

Predicting State Medicaid Home and Community Based Waiver Participants and Expenditures, 1992-1997

Charlene Harrington, PhD,¹ Helen Carrillo, MS,¹ Valerie Wellin, BA,¹
Nancy Miller, PhD,¹ and Allen LeBlanc, PhD¹

Purpose: The study examined trends and predictors of state Medicaid home and community based waiver participants and expenditures from 1992 to 1997 to identify factors of interest to policy makers and clinicians. **Design and Methods:** HCFA Form 372 data were collected from state officials for each waiver for each year. Two separate regression analyses were conducted to examine the effects of sociodemographic, economic, political, policy, and health services on state waiver participants and expenditures. **Results:** State waiver participants were positively associated with those aged 85 and over, personal income, residential care beds, and inpatient users and negatively with home health regulation and nursing home beds. State waiver expenditures were positively associated with democratic governors, personal income, home health reimbursement methods, Medicaid eligibility, home health agencies, and Medicare home health users. **Implications:** The factors policy makers might consider changing include increasing the number of residential care beds and home health agencies, removing certificate of need for home health care, using Medicare home health reimbursement methods for Medicaid, and raising the Medicaid eligibility criteria. In some states with low nursing home occupancy rates, reducing the supply of nursing home beds may also be considered. All of these approaches would be controversial and should be based on additional cost-effectiveness analysis.

Key Words: Medicaid, Home and community based services, Waivers

The Medicaid home and community based services (HCBS) waiver program was established by Congress in 1981 under Section 1915(c) of the Social Security Act to shift services to the community and away from institutional settings (Miller, 1992; Miller, Ramsland, & Harrington, 1999a). By 1997, all states,

except Arizona and the District of Columbia, had one or more 1915(c) HCBS waiver programs for long-term-care services (see Appendix, Note 1). By 1997, 228 different waiver applications had been submitted to the Health Care Financing Administration (HCFA; Miller et al., 1999a; Salo, 1998).

The importance of the home and community based services increased with the passage of the Americans With Disabilities Act (1990), because it outlawed certain practices of private and public entities that unreasonably restrained the participation of individuals with disabilities in society. More recently, the Supreme Court ruled in *Olmstead v. L. C.* (1999) that states may not discriminate against persons with disabilities by refusing to provide community services when these are available and appropriate.

The Medicaid HCBS waiver program has grown from \$3.8 million for 6 waivers in 1982 (Miller, 1992; Greenberg, Schmitz, & Lakin, 1983) to \$8.1 billion in 1997 (Burwell, 1999; Miller et al., 1999a). The program expenditures increased by 45% between 1996 and 1997 and by 12% between 1997 and 1998 (Burwell, 1999; Miller et al., 1999a). Even with its growth, total HCBS waiver expenditures were only 15% of the \$59 billion reported in total long-term-care Medicaid dollars in 1998, most of which was spent on institutional care (Burwell, 1999). State Medicaid programs may offer home health and personal care services in addition to the HCBS waiver program. When Medicaid HCBS waivers, home health, and personal care services are combined, they represent 25% of total long-term-care service expenditures in the United States (Burwell, 1999). The HCBS waiver program expenditures are less than institutional expenditures, in part, because of statutory and regulatory requirements imposed on the program to control costs (this point is discussed later). The HCBS waiver program also does not cover room and board expenses, although such expenses are paid in institutional settings. HCBS are optional services requiring state program funds. The spending patterns have varied dramatically by state depending on a wide number of factors (Miller, Ramsland, & Harrington, 1999b).

This project was funded by the Health Care Financing Administration Contract No. 500-97-0002. Government sponsorship of the research upon which this publication is based does not constitute endorsement of the results or the conclusions presented here.

Address correspondence to Charlene Harrington, University of California, San Francisco, Laurel Heights Campus, Box 0612, San Francisco, CA 94143-0612. E-mail: chas@itsa.ucsf.edu

¹Department of Social and Behavioral Sciences, University of California, San Francisco.

The purpose of this article is to present first-time trend data on the state HCBS waiver participants collected by the investigators from the states (on HCFA Form 372). The data include the number and types of 1915(c) HCBS waiver programs actually operated by the states and the number of participants and expenditures from 1992 to 1997. In addition, the study examines an array of state-level factors associated with the number of state participants and expenditures in the 1992 to 1997 period. The analytical model tests the effects of sociodemographic, economic, political, public policy, and health service factors on waiver participants and expenditures. The identification of state-level variables associated with the development of waiver programs is important to the development of effective waiver policies. The information should inform policy makers and clinicians about which factors could be changed to expand the number of state waiver participants and/or expenditures.

Background

The HCBS waiver program was established under Section 1915(c) of the Social Security Act established by Public Law 97-35 and has been broadened by statutes and regulations since that time (see Appendix, Note 2). States are required to submit an application, be reviewed, and then approved by the Secretary for Health and Human Services before services become eligible for federal matching payments. The regulations require states to demonstrate that spending will not exceed the amount that would otherwise be spent on institutional services (42 U.S.C. 1396 [n][c][1]; Salo, 1998).

The HCBS waiver program may be either statewide or confined to specific geographic areas (Section 1902 [a][1]; Gurny, Hirsch, & Gondek, 1992). A recent survey of state HCBS waiver programs found that 12 states out of 51 (including Washington, DC) had some waivers that were not statewide in 1999 (LeBlanc, Tonner, & Harrington, 2000; see also Lipson & Laudicina, 1991). States have the option of applying the financial eligibility criteria that they use for institutions (hospitals, nursing facilities [NFs], or intermediate care facilities for the mentally retarded [ICF-MRs]) for up to 300% of the Supplemental Security Income program (SSI) for individuals living in the community who are in the HCBS waiver program (Hovarth, 1997). Fourteen states have income standards for institutional eligibility set at levels below 300% of SSI (LeBlanc et al., 2000). The HCBS programs may also use the spousal impoverishment standards for institutional services. In 1999, LeBlanc and colleagues (2000) found that 7 out of 49 states (excluding Arizona and Washington, DC) did not use the same special income criteria for HCBS as for institutional services.

Under the statute and regulations, the HCBS program is limited to those who would otherwise require the level of care provided in institutions including hospitals, NFs or ICF-MRs. Although HCBS waiver participants must be eligible for institutional care, the

states have wide flexibility to establish need criteria for the waivers that are the same criteria as the state's criteria for institutional care (Harrington, LaPlante, et al., 2000; O'Keeffe, 1996). Consequently, the need criteria vary widely for the waivers within and across states.

Under the HCBS waivers, states may target the 1915(c) waiver program to particular groups specified under each state's waiver plan; they are not required to offer services to all categorically or medically needy groups. (This is called a waiver of comparability; Section 1915[c][4][A]; 42 U.S.C. 1396n). States may provide waiver services up to the maximum number of HCFA-approved waiver slots or openings. When the state waiver slots are full, states may then establish waiting lists for program services or states may request additional waiver slots from HCFA as long as the state has funding for the waiver program. HCFA's legal counsel has stated that states are allowed to give priority to Medicaid participants within target groups as long as the criteria are not arbitrary and are clear and specified in the waiver application (O'Keeffe, 1996).

The shortage of HCBS waiver programs for the Medicaid population is a problem found across the states. Kassner and Williams (1997) reported that 33 states had waiting lists in 1996 for individuals who were Medicaid eligible and wanted to be in the Medicaid HCBS waiver program but the program services were limited. O'Keeffe (1996) also reported states had waiting lists because of inadequate funding or too few waiver slots. Massachusetts made a major shift from institutional to community care for both the mentally retarded and developmentally disabled (MR/DD) and the mentally ill groups between 1990 and 1996, but the state had almost 1,400 people residing in nursing homes and on waiting lists for community-based residential and day care (Holahan, Bovbjerg, Evans, Wiener, & Flanagan, 1997). A study in Texas also reported 30,000 people on the combined waiting lists for community-based MR/DD and mental health services (Wiener, Evans, Kuntz, & Sulvetta, 1997). Another survey of state Medicaid officials in 1998–1999 found that 27 states had waiting lists for HCBS waiver services, although some states could only estimate the numbers, and 42 states reported inadequate numbers of HCBS waiver slots (Harrington, LeBlanc, Wood, Satten, & Tonner, 2000). The different procedures used by states to collect data and screen individuals can affect the size of the waiting lists. According to state officials, the waiting lists generally reflected a lack of state funding for the HCBS waiver program to match federal Medicaid dollars (Harrington, LeBlanc, et al., 2000). Other analyses have suggested that waiver availability is related to the overall resources of states (Miller et al., 1999b).

Factors Associated With State Waivers

Waiver growth is a dynamic process affected by public policy decisions and multiple market factors. On the basis of previous studies of state long-term care

programs, five major types of independent variables were conceptualized to be related to the number of waiver participants and expenditures: (a) sociodemographic factors, (b) economic factors, (c) political factors, (d) state policies, and (e) health care services available in the market place. Sociodemographic factors can influence the overall demand for waiver programs. The aging of the state population, particularly the growth in the oldest old (Mendelson & Schwartz, 1993) would be expected to have a positive influence on the demand for services by waiver participants and on expenditures. The age of the population is a strong predictor of the use of formal home care services (Mauser & Miller, 1994; Wallace, Campbell, & Lew-Ting, 1994; Logan & Spitze, 1994; Houde, 1998; Kemper, 1992).

Higher percentages of women in the labor force (who would be unavailable to care for elderly and disabled family members) should increase the demand for long-term-care services (Silverman, 1990; Kemper, 1992; Houde, 1998). Nyman, Sen, Chan, and Commins (1991) and Kenny (1993) found that urban residents were more likely to use home health services than rural residents. Thus, we expected that states with a higher percentage of the population living in metropolitan areas should increase demand and be positively associated with waiver participants and expenditures.

Although African Americans are more likely to require assistance for limitations in daily living (Harpine, McNeil, & Lamas, 1990), Kemper (1992) found that African Americans and Hispanics were less likely to receive formal home health services. Although the findings are mixed, other studies have found less access to long-term-care services in minority populations (Cagney & Agree, 1999; Wallace, Levy-Storms, Kington, & Andersen, 1998; Houde, 1998; Murtaugh, Kemper, & Sillman, 1990). States with large non-White populations may have fewer waiver participants and expenditures.

Economic factors can of course affect the demand for waiver services as well as the input prices and labor availability of waiver providers. States with higher personal income per capita are expected to have a higher demand for long-term care, but these states may also be more generous in their funding of Medicaid waiver programs (Buchanan, Cappellini, & Ohsfeldt, 1991; Schneider, 1993; Kane, Kane, Ladd, & Nielson, 1998; Miller et al., 1999b). States with high poverty may have increased demand for services if individuals are unable to pay for long-term care. On the other hand, high poverty rates may lower the demand for waiver services because more individuals may be unemployed and thus available to provide informal care services to family and friends.

Political factors should have some direct effects on the amount of waiver participants and expenditures. Those state politicians with conservative voting records generally have been considered to be less likely to support Medicaid programs, whereas liberals traditionally have supported funding for public programs. (See the approach of Barrilleaux & Miller,

1988; Lanning, Morrisey, & Ohsfeldt, 1991). The role of the governor is important in shaping state policies (Schneider, 1993; Schneider & Jacoby, 1996). Democratic governors may be more politically liberal and more likely to support Medicaid home and community based waiver programs. Finally, the aging lobby is expected to vary across states in terms of its political power. The percentage of membership in the American Association of Retired Persons (AARP) is used as a proxy measure for the political power of the aging population in a state. These factors were developed by Lanning and colleagues (1991) in his study of hospital regulation.

Waiver participants and expenditures may be positively related to the use of certificate of need (CON) and/or moratorium regulation of nursing homes. Where nursing home beds are controlled, there may be fewer nursing home participants and expenditures, and consequently more state funds may be available for HCBS waiver services (Harrington, Swan, Nyman, & Carrillo, 1997). Where states use CON and/or moratorium for home health, the supply of waiver services may be diminished. State reimbursement rate policies may also influence state long-term-care programs (Swan, Harrington, Grant, Luehrs, & Preston, 1993). Where state Medicaid reimbursement rates for nursing homes are high, states may have less funds available to pay for waiver participants and expenditures. On the other hand, where states have more generous reimbursement rates for home health care services (i.e., use Medicare methodologies), these states may have a higher supply of waiver providers and more waiver participants and expenditures.

State Medicaid eligibility policies should also have a direct effect on Medicaid waiver participants and expenditures. Those states that use more restrictive eligibility policies, such as the special 209(b) eligibility rules that limit the number of aged, blind, and disabled who are eligible for Medicaid, may reduce access to HCBS waiver participants and consequently reduce expenditures (Miller et al., 1999b). Those states with more generous eligibility in terms of the dollar threshold for the medically needy program, compared with those that have no medically needy spend down program or have low threshold levels, may consequently have higher waiver participants and expenditures.

The supply of health care services in a state can also directly influence waiver participants and expenditures. Greater numbers of nursing home beds per population should reduce the available funds for state waiver participants and expenditures (Miller et al., 1999b). Larger numbers of residential care beds and certified home health care agencies should have a positive influence on the number of waiver participants and expenditures. Increased rates of Medicare home health users per 1,000 Medicare beneficiaries should also increase the demand for all long-term care, including the HCBS waiver participants and expenditures (Harrington et al., 1997; Swan & Harrington, 1990; Kenny, Rajan, & Soscia, 1996). More

home health services in an area may lead to the identification of more individuals in need of HCBS services or it may be a proxy for higher disabilities rates in an area. Thus, these factors will be taken into account in the analytical model for the present study.

Analytical Model

Independent variables for the period of 1991–1996 were used to predict the number of waiver participants and expenditures in the 1992–1997 period, where the state was the unit of analysis. This 6-year period was examined because it was the only one in which a complete data set was available for the waivers. The independent variables were used to predict the dependent variables in the following year, because it was expected that their effects would require a year to have an impact. This approach also reduced the likelihood of any problems of endogeneity.

The waiver participants and expenditures were grouped together for the dependent variables across different types of waivers. Although the waivers involve many different target groups, some of the waivers had very few participants, were not operational for the entire study period, and were not available in all states. Thus, it would not be feasible to conduct an analysis of each waiver type separately. Moreover, the factors that affect the development of waivers for one target group within and across states are conceptually likely to affect the waivers for other target groups. For example, all target groups use nursing homes, residential care, and home care. Moreover, the sociodemographic, political, and economic factors were expected to have similar effects on waivers for different target populations. Although the waivers for the developmentally disabled and mentally retarded might be expected to be somewhat different from the aged and disabled, when we tested this group separately, the regression model results were very similar to the results for the total waiver groups as a whole.

The study used an ordinary least squares (OLS) regression model with a random effects panel analysis. This allows a test of the effects of the independent variables across states, rather than one using only a fixed effects model that would test differences within states. We were interested in which factors across states contribute to the number of waiver participants and expenditures. A Hausman test of the parameter estimates of the two models showed that the random effects model was consistent and efficient and that use of the random effects model was appropriate (see Hausman, 1978; Greene, 1990).

The waiver participants and expenditures were standardized by 1,000 population rather than by total Medicaid recipients to allow for comparisons across state populations. This allowed us to test for the effect of state Medicaid financial eligibility criteria as an independent variable.

The independent variables were tested for multicollinearity by completing an SAS correlation matrix. None of the variables was found to be highly correlated (above a .65 correlation). In addition, tolerance tests in

the regression analyses did not show multicollinearity to be a problem. The LIMDEP program Version 7.0 was used to conduct the regression analyses, using the adjustment for autocorrelation (Greene, 1991).

Arizona and Washington, DC, were eliminated from the data set because they had no Medicaid waiver program in place during the 1992–1997 period. Thus, 49 states were included with 294 observations over a 6-year period. The significance test for the model was a 2-tailed test. The following equations were examined:

$$\begin{aligned} \text{Waiver Participants per 1,000 Population} = & a + \\ & \text{Sociodemographics}_{it-1} + \text{Economic}_{it-1} + \\ & \text{Political}_{it-1} + \text{Public Policies}_{it-1} + \\ & \text{Health Care Services}_{it-1} + E_{it-1} \end{aligned} \quad (1)$$

$$\begin{aligned} \text{Log Waiver Expenditures per 1,000 Population} = & a + \text{Sociodemographics}_{it-1} + \text{Economic}_{it-1} + \\ & \text{Political}_{it-1} + \text{Public Policies}_{it-1} + \\ & \text{Health Care Services}_{it-1} + E_{it-1}' \end{aligned} \quad (2)$$

where E_{it} = random error terms.

The waiver participants showed a normal distribution, but the waiver expenditures were skewed, so the log of waiver expenditures was used as the dependent variable, adjusted for annual increases in the consumer price index. The analytical models are reduced-form equations that include factors influencing both the demand and the supply of HCBS waiver services that impact both the participants and the expenditures in the states. We examined the plots of the residuals from the two regression equations and found that the pattern of error terms was almost evenly distributed within the band of plus or minus 2.5, showing that the estimates were not biased.

Data Sources for the Independent Variables

Sociodemographic Variables.—Secondary data on the percentage of persons aged 85 and over and the total population for each state were collected from the U.S. Bureau of the Census (USBOC; 1991–1996a). The percentage of women in the labor force came from U.S. Department of Labor statistics (1991–1996). Data on the percentage non-White and percentage living in metropolitan areas came from the U.S. Bureau of the Census (1991–1996b).

Political Party Variables.—Political party data for state governors were obtained from the Republican Governors' Association (1999). The liberal rating compiled by the Americans for Democratic Action (ADA; 1999) was used to determine the scores for each U.S. Senator from each state, which were averaged together. The ADA measures are based on votes on a wide range of legislative issues. The membership in the American Association of Retired Persons (1997) came from their organization.

Economic Factors.—The state income per 1,000 population came from the state personal income surveys by the U.S. Bureau of Economic Analysis in the

Department of Commerce (USDOC; 1991–1996). The poverty rates came from the U.S. Bureau of the Census (1991–1997).

State Policies.—The state reimbursement rates and methodologies for nursing facilities and for home health care were obtained from telephone surveys of state officials (Harrington, Swan, Wellin, Clemena, & Carrillo, 2000b). State policies on certificate of need and moratorium for nursing homes and for home health were also obtained from telephone surveys of state officials (Harrington, Swan, et al., 2000b). The state eligibility policies and the eligibility threshold for the medically needy were collected from the U.S. Health Care Financing Administration (HCFA; 1991–1996a).

Health Care Services.—The numbers of nursing home and residential care beds and the number of certified home health agencies were obtained from primary data collected from state officials (Harrington, Swan, Wellin, Clemena, & Carrillo, 2000a). The number of Medicare home health users were obtained from secondary HCFA Medicare data (U.S. Health Care Financing Administration, 1991–1996b). These data were standardized for each 1,000 Medicare beneficiaries in a state.

Data Sources and Data Collection of the Dependent Variables

Previous studies have examined the HCBS waiver programs in states primarily by using data from HCFA Form 64, the quarterly financial management data that states submit to the federal Medicaid program to obtain federal matching funds. These data do not include information on HCBS waiver participants (Burwell, 1999; Miller et al., 1999a). States are required to report on their waiver programs on an annual basis by filing HCFA Form 372. These forms contain information on waiver participants and expenditures for each waiver. Separate applications must be submitted to HCFA for approval of each waiver, which can be given for an initial period of 3 years and then renewed or extended for up to 5 years. Initial 372 reports are due 6 months after the end of the first year of a waiver. One year later (18 months after the end of each waiver year), states are required to submit “lag (i.e., final) reports” which include all revisions, adjustments, refunds, recoupments, cost settlements, disallowances, and other changes. Overall, the data from Form 372 were considered to be relatively accurate, even though there were discrepancies with the HCFA Form 64 data from the Medicaid HCBS expenditure claims. Because HCFA Form 372 is the only data available with participant data for the 1915(c) HCBS waiver program, there is no other comparison source.

Lists of state HCBS waivers were obtained from the HCFA waiver application lists (Salo, 1998). This study built on our initial effort in 1994 to collect Form 372 from the states for the year 1992. Between 1997 and 1999, we called all state Medicaid programs by tele-

phone and sent faxes to collect HCBS waiver data for the study period. There was an average of 4 waivers per state for each year, so the data collection to reconstruct historical files from the states required a great effort. Overall, between 3–5 calls were made by study researchers to each state each year to collect the data for 1992–1997 period. The investigators were reasonably confident that all waivers had been identified and data either collected or estimated. Thus, the HCBS waiver data presented here represent the best available reports for the waiver information as well as the most recent complete data set of actual participants and expenditures.

Once the HCFA Form 372 reports were obtained, the data were coded and entered into a SAS database. States were asked to estimate data when the Form 372s were unavailable. The project collected data on a total of 155 waivers in 1992, which increased to 211 waivers in 1997. Data were obtained for a cumulative total of 1,111 waivers over the 6-year period. Of this total, 23% of total waivers only had initial reports available. Six percent of the total were estimated by states. Where states did not provide estimates, missing data for participants and expenditures (12% of the total) were estimated by the investigators. Because the data set was made up of cross-sectional time series data, linear interpolation was used to develop the estimates based on the other values provided by the states for the 6-year period.

Results

Number and Types of Waivers

Table 1 shows that there were 211 total HCBS waivers in 49 states in 1997 (excluding Arizona and Washington, DC). Of the total, 75 waivers (36%) were targeted toward individuals with mental retardation or developmental disability, including both adults and/or children with MR/DD. Sixty waivers (28%) were targeted to the aged and/or disabled and 27 waivers (13%) were targeted to the disabled and physically disabled population. This group included not only those with functional or physical impairments but also those with functional impairments that were related to cognitive or mental impairment. There were 20 waivers (10%) targeted to children, primarily for children categorized as medically fragile or with special problems. Fifteen waivers (7%) were for AIDS/ARC, 12 waivers (6%) were for traumatic brain injury or head injury, and only 2 (1%) were targeted to those with mental health problems. All states had at least one waiver for MR/DD groups and some had 3–5 waivers for these groups and at least one or more waivers for the aged, aged/disabled, or disabled. The most uncommon waivers were for mental health, primarily because institutions for mental disease for the 22–64 year old population are not paid for by the Medicaid program. It was therefore more difficult for states to meet the cost neutrality requirements of the waiver program for the mentally ill than for other target populations that received institutional services. The total number of

Table 1. 1915(c) Medicaid Waiver Programs, by State and Eligibility Category, in the United States During 1997

State	MR/DD	Aged	Aged/ Disabled	Disabled	Children	AIDS/ARC	Mental Health	TBI/Head Injury	Total
Alaska	2	1	0	1	0	0	0	0	4
Alabama	1	0	1	1	0	0	0	0	3
Arkansas	1	1	0	0	0	0	0	0	2
California	1	0	2	2	0	1	0	0	6
Colorado	5	0	1	0	1	1	1	1	10
Connecticut	2	0	1	1	0	0	0	0	4
Delaware	1	0	1	0	0	1	0	0	3
Florida	2	0	3	0	1	1	0	0	7
Georgia	1	0	1	1	1	0	0	0	4
Hawaii	1	0	2	0	0	1	0	0	4
Iowa	2	1	0	0	0	1	0	1	5
Idaho	2	0	1	0	0	0	0	0	3
Illinois	1	1	0	1	2	1	0	0	6
Indiana	2	0	1	0	1	0	0	0	4
Kansas	1	1	1	1	1	0	0	1	6
Kentucky	1	0	1	1	1	0	0	0	4
Louisiana	1	0	2	1	0	0	0	0	4
Massachusetts	1	1	0	0	0	0	0	0	2
Maryland	1	1	0	0	1	0	0	0	3
Maine	1	1	0	2	0	0	0	0	4
Michigan	2	0	1	0	0	0	0	0	3
Minnesota	2	1	0	2	0	0	0	1	6
Missouri	2	1	0	0	0	1	0	0	4
Mississippi	1	0	1	1	0	0	0	0	3
Montana	1	0	1	0	0	0	0	0	2
North Carolina	1	0	1	0	1	1	0	0	4
North Dakota	1	0	1	0	0	0	0	1	3
Nebraska	2	0	1	0	1	0	0	0	4
New Hampshire	1	1	0	0	0	0	0	1	3
New Jersey	1	0	2	3	1	1	0	1	9
New Mexico	1	0	1	0	1	1	0	0	4
Nevada	1	2	0	1	0	0	0	0	4
New York	3	0	1	0	4	0	0	1	9
Ohio	2	0	1	2	0	0	0	0	5
Oklahoma	2	0	1	0	0	0	0	0	3
Oregon	1	0	1	0	0	0	0	0	2
Pennsylvania	2	1	0	2	1	1	0	0	7
Rhode Island	1	1	1	1	0	0	0	0	4
South Carolina	1	0	1	1	0	1	0	1	5
South Dakota	1	1	0	1	0	0	0	0	3
Tennessee	1	0	2	0	0	0	0	0	3
Texas	4	0	1	0	1	0	0	0	6
Utah	1	1	0	0	1	0	0	1	4
Virginia	1	0	1	1	0	1	0	0	4
Vermont	1	0	2	0	0	0	1	1	5
Washington	3	0	1	0	0	1	0	0	5
Wisconsin	2	0	1	0	0	0	0	1	4
West Virginia	1	0	1	0	0	0	0	0	2
Wyoming	2	0	1	0	0	0	0	0	3
Total	75	17	43	27	20	15	2	12	211

Notes: MR/DD = mentally retarded or developmentally disabled; AIDS = acquired immunodeficiency syndrome; ARC = AIDS-related complex; TBI = traumatic brain injury.

waivers varied from 2 (in Arkansas, Massachusetts, Montana, Oregon, and West Virginia) to 9 in New Jersey and New York and 10 in Colorado.

Growth in HCBS Participants in States From 1992–1997 and Participants Per Capita

The total number of HCBS participants increased from 235,668 in 1992 to 561,510 in 1997, or by 138% (see Table 2). Some states like Alaska were slow to begin their programs (Alaska’s started in 1994),

whereas many states began waivers early in the 1980s after the federal legislation was passed. Thus, states with the highest growth rate during the 1992 to 1997 period tended to be those states that were catching up with other states that had more established programs. For example, Iowa had the highest growth (2,957% over the 6-year period) and reached the U.S. average for participants per 1,000 by 1997. Louisiana and Mississippi also had fairly high growth rates between 1992 and 1997, but were among the five lowest states in the nation in participants per capita.

Table 2. 1915(c) Medicaid Waiver Program Total Participants in the United States, 1992–1997

State	Number of Medicaid Waiver Program Participants						Percentage Change 1992–1997	Participants per 1,000 1997	Rank
	1992	1993	1994	1995	1996	1997			
Oregon	16,830	19,568	21,231	23,051	23,809	25,665	52	7.91	1
Kansas	3,111	3,963	4,881	5,499	6,561	15,392	395	5.92	2
Rhode Island	1,913	2,472	2,945	3,179	4,240	5,712	199	5.79	3
Missouri	8,967	11,773	15,256	18,963	21,819	23,823	166	4.41	4
Vermont	980	1,157	1,350	1,364	1,562	2,264	131	3.84	5
Colorado	5,908	6,777	7,675	8,836	11,427	14,243	141	3.66	6
Wisconsin	8,099	9,742	11,320	14,107	16,757	19,006	135	3.65	7
Wyoming	294	426	779	1,209	1,601	1,744	493	3.63	8
South Carolina	5,714	6,861	8,014	9,114	10,947	13,281	132	3.51	9
Minnesota	7,848	9,326	11,488	13,878	15,199	16,379	109	3.49	10
Washington	8,818	8,880	8,716	9,764	14,182	19,364	120	3.45	11
Arkansas	1,488	2,893	3,954	8,814	8,099	8,355	461	3.31	12
North Dakota	1,762	1,822	1,948	1,957	2,065	2,089	19	3.26	13
Kentucky	4,519	6,849	5,159	5,184	10,133	12,125	168	3.10	14
Illinois	24,466	26,337	28,985	31,807	35,163	36,743	50	3.06	15
New Hampshire	1,912	1,848	2,272	2,967	3,345	3,489	82	2.98	16
Connecticut	4,924	5,664	7,453	8,704	8,126	9,629	96	2.95	17
West Virginia	2,923	3,859	3,887	4,500	5,143	5,257	80	2.90	18
New York	16,829	26,664	36,721	44,892	47,571	51,986	209	2.86	19
South Dakota	1,137	1,293	1,390	1,593	1,737	1,860	64	2.52	20
Ohio	8,945	9,432	14,549	20,864	24,374	27,115	203	2.42	21
Alabama	8,926	8,985	9,289	9,643	9,790	10,396	12	2.41	22
Montana	1,137	1,215	1,391	1,723	2,041	2,120	86	2.41	23
Iowa	197	2,251	2,804	4,570	8,345	6,022	2,957	2.11	24
Georgia	11,086	13,650	13,524	13,553	12,891	15,199	37	2.03	25
Maine	1,451	1,675	1,877	2,135	2,268	2,527	74	2.03	26
Massachusetts	4,163	7,502	10,804	10,688	12,454	12,242	194	2.00	27
Virginia	8,414	9,370	9,678	11,213	12,557	13,449	60	2.00	28
Florida	14,536	16,806	21,187	23,891	26,807	27,124	87	1.85	29
Nebraska	1,415	1,778	1,790	2,470	2,681	3,069	117	1.85	30
New Mexico	1,800	1,931	1,840	2,518	2,871	3,014	67	1.75	31
North Carolina	4,891	5,748	6,704	9,296	10,971	12,898	164	1.74	32
Texas	1,628	2,428	4,053	11,056	22,028	29,598	1,718	1.53	33
Alaska	—	—	56	274	468	915	1,534 ^a	1.50	34
California	12,646	23,606	26,984	38,545	40,811	46,718	269	1.45	35
New Jersey	9,124	9,515	10,443	10,698	10,999	11,703	28	1.45	36
Oklahoma	1,202	1,409	1,829	2,181	2,790	4,697	291	1.41	37
Utah	1,495	1,552	1,720	1,987	2,541	2,861	91	1.39	38
Delaware	819	868	792	793	863	951	16	1.29	39
Idaho	1,165	1,408	1,674	1,503	1,873	1,305	12	1.08	40
Michigan	2,532	4,056	5,560	6,263	8,009	9,753	285	1.00	41
Hawaii	855	976	1,034	1,007	1,064	1,129	32	0.95	42
Pennsylvania	2,873	4,119	5,125	5,855	7,016	10,900	279	0.91	43
Nevada	700	941	1,099	1,978	1,451	1,515	116	0.90	44
Mississippi	490	448	502	758	1,433	2,036	316	0.75	45
Maryland	1,882	2,541	3,059	3,310	3,580	3,741	99	0.73	46
Tennessee	981	1,085	1,420	1,730	3,197	3,747	282	0.70	47
Louisiana	620	1,448	2,145	2,765	2,956	2,736	341	0.63	48
Indiana	1,253	2,197	2,392	2,572	3,198	3,624	189	0.62	49
Total	235,668	297,114	350,748	425,221	491,813	561,510	138	2.10	

^a1994–1997 change.

A few states had high growth rates but were also among those states with high participants per capita. For example, Kansas had a growth rate of 395% and had the second highest number of participants per capita in the U.S. (5.92 per 1,000 population). Wyoming had a growth rate of 493% over the period and was eighth in the nation in participants per capita (3.63 per 1,000 population).

The top five states in HCBS waiver participants per capita were Oregon (7.91 per 1,000 population), Kansas (5.92 per 1,000 population), Rhode Island

(5.79 per 1,000 population), Missouri (4.41 per 1,000), and Vermont (3.84 per 1,000 population; see Table 2). The lowest five states in HCBS waiver participants per capita in the nation were Indiana, Louisiana, Tennessee, Maryland, and Mississippi.

Growth in Expenditures by State in 1992–1997 and Expenditures Per Capita

Table 3 shows that total 1915(c) waiver expenditures increased from \$2.17 billion in 1992 to \$7.87

Table 3. 1915(c) Medicaid Waiver Program Total Expenditures (in \$1,000s) in the United States, 1992–1997

State	Medicaid Waiver Program Expenditures						Percentage Change 1992–1997	Expenditures per Capita 1997	Rank
	1992	1993	1994	1995	1996	1997			
Vermont	\$18,434	\$27,240	\$36,181	\$43,785	\$50,305	\$56,671	207	\$96.22	1
Rhode Island	44,281	48,802	73,127	73,178	83,208	92,965	110	94.19	2
New Hampshire	53,924	61,184	71,894	86,634	99,193	98,828	83	84.32	3
Connecticut	115,897	132,023	182,743	208,171	236,056	257,347	122	78.77	4
Wyoming	5,963	11,636	20,657	28,469	31,900	36,874	518	76.82	5
New York	79,521	196,438	465,431	736,817	1,113,618	1,376,324	1631	75.85	6
Oregon	115,893	145,859	170,522	192,202	196,801	224,163	93	69.12	7
Minnesota	96,211	133,414	167,550	214,032	268,713	312,174	224	66.60	8
Kansas	19,322	32,356	53,659	67,968	86,414	154,696	701	59.48	9
New Mexico	17,323	21,401	28,760	48,845	79,803	100,213	478	58.13	10
Maine	22,501	27,416	36,707	47,921	58,613	68,892	206	55.47	11
Wisconsin	83,923	106,935	135,930	177,770	233,843	287,359	242	55.25	12
South Dakota	16,387	19,994	23,119	28,574	33,795	38,810	137	52.59	13
North Dakota	20,376	22,200	24,941	28,642	31,311	33,088	62	51.62	14
West Virginia	25,908	34,191	49,161	65,237	75,687	85,244	229	46.97	15
Massachusetts	38,941	108,176	213,072	200,385	253,651	286,221	635	46.81	16
Colorado	70,142	80,510	112,669	122,401	143,626	171,599	145	44.09	17
Montana	15,251	16,858	20,364	23,822	30,676	36,140	137	41.11	18
Nebraska	22,181	27,354	35,837	38,566	45,599	64,590	191	38.98	19
Washington	105,012	122,944	131,578	138,300	166,181	213,125	103	37.96	20
Alaska	—	—	369	4,466	7,874	22,967	6,123 ^a	37.65	21
Missouri	57,648	80,485	110,271	136,997	163,788	187,189	225	34.61	22
North Carolina	51,443	65,421	82,418	128,968	187,676	245,062	376	32.98	23
New Jersey	157,508	162,901	191,124	212,183	235,837	255,980	63	31.77	24
Pennsylvania	132,832	171,118	214,524	257,029	299,532	378,744	185	31.53	25
Maryland	68,742	91,042	107,668	122,402	127,692	146,746	113	28.80	26
Delaware	10,011	11,411	14,130	15,867	16,523	20,802	108	28.30	27
Oklahoma	34,902	40,226	59,819	72,870	79,402	90,689	160	27.30	28
Utah	26,218	29,629	33,206	37,735	45,296	54,639	108	26.46	29
South Carolina	30,444	41,057	48,848	60,979	71,339	96,475	217	25.47	30
Alabama	43,045	46,168	50,391	63,683	83,014	104,971	144	24.29	31
Virginia	53,321	70,035	64,083	106,711	139,737	161,298	203	23.94	32
Michigan	61,619	77,300	106,661	114,351	165,224	208,625	239	21.33	33
Illinois	124,552	132,181	155,172	170,330	207,181	251,253	102	20.96	34
Iowa	1,790	2,578	3,230	14,477	33,306	55,682	3011	19.51	35
Kentucky	30,062	38,575	36,831	40,688	58,820	74,390	147	19.03	36
Texas	26,152	37,925	61,522	127,785	268,881	346,461	1225	17.87	37
Hawaii	11,961	14,726	18,725	20,226	35,649	21,122	77	17.72	38
Ohio	45,399	73,180	116,248	185,004	181,006	182,458	302	16.30	39
California	100,124	223,755	286,172	365,024	424,267	452,744	352	14.07	40
Arkansas	5,341	12,252	18,774	25,980	34,259	34,723	550	13.76	41
Georgia	38,911	51,622	54,010	61,308	76,152	101,379	161	13.54	42
Tennessee	12,322	13,883	17,255	23,380	45,710	71,606	481	13.33	43
Florida	39,408	48,804	105,741	131,324	172,827	186,215	373	12.69	44
Idaho	3,374	5,480	4,342	5,942	13,006	13,925	313	11.52	45
Louisiana	2,324	10,426	25,661	38,928	45,174	50,102	2056	11.51	46
Indiana	3,085	6,691	12,274	19,185	28,175	38,459	1147	6.56	47
Nevada	4,363	4,424	5,179	10,056	8,318	9,459	117	5.63	48
Mississippi	868	944	1,178	2,618	9,886	10,764	1140	3.94	49
U.S.	\$2,165,161	\$2,941,165	\$4,059,729	\$5,148,216	\$6,584,542	\$7,870,251	263	\$29.40	

^a1994–1997 change.

billion in 1997, or by 263% over the 6-year period. The states with the highest percentage increases were Alaska, Iowa, Louisiana, New York, and Texas. Three of these states (Iowa, Louisiana, and Texas) had expenditures per capita below the national average. The lowest growth rates in expenditures were in North Dakota (62%), New Jersey (63%), Hawaii (77%), New Hampshire (83%), and Oregon (93%). All of these states except Hawaii had expenditures per capita above the national average. When the growth rate in waiver expenditures was adjusted for

the consumer price index, the total growth was 218% between 1992 and 1997 (no table shown).

Table 3 shows the ranking of the states in per capita expenditures for the HCBS waiver program. The five states with the highest expenditures per capita were Vermont (\$96.22), Rhode Island (\$94.19), New Hampshire (\$84.32), Connecticut (\$78.77), and Wyoming (\$76.82). The five states with the lowest expenditures per capita were Mississippi (\$3.94), Nevada (\$5.63), Indiana (\$6.56), Louisiana (\$11.51), and Idaho (\$11.52).

Table 4. Descriptive Statistics, 1991 and 1996^a (n = 294 for 49 States^b)

Variables	1991		1996	
	M	SD	M	SD
Dependent variables				
Waiver participants per 1,000 ^c	1.15	0.93	2.43	1.48
Waiver expenditures per 1,000 ^c	\$13,019	\$11,675	\$37,198	\$24,313
Independent variables				
Socio-demographic factors				
Aged 85 and over population (%)	1.33	0.34	1.45	0.35
Women in the labor force (%)	58.79	4.39	61.06	4.62
Non-White population (%)	14.38	11.68	15.08	11.87
Metropolitan population (%)	65.47	21.89	66.92	21.25
Political factors				
Liberal voting record (ADA)	50.09	30.50	46.66	31.32
AARP members (per 1,000)	129.25	22.76	123.83	23.46
Democratic governor (Yes = 1, No = 0)	0.55	0.50	0.37	0.49
Economic factors				
Personal income (per capita) ^d	\$13,470	\$2,055	\$14,804	\$2,165
Poverty rate	13.56	3.75	12.69	3.84
Public policies				
CON or moratorium for nursing homes (Yes = 1, No = 0)	0.90	0.31	0.88	0.33
CON or moratorium for home health care (Yes = 1, No = 0)	0.43	0.50	0.41	0.50
Average Medicaid nursing home reimbursement rate ^d	\$51.14	\$19.18	\$57.19	\$17.41
Medicare home health reimbursement method (Yes = 1, No = 0)	0.18	0.39	0.24	0.43
Uses 209(b) eligibility rules (Yes = 1, No = 0)	0.24	0.43	0.22	0.42
Eligibility threshold for medically needy	\$264.80	\$205.85	\$267.33	\$217.99
Health care services				
Nursing home beds (per 1,000)	7.20	2.69	7.31	2.69
Residential care beds (per 1,000)	1.93	1.24	2.50	1.43
Certified home health agencies (per 1,000)	0.03	0.02	0.04	0.03
Medicare home health users (per 1,000)	69.46	23.15	110.44	31.16

Notes: ADA = Americans for Democratic Action; AARP = American Association for Retired Persons; CON = certificate of need.

^aFor dependent variables (waiver recipients and expenditures), the descriptive statistics are for 1992 and 1997.

^bExcludes Arizona and the District of Columbia.

^cMean across the 49 states.

^dAdjusted by the Consumer Price Index.

Expenditures Per Participant

The U.S. average HCBS waiver expenditures per participant was \$14,016 in 1997, and varied widely across states from \$4,156 in Arkansas to \$39,226 in Maryland in 1997 (no table shown). The highest waiver expenditures per participant were in Maryland, Pennsylvania, New Mexico, New Hampshire, and Maine. The lowest were in Arkansas, Mississippi, Kentucky, Nevada, Georgia, Ohio, Florida, and Illinois, which all spent less than \$7,000 per participant.

Factors Associated With Waiver Participants in the States

Descriptive statistics are shown in Table 4 for the independent variables used in the analysis. Separate regression models are shown for the two dependent variables: waiver participants per 1,000 population and waiver expenditures per 1,000 population (log).

Table 5 shows the regression model for factors associated with state waiver participants per 1,000 population over the 1992–1997 time period. In terms of sociodemographic factors, the percentage of persons aged 85 and over in a state was a positive predictor of waiver participants. For every 10% increase

in the percentage of the aged, the number of waiver participants increased by 17 participants per 1,000. None of the political factors were associated with waiver participation rates.

States with higher personal incomes per 1,000 population had more waiver participants per 1,000 population. A \$1,000 increase in per capita income resulted in an increase of 281 waiver participants per 1,000 population. States that used a certificate of need or moratorium on home health care agencies had lower numbers of waiver participants per 1,000 population.

The number of nursing home beds per 1,000 population in states was a strong negative predictor of the waiver participants. Increasing the bed supply by 100 beds per 1,000 population decreased the number of waiver participants by 22 participants. In contrast, the number of residential care beds per 1,000 population was a positive predictor. An increase of 100 residential care beds per 1,000 population increased the number of waiver participants by 16. The number of Medicare home health users per 1,000 Medicare beneficiaries in states was also a positive predictor of the waiver participants. For every additional 1,000 Medicare home health users in a state, the number of waiver participants increased by 12.

Table 5. Panel Regression Coefficients (Standard Errors in Parentheses) for Waiver Participants and Waiver Expenditures, 1992–1997

Independent Variable	Waiver Participants per 1,000 ^a	Log of Waiver Expenditures per 1,000 ^{a,b}
Socio-demographic factors		
Aged 85 and over population (%)	1.692** (0.517)	0.812 (0.476)
Women in the labor force (%)	-0.002 (0.023)	0.033 (0.023)
Non-White population (%)	-0.034 (0.018)	-0.016 (0.012)
Metropolitan population (%)	-0.014 (0.009)	-0.002 (0.007)
Political factors		
Liberal voting record (ADA)	0.000 (0.002)	-0.001 (0.002)
AARP members (per 1,000)	-0.011 (0.007)	0.005 (0.006)
Democratic governor	0.032 (0.113)	0.271* (0.117)
Economic factors		
Personal income (per 1,000)	0.281** (0.074)	0.145* (0.074)
Poverty rate	-0.013 (0.016)	-0.003 (0.017)
Public policies		
CON or moratorium for nursing homes	0.213 (0.246)	0.132 (0.240)
CON or moratorium for home health care	-0.282* (0.134)	-0.201 (0.141)
Average medicaid nursing home reimbursement rate	-0.004 (0.008)	-0.006 (0.007)
Medicare home health reimbursement method	0.080 (0.127)	0.298* (0.131)
Uses 209(b) eligibility rules	0.271 (0.297)	0.097 (0.244)
Eligibility threshold for medically needy	0.001 (0.001)	0.002** (0.001)
Health care services		
Nursing home beds (per 1,000)	-0.224** (0.082)	-0.158* (0.070)
Residential care beds (per 1,000)	0.156* (0.074)	0.011 (0.070)
Certified home health agencies (per 1,000)	7.448 (5.131)	13.903** (4.747)
Medicare home health users (per 1,000)	0.012** (0.003)	0.008** (0.003)
Constant	-1.627 (1.868)	3.572* (1.701)
<i>n</i> = 245 (294 - 49 for autocorrelation)		
Autocorrelation of <i>e</i> (<i>l</i> , <i>t</i>)	0.237	0.389
<i>R</i> ² group (state) effects only	0.811	0.595
<i>R</i> ² independent variables only	0.304	0.365
<i>R</i> ² group and independent effects	0.901	0.723

Notes: ADA = Americans for Democratic Action; AARP = American Association for Retired Persons; CON = certificate of need.

^aLIMDEP panel model regression, adjusted for autocorrelation. Random effect model.

^bAdjusted by the CPI.

p* < .05; *p* < .01.

Overall, the state effects alone predicted 81% of the variance, and the independent variables predicted 30% of the variance. The combined state and independent variables in the model predicted 90% of the variance.

Factors Associated With State Waiver Expenditures Per Population

Table 5 shows the factors associated with 1915(c) waivers in the state in the 1992 to 1997 time period.

None of the sociodemographic factors were predictors of the amount of waiver expenditures. Of the political factors, having a democratic governor was a positive predictor of the amount of waiver expenditures. Personal income per 1,000 population was a positive predictor of the amount of expenditures. An increase of \$100 in personal income per 1,000 population increased waiver expenditures by 14.5%.

In terms of public policies, using the Medicare home health reimbursement methodology increased

the waiver expenditure rate. The dollar level of the eligibility thresholds for the medically needy was a positive predictor of the amount of state expenditures for waivers. For every \$100 increase in the eligibility threshold, the waiver expenditures per 1,000 population in a state increased by 0.2%.

Nursing home beds per 1,000 population were negative factors on waiver expenditures as well as on waiver participants. An increase in 100 beds per 1,000 population decreased waiver expenditures by 16%. An increase in certified home health care agencies per population was also a strong predictor of the amount of waiver expenditures. An increase in one home health agency per 1,000 population increased waiver expenditures per 1,000 population by 14%. The Medicare home health users per 1,000 Medicare beneficiaries was a positive predictor of the amount of state waiver expenditures. An increase in Medicare home health users by 100 increased the HCBS expenditures by almost 1%.

The independent variables predicted 37% of the variation across states. The state effects alone predicted 60% of the variance, with a combined effect of 72% of the variance explained by the random effects panel model.

Summary and Discussion

Overall, the states have expanded both the number of HCBS waiver participants (by 138%) and the expenditures (by 263%) substantially over the 6-year period of 1992–1997. In spite of the growth, the findings from this study confirm those from other studies that the growth in waiver expenditures has been very uneven across states (Miller, 1992, 1999a, 1999b; Ladd, Kane, & Kane, 1996; Kane et al., 1998). The states with the largest HCBS waiver programs were Oregon (7.9 participants per capita) and Kansas (5.9 participants). Fifteen states had more than 3 participants per capita, whereas 10 states had about 1 or fewer participants per capita. Expenditures across states also varied dramatically from \$96 per capita in Vermont to \$4 per capita in Mississippi. Individuals living in states with more waiver participants per capita were more likely to be able to remain at home or in the community and to avoid institutionalization. States with more expenditures per capita may receive more services or more expensive services. Thus, substantial inequities exist in access to HCBS services across the states.

Although previous studies have examined factors related to spending on home and community based services, this is the first study that has examined the factors associated with waiver participants in states. State variation in waiver participants and expenditures is related to a number of factors. As expected, the percentage of state population of persons aged 85 and over was a positive predictor of the number of waiver participants, responding to the great demand for services by the oldest old. Other sociodemographics and political factors did not predict waiver participation in states, but states with democratic governors were more likely to have higher waiver expenditures per population.

As expected, states with higher personal incomes had more waiver participants. This is probably because these states have more resources to pay for long-term-care services. This suggests that perhaps one policy approach to increase HCBS services is to increase the federal financial participation (FFP) rates (over the current levels) to states with low incomes as a means of encouraging these states to increase state waiver expenditures. Such a policy would require a statutory change in the Medicaid FFP rates. Another approach would be to offer special grants to low income states to help expand the number of participants and/or to build their HCBS waiver programs.

The findings suggest that states that used a certificate of need or moratorium on home health care agencies had lower numbers of waiver participants, probably because such policies restrict the supply of home care services. States that used Medicare home health reimbursement methods for the Medicaid program were associated with higher waiver expenditure levels. Medicare reimbursement methods are generally more generous than Medicaid rates (Buchanan et al., 1991). Medicare home health payment methods, however, did not translate into higher waiver participation rates.

Perhaps, the medically needy income criteria did not increase the number of waiver participants when controlling for other factors because most states had limits on their waiver slots and waiting lists for services (Harrington, LeBlanc, et al., 2000). Increasing the Medicaid eligibility criteria for the medically needy did increase Medicaid waiver expenditures, because more individuals are allowed to spend down and receive waiver services. If state medically needy financial criteria were made more generous, more individuals would also be able to spend down to become eligible for institutional services. If given a choice, however, more individuals may choose the waiver services over institutional services if the waiver services were readily available.

As expected, health care service availability did have an impact on waiver participation and expenditures. The number of nursing home beds per 1,000 population in states was a strong negative predictor of both waiver participants and expenditure levels. High ratios of nursing home beds per population increases access to institutional services and consequently increases Medicaid costs (Harrington et al., 1997). If states want to expand access to waiver programs, one approach would be to reduce the ratio of nursing home beds per population. Many states have fairly low nursing home occupancy rates (84% average occupancy in 1998) and these have declined steadily from 88% in 1992 (Harrington, Carrillo, Thollaug, Summers, & Wellin, 2000). The number of nursing home beds per 1,000 aged population has also declined over the period. Thus, state reductions in nursing home beds would not appear to compromise access and may allow state policy makers to direct more funds to the waiver program. On the other hand, lowering the number of nursing home beds may be a difficult task to accomplish because of the political influence of the nursing home industry who

would support increased Medicaid funds for institutional care rather than for HCBS services.

Interestingly, this study did not find that having a CON/moratorium for nursing homes had an impact on waiver participants or expenditures, when the model controlled for nursing home beds per population. This lack of association may be due to the delayed influence of CON/moratorium legislation, because CON/moratorium policies for nursing homes can only prevent future growth (Harrington et al., 1997). Perhaps CON/moratorium controls are best combined with other policies such as increasing the supply of residential care and home care services.

The number of residential care beds per 1,000 population was a positive predictor of waiver participation in states but not of waiver expenditures. This suggests that if states want to expand their waiver programs, one approach is to expand residential care beds per population as substitutes for nursing home beds. This may lower Medicaid costs, because residential care programs generally are less expensive than nursing home programs.

The expansion of home health agencies did not increase the number of waiver participants by a significant level but did increase the amount of waiver expenditures. It may be that states using independent home health care providers, rather than agency providers, are able to expand participation without increasing expenditures. This would be an important hypothesis to test in the future.

As expected, the number of Medicare home health users per 1,000 Medicare beneficiaries in states was also a positive predictor of the number of state waiver participants and the amount of expenditures. Perhaps, higher home health utilization indicates that the population has higher disability rates. Or perhaps high Medicare home health utilization is associated with more individuals needing long-term HCBS care or results in the identification of more individuals who need long-term-care services beyond those offered by Medicare. State policy makers probably have little influence over Medicare home health policies.

The 1915(c) Medicaid waiver program has proved its importance in providing long-term-care to individuals with severe disabilities and chronic illness since its inception in 1981. The program is a particularly popular and sought-after Medicaid program among those with disabilities, because it is a way to prevent institutionalization and to offer choice of long-term-care setting. Disability advocates have lobbied for the passage of legislation, such as the Medicaid Community Attendant Services and Supports Act of 1999, that would provide personal care in the home as an alternative to institutional care. Moreover, the Supreme Court decision in the *Olmstead v. L.C.* (1999) suggests that states must begin to address how to ensure that individuals have the option to remain in the community rather than in institutional care.

The data from this study show that states have been able to keep the average Medicaid waiver costs (\$14,016) well below the average Medicaid institutional costs for long-term care. The average institu-

tional cost per recipient for SNF and ICF-MR services combined were \$23,225 in 1997 (Harrington, Swan, et al., 2000a). Institutional costs, of course, cover room and board expenses, but HCBS waiver services are not allowed to pay for such expenses. This issue is important because states must demonstrate that each waiver is no more costly than institutional care (cost neutral), and the states must ensure that every waiver participant meets the need criteria for institutional care. Thus, waivers are required by Medicaid statute to be direct substitutes for institutional care.

The lower waiver costs per participant than institutional costs are consistent with reports that have suggested that the HCBS waiver program has the potential for being cost effective. A 1996 study of Washington, Oregon, and Colorado concluded that the expansion of home and community-based services was cost effective in these states (Alecxi, Lutzky, & Corea, 1996). A 1994 study had similar conclusions about HCBS in Washington, Oregon, and Wisconsin when coupled with decreased institutional capacity (U.S. General Accounting Office, 1994a, 1994b; Wiener & Stevenson, 1997). More research is needed to determine whether the waivers are truly cost effective in the sense of adding better value for the money spent. This would involve comparisons of waivers with institutional services that take into account functional and mental status, quality of care, quality of life, and other measures.

The major problem with increasing the HCBS program is the potential cost implications for the Medicaid program, unless waivers are designed to substitute directly for institutional care (Snow, 1996; Wiener, 1996; U.S. General Accounting Office, 1999). Although some states already have extensive waiver programs, other states would have to expand their HCBS waiver programs, and that could result in greater costs (Wiener, 1996). Policy makers are concerned about the potential for new applicants for HCBS services who refuse institutional care. On the other hand, the general growth in the aged and disabled population will continue to increase the demand for long-term-care services over time. Increasing HCBS services may require less capital and other investment to meet the future demand than would increasing institutional care. All of these considerations must be taken into account by state and federal policy makers in trying to shape Medicaid long-term-care services.

In summary, the growth of the aging and disabled populations is difficult to address, but new policies related to HCBS resources can be developed. A new focus on expanding federal and state resources for HCBS services, especially for states with low personal incomes, could encourage these states to expand their programs. At the same time, removing the regulatory barriers to the growth of home care services and increasing reimbursement rates for home care may encourage the growth of home care providers. Policies that control the growth of nursing homes and expand residential care and home care, along with policies that increase the Medicaid medically needy eligibility criteria appear to be the most likely

means of expanding the Medicaid HCBS waiver programs in the states.

References

- Alexch, L., Lutzky, S., & Corea, J. (1996). *Estimated savings from the use of home and community-based alternatives to nursing facility care in three states*. Washington, DC: American Association of Retired Persons.
- American Association of Retired Persons. (1997). *Membership reports: 1991-1996*. Washington, DC: Author.
- Americans for Democratic Action. (1999). ADA voting record—United States Senate. *ADA Today*. Washington, DC: Author.
- Americans With Disabilities Act. (1990). 42 U.S.C.A. 12101 *et seq.* (28 C.F.R. Section 41.51).
- Barrilleaux, C. J., & Miller, M. E. (1988). The political economy of state Medicaid policy. *American Political Science Review*, 82, 1089–1107.
- Buchanan, R. J., Cappellini, J. C., & Ohsfeldt, R. L. (1991). The social environment and Medicaid expenditures: Factors influencing the level of state Medicaid spending. *Public Administration Review*, 51, 67–73.
- Burwell, B. (1999). *Medicaid long-term-care expenditures in FY 1998: Memo on Form 64 expenditures*. Cambridge, MA: The Medstat Group.
- Cagney, K. A., & Agree, E. M. (1999). Racial differences in skilled nursing care and home health use: The mediating effects of family structure and social class. *Journal of Gerontology: Social Sciences*, 54B, S223–S236.
- Greenberg, J. N., Schmitz, M. P., & Lakin, K. C. (1983). An analysis of responses to the Medicaid home- and community-based long-term care waiver program (Section 2176 of PL 97–35). Washington, DC: National Governors' Association.
- Greene, W. H. (1990). *Econometric analysis*. New York: Macmillan.
- Greene, W. H. (1991). LIMDEP user's manual and reference guide (Version 6). New York: Econometric Software.
- Gurny, P., Hirsch, M. B., & Gondek, K. E. (1992). Chapter 11: A description of Medicaid-covered services. Health care financing review: 1992 annual supplement (pp. 227–234). Baltimore: Journal.
- Harpine, C. J., McNeil, J. M., & Lamas, E. J. (1990). *The need for personal assistance with everyday activities: Recipients and caregivers*. *Current Population Reports: Household Economic Studies* (Series P-70, No. 19). Washington, DC: U.S. Department of Commerce, Bureau of the Census.
- Harrington, C., Carrillo, H., Thollaug, S. C., Summers, P. R., & Wellin, V. (2000). *Nursing facilities, staffing, residents, and facility deficiencies, 1992 Through 1998*. Prepared for the Health Care Financing Administration. San Francisco, CA: University of California, San Francisco. Available at world wide web: <http://www.hcfa.gov/medicaid/lthomep.htm>.
- Harrington, C., LaPlante, M., Newcomer, R. J., Bedney, B., Shostak, S., Summers, P., Weinberg, J., & Basnett, I. (2000). *A review of federal statutes and regulations for personal care and home and community based services: A final report*. San Francisco, CA: Department of Social & Behavioral Sciences.
- Harrington, C., LeBlanc, A., Wood, J., Satten, N., and Tonner, M. C. (2000). *Medicaid home and community based services in the states: Policy issues and future directions*. Unpublished manuscript, University of California, San Francisco.
- Harrington, C., Swan, J. H., Wellin, V., Clemena, W., & Carrillo, H. (2000a). *1998 state data book on long-term-care program and market characteristics*. Prepared for the Health Care Financing Administration. San Francisco, CA: University of California, San Francisco. Available at world wide web: <http://www.hcfa.gov/medicaid/lthomep.htm>.
- Harrington, C., Swan, J. H., Wellin, V., Clemena, W., & Carrillo, H. (2000b). *State database on long-term-care: Program and market characteristics, 1978–1998*. [Data prepared for the Health Care Financing Administration]. Unpublished raw data.
- Harrington, C., Swan, J. H., Nyman, J. A., & Carrillo, H. (1997). The effect of certificate of need and moratoria policy on change in nursing home beds in the United States. *Medical Care*, 35, 574–588.
- Hausman, J. (1978). Specification tests in econometrics. *Econometrica*, 46, 69–85.
- Holahan, J., Bovbjerg, R., Evans, A., Wiener, J., & Flanagan, S. (1997). *Health policy for low-income people in Massachusetts*. Washington, DC: The Urban Institute.
- Home and Community-Based Services Waivers Regulations. (1981, October 1) Final Rule. 42 CFR Parts 435, 436, 440, and 441. *Federal Register*, 46.
- Home and Community-Based Services Waivers Regulations. (1985, March 13) Final Rule. 42 CFR Parts 435, 436, 440, and 441. *Federal Register*, 50.
- Home and Community-Based Services Waivers Regulations. (1994, July 25) Final Rule. 42 CFR Parts 435, 440, and 441. *Federal Register*, 59.
- Houde, S. C. (1998). Predictors of elder's and family caregiver's use of formal home services. *Research on Nursing and Health*, 21, 533–543.
- Hovarth, J. (1997). *Medicaid financial eligibility for aged, blind, and disabled: Survey of state use of selected options*. Portland, ME: National Academy for State Health Policy.
- Kane, R. L., Kane, R. A., Ladd, R. C., & Nielson, W. (1998). Variation in state spending for long-term-care: Factors associated with more balanced systems. *Journal of Health Politics, Policy, and Law*, 23, 363–390.
- Kassner, E., & Williams, L. (1997). *Taking care of their own: State-funded home and community-based care programs for older persons*. Washington, DC: Public Policy Institute.
- Kemper, P. (1992). The use of formal and informal home care by the disabled elderly. *Health Services Research*, 27, 421–451.
- Kenny, G., Rajan, S., & Soscia, S. 1996. *Interactions between the Medicare and Medicaid home care programs: Insights from states*. Washington, DC: The Urban Institute.
- Kenny, G. M. (1993). Rural and urban differentials in Medicare home health use. *Health Care Financing Review*, 14, 39–57.
- Ladd, R. C., Kane, R. L., & Kane, R. A. (1996). *State LTC Profiles Report 1996*. Minneapolis: School of Public Health, University of Minnesota.
- Lanning, J. A., Morrisey, M. A., & Ohsfeldt, R. L. (1991). Endogenous hospital regulation and its effects on hospital and non-hospital expenditures. *Journal of Regulatory Economics*, 3, 137–154.
- LeBlanc, A., Tonner, C., & Harrington, C. (2000). Medicaid 1915(c) home and community based services waivers across the states: Program structure and barriers to growth. *Health Care Financing Review*, In press.
- Lipson, L., & Laudicina, S. 1991. *State home and community-based services for the aged under Medicaid: Waiver program, optional services under the Medicaid state plan, and OBRA 1990 provisions for a new optional benefit*. Washington, DC: Public Policy Institute.
- Logan, J., & Spitze, G. (1994). Informal support and the use of formal services by older Americans. *Journal of Gerontology: Social Sciences*, 49, S25–S34.
- Mausser, E., & Miller, N. A. (1994). A profile of home health users in 1992. *Health Care Financing Review*, 16, 17–33.
- Mendelson, D. N., & Schwartz, W. B. (1993). The effects of aging and population growth on health care costs. *Health Affairs*, 12, 119–125.
- Miller, N. A. (1992). Medicaid 2176 home and community-based care waivers: The first ten years. *Health Affairs*, 11(4), 162–171.
- Miller, N. A., Ramsland, S., & Harrington, C. (1999a). Trends and issues in the Medicaid 1915(c) waiver program. *Health Care Financing Review*, 20, 139–160.
- Miller, N. A., Ramsland, S., & Harrington, C. (1999b). State's allocation of Medicaid long-term-care dollars: Programmatic and political influences. Unpublished manuscript, University of Maryland, Baltimore County.
- Murtaugh, C. M., Kemper, P., & Sillman, B. C. (1990). The risk of nursing home use in later life. *Medical Care*, 28(10), 952–962.
- Nyman, J. A., Sen, A., Chan, B. Y., & Commins, P. P. (1991). Urban/rural differences in home health patients and services. *The Gerontologist*, 31, 457–466.
- O'Keeffe, J. (1996). *Determining the need for long-term care services: An analysis of health and functional eligibility criteria in Medicaid home and community based waiver programs*. Washington, DC: Public Policy Institute.
- Olmstead v. L.C., 98-536, (1999).
- Omnibus Budget Reconciliation Act of 1981, PL 97-35.
- Omnibus Budget Reconciliation Act of 1987, PL 100-203.
- Omnibus Budget Reconciliation Act of 1990, PL 101-508.
- Omnibus Budget Reconciliation Act of 1993, PL 103-66, Section 13601 (a)(1).
- Republican Governors Association. (1999). *Historical election returns—Presidents and governors from 1980–1996*. Available at World Wide Web: www.rga.org/statebystate/
- Salo, M. (1998). *Home and community-based waivers*. Washington, DC: National Association of State Medicaid Directors, American Public Welfare Association.
- Schneider, S. K. (1993). Examining the relationship between public policies: AFDC and Medicaid. *Public Administration Review*, 53, 756–763.
- Schneider, S. K., & Jacoby, W. G. (1996). Influences on bureaucratic policy initiatives in the American states. *Journal of Public Administration Research and Theory*, 6, 495–522. Oxford, OH: Scripps Gerontology Center, Miami University.
- Silverman, H. A. (1990). Use of Medicare-covered home health agency services, 1988. *Health Care Financing Review*, 12, 113–126.
- Snow, K. I. (1996). Downsizing and diversion: Strategies to reduce Medicaid long-term care expenditures. *Journal of Case Management*, 5, 19–24.
- Swan, J., & Harrington, C. (1990). Certificate of need and nursing home bed capacity in the states. *Journal of Health and Social Policy*, 2(2), 87–105.
- Swan, J. H., Harrington, C., Grant, L., Luehrs, J., & Preston, S. (1993). Recent trends in Medicaid nursing home reimbursement. *Health Care Financing Review*, 14, 111–132.
- U.S. Bureau of the Census. (1991–1996a). *Current population reports* (P-25 Series, No. 1095). Washington, DC: Author.

- U.S. Bureau of the Census. (1991–1996b). *Estimate of the population of states by race and hispanic origin: July 1, 1997. Population estimates program, population division*. Washington, DC: Author.
- U.S. Bureau of the Census. (1991–1997). *Statistical abstract of the United States*. Washington, DC: Author.
- U.S. Bureau of Economic Analysis, Department of Commerce. (1991–1996a). *Per capita personal income by state and region*. Washington, DC: Author.
- U.S. Bureau of Economic Analysis, Department of Commerce. (1991–1996b). *Survey of current business, 1991, 1992, 1994: Per capita personal income, by state and region, 1992–96*. Washington, DC: Author.
- U.S. Department of Labor. (1991–1996). *Characteristics of the civilian labor force, by state*. (Table 649). Washington, DC: Author.
- U.S. General Accounting Office. (1994a). Long-term care reform: State's views on key elements of well-designed programs for the elderly. *Report to the Ranking Minority Member, Special Committee on Aging*. Washington, DC: Author.
- U.S. General Accounting Office. (1994b). *Medicaid and long-term care: Successful state efforts to expand home services while limiting costs*. Washington, DC: Author.
- U.S. General Accounting Office. (1999). *Adults with severe disabilities: Federal and state approaches for personal care and other services. A Report to Congressional Requesters*. (GAO/HEHS-99-101). Washington, DC: Author.
- 42 U.S.C. 1395 Title XVIII of the Social Security Act.
- 42 U.S.C. 1391 Title XVI of the Social Security Act.
- 42 U.S.C. 1396a, Title XIX of the Social Security Act.
- 42 U.S.C. 1396d Title XIX of the Social Security Act.
- 42 U.S.C. 1396n Title XIX of the Social Security Act.
- U.S. Health Care Financing Administration. (1991–1996a). *Bureau of Data Management and Strategy: Medicaid statistical file (Form 2082)*. Baltimore, MD: U.S. Department of Health and Human Services. www.hcfa.gov/medicaid/mstats.htm
- U.S. Health Care Financing Administration. (1991–1996b). Unpublished Medicare summary data. Baltimore, MD: U.S. Department of Health and Human Services.
- Wallace, S. P., Campbell, K., & Lew-Ting, C. Y. (1994). Structural barriers to the use of formal in-home services by elderly latinos. *Journal of Gerontology: Social Sciences, 49*, S253–S263.
- Wallace, S. P., Levy-Storms, L., Kington, R. S., & Andersen, R. M. (1998). The persistence of race and ethnicity in the use of long-term care. *Journal of Gerontology: Social Sciences, 53*, S104–S112.
- Wiener, J. M., Evans, A., Kuntz, C., & Sulvetta, M. (1997). *Health policy for low-income people in Texas*. Washington, DC: The Urban Institute.
- Wiener, J. M., & Stevenson, D. G. (1997). *Assessing the new Federalism: Long-Term care for the elderly and state health policy Series A (A-17)*. Washington, DC: The Urban Institute.
- Wiener, J. M. (1996). Can Medicaid long-term care expenditures for the elderly be reduced? *The Gerontologist, 36*, 800–811.

Received March 16, 2000

Accepted June 30, 2000

Decision Editor: Laurence G. Branch, PhD

Appendix

Notes

1. Arizona was operating its Medicaid long-term care program under a capitation arrangement using an 1115 waiver (Miller et al., 1999a). The District of Columbia did not begin its waiver program until 1999 (LeBlanc et al., 2000).
2. The Omnibus Budget Reconciliation Act (OBRA) (1981) of the Social Security Act for the Medicaid program (42 U.S.C. 1396 [n][c][1]) established the program. The regulations for the HCBS waiver program were established on October 1, 1981 (42 C.F.R. Parts 435, 436, 440, and 441; 46 Fed. Reg. 48541). The regulations were revised in 1985 (Final Rule - March 13, 1985) after changes were made in the Tax Equity and Federal Responsibility Act (TEFRA, 1984). The Consolidated Omnibus Budget Reconciliation Act of 1985 (COBRA P.L. 99-272) added Section 9502 that permitted states to offer HCBS waivers for ventilator-dependent individuals who require a hospital level of care. In 1986 (OBRA P.L. 99-509), Section 9411 was added to eliminate the requirement for ventilator-dependent and expanded the waiver authority to any individuals who would otherwise require Medicaid hospital care. The regulations were updated in 1994 (59 Fed. Reg. 37702, July 25, 1994) to take into account a number of legislative changes in COBRA of 1985, OBRA of 1986, and public comments to the proposed rule in 1988 (53 Fed. Reg. 19950). The rule also incorporated provisions from OBRA of 1987, MCCA of 1988, and OBRA of 1990 concerning home and community based services, and eliminated the requirements that states justify their request for specific numbers of waiver participants. This rule also eliminated the “cold beds” test which had required states to demonstrate that adequate institutional capacity would exist “absent the waiver.”