specific age groups or people with specific conditions. Eligibility for waiver services is limited to people who meet the clinical criteria for institutionalization and are eligible for Medicaid institutional care. However, waivers can be used to cover people who would typically not be eligible for Medicaid services unless they resided in an institution (for example, people eligible for only institutional care services under the 300 percent rule).

Rules stipulated under the Deficit Reduction Act (DRA) of 2005 provide states with new options and even more flexibility to provide home and community-based long-term care services to their populations (Crowley 2006; Shirk 2006). Two key components of the DRA relevant to long-term care include: (1) new state options to cover community-based services to aged and disabled enrollees without waivers; and (2) the introduction of the Money Follows the Person Demonstration in January 2007 that provides selected states with enhanced federal matching funds to assist institutionalized individuals to transition to and live in the community.

Long-term care managed care programs are another tool that states can use to manage long-term care services. Except for Arizona, few states with managed care long-term care programs in 2002 covered a significant number of individuals in the state (Saucier 2005). Arizona’s long-term care program covered almost all the state’s elderly population. A number of states had Programs of All-Inclusive Care for the Elderly

¹ Certain individuals in Section 209(b) states--states that have elected to use more restrictive Medicaid eligibility requirements than those of the SSI program--receive SSI but are not eligible for Medicaid benefits.

(PACE) but these were typically small and covered only several hundred people in each state with one or more PACE programs (National PACE Association 2004).

RECENT LITERATURE

Several state Medicaid reporting requirements have enabled analyses of Medicaid community and institutional long-term care service use nationally and by state. CMS Form 64 data are aggregate summaries of state Medicaid program expenditures that are submitted quarterly by states for services reimbursable by the Federal Government. Form 64 contains information about both institutional and community-based long-term care expenditures, which have been summarized yearly by Burwell and colleagues (see, for example, Burwell, Sredl, and Eiken 2003). Information about waiver expenditures by program type is reported in CMS Form 372 and has been used to summarize trends in expenditures for community-based waiver services nationally and by state (Eiken, Burwell, and Selig 2006; Kitchener et al. 2005a, 2005b, 2007; Reester, Missmar, Tumlinson 2004). One key result from these analyses is the finding that three-fourths of waiver services have gone to support programs for people with mental retardation and other developmental disabilities (MR/DD) (Eiken, Burwell, and Selig 2006).

The limitations of Form 64 and Form 372 data are that they provide little information about the types of people utilizing long-term care services and they do not provide any information on the other types of Medicaid services that they use. They are also limited in detail about the composition of expenditures by the type of service specified in the form. Expenditures can be examined only by the program types and service types reported. While claims data contain procedure codes that enable investigation of the services provided under waivers, for example, reporting in Forms 64 and 372 is much more aggregated. As a result, states that have investigated their Medicaid long-term care programs have often examined their state's claims records to gain insight into how their long-term care programs function (see, for example, Robison et al. 2007). However, national data are required to understand how state experiences compare to those of other states and to examine implications of federal policies.

THE GOALS OF THIS STUDY

The goals of this study are to examine how person-level data in the MAX data system can be used to better understand Medicaid long-term care service use and expenditures, and to evaluate the utility of MAX data for further study of long-term care. In our analyses we:

- Compare expenditure and utilization-based measures of the balance of institutional and community-based long-term care services.

- Examine Medicaid long-term care expenditures and utilization for two key groups of enrollees: young disabled enrollees and enrollees ages 65 or older.
- Decompose community-based long-term care service expenditures by type of service.
- Summarize other Medicaid services used and costs incurred by long-term care users.

We use MAX data for calendar year 2002 for the analysis. It should be kept in mind that these data represent the long-term care legislative environment in 2002 and do not reflect changes in utilization and expenditures expected with the implementation Medicare Part D in 2006 and the DRA in 2007. In the next chapter we describe MAX Person Summary (PS) file data, how they can be used for long-term care analyses, and their strengths and limitations. Chapter III presents our analysis results. Chapter IV discusses policy implications and the utility of MAX for future long-term care research.

TABLE I.1. Optional Long-Term Care Services Covered by State Medicaid Programs in 2002

	Institutional Long-Term Care				Community Long-Term Care						Managed Care		
	Inpatient Psychiatric (Under Age 21)	Intermediate Care Facility for Mentally Retarded	Institution for Mental Disease (65 and Older)	Nursing Facility (Under Age 21)	Home Health - Audiology	Home Health - Occupational Therapy	Home Health - Physical Therapy	Home Health - Speech and Language Therapy	Personal Care	Private Duty Nursing	Waiver Services ^a	Managed Care Long-Term Care ^b	PACE ^c
Alabama	●	●	●	●	●	●	●	●	●	●	●		
Alaska	○	○	○	○	○	○	○	○	○	○	○		
Arizona	●	●	●	●	●	●	●	●	●	●	●	●	
Arkansas	●	○	●	○	●	●	●	●	○	○	○		
California	●	●	●	●	●	●	●	●	●	●	●		○
Colorado	●	●	●	●	●	●	●	●	●	●	●		○
Connecticut	●	●	●	●	●	●	●	●	○	○	○		
Delaware	●	○	○	○	○	○	○	○	○	○	○		
District of Columbia	●	○	○	○	○	○	○	○	○	○	○		
Florida	○	○	○	○	○	○	○	○	○	○	○	○	○
Georgia	●	●	●	●	●	●	●	●	○	○	○		
Hawaii	●	●	●	●	●	●	●	●	○	○	○		○
Idaho	○	○	○	○	○	○	○	○	○	○	○		○
Illinois	●	●	●	●	●	●	●	●	○	○	○		○
Indiana	○	○	○	○	○	○	○	○	○	○	○		○
Iowa	●	●	●	●	●	●	●	●	○	○	○		○
Kansas	●	●	●	●	●	●	●	●	●	●	●		○
Kentucky	○	○	○	○	○	○	○	○	○	○	○		
Louisiana	○	○	○	○	○	○	○	○	○	○	○		
Maine	●	●	●	●	●	●	●	●	○	○	○		
Maryland	●	●	●	●	●	●	●	●	●	●	●		○
Massachusetts	●	○	●	○	●	●	●	●	●	●	○		○
Michigan	●	●	●	●	●	●	●	●	○	○	○		○
Minnesota	●	●	●	●	●	●	●	●	○	○	○	○	○
Mississippi	●	●	●	●	●	●	●	●	○	○	○	○	○
Missouri	○	○	○	○	○	○	○	○	○	○	○		○
Montana	●	●	●	●	●	●	●	●	○	○	○		
Nebraska	●	●	●	●	●	●	●	●	○	○	○		
Nevada	●	●	●	●	●	●	●	●	○	○	○		
New Hampshire	●	●	●	●	●	●	●	●	○	○	○		
New Jersey	○	○	○	○	○	○	○	○	○	○	○		
New Mexico	●	●	●	●	●	●	●	●	○	○	○		○
New York	●	●	●	●	●	●	●	●	○	○	○	○	○
North Carolina	●	●	●	●	●	●	●	●	○	○	○		
North Dakota	●	○	○	○	○	○	○	○	○	○	○		
Ohio	●	●	●	●	●	●	●	●	○	○	○		○
Oklahoma	●	○	○	○	○	○	○	○	○	○	○		
Oregon	○	○	○	○	○	○	○	○	○	○	○		
Pennsylvania	●	●	●	●	●	●	●	●	○	○	○	○	○
Rhode Island	●	●	●	●	●	●	●	●	○	○	○	○	○
South Carolina	●	●	●	●	●	●	●	●	○	○	○		○
South Dakota	●	●	●	●	●	●	●	●	○	○	○		
Tennessee	●	●	●	○	●	●	●	●	○	○	○		○
Texas	●	●	●	●	●	●	●	●	○	○	○	○	○
Utah	●	○	○	○	○	○	○	○	○	○	○		
Vermont	●	○	○	○	○	○	○	○	○	○	○		
Virginia	●	○	○	○	○	○	○	○	○	○	○		○
Washington	●	●	●	●	●	●	●	●	○	○	○		○
West Virginia	●	●	●	●	●	●	●	●	○	○	○		○
Wisconsin	●	●	●	●	●	●	●	●	○	○	○	○	○
Wyoming	●	○	○	○	○	○	○	○	○	○	○		

● covers all eligible groups in state ○ covers some eligible groups in (blank) covers no eligible groups in state

SOURCE: Centers for Medicare & Medicaid Services 2006a, with the exception of footnoted columns.

- a. Kitchener, Ng, and Harrington 2006. All eligibles covered implies state has waivers that cover the MR/DD, aged, disabled, and children.
- b. Saucier 2005.
- c. National PACE Association 2004 (includes pre-PACE programs).

II. DATA AND METHODS

The MAX and its source data--the Medicaid Statistical Information System (MSIS)--are the primary sources of information about each of the over 50 million people enrolled in Medicaid each year. CMS produces both MSIS and MAX and makes them available publicly (with a data use agreement) for research purposes. Because Medicaid is the largest insurer of long-term care in the United States, these data provide the most detailed information currently available about people using long-term care services nationally.

Most MAX data are derived directly from MSIS.² MSIS contains fiscal year (FY) Medicaid enrollment and claims paid information for each state and the District of Columbia. Submission of data to MSIS became a requirement as of January 1, 1999 for all states under the Balanced Budget Act of 1997, replacing form HCFA-2082 reporting requirements. The MAX data system is a cleaned version of MSIS that enables analyses of enrollment, utilization, and expenditures at the person level.

Unlike MSIS, which reflects claims as of the date they were paid, MAX reflects the services used by Medicaid enrollees during a calendar year. The MAX PS files for 2002 were used for the analyses presented in this report.³ The MAX PS files are person-level files that contain information on enrollee demographic and eligibility characteristics and summary information on claims paid for services used by each enrollee in 2002.

This chapter summarizes the long-term care use and expenditure measures in the MAX 2002 PS files, discusses the strengths and limitations of these data, and describes the methods used to analyze institutional and community long-term care in this study. Important components of this chapter are three appendices that elaborate on the definitions of MAX long-term care measures (Appendix A), provide a glossary of terms used in this report (Appendix B), and detail state MAX data anomalies (Appendix C).

USING MAX PS FILES TO ANALYZE LONG-TERM CARE

Measures contained in the MAX 2002 PS files generally consist of: (1) demographic and enrollment measures; and (2) summary claims information that has been aggregated from claims files. Demographic and enrollment measures include

² Some examples of non-MSIS data in MAX include measures of dual enrollment in Medicare and Medicaid that are obtained from the Medicare Enrollment Database and prescription drug category codes included on prescription drug claims, although the latter data are proprietary.

³ MAX consists of claims files and PS files. Claims are grouped into four sets of files containing all Medicaid claims paid for persons using institutional long-term care services, inpatient care, prescription drugs, and all other services used during a given year. MAX PS files contain person-level records with demographic and enrollment information and summary information about claims paid for services used during the year. MAX PS data are separated into one or more files per state. For further detail, see Wenzlow et al. 2007 or the CMS MAX website at [http://www.cms.hhs.gov/MedicaidDataSourcesGenInfo/07_MAXGeneralInformation.asp].

age, race, gender, basis of Medicaid eligibility, dual Medicaid and Medicare enrollment, months enrolled, managed care enrollment, and other enrollment and eligibility information that can be used to characterize people using long-term care services. Summary claims information includes utilization and expenditure measures by service type, and when relevant, by program type. Both service type and program type measures in MAX PS files can be used to identify the types of Medicaid institutional and community long-term care services used and their overall expenditures in 2002.

Medicaid *institutional* long-term care services can generally be identified solely using service type information. There are 33 service type categories that are summarized in the MAX PS files. (See Appendix A for a listing of all MAX service types.) The four institutional long-term care types of service (TOS) include nursing facility services (TOS 07), services provided in intermediate care facilities for persons with mental retardation (ICFs/MR) (TOS 05), mental hospital services for people age 65 and older (TOS 02), and inpatient psychiatric facility services for people under age 21 (TOS 04).

Compared with institutional long-term care, Medicaid *community-based* long-term care services are more difficult to identify because home or community-based long-term care may include a variety of services--for example, transportation or targeted case management--that may also be used for reasons unrelated to long-term care. We consider five MAX service type measures as capturing solely home or community-based long-term care services: personal care (TOS 30), residential care (TOS 52), home health (TOS 13), adult day (TOS 54), and private duty nursing (TOS 38). Table II.1 summarizes these service types. (More detailed information about each of the institutional and community long-term care measures is provided in Appendix A.)

An important component of Medicaid community-based long-term care is waiver services. All states except Arizona cover some community-based long-term care services under Section 1915(c) provisions of the Social Security Act that enable states to waive certain federal regulations to provide home and community-based services (HCBS) to people who otherwise would require institutional care. Because services provided under waivers make up a significant portion of community long-term care expenditures--about 65 percent (Kitchener et al. 2006; authors' computations using MSIS 2002)--waiver service information is critical to measuring community long-term care. MSIS FY 2002 data suggest that over 75 percent of waiver expenditures were for claims coded in the "Other" (or unspecified service type TOS 19), which implies that MAX type of service codes cannot be used to capture a significant share of community long-term care expenditures. A mode of identifying community-based long-term care in

MAX is through program types. Total expenditures for an individual under Section 1915(c) waivers are measured by program type codes 6 and 7 in MAX PS files.⁴

TABLE II.1. Definitions of Community-Based Long-Term Care MAX Service and Program Types	
Description of Measure	
Personal Care (TOS 30).	Personal services such as bathing and toileting, sometimes expanded to include light housekeeping furnished to an individual who is not an inpatient or a resident of a group home, assisted living facility, or long-term facility such as a hospital, nursing facility, ICF/MR, or institution for mental disease. Personal care services are those that individuals would typically accomplish themselves if they did not have a disability. ^a
Residential Care (TOS 52).	Although room and board services provided in residential care facilities are not covered by Medicaid, other components of residential care--for example, personal care, 24-hour services, and chore services--can be covered. Residential care includes group, family or individual home residential care; cluster residential care; and therapeutic residential care services, assisted living, supported living, and night supervision. ^a
Home Health (TOS 13).	Services provided at a patient's place of residence (typically a patient's home), in compliance with a physician's written plan of care that is reviewed every 62 days--including nursing services, as defined in the State Nurse Practice Act, home health aide services, physical therapy, occupational therapy or speech pathology, and audiology services--that are provided by a home health agency or by a facility licensed by the state to provide these medical rehabilitation services. ^a
Adult Day Care (TOS 54).	Day care services including day health and rehabilitation care, day treatment, habilitation, psoriasis day care, services in an adult day care center, and transportation to adult day care. ^a
Private Duty Nursing (TOS 38).	Services provided by registered nurses or licensed practical nurses under direction of a physician to recipients in their own homes, hospitals, or nursing facilities as specified by the state. ^a
HCBS Waivers (Program Types 6 and 7).	Services provided under Sections 1915(c) of the Social Security Act that enable states to provide Medicaid-financed community-based long-term care for people who would otherwise require Medicaid-covered hospital care, nursing facility care, or care in an ICF/MR. These programs can be designed to target individuals in specific age groups and with specific conditions, and the services can be restricted to certain areas of the state.
a.	Durable medical equipment and services for mental health or substance abuse treatment are excluded.

Unfortunately, summary expenditure measures in the MAX PS files are reported by service type and by program type, but not by service and program types in MAX 2002.⁵ As a result, using both measures to identify community long-term care can lead to double-counting because waiver expenditures may also be reported under one or more service type categories. This also implies that waiver service expenditures cannot typically be disaggregated by service type using MAX PS data. (See Appendix A and

⁴ Section 1915(c) (program type 7) of the Social Security Act applies to Medicaid enrollees that would otherwise require Medicaid-covered hospital, nursing facility, or ICF/MR care. Section 1915(d) (program type 6) applies specifically to individuals over age 65 requiring such level of care. No state operated a 1915(d) program in 2002 although most states do not differentiate between the two program types in MSIS and report all waiver services under one or the other program code. As suggested in MAX documentation, we sum expenditures reported under the two program codes for our analysis.

⁵ Unduplicated counts by service and program type can be calculated by processing MAX claims records, which were not available for use in this study. We expect that expenditures for Section 1915(c) waiver services will be disaggregated by service type in 2005 and later editions of MAX PS files.

Table A.1 for the composition of waiver service expenditures reported in MSIS for FY 2002 by TOS.)

To avoid duplicate counting while incorporating waiver expenditures, we use the following method to compute community long-term care expenditures:

- For persons using fee-for-service (FFS) waiver services, community long-term care expenditures are set equal to waiver expenditures.
- For persons not using FFS waiver services, community long-term care expenditures are set equal to the sum of personal care (TOS 30), residential care (TOS 52), home health (TOS 13), adult day (TOS 54), and private duty nursing (TOS 38) service type expenditures.

This computational method underestimates community long-term care expenditures because: (1) overall expenditures for people using waiver services are underestimated if they also use non-waiver community long-term care services provided at state option; and (2) services provided at state option (non-waiver services) but not included among the five community long-term care service types are not captured in the cost measures for either subgroup identified above. The first cause of the underestimate could potentially be resolved using MAX claims data, which were not available for this study. The second cause results from lack of information about which services are provided for long-term care purposes when not categorized within a specific long-term care service type or program. This data limitation could potentially be improved in future years of MAX data with more detailed reporting of service type in MSIS or with new data elements that enabled researchers to identify those services that were for long-term care but coded as more general service types.

DATA STRENGTHS AND LIMITATIONS

MAX provides the potential to examine patterns of long-term care use and expenditures in much more detail than is possible with aggregated data. MAX enables researchers to analyze utilization-based rather than just expenditure-based measures and to examine service use and expenditures by subgroup. Whereas aggregate data only provide total Medicaid long-term care expenditures, MAX data can be used to additionally estimate total Medicaid expenditures among people using long-term care services. When claims data are available, MAX can also be used to examine the composition of waiver expenditures as well as variation in services used over time. MAX also provides more extensive service type information than is available in other data sources. For example, residential care, adult day care, and durable medical equipment service types are not reported on Form 64 or Form 372. Procedure codes available on claims can also be used to further examine the types of Medicaid long-term care services that are provided by individual states.

Such detailed data about over 50 million enrollees comes with some limitations. In addition to the underestimation of MAX community long-term care when using MAX PS files, there are a number of other caveats that should be considered when using MAX data to analyze patterns of long-term care:

- **Timeliness of MAX.** Due to extensive reporting, data cleaning, and file construction requirements, MAX data are not as current as may be needed to address certain policy questions. In recent years, community long-term care expenditures have grown faster than institutional long-term care (O'Brien 2005) and are higher than the statistics presented in this report.
- **Information Not Captured in MAX.** Some Medicaid long-term care expenditures are not included in MAX:
 - *Bulk Payments.* Because MAX contains only person-level data, claims paid or adjustments made for multiple individuals as a lump sum--for example, some home and community-based waiver services, some capitated payments, and Disproportionate Share Hospital payments--are not included in the files.
 - *Managed Care.* Long-term care utilization and expenditures reported here reflect fee-for-services (FFS) use and expenditures only.⁶ (Institutional care is rarely covered under managed care arrangements, with Arizona's program being a notable exception.)
 - *Cost-Sharing for Dual Enrollees.* Medicaid premium payments paid on behalf of dual Medicare and Medicaid enrollees are not included in MAX. Co-insurance payments for duals are included in MAX only if Medicaid made payments for such services.
 - *Missing Waiver Claims.* Some states were not able to include all waiver claims in their MSIS submissions.

Because these data are not included in MAX, statistics for states with a significant portion of their long-term care expenditures paid in bulk or with extensive long-term care managed care programs cannot be directly compared with statistics computed for other states using MAX.

- **Double-Counting.** Individuals who use Medicaid services in more than one state are observed as two people living in separate states. Double-counting implies that national measures of Medicaid long-term care use are somewhat overestimated. However, while movement across states among the general elderly population is common, we expect movement across states among the

⁶ Expenditures for any institutional or community-based long-term care services provided under managed care are subsumed into managed care premiums. Expenditures for specific services covered under managed care (including any for long-term care) generally cannot be identified in MAX. The use of MAX to examine long-term care in states with managed care programs like Arizona's is limited to overall expenditure analyses. Utilization of managed care services is reported in "encounter records," although encounter records are known to be incomplete in MSIS and MAX.

aged or disabled poor using long-term care services to be very limited and have a small impact on our estimates overall.

- **Data Anomalies.** As with most administrative files of its size and scope, MAX data contain a variety of known and unknown data anomalies. A list of data anomalies associated with MAX long-term care measures used in this analysis is provided in Appendix C. Among other known anomalies, the list identifies states with significantly different long-term care expenditures reported in MAX, MSIS and Form 64.

ANALYSIS METHODS

The analyses presented in the following chapter capitalize on the strengths of MAX while taking into account the limitations of the data discussed above. Our analyses represent Medicaid enrollees from 37 states we believe have reliable data. We exclude states with extensive missing data or data that varies significantly from summary measures reported for other data sources. Specifically, we exclude Arizona, Hawaii, Massachusetts, Michigan, Montana, North Carolina, Oregon, Pennsylvania, Rhode Island, South Carolina, Tennessee, Texas, Virginia, and Washington. (See Appendix C for details regarding data anomalies in each state.) Exclusion decisions were based on comparisons made with statistics prepared by Burwell, Sredl, and Eiken (2003) from CMS Form 64, comparisons with waiver statistics reported by Kitchener, Ng, and Harrington from CMS Form 372, and knowledge about the structure of state Medicaid programs in terms of their institutional and community long-term care service provisions.

We note that not all excluded states are *known* to have problematic long-term care data in MAX. We excluded states from the analysis when statistics obtained using MAX varied substantially from published reports, and the accuracy of MAX data could not be confirmed (see Appendix C for more detail). MAX data for such states may be indeed be accurate but are not included in the results presented in the following chapter.

We also limit the population of long-term care users to those eligible for Medicaid as a result of age or disability and those eligible for comprehensive benefits at some point during the entire year.⁷ Aged enrollees include all enrollees age 65 and older in 2002. Disabled enrollees include people of all ages who are under 65 in 2002 and became eligible for Medicaid as a result of their disability. These two groups include almost all enrollees using Medicaid long-term care services. See Appendix B for further detail about basis of eligibility groups.

While we present national averages based on 37 states, the exclusion of 14 states from our analyses may bias our results. Some excluded states--Oregon and

⁷ We exclude people eligible for only family-planning services, unqualified aliens eligible for only emergency hospital services, and restricted-benefit duals receiving only coverage for Medicare premiums and cost sharing. Some enrollees may be eligible for a restricted set of services but are included in our analysis--for example, those eligible for only prescription drug coverage and Medicare cost sharing.

Washington, for example--are known to have strong community-based long-term care programs. However, others--Pennsylvania and Tennessee, for example--have typically spent less on community-based services than institutional care in the past. Overall, half the excluded states had lower-than-average and half had higher-than-average percentage of long-term care expenditures spent on community-based services in 2004 (O'Brien 2005). As a result, it is plausible that our national totals based on the 37 represented states closely match true averages for all Medicaid enrollees, although it is also possible that significant biases are present. Our national estimates should be interpreted with caution.

III. USING MAX TO EXAMINE INSTITUTIONAL AND COMMUNITY-BASED LONG-TERM CARE SERVICE USE AND EXPENDITURES IN 2002

In this chapter we use data from MAX 2002 to illustrate four key ways in which MAX data can be used to gain better understanding of Medicaid long-term care service use and expenditures. We first compare utilization-based measures with traditionally-computed expenditure-based measures of the balance of institutional versus community-based long-term care. We then examine differences in Medicaid long-term care use and expenditure for two important subgroups of long-term care users: aged and disabled enrollees. In the next section, we summarize use and expenditures by detailed community-based long-term care service types that are not available in other data sources. In the final analysis presented in this chapter, we investigate total and service-specific Medicaid expenditures for three groups of long-term care: users of only institutional care, users of only community-based care, and users of both TOS. Each analysis highlights the potential of using person-level or service-specific data available in MAX to better understand patterns of long-term care use in Medicaid. The chapter also provides detailed estimates of Medicaid institutional and community-based long-term care utilization and expenditures in 37 states, with potential policy or future research implications. We discuss the implications of our results in Chapter IV.

MEASURING THE BALANCE OF INSTITUTIONAL AND COMMUNITY-BASED LONG-TERM CARE: EXPENDITURE- VERSUS UTILIZATION-BASED MEASURES

To capture the extent to which community-based programs have shifted long-term care from institutional care to the community, researchers have typically relied on aggregate measures summarizing community-based long-term care expenditures as a share of total long-term care expenditures. The problem with this approach is that total expenditures depend on the number of users that utilize services as well as the cost of those services. If community-based services are less costly alternatives to institutional care, expenditure share values would naturally be skewed towards institutional long-term care. Utilization-based measures provide an important alternative measure of the balance of institutional and community-based long-term care in Medicaid.

MAX data enable the examination of utilization-based as well as expenditure-based measures. They also enable state-level analyses. Table III.1 shows our 37 sample states ranked by two alternative measures of balance of community-based care: (1) an expenditure measure defined as the percentage of expenditures that were for community-based services in 2002; and (2) a utilization-based measure defined as the percentage of long-term care users that used community-based services in 2002. (See Appendix Table D.1 for information in Table III.1 ordered alphabetically by state.) The

two measures can lead to different inferences about long-term care service balance nationally and across states.

TABLE III.1. Expenditure and Utilization-Based Measures of the Balance of Institutional and Community-Based Long-Term Care for Aged and Disabled Enrollees in Select States in 2002, Ranked by Community-Based Service Share

Rank		States Ranked by Percentage of Expenditure for CLTC			States Ranked by Percentage Using CLTC		
\$	#	State	Total LTC Expenditures	Percentage of Total LTC Expenditures for CLTC	State	Number of LTC Users	Percentage of Total LTC Users Using CLTC
1	3	New Mexico	542,600,816	65.1	Alaska	5,351	86.5
2	1	Alaska	170,053,768	62.1	California	442,150	77.2
3	12	Vermont	188,769,963	54.8	New Mexico	20,436	67.7
4	6	Maine	523,719,228	52.7	Colorado	40,666	67.6
5	16	Wyoming	134,720,415	51.9	Idaho	15,065	67.1
6	9	Minnesota	2,156,559,593	48.3	Maine	21,126	67.1
7	4	Colorado	789,483,284	47.3	New York	376,597	66.6
8	13	Kansas	721,488,818	47.0	Alabama	63,540	65.1
9	2	California	6,474,012,070	45.7	Minnesota	83,752	63.1
10	28	New Hampshire	347,963,248	43.1	Illinois	182,040	62.8
11	7	New York	14,262,218,168	39.4	Missouri	86,969	62.3
12	27	Utah	254,038,802	38.4	Vermont	8,200	61.6
13	11	Missouri	1,269,674,117	35.0	All 37 States	2,470,774	58.8
14	20	Oklahoma	840,695,921	34.0	Kansas	37,474	58.8
		All 37 States	55,853,564,420	33.8	West Virginia	26,331	58.6
15	5	Idaho	271,976,684	33.3	Arkansas	46,856	56.8
16	14	West Virginia	538,084,789	32.9	Wyoming	5,316	56.2
17	31	South Dakota	208,020,237	32.3	Iowa	42,299	54.4
18	24	Maryland	1,229,324,525	32.1	New Jersey	94,780	53.3
19	26	Connecticut	1,845,597,817	30.9	Florida	158,986	52.1
20	18	New Jersey	2,545,888,294	30.8	Oklahoma	49,223	51.6
21	30	Nebraska	479,154,285	30.5	Nevada	9,478	50.8
22	25	Delaware	242,973,383	28.9	Kentucky	51,946	50.2
23	33	Wisconsin	1,434,230,775	27.8	District of Columbia	9,222	49.7
24	29	Georgia	1,294,811,205	27.0	Maryland	45,071	49.6
25	19	Florida	3,091,499,328	26.4	Delaware	6,851	49.1
26	21	Nevada	188,035,239	26.2	Connecticut	53,933	49.0
27	15	Arkansas	737,779,689	23.6	Utah	11,196	48.2
28	17	Iowa	797,603,243	23.5	New Hampshire	12,465	46.3
29	22	Kentucky	911,441,510	22.2	Georgia	72,476	44.9
30	35	North Dakota	252,311,287	21.8	Nebraska	19,525	44.0
31	10	Illinois	2,724,087,990	21.4	South Dakota	10,049	42.6
32	8	Alabama	949,247,839	20.6	Ohio	139,378	40.9
33	32	Ohio	3,936,270,515	20.3	Wisconsin	62,026	40.3
34	36	Louisiana	1,149,262,277	17.1	Mississippi	36,131	39.6
35	37	Indiana	1,402,625,664	16.9	North Dakota	8,838	37.7
36	23	District of Columbia	267,951,360	11.6	Louisiana	57,558	31.1
37	34	Mississippi	679,388,274	8.6	Indiana	57,474	23.0

SOURCE: Medicaid Analytic eXtract, 2002 for a sample of 37 states with valid long-term care data.

CLTC = community-based long-term care; LTC = long-term care.

The utilization-based measure far exceeded the expenditure-based measure overall and in almost all states, suggesting far greater use of community-based services than the expenditure measure might suggest. Overall, only 33.8 percent of expenditures in our 37 sample states were for community-based services whereas a

majority, 58.8 percent, of long-term care users utilized community-based services.⁸ The share of long-term care expenditures that were used for community-based services ranged from 65.1 percent in New Mexico to 8.6 percent in Mississippi. Aside from New Mexico, other states with high expenditure-based balance measures included Alaska (62.1 percent), Vermont (54.8 percent), Maine (52.7 percent), and Wyoming (51.9 percent). In comparison, over half the sample states had a utilization-based balance measure of more than 50 percent. The community-based service utilization rate ranged from 86.5 percent in Alaska to 23.0 percent in Indiana.

While the utilization-based measure was larger than the expenditure-based measure in every state, there was significant variation across states in how the two measures compared. For example, Illinois and Alabama ranked 31st and 32nd out of the 37 states in the percent of expenditures that were for community-based services but ranked 10th and 8th, respectively, in the percent of long-term care users who used community-based services. In these two states, the utilization rate of community-based services was much higher than their share of expenditures. In contrast, the two measures of long-term care balance were most similar in New Mexico and New Hampshire.

It should be kept in mind that states differ greatly in their Medicaid programs, service costs within the state, and the scope of covered services. Community-based waiver programs, for example, can cover a large number of individuals but provide only a limited set of long-term care services. Similarly, states vary greatly in the costs of institutionalization within the state as illustrated by the two highest ranked states in terms of community-based expenditure share--New Mexico and Alaska. While community-based service expenditures per user were only slightly lower (\$25,547) than costs for institutional care (\$26,507) in New Mexico, they were only a third of per-user institutional care expenditures in Alaska (see Appendix Table D.2). However, less than a thousand individuals were institutionalized in Alaska at the cost of \$66,934 per user. Per-user expenditures for community-based care in Alaska, at \$22,792, are not so different from those in New Mexico. (See Appendix Table D.2 for total expenditures, number of users, and per-user expenditures for institutional, community-based, and both types of long-term care services by state.)

In addition to variation in cost of care and program characteristics, many other factors can affect expenditure and utilization-based measures of long-term care balance. Utilization of community-based services at some point in the year does not preclude use of institutional services during the same year; states may differ in the proportion utilizing both services. Other factors, such as the enrollee age distribution, can also affect summary measures by state. Subgroup analyses investigating these factors provide insight into how long-term care services are used across states.

⁸ To the extent that individuals use services in more than one state, national measures of Medicaid long-term care use are somewhat overestimated.

ANALYSES BY SUBGROUP: COMPARING AGED AND DISABLED ENROLLEES

Figure III.1 illustrates how aggregate numbers can mask considerable variation in the overall balance of community and institutional long-term care expenditures by subgroup. Community and institutional long-term care service expenditures were far more balanced among young disabled enrollees than among enrollees aged 65 or older who traditionally use nursing facility care. The percentage of total long-term care expenditures accounted for by community-based services ranged from 50.4 for people under age 65, 30.8 for people between ages 65 and 74, 21.0 for people between ages 75 and 84, and 12.9 for those age 85 and older. (See Appendix Table D.3 for these and other expenditure balance statistics by population subgroup.) Community-based services accounted for an average of 19.5 percent of long-term care expenditures among all enrollees age 65 and older.

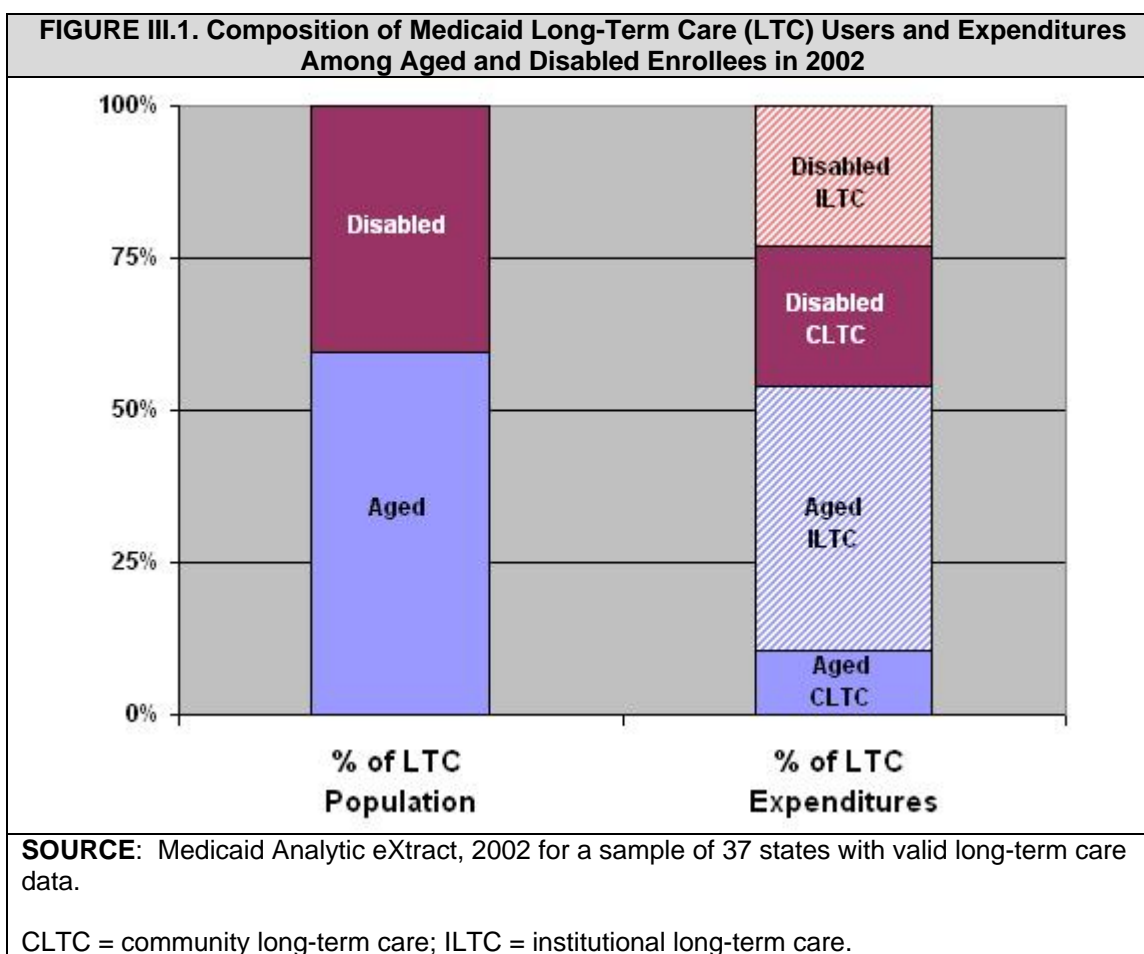


Table III.2 shows the composition of Medicaid expenditures and Table III.3 shows the counterpart utilization-based measures separately for aged and disabled enrollees by state (also see Appendix Table D.1 for both types of information compared by state). Each table is ranked by the overall balance of long-term care service that is for community-based care. The measures depend on the people eligible, services covered, and the population composition in each state. To capture the long-term care

cost burden to states, Table III.2 and Table III.3 also present the percentage of long-term care users who were aged and the percentage of Medicaid enrollees who were aged or disabled.

TABLE III.2. Composition of Medicaid FFS Long-Term Care Expenditures Among Aged and Disabled Enrollees for Select States in 2002, Ranked by Community-Based Service Share								
Rank		State	Total LTC Expenditures	Community-Based LTC Expenditures as a Percentage of Total LTC Expenditures			% of LTC Users Who Were Aged ^a	% of All Medicaid Enrollees Who Were Aged or Disabled (Burden)
\$	#			Overall	Among Aged ^a	Among Disabled		
1	3	New Mexico	542,600,816	65.1	44.3	83.6	57.8	16.6
2	1	Alaska	170,053,768	62.1	36.8	81.4	46.0	15.4
3	12	Vermont	188,769,963	54.8	20.6	91.7	57.5	18.8
4	6	Maine	523,719,228	52.7	23.0	78.4	56.2	29.9
5	16	Wyoming	134,720,415	51.9	11.6	79.8	51.4	17.9
6	9	Minnesota	2,156,559,593	48.3	14.2	74.9	50.9	23.9
7	4	Colorado	789,483,284	47.3	18.6	77.9	54.8	23.9
8	13	Kansas	721,488,818	47.0	20.4	72.2	56.0	25.5
9	2	California	6,474,012,070	45.7	38.1	54.1	60.1	26.1
10	28	New Hampshire	347,963,248	43.1	12.4	86.8	67.3	22.9
11	7	New York	14,262,218,168	39.4	30.9	48.8	58.7	25.0
12	27	Utah	254,038,802	38.4	6.8	54.1	44.7	16.1
13	11	Missouri	1,269,674,117	35.0	16.1	60.1	62.6	22.4
14	20	Oklahoma	840,695,921	34.0	11.3	57.0	66.6	20.2
All 37 States			55,853,564,420	33.8	19.5	50.4	59.5	25.0
15	5	Idaho	271,976,684	33.3	19.4	46.2	52.2	20.2
16	14	West Virginia	538,084,789	32.9	13.1	59.4	59.3	31.4
17	31	South Dakota	208,020,237	32.3	6.7	61.6	64.2	20.8
18	24	Maryland	1,229,324,525	32.1	10.9	62.4	56.4	22.7
19	26	Connecticut	1,845,597,817	30.9	11.3	55.8	66.0	23.0
20	18	New Jersey	2,545,888,294	30.8	21.5	43.2	65.9	28.0
21	30	Nebraska	479,154,285	30.5	9.7	55.9	63.1	19.5
22	25	Delaware	242,973,383	28.9	8.9	53.2	57.8	16.2
23	33	Wisconsin	1,434,230,775	27.8	10.1	52.6	65.8	26.1
24	29	Georgia	1,294,811,205	27.0	9.8	53.6	64.0	22.8
25	19	Florida	3,091,499,328	26.4	9.4	52.6	59.1	27.7
26	21	Nevada	188,035,239	26.2	11.8	42.2	59.2	19.8
27	15	Arkansas	737,779,689	23.6	14.0	36.3	62.0	27.7
28	17	Iowa	797,603,243	23.5	9.0	37.5	59.9	26.6
29	22	Kentucky	911,441,510	22.2	9.1	42.9	64.5	33.6
30	35	North Dakota	252,311,287	21.8	5.0	43.7	63.9	25.8
31	10	Illinois	2,724,087,990	21.4	9.5	31.4	50.5	21.4
32	8	Alabama	949,247,839	20.6	6.7	52.5	60.4	33.3
33	32	Ohio	3,936,270,515	20.3	8.8	37.4	63.5	23.3
34	36	Louisiana	1,149,262,277	17.1	2.0	28.1	49.9	25.1
35	37	Indiana	1,402,625,664	16.9	2.8	33.3	65.3	21.8
36	23	District of Columbia	267,951,360	11.6	5.6	19.1	47.3	25.6
37	34	Mississippi	679,388,274	8.6	5.8	13.1	67.9	32.9

SOURCE: Medicaid Analytic eXtract, 2002 for a sample of 37 states with valid long-term care data.

a. Aged enrollees include all enrollees ages 65 or older.

In every state in our sample, expenditures for and utilization of community-based services relative to institutional care were significantly higher for disabled enrollees than for aged enrollees. On average, only 44.9 percent of aged but 79.3 percent of disabled used community-based care (reflecting 19.5 percent and 50.4 percent of costs, respectively). As a result, the states with the highest balance of community versus institutional long-term care expenditures and service use overall were those with the highest community-based service expenditures or use among the aged.

TABLE III.3. Percentage of Medicaid FFS Long-Term Care Users Who Used Community-Based Services in Select States in 2002, Ranked by Percentage Using Community-Based Services								
Rank		State	Number of LTC Users	Community-Based LTC Users as a Percentage of Total LTC Users			% of LTC Users Who Were Aged ^a	% of All Medicaid Enrollees Who Were Aged or Disabled (Burden)
#	\$			Overall	Among Aged ^a	Among Disabled		
1	2	Alaska	5,351	86.5	80.1	92.0	46.0	15.4
2	9	California	442,150	77.2	71.6	85.7	60.1	26.1
3	1	New Mexico	20,436	67.7	53.4	87.2	57.8	16.6
4	7	Colorado	40,666	67.6	49.6	89.3	54.8	23.9
5	15	Idaho	15,065	67.1	56.1	79.2	52.2	20.2
6	4	Maine	21,126	67.1	48.0	91.6	56.2	29.9
7	11	New York	376,597	66.6	52.5	86.7	58.7	25.0
8	32	Alabama	63,540	65.1	49.1	89.7	60.4	33.3
9	6	Minnesota	83,752	63.1	38.6	88.4	50.9	23.9
10	31	Illinois	182,040	62.8	47.0	78.9	50.5	21.4
11	13	Missouri	86,969	62.3	50.6	81.9	62.6	22.4
12	3	Vermont	8,200	61.6	37.7	93.8	57.5	18.8
		All 37 States	2,470,774	58.8	44.9	79.3	59.5	25.0
13	8	Kansas	37,474	58.8	36.8	86.8	56.0	25.5
14	16	West Virginia	26,331	58.6	42.9	81.4	59.3	31.4
15	27	Arkansas	46,856	56.8	47.0	72.9	62.0	27.7
16	5	Wyoming	5,316	56.2	28.3	85.6	51.4	17.9
17	28	Iowa	42,299	54.4	39.1	77.1	59.9	26.6
18	20	New Jersey	94,780	53.3	42.0	75.0	65.9	28.0
19	25	Florida	158,986	52.1	33.3	79.2	59.1	27.7
20	14	Oklahoma	49,223	51.6	43.8	67.1	66.6	20.2
21	26	Nevada	9,478	50.8	38.1	69.3	59.2	19.8
22	29	Kentucky	51,946	50.2	35.9	76.3	64.5	33.6
23	36	District of Columbia	9,222	49.7	25.0	71.9	47.3	25.6
24	18	Maryland	45,071	49.6	26.7	79.2	56.4	22.7
25	22	Delaware	6,851	49.1	30.0	75.3	57.8	16.2
26	19	Connecticut	53,933	49.0	35.3	75.5	66.0	23.0
27	12	Utah	11,196	48.2	20.8	70.3	44.7	16.1
28	10	New Hampshire	12,465	46.3	25.1	89.9	67.3	22.9
29	24	Georgia	72,476	44.9	26.9	76.9	64.0	22.8
30	21	Nebraska	19,525	44.0	25.8	75.2	63.1	19.5
31	17	South Dakota	10,049	42.6	23.4	77.0	64.2	20.8
32	33	Ohio	139,378	40.9	29.3	61.3	63.5	23.3
33	23	Wisconsin	62,026	40.3	22.8	73.8	65.8	26.1
34	37	Mississippi	36,131	39.6	33.0	53.4	67.9	32.9
35	30	North Dakota	8,838	37.7	17.9	72.6	63.9	25.8
36	34	Louisiana	57,558	31.1	11.5	50.5	49.9	25.1
37	35	Indiana	57,474	23.0	7.7	51.7	65.3	21.8

SOURCE: Medicaid Analytic eXtract, 2002 for a sample of 37 states with valid long-term care data.

a. Aged enrollees include all enrollees ages 65 or older.

Many factors can contribute to variation in long-term care expenditures and utilization across states. New Mexico and Alaska--among the top three states in both community-based service expenditure share and utilization--had relatively young Medicaid populations but also had higher-than-average community-based service utilization and expenditure share among the aged. It should also be noted that while the balance of community to institutional care was higher for disabled than aged in every state, they were more closely balanced in some states like California and New York.

While the balance of expenditures between community and institutional care for younger (disabled) enrollees suggests that rebalancing initiatives have been successful

for this population, another potential explanation for a rise in community care service use is utilization of services among people who would otherwise not have used institutional long-term care. Our cross-section of 2002 MAX data does not allow us to further investigate this issue. MAX claims files or additional years of MAX data would be needed for such an analysis. The results presented here, however, illustrate the utility of using MAX to better understand who has access to and is receiving services.

TABLE III.4. Characteristics of Aged and Disabled Enrollees Using Medicaid Fee-for-Service Long-Term Care Services Compared with Those of All Full-Benefit Enrollees in 2002						
	All Full-Benefit Medicaid Enrollees	Non-LTC Enrollees ^a	Aged or Disabled Enrollees Using LTC Services			
			Any FFS LTC	ILTC Only	Both ILTC and CLTC	CLTC Only
Percentage of Total Population	100.0	92.3	7.7	3.2	0.5	4.1
Demographic Characteristics						
Age (Percentage of Subgroup)						
Under age 21	58.1	62.5	5.3	1.6	2.7	8.5
21-64 years	31.3	31.0	35.2	18.7	34.0	48.2
65-74 years	4.2	3.4	14.3	12.6	15.8	15.6
75-84 years	3.6	2.0	22.2	28.1	25.0	17.3
85 years and older	2.4	0.7	23.0	39.0	22.6	10.5
Percentage Non-Hispanic White	43.6	41.8	64.6	75.9	65.4	55.8
Percentage Male	42.5	43.1	35.6	32.8	34.6	37.9
Enrollment Characteristics						
Basis of Eligibility (Percentage)						
Aged ^b	10.2	6.1	59.5	79.7	63.3	43.4
Disabled	14.9	12.7	40.5	20.3	36.7	56.6
Percentage Enrolled all Year	58.7	57.2	77.5	65.9	77.6	86.6
Medicare Status (Percentage)						
Not a dual	85.8	90.9	25.2	12.5	21.9	35.5
Part-year dual ^c	0.8	0.6	3.2	3.3	4.5	3.0
Full-year dual ^c	13.4	8.6	71.6	84.1	73.6	61.5
Percentage Enrolled in Medicaid Managed Care	62.8	65.6	28.9	17.2	21.5	39.0
SOURCE: Medicaid Analytic eXtract, 2002 sample of 37 states with valid long-term care data. ILTC = institutional long-term care; CLTC = community long-term care.						
a. Non-LTC enrollees include all enrollees eligible as children or adults.						
b. Aged enrollees include all enrollees ages 65 or older.						
c. Part-year duals include those who are duals during a portion of their enrollment period.						

MAX can be used for more detailed subgroup analyses that can help identify potential target populations for new programs. Table III.4 profiles long-term care users who used community, institutional, or both types of Medicaid long-term care services in 2002. Compared with Medicaid enrollees with no long-term care use, aged or disabled people using long-term care services were more likely to include older individuals and those eligible for Medicaid as a result of their age or disability. Other dominant characteristics among long-term care users were correlated with age--including non-Hispanic White race and female gender. Because children and adult enrollees tend to have shorter spells of Medicaid enrollment, people using long-term care services are more likely to be enrolled all year. They also are less likely than other enrollees to be enrolled in managed care because, in 2002, Medicaid managed care plans often

exempted duals and other aged or disabled enrollees and excluded long-term care services from their plans.

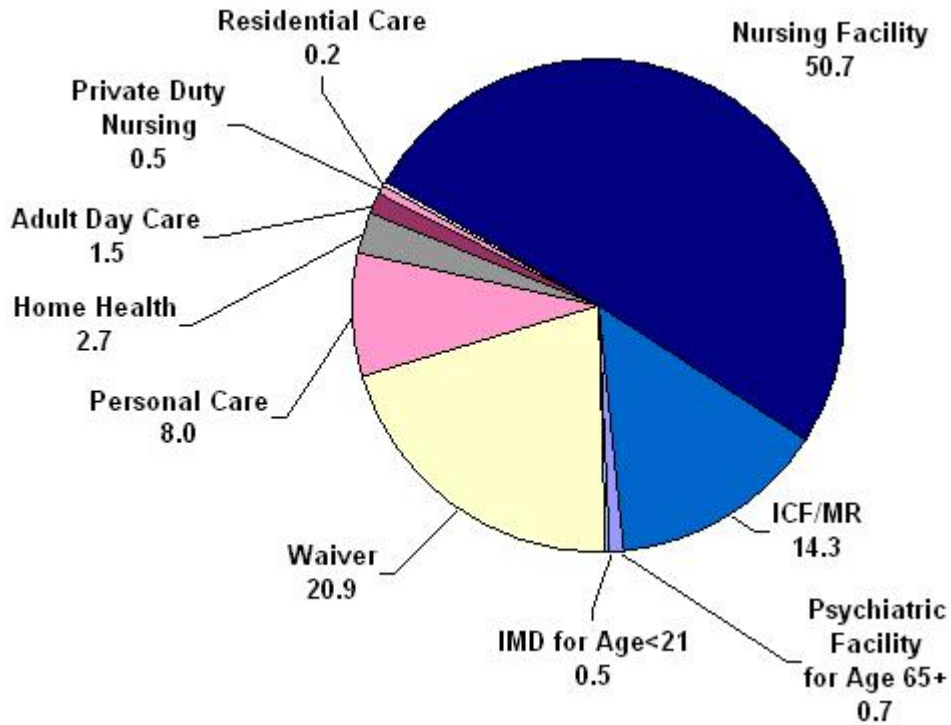
EXAMINING SERVICE-LEVEL DETAIL FOR COMMUNITY-BASED SERVICES

Community-based long-term care services differ greatly in type and scope when compared with institutional care. Consequently, it is important to examine such service not just relative to institutional care but also in their composition and component parts. MAX PS and claims files can potentially be used to examine community-based long-term care service types in much more detail than possible using more aggregated data such as those in Form 64.

Community-based services can be provided in any setting that is not an institution (such as a nursing home or ICF/MR) if the state chooses to do so. Community care is provided in traditional homes or apartments, but it also can be provided in group homes or assisted living facilities. Home health, adult day care, and private duty nursing service types in MAX reflect services received by a particular agency or provider type. Personal care includes all other services provided in traditional homes. While Medicaid cannot pay for room and board outside institutions, many support services can be covered. Usually a person's SSI or state supplement payments cover room and board, while Medicaid pays for the other services they receive in such facilities. These services may be provided by the operator of the home or facility, by an outside agency, or both. The MAX residential care service type includes Medicaid-covered services that people receive in such group settings. Residential care and adult day care are service types not differentiated in other data sources (including Form 64) and provide additional detail about the location and type of community-based Medicaid services that are used.

Overall, we estimate that almost 34 percent of Medicaid FFS long-term care expenditures in 2002 were for community-based services (Figure III.2). This estimate is slightly higher than the 30 percent computed using data in Form 64 (Burwell, Sredl, and Eiken 2003). This difference is potentially due to changes in the distribution of expenditures over time captured in the calendar year MAX data compared with FY Form 64 and/or other differences in institutional or community-based long-term care reporting between the two data sources. Another possible explanation for the higher estimates of community long-term care using MAX compared with Form 64 is the additional information about service type available in MAX. We estimate that 1.7 percent of non-waiver long-term care expenditures went to adult day care (1.5 percent) and residential care (0.2 percent). Although relatively small, these service expenditures have typically not been included in past estimates of long-term care. Nevertheless, community long-term care is known to be underestimated in this study for our 37 sample states (see Chapter II) and as a result, the true balance of expenditures between community and institutional services is expected to be more equal.

FIGURE III.2. Composition of Medicaid Long-Term Care Expenditures Among Aged and Disabled Enrollees in 2002



SOURCE: Medicaid Analytic eXtract, 2002 for a sample of 37 states with valid long-term care data.

Community long-term care expenditures were dominated by costs for Section 1915(c) waiver services, which consist of a wide range of service types. Waivers accounted for 20.9 percent of Medicaid long-term care expenditures in our sample states. Other non-waiver community-based services that contributed to long-term care expenditures include personal care (8.0 percent), home health (2.7 percent), adult day care (1.5 percent), private duty nursing (0.5 percent), and residential care (0.2 percent). (See Appendix Table D.4 for state-level detail about the composition of Medicaid long-term care expenditures in each state in our sample.)

National averages can be skewed by large states like New York and California. These two states have the largest state personal care programs in the country and they alone accounted for 83 percent of non-waiver personal care expenditures in the 37 states in our sample.⁹

Because such a large portion of community long-term care is provided by waiver services and thus is aggregated over service type, we also examine expenditures by service type regardless of waiver coverage. (Many waiver services are grouped as Other types and thus will not be captured in these estimates.) Table III.5 shows average expenditures per enrollee using any long-term care service for the top ten

⁹ Personal care services were erroneously coded as residential care in California's MAX 2002 data. All residential care in California was recoded as personal care for the analyses presented in this report.

states in average expenditures for each of four community-based service types. Each measure captures both the frequency of use in the state and the cost per user of service. While *non-waiver* community long-term care in residential settings contributed only 0.2 percent to long-term care expenditures, residential care was a significant component of waiver services. Waiver and non-waiver services reported under residential care together composed 6 percent of total long-term care expenditures and 23 percent of community-based long-term care expenditures reported as service types. We estimate that overall, at least \$1,354 was spent on residential care per user of any long-term care in our sample states, compared with \$2,413 for personal care, \$968 for home health, \$946 for adult day and \$184 for private duty nursing services (not shown). The highest personal care and residential care dollars per long-term care user were spent in Alaska (\$8,132 and \$11,074, respectively). Maryland had the highest home health expenditures (\$6,578) and Wyoming the highest adult day expenditures (\$3,141) per long-term care user. (See Appendix Table D.5 for additional state-level detail.)

TABLE III.5. FFS Expenditures for Personal Care, Residential Care, Home Health, and Adult Day Care per Aged or Disabled Medicaid Enrollee Using Long-Term Care Services (Includes Waiver Services with Reported Service Type): Top 10 States

Personal Care		Residential Care		Home Health		Adult Day	
State	Dollars	State	Dollars	State	Dollars	State	Dollars
Alaska	8,132	Alaska	11,074	Maryland	6,578	Wyoming	3,141
New Mexico	7,236	Wyoming	5,553	Connecticut	3,043	New York	2,772
California	5,565	Utah	5,196	New York	2,402	New Hampshire	2,393
New York	5,145	Connecticut	5,114	Colorado	1,768	Oklahoma	2,130
Kansas	3,656	New York	4,327	District of Columbia	1,749	Maine	2,033
Idaho	3,115	Kansas	3,673	Iowa	1,415	District of Columbia	2,013
Minnesota	3,010	Iowa	2,814	Georgia	1,072	Maryland	1,558
New Jersey	2,519	West Virginia	2,544	Florida	984	Kansas	1,415
Missouri	2,202	Indiana	2,303	Kentucky	935	Minnesota	1,283
Nevada	1,900	Delaware	2,192	Nebraska	881	Alaska	1,253
All 37 States	2,413	All 37 States	1,354	All 37 States	968	All 37 States	946

SOURCE: Medicaid Analytic eXtract, 2002 for a sample of 37 states with valid long-term care data.

OTHER MEDICAID SERVICE USE AND EXPENDITURES AMONG LONG-TERM CARE USERS

A critically important feature of MAX and other person-level data for understanding Medicaid long-term care utilization is the ability to examine not just long-term care service use and expenditures, but also other Medicaid service use and expenditures among people using long-term care services. Aged or disabled enrollees using Medicaid long-term care services accounted for 7.7 percent of all full-benefit Medicaid enrollees in our 37 sample states but represented over 50 percent of their total Medicaid expenditures (including FFS and managed care premiums paid). The combinations of services they use can give additional insight into their characteristics and their long-term care needs.

Total Medicaid expenditures were highest, on average, for people using both institutional and community long-term care (Table III.6). These individuals incurred an average of \$46,055 in 2002 compared with \$38,844 among those with institutional care only and \$24,966 for those with only community-based long-term care use. However, their long-term care service expenditures were similar to those of enrollees using only institutional services. Instead, their large Medicaid expenditures were accounted for primarily by expenditures for inpatient hospital services (\$5,991 on average compared with \$2,741 and \$1,460 for people using only community or institutional care services, respectively) and prescription drugs (\$3,842 compared with \$3,534 and \$2,775 for people using only community or institutional care services, respectively). (See Appendix Table D.6 for average expenditures incurred by long-term care users by detailed type of service.)

TABLE III.6. Average Medicaid Expenditures for Aged or Disabled Enrollees Using Medicaid Fee-for-Service Long-Term Care Services in 2002, by Type of Service and Program Type				
	Aged or Disabled Enrollees Using LTC Services			
	Any FFS LTC	ITLC Only	Both ILTC and CLTC	CLTC Only
Number of Enrollees	2,470,774	1,016,844	152,755	1,301,175
Total Medicaid Expenditures per Enrollee	31,981	38,844	46,055	24,966
Total Long-Term Care Expenditures per Enrollee	22,606	32,833	31,605	13,557
Long-Term Care Expenditures per Enrollee by Type of Service^a				
All long-term care service types (excludes non-categorized waiver services) ^a	20,837	32,833	30,065 ^a	10,379 ^a
Institutional long-term care				
Nursing facility	11,469	25,889	13,170	0
ICF/MR	3,243	6,427	9,675	0
Inpatient psychiatric for those under 21	151	298	456	0
Mental hospital services for the aged (65 and older)	110	219	320	0
Community long-term care				
Personal care	2,413	0	2,612	4,275
Residential care	1,354	0	836	2,469
Home health	968	0	1,426	1,671
Adult day care	946	0	1,477	1,623
Private duty nursing	184	0	67	341
Long-Term Care Expenditures per Enrollee by Program Type				
Section 1915(c) waiver services ^a	4,713	0	3,279	8,565
Other Service Type Expenditures per Enrollee				
Inpatient care	2,415	1,460	5,991	2,741
Prescription drugs	3,241	2,775	3,842	3,534
SOURCE: Medicaid Analytic eXtract, 2002 sample of 37 states with valid long-term care data. CLTC = community long-term care; ILTC = institutional long-term care; LTC = long-term care.				
a. Section 1915(c) waiver services include HCBS provided under Section 1915(c) waivers. Expenditures covered under these waivers are also included in expenditures by type of service and thus are excluded from type of service average estimates in Table III.6. A significant share of waiver expenditures may not be reported by detailed type of service but instead categorized as Other (TOS 19) services or Unknown (TOS 99).				

The high average inpatient and prescription drug expenditures for people using both community and institutional long-term care services relative to other long-term care users is due to both high utilization of these services and high expenditures per user. Over 49 percent used inpatient services and almost 96 percent used prescription drugs,

compared with 24.4 percent and 85.8 percent, respectively, among people using only institutional long-term care and 26.0 percent and 89.5 percent, respectively, among people using only community-based service (see Appendix Table D.7). Inpatient expenditures were \$12,214 and prescription drug expenditures were \$4,016 per user among people with both institutional and community-based service use, compared with \$10,564 and \$3,947, respectively, for people using community-based services only and \$5,993 and \$3,234, respectively, for those using only institutional care (see Appendix Table D.8). A similar pattern is evident among dual enrollees--for whom Medicare covers most acute inpatient care for short hospital stays (Table III.7).

TABLE III.7. Average Medicaid Expenditures for Aged or Disabled Duals Using Medicaid Fee-for-Service Long-Term Care Services in 2002, by Type of Service and Program Type				
	Aged or Disabled Duals Using LTC Services			
	Any FFS LTC	ITLC Only	Both ILTC and CLTC	CLTC Only
Number of Dual Enrollees	1,848,148	889,335	119,270	839,542
Total Medicaid Expenditures per Dual Enrollee	29,402	35,548	37,977	21,673
Total Long-Term Care Expenditures per Dual Enrollee	23,0120	30,996	28,618	13,758
Long-Term Care Expenditures per Dual Enrollee by Type of Service^a				
All long-term care service types (excludes non-categorized waiver services) ^a	21,449	30,996	27,267 ^a	10,509 ^a
Institutional long-term care				
Nursing facility	13,507	26,286	13,290	0
ICF/MR	2,650	4,511	4,426	0
Inpatient psychiatric for those under 21	3	6	9	0
Mental hospital services for the aged (65 and older)	112	194	289	0
Community long-term care				
Personal care	4,064	0	2,842	4,790
Residential care	2,359	0	835	2,656
Home health	1,219	0	1,308	1,455
Adult day care	801	0	1,240	1,586
Private duty nursing	53	0	27	114
Long-Term Care Expenditures per Dual Enrollee by Program Type				
Section 1915(c) waiver services ^a	4,064	0	3,019	8,518
Other Service Type Expenditures per Dual Enrollee				
Inpatient care	791	544	2,509	809
Prescription drugs	3,091	2,658	3,501	3,492
SOURCE: Medicaid Analytic eXtract, 2002 sample of 37 states with valid long-term care data. CLTC = community long-term care; ILTC = institutional long-term care; LTC = long-term care.				
a. Section 1915(c) waiver services include HCBS provided under Section 1915(c) waivers. Expenditures covered under these waivers are also included in expenditures by type of service and thus are excluded from type of service average estimates in Table III.7. A significant share of waiver expenditures may not be reported by detailed type of service but instead categorized as Other (TOS 19) services or Unknown (TOS 99).				

While these summary statistics may give some indication of the type of enrollees that utilize both institutional and community-based services and their overall and service-specific costs, it should be kept in mind that they represent data from only 37 states that were not randomly selected. These data do, however, illustrate the utility of MAX for better understanding use and costs of Medicaid long-term care and patterns of utilization and expenditures by subgroup.

IV. SUMMARY AND CONCLUSIONS

In this report we utilize MAX PS file data to examine patterns of institutional and community-based long-term care use and expenditures in 37 states. We illustrate the types of analyses possible using MAX, describe MAX data limitations, and present summary long-term care statistics that have potential policy or future research implications. Below we summarize the lessons learned from our analyses. We also describe the potential for further study of long-term care using MAX data based on our experience analyzing MAX 2002 data for this report.

SUMMARY OF KEY RESULTS AND THEIR IMPLICATIONS

Our investigation of long-term care use and expenditures in 2002 highlights four key ways in which individual-level MAX data can be used to answer important policy questions that are not possible using more aggregated data and are typically not possible using survey data. We examine: (1) utilization-based measures as complements to expenditure-based measures of the balance of community versus institutional long-term care; (2) utilization and expenditures by subgroup; (3) composition of community-based services by type; and (4) other services used and costs incurred by long-term care users. Each analysis highlights the utility of using person-level data available in MAX. In many cases we present state-level statistics for the 37 sample states.

In this report we compare traditionally-computed expenditure-based measures of the balance of institutional and community-based long-term care (percent of expenditures that are for community-based services) with a utilization-based measure (percent of long-term care users who used community-based services). Because expenditures are a function both use and cost of services and because community-based services are typically less costly than institutionalization, aggregate institutional and community-based expenditure comparisons mask key differences in utilization. While only 34 percent of long-term care expenditures paid for persons served were for community-based services in 2002, almost 59 percent of long-term care users used community-based services. In every state, the utilization-based measure was far larger than the expenditure-based measure. Community-based service expenditures as a share of total long-term care expenditures ranged from over 60 percent in Alaska and New Mexico to less than 12 percent in the District of Columbia and Mississippi. Meanwhile, utilization of community-based services among long-term care users ranged from 87 percent in Alaska to 23 percent in Indiana. These results illustrate that alternative measures of the balance of community-based and institutional long-term care services provide a very different understanding of long-term care utilization and could potentially lead to different conclusions about rebalancing efforts across states.

A second way in which MAX person-level data can shed light on long-term care is through subgroup analyses. We identified the most significant differences in measures

of community-based service share by population age group. Over half of long-term care expenditures were for community-based services among young disabled enrollees compared with less than 20 percent among those over 65. Community-based service expenditures as a share of total long-term care expenditures declined by age from 50 percent for people under age 65 to 13 percent for those age 85 and older. Rates of community-based service utilization were higher but followed a similar pattern by age.

Subgroup analyses by state suggest that differences between aged and disabled enrollees in their patterns of long-term care were widespread across the states. Among young disabled enrollees, Medicaid community-based service expenditures exceeded those of institutional long-term care in more than half of our sample states. Among aged enrollees, the highest share of expenditures for community-based services was in New Mexico, at 44.3 percent. Community service utilization among the aged--traditional users of nursing homes--exceeded 50 percent in only six states. Furthermore, states with long-term care systems most balanced toward community-based care were those with services most balanced among the aged. These findings are consistent with those of Eiken, Burwell, and Selig (2006) suggesting that almost three-fourths of waiver expenditures go to programs for MR/DD. It also suggests that further efforts to rebalance long-term care towards community-based services may need to target a broader population of long-term care users that include the elderly.

The third benefit of MAX data for long-term care studies is availability of service-level detail that is not available in Form 64 or other data sources. In addition to Section 1915(c) waiver, personal care, and home health expenditures reported elsewhere, MAX claims for adult day care and residential care are also distinguished and summarized in MAX PS files. While *non-waiver* residential care represented only 0.2 percent of total long-term care expenditures in our sample states, waiver and non-waiver residential care together made up over 6 percent of long-term care expenditures and 23 percent of community-based long-term care expenditures reported under service types in 2002. However, because waiver services are often reported in the aggregate "Other" service type in MAX, the usefulness of these data for detailed analyses of the composition of Medicaid waiver services is limited.

Finally, MAX data can be used to examine use of other, non-long-term care services among long-term care users throughout the year, as well as utilization of combinations of services. About 6 percent of Medicaid long-term care users used both institutional and community-based services in 2002. This group represented 13 percent of enrollees using institutional care and 11 percent of enrollees using community-based long-term care in our 37 sample states. People using both services had higher average Medicaid expenditures (\$46,055) than users of institutional care only (\$38,844) or community care only (\$24,966). The high overall expenditures for people using both types of long-term care were due to hospitalizations: over half used Medicaid inpatient services in 2002 compared with less than a quarter of other long-term care users. Because short nursing facility stays for acute conditions after hospitalization are covered by Medicare but may include Medicaid cost-sharing, use of both community and institutional care among dual enrollees may reflect stays primarily paid by Medicare

rather than Medicaid. However, most people using community-based long-term care services used only such services, implying that relatively few transitioned from institutions to the community in 2002.

It is important to keep in mind that the results presented in this report are based on data from only 37 states and consequently, care should be taken when drawing implications from our results. Nevertheless, the results do indicate several interesting areas for further research, including the measurement of rebalancing efforts, the role of community-based long-term care services for aged enrollees, and the service patterns of people using both community and institutional care. Because person-level data is needed to address these and other important Medicaid long-term care policy questions, the development of MAX in the coming years will be critical to long-term care research.

THE FUTURE OF MAX FOR THE STUDY OF MEDICAID LONG-TERM CARE

Great strides have been made to improve the quality of MAX since state reporting to MSIS became mandatory in 1999. The most important changes expected for the MAX data systems for calendar years 2003, 2004, and 2005 will address some key limitations of MAX 2002 for long-term care analyses:

- MAX 2003 data has recently been made available and the production of MAX data is expected to speed up substantially in the coming years.
- New information about enrollment in waiver programs has been collected in MSIS and will be available for researchers in MAX 2005. These new measures will enable researchers to identify people enrolled in specific types of Section 1915(c) waiver programs as well as those enrolled in waiver programs but not receiving services or who, due to reporting errors or bulk paid costs, do not have expenditures reported in MAX.
- New community long-term care measures are in development for MAX 2005 and MAX 2006 that will enable researchers to use MAX PS files to better estimate community care service use and expenditures by service type (including waiver services). These efforts are ongoing but have the potential to make estimating long-term care use and cost simpler and much more accurate using MAX data.

These improvements along with the utility of person-level MAX data illustrated in this report have the potential to make MAX the gold standard for understanding patterns of Medicaid long-term care use and spending across states and nationally. However, the utility of using MAX for extensive national study of Medicaid long-term care in the United States will in the long-run depend on the quality and detail of institutional and community-based data reported by states in MSIS in future years. It will also depend on how well new measures developed in MAX capture community long-term care services. We recommend that MAX 2005 data include new measures summarizing waiver expenditure by type of service to enable researchers to more accurately estimate

overall utilization and total expenditures for community-based long-term care services. Such new measures would greatly improve the accuracy of estimates and the utility of MAX as a research tool for examining rebalancing efforts and other long-term care policy issues nationwide.

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