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**The Essential Elements of Cost
Estimation**

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Introduction

The purpose of this guide is to introduce the factors that determine the costs of establishing or expanding Medicaid home and community-based long-term care programs. It was commissioned by the Center for Health Care Strategies as part of its efforts to help states develop deinstitutionalization plans in response to the Supreme Court's *Olmstead v. L.C.* decision.¹ It describes the information states will need and the questions they face in order to estimate the costs and savings of their programs. The guide also provides examples and suggests data sources for collecting information states will need as they estimate their programs' effects.

The information in this guide is designed to provide general assistance. Recognizing that program design and other circumstances will vary a great deal by state, the guide addresses the cost effects of many different program design scenarios. For example, it explains how different situations can affect the cost estimation process, such as the effect of:

- Starting a new program versus expanding an existing one.
- Having a tight institutional bed supply versus having a relaxed supply.
- Providing community alternatives to state-run institutions versus providing alternatives to privately run institutions.

This guide does not specifically discuss the Centers for Medicare and Medicaid Systems (CMS, formerly HCFA) cost-effectiveness test for Medicaid home and community-based waivers (1915c). The CMS test requires a calculation of average cost per person -- which is just one part of the total spending calculation this guide addresses. (A description of the CMS cost-effectiveness test can be found in *Understanding Medicaid Home and Community Services: A Primer* by the U.S. Department of Health and Human Services Office of the Assistant Secretary for Planning and Evaluation (October 2000).)

Terms. The following clarifies the meaning of several terms used throughout this guide:

- **Net Costs.** For the purposes of this discussion, when the term, "net costs" is used, it can mean an increase in spending (positive net costs) or a decrease in spending (negative net costs or savings).
- **People with Disabilities.** When the term, "people with disabilities" is used, it refers to people of all ages with all types of disabilities, including people over age 65 as well as people under age 65 who require home and community based supports and services.
- **States.** The term "states" in this guide refers to the people who are responsible for planning home and community-based alternatives to institutional placement.
- **Community Participants.** This term refers to the people who have been living in the community and choose to participate in the community-based program.
- **Institutional Participants.** This term refers to the people who have been living in the institution, but have been successfully transitioned to a community-based program. It is

¹ Rosenbaum S. *Olmstead v. L.C. Analysis and Implications for Medicaid Policy*, Center for Health Care Strategies, May 2000.

helpful to refer to these persons separately from community participants in order to attribute appropriate savings estimates to their participation.

Estimation Guidelines and Concepts

Basic Guidelines. Budget and program analysts rarely have all the information they need to estimate costs for a program. Sometimes the information that would really improve a cost estimate simply does not exist. Other times it exists, but is flawed or unreliable. In these instances, budget estimation requires analysts to do the best job possible under less than ideal circumstances. They must creatively apply their judgment, program knowledge, and common sense to make the best guess possible.

States conducting *Olmstead* planning and designing alternatives to institutional placement will have difficulty finding all the information they ideally need to estimate costs. Certain questions are very difficult to answer, such as: 1) What is the size of the population?; 2) Who might qualify for services?; or 3) How many services will they use? In making the best estimation possible with inadequate data, states should keep the following in mind:

- **Create Proxies.** States should look for the situations most similar to the one they are estimating and draw experience from those. For example, a state trying to determine per person costs for a new community-based program might use, as a proxy, the statewide spending on similar home- and community-based programs. Or, if a state is expanding an existing home and community-based program, it can draw upon the historical cost experience of the program it is expanding.
- **Split the Difference.** When the available information produces a range of possible estimates, splitting the high and low estimates is a defensible option. For example, suppose calculations of possible average monthly service use range between \$1,000 and \$2,000/month. The best option might be to assume the costs are going to be \$1,500 until more information becomes available.
- **Solicit Judgment of Knowledgeable People or Groups.** Taking an informal survey of experts and colleagues can also sometimes be very helpful. These people can include other states, local university researchers, certain providers, and community organizations.
- **Evaluate the Context.** Evaluating an initial estimate in a larger program context can be very useful. This involves using professional judgment to assess the appropriate relationship between the new program's cost and spending on established programs. For example, assume an initial cost estimate shows that a small program would greatly increase Medicaid spending. These circumstances could prompt a reexamination of the estimate's underlying assumptions.

Basic Calculation. The formula for calculating total costs is simple: The number of people participating in a program multiplied by the average cost per person equals total costs. Participants and average costs per person are the two variables that control total spending. The remainder of this guide discusses the estimation of these two variables.

Estimating Eligibility and Participation

This section introduces and explores the factors that affect estimates of participation. It discusses the information states need in order to estimate their program participants.

Two Pathways to Participation: Community and Institution. There are two pathways that lead to participation in a home- and community-based program: the community and the institution. For two reasons, the number of people participating through these two pathways should be estimated separately.

- Estimating the number of people from the community who might participate in the program requires different information than estimating the number of people who can transition or be directly diverted from nursing home placement.
- The number of people leaving institutions must be estimated separately in order to later calculate the savings specifically attributable to moving this population out of an institution (discussed later in the primer).

The following discussion addresses the estimation issues for states trying to determine the number of people who could potentially participate in a home- and community-based waiver program.

Estimating Community Participation. There are two steps involved in estimating community participation: 1) estimating the number of people who are possibly eligible for the program; and 2) estimating the percentage of these eligible people who might choose to participate. While this exercise is not necessary if a state has already established a limit on program participation, it can be useful in determining how well the program size will meet demand for participation.²

1) Estimating Community Eligibility. Estimating eligibility can be difficult because few national sources provide adequate state or local data on the number of people with various types of disabilities. Therefore, states will need to rely on state and local data sources that might be available. If little is available at the state level, states may have to use a patchwork of information sources.

One place to start is to apply national rates of disability available from the National Health Interview Survey Disability Supplement (NHIS-D) to state or local demographic data (see tables 1 and 2, pgs. 18-20). A state can use the information from the NHIS-D to define disability in a way that most closely matches its own institutional level of care criteria. Using its own definition of disability, the state can get national disability rates by age and by the level of income that most closely matches its financial eligibility criteria. The state can then apply these rates to its own population statistics. The result will be a very rough estimate of the possible number of people who could be eligible for the program.

² The 1915 © waiver authority allows states to limit participation in Medicaid home- and community-based programs.

There are some problems with this method. First, the NHIS-D data (from 1995 and 1996) is somewhat old. Second, state functional and financial eligibility criteria may be difficult to replicate using the general categories available on the NHIS. Therefore states may lose a great deal of precision when they try to match the NHIS' activities of daily living limitations and **income** categories to their own more complex institutional assessment tools and financial eligibility criteria. Third, there is a great deal of regional variability in disability rates. States in the southeast part of the United States typically experience higher disability rates than states in other regions of the country. Therefore, a state would need to take into account how its disability rates might vary from national ones and attempt to make adjustments to compensate for this variation. For example, a state in the southeast might slightly increase the national disability rates before applying them to their demographic data. Despite these problems, this method provides states with a rough picture of the possible eligible population living in the community. Because of its limitations, the information should be combined with other information to get a final estimate.

Other Sources of Information. There are other sources of information that might help refine information from the NHIS-D. States can consult with community service organizations and the state or national associations representing consumer groups. States can talk to a range of private and non-profit providers such as assisted living facilities, board and care facilities, and home health agencies. Finally, the local area agencies on aging might have some information on people who might qualify for a Medicaid home- and community-based program.

2) Estimating Community Participation. While estimating eligibility is difficult, estimating the participation of people who are eligible is even more difficult. States need to assess the ability of their program to attract participants from the pool of people who are eligible. A state should consider whether the program has 1) a good design, 2) a high level of well-targeted publicity about the program, 3) a generous benefit package, 4) few limits on the use of the benefits, 5) flexibility in selection of ample providers, 6) easy access (i.e., provides information specifically designed for non-English speaking applicants and clients). Under these circumstances, a program could attract a very high significant percentage of the people who are eligible.

In the beginning, however, few programs will be this attractive. States face many constraints such as a lack of providers, budgetary limits, lack of outreach expertise, and negative attitudes among people who are eligible about participating in a public program. Unfortunately, there are no established guidelines on the impact of certain program characteristics on participation. Each state will have to make an honest assessment of its program's appeal. In doing so, it should take into consideration the generosity of the benefit package weighed against the difficulty of applying and enrolling in the program. It should also consider its outreach efforts, the ease of application and enrollment, and the ease and flexibility in using benefits. Finally, a state should borrow from the experience of other similar Medicaid and state programs that provide services to people with disabilities living in the community.

Estimating Institutional Participation. The purpose of this section is to help states begin to estimate how much they will save by providing community placement for institutional residents.

Estimating program participation by institutional residents requires the state to assess how successful it will be in 1) moving institutional residents into community settings; and 2) diverting people who are seeking institutional placement to community placement. The following are several questions the state should ask itself:

- **What are the community services?** The amount and type of services has a significant impact on the number of institutional residents who could be served in a community setting. States should consider how well the service package will accommodate the needs of institutional residents moving into the community. Some states may choose to offer services targeted to a specific institutional population. Others may offer a broad range of services designed to help large numbers of residents move to the community. States need to consider how the benefits package will affect institutional residents' ability to move to community settings and remain there.
- **What is the current institutional profile?** Given the services it is able to offer, the state should think about how the characteristics of its current institutional population will affect the number of people it can move from institutional to community settings. For example, states with less strict institutional criteria – where the institutional population varies a great deal in functional ability – might estimate higher numbers of community placements than states with strict criteria.
- **What are the state's goals and strategies?** A state should take into account how aggressive it will be in identifying and recruiting people for community placement. For example, does the state plan to use a single point of entry designed to divert people from initial institutional placement to community placement? Is the state planning to identify and educate residents with the desire to transition from the institution to the community?³
- **How adequate is the provider network?** A generous benefit package is not enough to ensure successful community placement. Institutional residents and potential institutional residents also need reliable community providers. A state's ability to ensure a good source of providers is a factor that should be considered in its estimation of institutional participation.
- **What are the estimates of institutional bed backfill?** States need to also estimate bed backfill. Backfill occurs when a bed is emptied and then immediately filled by someone else because there was some unmet need for institutional services in the community. Bed backfill is likely to occur to some extent unless a facility is being closed. It is most likely to occur when bed supply is tight and most of the beds are currently occupied. Many states, however, may also experience bed backfill when occupancy rates are lower. States need to assess a combination of factors to make an estimate of this phenomenon in their program. In general, they should, 1) assess bed supply, 2) assess occupancy rates,

³ *Understanding Medicaid Home and Community Services: A Primer*. U.S. Department of Health and Human Services, Office of the Assistant Secretary for Planning and Evaluation, October 2000.

3) assess supply-side factors such as the relationship between hospital discharge planners and institutions and institutional marketing practices.

Estimating Average Net Cost Per Person

This section discusses key factors in estimating net average cost per person. Net average costs are the average costs per person minus the average savings per person.

Institutional and Community Participants – Taking Case Mix Into Account. Like estimating eligibility, it is useful to estimate average cost per person separately for the community and institutional participants. Separate estimations of costs per person allow for a slightly more sophisticated way of calculating average cost that takes into account the systematically different costs of these two groups.

Four Main Components to Net Average Cost Per Person. There are four main components to the net average cost per person in a home-and community-based program:

- **Home and Community Based Services (HCBS) Waiver Costs.** The actual waiver or program services and administrative costs.
- **One-Time Costs.** Average one-time or periodic non-Medicaid costs (i.e., rent).
- **Other New Service Costs.** Average new acute care or other long-term care service costs that result from enrolling people in a new program.
- **Savings.** Average savings for the people who would have been served in an institution or other community program in the absence of this new program.

The following is a more detailed discussion of estimating costs per person for each of these four main components:

- 1) **HCBS Waiver Costs.** Estimating the service waiver costs requires the state to answer three main questions:
 - **What is the benefit package?** The types and numbers of services offered will have a significant impact on the cost per person. A state must determine the service package it is offering in order to estimate the amount of money it will spend on these services per person. For example, a service package that includes case management, homemaker services, personal care, and home health aide services might be designed to help people return to or stay in their homes. A state interested in offering services in a non-institutional setting other than individual homes might offer assisted living, adult day care, or 24-hour residential programs for people with mental retardation. A state must decide on the benefit package it will offer before it can estimate the program's per person costs.
 - **What will average participants use?** In estimating average service use, states should consider average use separately for community participants and institutional participants. For example, institutional participants may have particularly intense

service use when they first leave an institution and this use should be taken into account in estimating their average costs.⁴

- **How much will average use cost?** This question requires the state to attach a price tag to the units of service that an average participant will use. Taking the average use per person and multiplying it by the cost of that average use results in the average cost per person for the covered services. In a very simple example, a state offering personal care services as part of its benefits package expects each community participant to use 15 hours/week on average and each institutional participant to use 20 hours/week. Each hour will cost \$15 on average. Therefore, the estimated average cost per person per week would be \$225 for the community participants and \$300 for the institutional participants.

Other Issues in Estimating HCBS Costs Per Person. There are two other issues a state should consider in estimating HCBW service costs:

- **Expansions of Existing Programs Using Existing Benefits Packages.** States expanding existing programs already have information on the likely cost per average participant they can use to eliminate the process described above. States planning expansions have a rich source of data in their program's historical cost per person spending they can use to estimate the cost per person for the expansion. States should keep in mind, however, that if they are serving a distinctly different group in their expansion, they need to adjust the historical cost per person to account for differences in service use between the new participant group and the old one.
 - **Caps.** A state may set cost limits for people participating in a waiver. These cost limits may either be a maximum dollar ceiling that cannot be exceeded for anyone in the waiver or an average cost per person target that allows some people's costs to be higher and others to be lower. States who are planning their programs within established budget constraints may know the maximum amount per person that has already been budgeted. In this case, states will be working backwards to determine the services they can offer within the predetermined amount. This approach makes estimating costs per person relatively simple because the maximum or average amount is already known.
- 2) **One-Time or Periodic Non-Medicaid Costs.** States that are planning to offer assistance to institutional residents for items such as rent deposits, furniture, help with credit problems, or other issues should estimate the average amount they expect to spend on these items and add them to the average costs per person for institutional participants.
- 3) **Other Program Costs.** The new home- and community-based program may affect spending in other programs. States should consider how the new program will affect Medicaid acute and other long- term care spending as well as any other programs that serve the potential participants. In order to estimate the acute care effects, states could try looking at acute care

⁴ Ibid.

costs of similar populations or other waiver populations. Other states also may be able to provide some information about the effects they have observed.

- **Impact on Acute Care Services.** The following are some possible effects states should consider when estimating the impact of the new home- and community-based program on acute care spending:
 - **Former Institutional Residents.** A state should consider estimating an increase in acute care spending for former institutional residents whose previous use of these services was covered under the institutional payment rate.
 - **New Medicaid Enrollees in Community.** A state may consider estimating some increased Medicaid acute care spending if, through its outreach efforts, it identifies some people eligible for Medicaid who were not previously enrolled.
 - **Possible Efficiencies.** A state should also consider assuming some savings that could be attributable to the possibility that some acute care spending may be avoided when appropriate long-term care services are provided (i.e., fall prevention).
 - **Additional Long-Term Care Costs.** A state should consider estimating similar types of effects on other long-term care spending. For example, a state that offers statewide personal care services as part of its state plan may estimate an increase in spending on these state plan services as people enrolled in the waiver use them in conjunction with waiver services.
 - **Other.** States also should consider whether there are any particular features of their programs that would decrease or increase spending in other areas or other programs such as state SSI supplementation.
- 4) **Countable Savings.** For each institutional resident who successfully leaves the institution for a community placement, the Medicaid program saves the cost of the institutional care.⁵ In order to estimate the total savings that occur as a result of creating community alternatives to institutional care, the state has to first estimate the average per person savings for the people who are leaving the institution. The following are several steps to guide states in this estimation:
- **Institutional Per Diem.** First, states should take the average amount they spend on the people who stay in the institution at least one year. In other words, they should try to answer the question: How much does Medicaid pay for the average person who stays one year or more in an institution?

⁵ A potentially controversial issue is who to count as an institutional diversion. For example, it is difficult to assess how many of the people currently living in the community would have presented themselves for institutional placement in the absence of a community-based program. States will have to make their own judgments about who is considered an institutional participant for the purposes of estimating the savings attributable to their community placement.

- **Case-Mix Adjustment.** The first important adjustment is for case-mix. States that pay risk-adjusted rates to institutions need to consider adjusting the per person savings estimate to account for possibly lower institutional payments it may have been making for the people who move out of the institution. In a simple example, assume the average annual payment for institutional residents in a state is \$40,000 and the state systematically targets and moves the highest functioning people into the community in the first year of implementation. The payments for this group might have been lower than \$40,000 – perhaps \$30,000 on average. Therefore, the state should lower its \$40,000 estimate by \$10,000 to \$30,000.

A less direct but similar effect could occur in states where the institutions are paid a flat rate. In these cases, institutions may object to having the highest functioning residents leave without an increase in payments to account for the higher average level of frailty of the remaining residents.

- **Spend-Down Adjustment.** The state also should adjust for the average contribution the institutional residents may be making to this cost through co-payments or through spending down to Medicaid eligibility. For example, if the average cost to Medicaid for one year of institutional care is \$40,000 but the population targeted for community placement has been contributing \$20,000 per person on average to this cost, then the \$40,000 must be adjusted downwards by \$20,000.

The following are two basic one-year examples of how to combine the estimates of participation with net costs per person to calculate a total spending estimate. These numbers are designed purely to illustrate how to calculate a total spending or savings estimate:⁶

Example 1: Hypothetical Aged/Disabled Waiver (table 3, pg. 21)

People: In this example, the state estimates people eligible for participation as: 1,000 living in the community and 200 living in an institution. Of the total eligibles, the state estimates that about 25 percent will participate from the community and 10 percent from the institution. The total number of people participating from the community is 250 and the total participating from the institution is 20.

Per Person Costs: The state estimates that the average community participant will use approximately \$13,500 worth of services in a year. This amount is based on \$12,000 in home- and community-based services, \$500 in one-time services, and \$1,000 in other program services. The state estimates that the average institutional participant will use about \$32,500 worth of services in a year. This amount is the sum of \$24,000 for HCBS services, \$6,000 for one-time services, and \$2,500 for other program services.

⁶ These numbers are not based on any particular state's experience.

The state did not adjust its institutional participation estimate for bed backfill because it does not expect bed backfill (see more detailed examples in next section).

Per Person Savings: The state estimates zero per person savings for the people living in the community. The state estimates \$40,000 per year in savings for the institutional participants. In order to keep this example simple, we are assuming no spend-down adjustment. In this example, the state did not adjust for case-mix because it did not specifically target highly functioning institutional residents but instead targeted a wide variety of institutional residents.

Spending/Savings: The spending for community participants is \$3,375,000. This is equal to the number of participants, 250, multiplied by the costs per person for community participants, \$13,500. The savings for institutional participants is \$150,000. This amount is equal to the number of institutional participants, 20, multiplied by the amount of average per person savings for the institutional participants, \$7,500 [$\$40,000$ (avg. savings/person) - $\$32,500$ (avg. spending/person)].

Total Program Cost Estimate: The total program cost estimate is the total spending on community participants, \$3,375,000, minus the total savings on institutional participants, \$150,000, which equals \$3,225,000.

Example 2: Hypothetical Mental Retardation/Developmental Disability Waiver (table 4, pg. 22)

People: The hypothetical state in this example estimated the eligible population as being 50 people in the community and 300 people in an institution. Of those eligible to participate, 100 percent of the people in the community are estimated to participate and 50 percent of the people in the institution are estimated to participate.

There is no estimate of backfill because the state expects to close half of the institution's beds and is planning to serve 100 percent of the potential institutional residents – those people currently living in the community – through the community program.

Per Person Costs: The average per person cost for the people living in the community is estimated at \$26,000, which is equal to the sum of \$24,000 for HCB services, \$1,000 for one-time services, and \$1,000 for other program services. The average costs per person for the institutional participants is \$27,500, which is equal to the sum of \$24,000 for HCB services, \$1,000 for one-time services, and \$2,500 for other program services.

Per Person Savings: There are no estimated savings for the community participants. The state estimates average per person savings of \$40,000 for the institutional participants. The state does not estimate further adjustments because this population did not become eligible for Medicaid through spend-down, and the institutional rates were not case-mix adjusted.

Spending/Savings: The total spending estimate is \$1,300,000, which is equal to the number of total community participants, 50, multiplied by the average costs per person, \$26,000. The total

savings is \$1,875,000, which is equal to the number of total institutional participants, 150, multiplied by \$12,500 [$\$40,000$ (avg. savings per person) - $\$27,500$ (avg. costs per person)].

Total Program Savings Estimate: The total program savings estimate is \$575,000, which is equal to the total savings, \$1,875,000, minus the total spending \$1,300,000.

The next section discusses estimating the multiple year costs of a home- and community-based program.

Calculating Future Spending

Thus far, this guide has addressed the most important considerations in estimating the costs associated with implementing community-based care. In addition to these considerations, states must also decide how to estimate future program growth. States must consider how each of the factors in their cost estimation models will change over time. For example, will the number of people who are participating grow quickly, slowly, or not at all? Will the service prices contribute to rapid growth in the average cost per person? The following are a few guidelines to projecting spending growth over time followed by a more detailed cost estimation example of a hypothetical program.

- **Base Year.** It can be helpful to start with a base year estimate. That is, the state takes the year for which it has the most recent data, estimates spending for this year and estimates projections of growth off of these base year estimates. The base year is not the same as the first year of program implementation. Usually the actual estimates of spending in the years of program implementation are the result of increasing the base year costs up to the first year of the program and through the final year.
- **Units for Projecting Growth.** After the base year estimates are set, the state has to estimate growth rates for each of the cost components (i.e., participants, costs per person). The state should estimate growth for the smallest cost components possible. For example, is it preferable to estimate future growth in eligibility and the percent of eligibles who will participate rather than to just estimate change in the bottom line participation number (see table 5, pg. 23).
- **Data for Growth Projections.** The state should use the best proxy it has for estimating the rate of future growth. Historical growth rates in similar state programs can be a good place to begin. For example, the state that is expanding a program where costs per person have been growing at four percent a year on average for the past five years might begin by assuming that over the next five years, growth will continue to be four percent per year. It might make some adjustments to this growth rate for anticipated economic, program, or policy changes.
- **Growth Paths.** The state should consider that some cost components might not grow steadily. Growth in some factors might increase rapidly in the first few years, such as community participation, and then taper off as time goes on. The state should consider what would be a logical growth path for each of the major model components. The following are additional examples:
 - Per capita cost growth for institutional participants could slow after the first few years as people get settled into the program.
 - Growth in institutional participation could slow after the first few years of an aggressive effort.

Tables five, six, and seven (pgs. 23-25) provide a more detailed – yet still relatively simply – example of a cost model for a hypothetical home- and community-based program. The notes in the last column of these tables provide hypothetical explanations for the growth paths in the model.

Estimating Participation (Table 5, pg. 23)

- **Community Participation.** This table illustrates how the national disability rates from the NHIS-D can be applied to local data to estimate program eligibility.
- **Institutional Participation.** This table shows how a state could estimate the number of beds backfilled separately from the number of people it expects to move out of an institution.
- **Total Participation.** This section of the table illustrates how a state might estimate participation and then impose a cap that effectively limits community participation. The cap in this example allows more and more participation over time.

Estimating Cost Per Person (Table 6, pg. 24)

- **Average Costs Per Person.** This table illustrates how a state might set up a model to take into account the costs per person for community and institutional participants and how those costs might change over time.
- **Savings Per Person.** This table illustrates how to apply percentage adjustments for spend-down and case-mix as discussed above.

Estimating Total Spending (Table 7, pg. 25)

Table 1
Percent of Persons by Age Group, ADL Difficulty Status, and Income Relative to Poverty and SSI+
ADL Measurements are: Bathing, dressing, eating, getting into/out of chair, and toileting

	1 or more ADLs			2 or more ADLs			3 or more ADLs			Alzheimers	
	Requires some help	Requires a lot of help	Is unable to perform	Requires Some Help	Requires a lot of help	Is unable to perform	Requires Some Help	Requires a lot of help	Is unable to perform	(No ADL)	
All Persons with ADL	2,252,869	1,495,210	1,661,180	940,802	984,621	1,370,214	427,658	587,692	1,115,113	361,973	
<u>All Persons Age 5-17 with ADL (#)</u>	159,607	83,017	140,306	93,128	67,123	125,648	30,007	44,412	108,195	0	
Persons 5-17 with any ADL											
% of population=	50,848,683	0.3%	0.2%	0.3%	0.2%	0.1%	0.2%	0.1%	0.1%	0.2%	0.0%
Relative income (Poverty)											
Less than 0.50		10%	10%	9%	11%	8%	10%	4%	8%	10%	
0.50 to 0.99		22%	28%	13%	22%	31%	13%	39%	31%	12%	
1.00 to 1.49		16%	22%	23%	22%	21%	24%	21%	13%	19%	
1.50 to 1.99		13%	17%	17%	15%	18%	16%	16%	16%	18%	
2.00 and over		39%	24%	38%	30%	22%	38%	21%	31%	40%	
Relative income (SSI)											
SSI *		31%	15%	16%	36%	12%	15%	35%	9%	13%	
300% SSI **		11%	15%	7%	14%	14%	8%	12%	9%	10%	
<u>Persons Age 18-64 with ADL (#)</u>	1,032,565	644,369	545,872	418,612	434,517	457,971	196,009	284,398	381,326	27,076	
Persons 18-64 with any ADL											
% of population=	159,168,583	0.6%	0.4%	0.3%	0.3%	0.3%	0.3%	0.1%	0.2%	0.2%	0.0%
Relative income (Poverty)											
Less than 0.50		7%	10%	7%	5%	10%	7%	5%	11%	6%	0%
0.50 to 0.99		21%	21%	22%	17%	21%	23%	20%	20%	23%	17%
1.00 to 1.49		14%	15%	13%	18%	17%	13%	16%	14%	14%	11%
1.50 to 1.99		12%	11%	16%	14%	11%	14%	13%	9%	18%	4%
2.00 and over		46%	44%	43%	46%	41%	44%	47%	46%	38%	68%
Relative income (SSI)											
SSI *		24%	26%	26%	23%	25%	27%	22%	24%	24%	18%
300% SSI **		8%	7%	10%	8%	7%	10%	8%	8%	10%	18%
<u>Persons Age 65-74 with ADL (#)</u>	387,044	239,796	259,214	164,599	150,212	211,175	83,486	86,315	166,603	75,280	
Persons 65-74 with any ADL (%)											
% of population=	18,355,635	2.1%	1.3%	1.4%	0.9%	0.8%	1.2%	0.5%	0.5%	0.9%	0.4%
Relative income (Poverty)											
Less than 0.50		2%	1%	3%	2%	1%	3%	1%	2%	4%	0%
0.50 to 0.99		21%	29%	21%	19%	23%	21%	17%	27%	19%	14%
1.00 to 1.49		20%	17%	23%	21%	17%	22%	23%	11%	23%	19%
1.50 to 1.99		16%	16%	13%	14%	20%	14%	11%	24%	15%	22%
2.00 and over		42%	38%	41%	44%	39%	40%	47%	36%	39%	44%
Relative income (SSI)											
SSI *		31%	33%	29%	27%	30%	28%	26%	33%	27%	24%
300% SSI **		10%	9%	9%	8%	11%	10%	6%	10%	10%	11%

	1 or more ADLs			2 or more ADLs			3 or more ADLs			Alzheimers
	Requires some help	Requires a lot of help	Is unable to perform	Requires Some Help	Requires a lot of help	Is unable to perform	Requires Some Help	Requires a lot of help	Is unable to perform	(No ADL)
<u>Persons Age 75-84 with ADL (#)</u>	438,959	342,215	429,310	166,998	200,758	355,541	80,995	106,345	276,265	153,907
Persons 75- 84 with any ADL (%)										
% of population= 10,194,080	4.3%	3.4%	4.2%	1.6%	2.0%	3.5%	0.8%	1.0%	2.7%	1.5%
Relative income (Poverty)										
Less than 0.50	3%	2%	1%	3%	3%	1%	3%	3%	1%	0%
0.50 to 0.99	17%	24%	21%	23%	24%	18%	21%	20%	16%	14%
1.00 to 1.49	19%	20%	20%	17%	20%	21%	24%	20%	21%	20%
1.50 to 1.99	17%	13%	19%	16%	13%	19%	12%	10%	20%	13%
2.00 and over	45%	40%	39%	40%	41%	41%	41%	47%	42%	52%
Relative income (SSI)										
SSI *	28%	35%	30%	30%	37%	27%	32%	35%	25%	20%
300% SSI **	12%	13%	15%	7%	12%	15%	8%	12%	17%	9%
<u>Persons Age 85+ with ADL (#)</u>	234,694	185,815	286,479	97,466	132,011	219,880	37,163	66,224	182,726	105,711
Persons 85+ with any ADL (%)										
% of population= 2,695,594	8.7%	6.9%	10.6%	3.6%	4.9%	8.2%	1.4%	2.5%	6.8%	3.9%
Relative income (Poverty)										
Less than 0.50	3%	3%	2%	3%	2%	3%	7%	2%	3%	2%
0.50 to 0.99	21%	26%	22%	24%	23%	22%	26%	23%	20%	14%
1.00 to 1.49	20%	29%	28%	8%	31%	23%	14%	34%	21%	20%
1.50 to 1.99	10%	10%	15%	8%	8%	14%	9%	12%	16%	16%
2.00 and over	46%	33%	32%	57%	36%	38%	44%	29%	40%	47%
Relative income (SSI)										
SSI *	37%	42%	40%	32%	42%	38%	47%	37%	33%	19%
300% SSI **	13%	14%	16%	12%	9%	17%	5%	9%	19%	22%

Source: Urban Institute calculations using the 1994 - 1995 NHIS

* Under \$11,724 if single/\$17,076 if >1 plus asset test

** Under \$35,172 if single/ \$51,228 if >1 and over SSI

Table 2
Percent of Persons by Age Group, Mental Retardation/Developmental Disability, and Income Relative to Poverty

	MR/DD
<u>All Persons Age 0-5 (#)</u>	878, 324
Relative income (Poverty)	
Less than Poverty	5.7%
Above Poverty	3.3%
<u>All Persons Age 6-18</u>	1,324,576
Relative income	
Less than Poverty	5.7%
Above Poverty	2.5%
<u>All Persons Age 19+</u>	1,329,885
Relative income	
Less than Poverty	2.3%
Above Poverty	0.6%

SOURCE: Research and Training Center on Community Living, University of Minnesota
 DATA: NHIS-D (1994-1995)

Table 3
Basic Example of Hypothetical Aged/Disabled Waiver

	<u>Community</u>	<u>Institutional</u>
<u>People</u>		
Eligible	1,000	200
Participation Rate	25%	10%
Total People	250	20
<u>Per Person Costs</u>		
HCB Services	12,000	24,000
One-Time	500	6,000
Other Program	1,000	2,500
Total Costs Per Person	13,500	32,500
<u>Per Person Savings</u>		
Per Diem	0	40,000
Spend-Down Adj.	0	0
Case-Mix Adj.	0	0
Total Savings Per Person	0	40,000
Spending	3,375,000	0
Savings	0	-150,000
Total		3,225,000

Table 4
Basic Example of Hypothetical MR/DD Waiver

	<u>Community</u>	<u>Institutional</u>
<u>People</u>		
Eligible	50	300
Participation Rate	100%	50%
Total People	50	150
<u>Per Person Costs</u>		
HCBS Services	24,000	24,000
One-Time	1,000	1,000
Other Program	1,000	2,500
Total Costs Per Person	26,000	27,500
<u>Per Person Savings</u>		
Per Diem	0	40,000
Spend-Down Adj.	0	0
Case-Mix Adj.	0	0
Total Savings Per Person	0	40,000
Spending	1,300,000	0
Savings	0	-1,875,000
Total		-575,000

**Table 5
Estimating Participation**

Illustration of Hypothetical A/D Waiver Values in Total Dollars – fed + state	Base Year 2000	Year 1 2001	Year 2 2002	Year 3 2003	Growth Data
<i>Community Pathway</i>					
Local Adult Population Under Age 65	16000	16480	16974	17484	3% growth based on general population.
National Rate of 3+ ADLs in this age group in poverty	0.04	0.04	0.04	0.04	Rate stays the same.
Local Population Over Age 65	6000	6180	6365	6556	3% growth based on general population.
National Rate of 3+ ADLs in this age group in poverty	0.06	0.06	0.06	0.06	Rate stays the same.
Total number of people eligible to enroll in community	1000	1030	1061	1093	Formula equal to local population of each group multiplied by rate of disability/poverty in that group.
Percent from community who enroll	0.25	0.25	0.20	0.20	Participation rate declines as program enrollment grows.
Waiting List Length	50	48	46	44	Waiting list declines slightly as more people are added.
Subtotal Potential Community Participation (assumed FTEs)	300	306	258	263	Formula equal to eligibles multiplied by participation rate.
<i>Institutional Pathway</i>					
Estimated Front End Nursing Home Placement Diversions	8	8	10	12	Formula equal to annual institutional admissions multiplied by target rate.
as x Percent of Annual Institutional Admissions	0.15	0.15	0.18	0.20	Target rate improves slightly over time
Estimated Back End Nursing Home Placement Diversions	38	38	45	50	Growth rate = 5% = avg. of past 5 years
as x Percent of Current Institutional Residents	0.15	0.15	0.18	0.20	Formula equal to current institutional population multiplied by target rate.
Institutional Refill Effect	250	250	250	250	Target rate improves slightly over time.
Subtotal Potential Institutional Participation	20	20	33	43	Growth captured in annual admissions targeting.
					Rate declines slightly over time.
					Formula equal to front end plus back end deinstitutionalizations.
Total w/o Limit	320	326	291	306	Formula equals sum of potential community and institutional participation.
Unlimited Community Participation	300	306	258	263	Represents community participation without participation limits.
Institutional Participation	20	20	33	43	Represents institutional participation.
<u>Limit on New Slots (if any)</u>	250	260	270	300	Could be based on expected budget increase.
Total w/ Limit	250	260	270	300	Formula assumes lowest of limit or participation.
Limited Community Participation	230	240	237	257	Formula subtracts institutional participation from limit.
Institutional Participation	20	20	33	43	Equals Institutional Participation Line

Table 6 -- Estimating Cost Per Person

Illustration Cost and Savings Per Person in Hypothetical A/D Waiver

Values in Total Dollars – fed + state

	Base Year 2000	Year 1 2001	Year 2 2002	Year 3 2003	Growth Data
<i>HCBS Services and Administrative Costs</i>					
Current Institutional Per Diem	36000	37800	39690	41675	Based on 5% avg. annual growth in per person spending for institutional service
Spending Per Community Person	12000	12960	13997	15117	Based on 8% avg. annual growth in per person spending for similar programs and services.
Spending Per Deinstitutionalized Person	18000	18900	19845	20837	Formula equals institutional per diem divided by two.
<i>One-Time/Periodic Costs</i>					
Spending Per Community Person	500	515	530	546	Expect modest growth based on CPI-U.
Spending Per Deinstitutionalized Person	5000	5150	5305	5464	Expect modest growth based on CPI-U.
<i>Additional Acute Care Service Spending</i>					
Spending Per Community Person	1000	1075	1156	1242	Based on 7.5% avg. annual growth in per person spending for Medicaid acute care services.
Spending Per Deinstitutionalized Person	1500	1613	1733	1863	Based on 7.5% avg. annual growth in per person spending for Medicaid acute care services.
<i>Additional Long-Term Care Service Spending</i>					
Spending Per Community Person	1000	1060	1124	1191	Based on 6% avg. annual growth in per person spending for Medicaid acute care services.
Spending Per Deinstitutionalized Person	1500	1590	1685	1787	Based on 6% avg. annual growth in per person spending for Medicaid acute care services.
<i>Subtotal Spending Per Person</i>					
Community Person	14500	15610	16806	18096	Formula equals sum of all spending items.
Deinstitutionalized Person	26000	27253	28568	29951	Formula equals sum of all spending items.
<i>Savings Per Deinstitutionalized Person</i>					
Institutional Per Diem	36000	37800	39690	41675	Based on 5% historical avg. annual growth in per person spending for institutional services.
Spend-Down Adjustment	0.82	0.82	0.82	0.82	Formula equals adjusted per diem as percent of per diem.
Per Diem Adjusted for Spend-Down	29600	31080	32634	34266	Formula equal to weighted average of per diems for spend-down and non-spend-down (SSI). Grows by same amount as institutional services.
Percentage of NF Residents who are Medically Needy	0.40	0.40	0.40	0.40	Percentage of NF residents who are medically needy
Avg. Per Diem for Medically Needy	20000	21000	22050	23153	Average Medicaid contribution for medically needy.
Case Mix Adjustment	0.95	0.95	0.95	0.95	Small adjustment for potential NF rate increases.
Subtotal Savings per Deinstitutionalized Person	28120	29526	31002	32552	Formula calculating NF per person savings after adjustments.
Total Spending/Saving Per Community Person	14500	15610	16806	18096	Formula equals sum of all spending items.
Total Spending/Saving Per Deinstitutionalized Person	-2120	-2274	-2434	-2602	Formula equals spending minus savings.

Note/Some items may not qualify for federal matching funds.

**Table 7
Estimating Total Spending**

Illustration of Total Spending in Hypothetical A/D Waiver
Values in Total Dollars – fed + state

	Base Year 2000	Year 1 2001	Year 2 2002	Year 3 2003	Growth Data
Community Participation	230	240	237	257	Copied from previous sheet that estimates participation.
Institutional Participation	20	20	33	43	Copied from previous sheet that estimates participation.
Spending Per Community Person	14,500	15,610	16,806	18,096	Copied from previous sheet that estimates per person spending.
Spending/Saving Per Institutional Person	(2,120)	(2,274)	(2,434)	(2,602)	Copied from previous sheet that estimates per person spending.
Total Spending on Community Population	3,331,375	3,739,863	3,983,916	4,648,858	Formula that multiplies community participation by community cost per person.
Total Spending on Institutional Population	(42,930)	(46,422)	(80,208)	(112,136)	Formula that multiplies institutional participation by institutional savings per person.
Estimated Total Spending	3,288,445	3,693,441	3,903,708	4,536,722	Formula that sums spending and savings.

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