



March 2010

Report No. 10-33

The State Could Consider Several Options to Maximize Its Use of Funds for Medicaid Home and Community-Based Services

at a glance

Three of Florida's Medicaid home and community-based services waiver programs are widely available to frail elders needing services – the Aged and Disabled Adult, Assisted Living for the Elderly, and Nursing Home Diversion waiver programs. These programs provide alternatives to more restrictive and costly nursing home placement by helping frail elders stay in their homes or other community settings for as long as possible. The Nursing Home Diversion waiver program has the highest effectiveness in delaying nursing home entry among the three waiver programs, but also has the highest costs for serving elders with similar characteristics. The Legislature could maximize its use of funds by expanding access to these waiver programs as funding is available.

Scope

As required by Ch. 2008-044, *Laws of Florida*, OPPAGA evaluated Florida's Medicaid home and community-based services waiver programs. This report assesses the effectiveness and costs of three waiver programs that serve frail elders: the Aged and Disabled Adult, Assisted Living for the Elderly, and Nursing Home Diversion waiver programs.¹ The report addresses three questions.

- How effective are the waiver programs in delaying nursing home entry?
- What are the total state costs for serving frail elders through these waiver programs?
- What options could the Legislature consider for maximizing use of home and community-based services waiver program funding?

Background

Florida faces a growing demand for community-based alternatives to nursing homes. In 2008, Florida led the nation with 17.4% of its population (3.3 million individuals) 65 and older. By 2014, Florida's elder population is expected to reach nearly 3.8 million individuals.

Florida has provided alternatives to nursing home placement since 1982, with the goal of serving elders in the least restrictive settings. The state now operates six Medicaid home and community-based services waiver programs that help frail elders remain in their homes and other less restrictive settings for as long as possible, thereby enhancing their quality of life and avoiding costly nursing home placements.² These include the Adult Day Health Care, Aged and Disabled Adult, Alzheimer's Disease,

¹ In response to this law, OPPAGA also issued a report on the Alzheimer's Disease Waiver Program in February 2010. See *The Alzheimer's Disease Waiver Program Does Not Delay Nursing Home Entry More Effectively Than Other Waivers and Costs the State More Per Participant Than Most Waivers That Serve Similar Persons*, OPPAGA [Report No. 10-23](#), February 2010.

² Unnecessary nursing home placement wastes taxpayer dollars by providing expensive 24-hour institutional care when it is not needed. Medicaid nursing home care in Florida cost \$4,678 per recipient per month and \$56,137 annually in Fiscal Year 2008-09.

Assisted Living for the Elderly, Channeling, and Nursing Home Diversion waiver programs. The Department of Elder Affairs administers all of these programs.

These waiver programs are expected to provide care to elders in the least restrictive setting for as long as possible, while ensuring that the state costs to serve these participants do not exceed the costs of nursing home care. To support this goal, the programs provide services such as case management, personal care, certain therapies, respite, and caregiver/family training to assist participants and reduce the stress and burden on caregivers in order to help participants delay or avoid nursing home entry.

Three of these waiver programs -- the Aged and Disabled Adult, Assisted Living for the Elderly, and Nursing Home Diversion -- have the largest enrollments, provide similar home and community-based services, and are widely available to elders needing such services. The programs differ in some aspects such as residential setting, eligibility, and method of reimbursement.³

- Participants in the Aged and Disabled Adult waiver program must reside in a home, with or without a caregiver.
- Participants in the Assisted Living for the Elderly waiver program must reside in an assisted living facility.
- Participants in the Nursing Home Diversion waiver program can reside in their own homes, their caregivers' homes, an assisted living facility, or a nursing home.

The eligibility criteria for the Nursing Home Diversion waiver program are more restrictive and the program is expected to serve the frailest elders who need the most assistance to remain in the community. This waiver program only serves individuals eligible for

both Medicare and Medicaid. It provides capitated payments to providers to cover all medically necessary services, including Medicare co-payments, premiums, and deductibles; all Medicaid services not otherwise covered by Medicare except transportation; and long-term care services, such as personal care assistance, assisted living facility care, and nursing home care. In contrast, the other two waiver programs have less restrictive eligibility requirements and provide payments to providers on a fee-for-service basis. (See Appendix A for detailed information on the three waiver programs, including eligibility criteria and services provided.)

In Fiscal Year 2008-09, the state served 32,683 frail elders through these three waiver programs at a cost of \$338.6 million. (See Exhibit 1.) Most of these expenditures were for the Nursing Home Diversion waiver program, which has the largest enrollment and covers the costs for both acute medical and long-term care services in addition to administrative costs. The Legislature appropriated \$460.5 million to the three waiver programs for Fiscal Year 2009-10.

Exhibit 1
In Fiscal Year 2008-09, the State Expended \$338.6 Million to Serve 32,683 Participants in the Three Largest Waiver Programs

Waiver Program	Number Served	Expenditures
Aged and Disabled Adult	10,478	\$ 70,416,323
Assisted Living for the Elderly	3,494	22,845,187
Nursing Home Diversion	18,711	245,300,866
Total	32,683	\$338,562,376

Source: OPPAGA analysis.

³ The other three waiver programs that serve elders - Adult Day Health Care, Alzheimer's Disease, and Channeling - are only available in selected areas of the state and serve a small number of elders.

Questions and Answers—

How effective are the waiver programs at delaying nursing home entry?

Our analyses found that the Nursing Home Diversion waiver program was more effective than the Aged and Disabled Adult and Assisted Living for the Elderly waiver programs at delaying nursing home placements. To make this assessment, we compared participants with similar characteristics in these waiver programs who enrolled between January 2005 and June 2008.⁴ We compared the likelihood that elders in these three waiver programs would have an extended nursing home stay over a 42-month period. (See Appendix B for more information about our methodology, data sources, and comparison group criteria.)

As shown in Exhibit 2, at the end of 42 months, Nursing Home Diversion participants were less

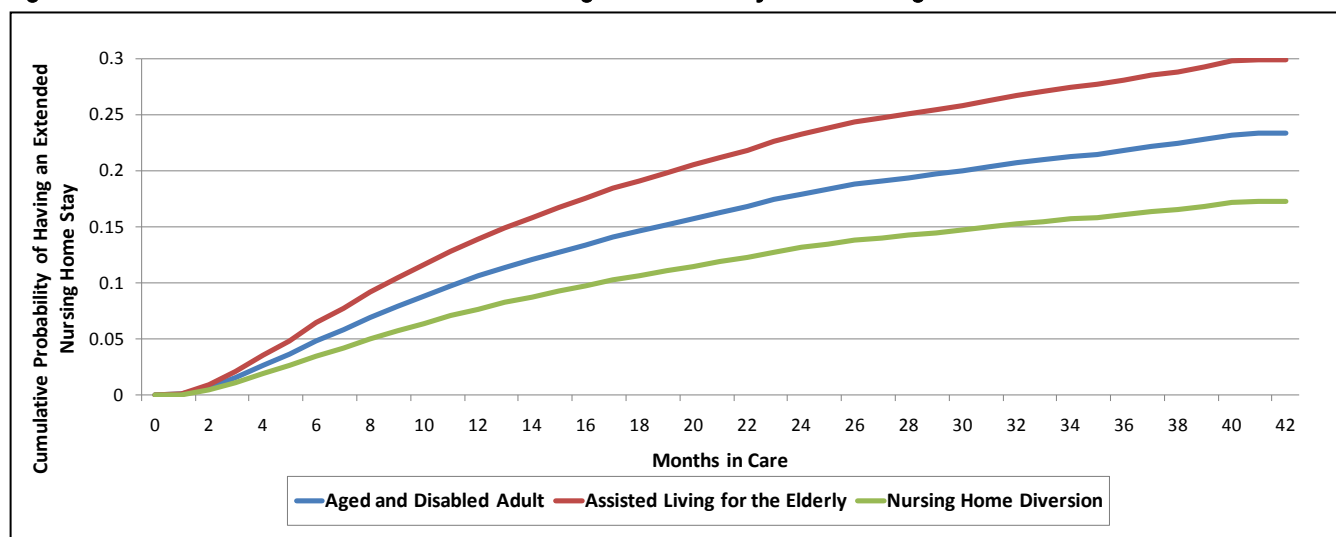
likely to have entered a nursing home than similar elders served by the Aged and Disabled Adult and the Assisted Living for the Elderly waiver programs. Participants in the Nursing Home Diversion waiver program had a 17% probability of having an extended nursing home stay. In contrast, participants in the Aged and Disabled Adult and Assisted Living for the Elderly waiver programs had somewhat higher probabilities of entering a nursing home for an extended stay (23% and 30%, respectively). These results are consistent with our 2006 report, which found that Nursing Home Diversion participants were less likely than participants in the other two waiver programs to enter nursing homes, but that all three waiver programs effectively delayed nursing home care when compared to elders with similar characteristics who did not receive any waiver program services.⁵

⁴ All waiver participants included in this analysis met Nursing Home Diversion criteria in that they were age 65 or older, eligible for Medicaid and Medicare Parts A and B, met a nursing home level of care, and met the required clinical criteria.

⁵ See *The Nursing Home Diversion Program Has Successfully Delayed Nursing Home Entry*, OPPAGA [Report No. 06-45](#), May 2006. In our current study, we did not compare waiver program outcomes to outcomes for elders enrolled only in the traditional Medicaid program because of data limitations. See Appendix B for more information.

Exhibit 2

The Nursing Home Diversion Waiver Program Was More Effective at Delaying Nursing Home Entry Than the Aged and Disabled Adult and the Assisted Living for the Elderly Waiver Programs



Source: OPPAGA analysis.

While available data do not identify reasons for the differences in outcomes among the waiver programs, Nursing Home Diversion providers were paid a monthly capitated rate to provide medical and long-term care services including nursing home care, which gave providers an incentive to avoid the higher cost of nursing home care for as long as possible. Also, although the individuals in our study did not vary greatly on demographic or health-related characteristics, they did vary with respect to dementia and the need for supervision, which may have increased their risk of nursing home use. The Assisted Living for the Elderly waiver program served more participants with these characteristics, which could explain in part why its participants had a greater risk of nursing home entry than the other two waiver programs.

What are the total state costs for serving frail elders through these waiver programs?

Florida spent more on average to serve elders enrolled in the Nursing Home Diversion waiver program than it spent to serve similar persons enrolled in the Aged and Disabled Adult and Assisted Living for the Elderly waiver programs. To compare these costs, we tracked state expenditures for participants in the three waiver programs over a 24-month period, including both Medicaid expenses and costs associated with local programs for elders funded exclusively from general revenue.⁶ Medicaid costs included waiver program services; acute medical care such as physicians' visits, inpatient hospital stays, and outpatient hospital procedures; nursing home care; Medicaid-paid premiums for Medicare; and other services such as therapies, transportation, and hospice. (See Appendix B for more

⁶ Department of Elder Affairs' general revenue-funded programs include the Community Care for the Elderly, Home Care for the Elderly, the Alzheimer's Disease Initiative, and other local community-based long-term care support programs. The average monthly costs of these programs for individuals included in our study cohorts varied, ranging from \$3 per month for persons enrolled in the Assisted Living for the Elderly and Nursing Home Diversion waiver programs to \$65 per month for persons enrolled in the Aged and Disabled Adult waiver program.

information about our methodology, data sources, and comparison group criteria.)

Over a 24-month period, Florida paid, on average, \$1,947 per month to provide services to participants in the Nursing Home Diversion waiver program. As shown in Exhibit 3, after adjusting for differences in participant characteristics, the cost to serve elders through this waiver program was \$687 higher than the average monthly cost to serve similar individuals in the Aged and Disabled Adult waiver program, and \$495 higher than the average monthly cost to serve similar individuals in the Assisted Living for the Elderly waiver program.

Exhibit 3
On Average It Cost the State Less to Serve Similar Elders through the Aged and Disabled Adult and Assisted Living for the Elderly Waiver Programs Than the Nursing Home Diversion Waiver Program

Waiver Program	Monthly Costs ¹	Cost Compared to Nursing Home Diversion Waiver Program
Nursing Home Diversion	\$1,947	--
Aged and Disabled Adult	1,260	\$687 less
Assisted Living for the Elderly	1,452	\$495 less

¹ Costs are adjusted for differences in the characteristics of the individuals enrolled in different programs.

Source: OPPAGA analysis of Medicaid claims data.

One factor that increased state costs to serve elders through the Nursing Home Diversion waiver program was that some elders disenrolled from the program and entered a nursing home. When this occurred, the state essentially paid twice for this care; once for the risk of nursing home entry, which was incorporated in providers' capitated rates (as the providers must cover this cost for participants they serve), and again when these participants received nursing home services outside the waiver program.⁷ During the study

⁷ Starting in September 2009, the Department of Elder Affairs changed the Nursing Home Diversion waiver program's rate-setting methodology. The department's actuary now sets rates using the prior year's encounter data to reflect actual historical spending. This has reduced rates and aligned provider payments with actual services provided, which included little nursing home use.

period, 11% of the costs to serve Nursing Home Diversion waiver program participants in our study were for Medicaid-paid nursing home care.

In a separate analysis of nursing home costs for 9,669 Nursing Home Diversion waiver program participants between January 2006 and June 2008, we found that the state paid \$25.5 million for nursing home use for participants who had disenrolled from the waiver program, while waiver program providers paid \$5.9 million from their capitated payments for nursing home care for program participants. Thus, while the Nursing Home Diversion waiver program capitated rates compensated providers for the risk of nursing home entry, the Medicaid program directly assumed the majority of these costs.

What options could the Legislature consider for maximizing use of home and community-based services waiver program funding?

As shown in Exhibit 4, Nursing Home Diversion waiver program funding has significantly increased since 2003. This increased funding has enabled the program to expand from 25 to 38 counties and to increase the number of individuals served from 1,216 in 2003 to 16,500 as of December 2009. In contrast, funding for the Aged and Disabled Adult and Assisted Living for the Elderly waiver programs has remained relatively steady as has

their enrollments. The Aged and Disabled Adult waiver program served 8,712 individuals as of December 2009 while the Assisted Living for the Elderly waiver program served 2,650 persons; both of these waiver programs are available statewide.

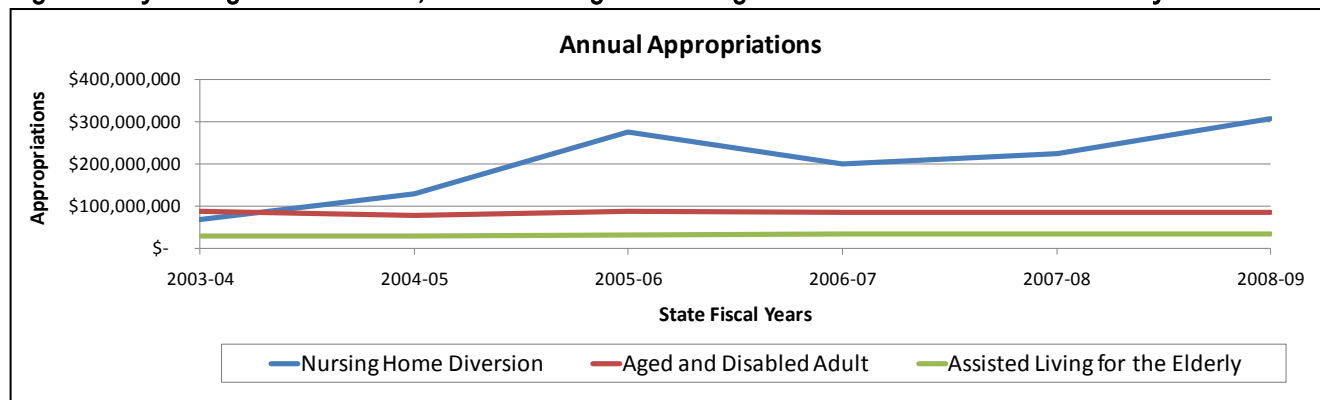
The number of elders on wait lists also varies for the three programs. In February 2010, there were 8,308 elders seeking services from the Aged and Disabled Adult waiver program, with 2,048 of these elders considered to have the greatest need for immediate services.⁸ At the same time, there were 275 elders on the wait list for the Assisted Living for the Elderly waiver program with 71 at the greatest need for services.⁹ In contrast, the Nursing Home Diversion waiver program had no elders waiting for services, as funding has been sufficient to quickly enroll elders requesting its services.

⁸ Elders who have the greatest need for immediate services are those with a priority score of '4' or higher based on the state's standardized assessment tool used by the Department of Elder Affairs' Comprehensive Assessment and Review for Long-Term Care Services (CARES) staff.

⁹ The Assisted Living for the Elderly waiver program provides extra support for elders residing in assisted living facilities. Department of Elder Affairs managers asserted that some assisted living facilities are not willing to participate in the program because the method used to adjust the Medicaid rate for the waiver program's reimbursement sets the payment too low. They also said that licensing requirements limit participation in the program because they are cumbersome.

Exhibit 4

Funding for the Aged and Disabled Adult and Assisted Living for the Elderly Waiver Programs Has Not Significantly Changed Since 2003, While Funding for Nursing Home Diversion Has Substantially Increased



Source: OPPAGA analysis.

While the Nursing Home Diversion waiver program was the most effective in delaying nursing home placement, it cost the state more, on average, than the other two waiver programs, which also perform well at delaying nursing home placements. Accordingly, the Legislature could consider three options to maximize use of available home and community-based waiver program funding. As funds are available, the Legislature could

1. expand the number of slots to serve frail elders in the Aged and Disabled Adult waiver program, and direct the department to continue its current policy of giving priority to placements of elders with the greatest need for immediate services;
2. direct the department to implement strategies to increase enrollment in the Assisted Living for the Elderly waiver program, which may include adjusting the provider reimbursement methodology, and direct the department to continue its

current policy of giving priority to placing elders with the greatest need for immediate services; and

3. designate that any future Nursing Home Diversion waiver program funding increases be used to expand the program to counties not currently served.¹⁰

These options would more efficiently use available funds and help ensure that, based on their type of residence and geographic location, frail elders who need community-based services have at least two waiver program choices that effectively delay entry into nursing home care.¹¹

¹⁰ To increase enrollment in the Assisted Living for the Elderly waiver program the department may need to first adjust the provider reimbursement methodology.

¹¹ Elders living in their home or with a caregiver could choose between the Aged and Disabled Adult and the Nursing Home Diversion waiver programs; elders who cannot live at home or with a caregiver could choose between the Assisted Living for the Elderly and the Nursing Home Diversion waiver programs.

Appendix A

Comparison of the State's Largest Waiver Programs for Frail Elders

The Aged and Disabled Adult, Assisted Living for the Elderly, and Nursing Home Diversion waiver programs are Florida's largest waiver programs that serve frail elders. These waiver programs offer similar home and community-based services; however, they differ with respect to service area, eligibility criteria, and payment reimbursement methods. In Fiscal Year 2008-09, these waiver programs provided services to 32,683 frail elders for a cost of \$338.6 million.

Table A-1

Three Waiver Programs Are Widely Available to Elders and Provide Similar Home and Community-Based Services

	Aged and Disabled Adult	Assisted Living for the Elderly	Nursing Home Diversion
Services and Availability	<p>Implemented in 1982, this waiver program is available statewide and provides services to individuals who live in a home, with or without a caregiver.¹ Services include</p> <ul style="list-style-type: none"> ▪ adult companion ▪ adult day health care ▪ attendant care ▪ caregiver training ▪ case aide ▪ case management ▪ chore services ▪ consumable medical supplies ▪ counseling ▪ escort services ▪ financial assessment and risk reduction ▪ home-delivered meals ▪ home accessibility adaptations ▪ homemaker ▪ nutritional assessment and risk reduction ▪ personal care ▪ personal emergency response system ▪ pest control ▪ physical risk reduction ▪ rehabilitation engineering ▪ respite care ▪ skilled nursing ▪ specialized medical equipment and supplies ▪ therapies: occupational, physical, respiratory, and speech <p>In Fiscal Year 2008-09, this program provided waiver services to 10,478 elders for a cost of \$70,416,323.²</p>	<p>Implemented in 1995, this waiver program is available statewide and provides services to individuals who reside in assisted living facilities. All services are provided within an assisted living facility and include</p> <ul style="list-style-type: none"> ▪ Case management ▪ Incontinence supplies ▪ Expanded assisted living services which may include <ul style="list-style-type: none"> – attendant call system – attendant care – behavior management – chore services – companion services – homemaker – intermittent nursing – medication administration (within the assisted living facility license) – personal care – specialized medical equipment and supplies – therapeutic social and recreational activities – therapies: occupational, physical, speech <p>In Fiscal Year 2008-09, this program provided waiver services to 3,494 elders for a cost of \$22,845,187.</p>	<p>Implemented in 1998, this waiver program is currently available in 38 counties.^{3,4} The program provides services to elders who live in their own homes, with a caregiver, in an assisted living facility, or in a nursing home. Services include both acute medical and long-term care community services.</p> <p><i>Long-Term Care Community Services include</i></p> <ul style="list-style-type: none"> ▪ adult companion ▪ adult day health care ▪ assisted living ▪ case management ▪ chore services ▪ consumable medical supplies ▪ environmental accessibility adaptations ▪ escort services ▪ family training ▪ financial assessment and risk reduction ▪ home-delivered meals ▪ home health care ▪ homemaker ▪ nutritional assessment and risk reduction ▪ personal care ▪ personal emergency response system ▪ respite care ▪ therapies: occupational, physical and speech ▪ nursing facility services/long-term care ▪ transportation (optional) <p><i>Acute Medical Services include⁵</i></p> <ul style="list-style-type: none"> ▪ community mental health services ▪ dental ▪ hearing and visual services (optional) ▪ independent laboratory and x-ray ▪ inpatient hospital ▪ outpatient hospital/emergency ▪ physicians ▪ prescribed drugs <p>In Fiscal Year 2008-09, this program provided waiver services to 18,711 elders for a cost of \$245,300,866.</p>

	Aged and Disabled Adult	Assisted Living for the Elderly	Nursing Home Diversion
Eligibility	<p>Individuals must</p> <ul style="list-style-type: none"> be age 65 or older or between 18 and 64, and determined disabled by the Social Security Administration¹ be Medicaid eligible meet Nursing Home Level of Care reside in a home, with or without a caregiver 	<p>Individuals must</p> <ul style="list-style-type: none"> be age 65 or older or age 60 to 64 and be determined disabled by the Social Security Administration be Medicaid eligible meet Nursing Home Level of Care reside in an Assisted Living Facility meet one or more of the following: <ul style="list-style-type: none"> require assistance with four or more activities of daily living (ADLs), three ADLs plus supervision or administration of medication, or total help with one or more ADLs have a diagnosis of Alzheimer's or other dementia and need assistance with two or more ADLs have a diagnosis degenerative or chronic medical condition requiring nursing services that cannot be provided in a standard assisted living facility, but are available in an assisted living facility that is licensed for limited nursing or extended congregate care be a Medicaid-eligible beneficiary who meets assisted living facility criteria be awaiting discharge from a nursing facility and unable to return to a private residence because of a need for supervision, personal care, and/or periodic nursing services 	<p>Individuals must</p> <ul style="list-style-type: none"> be age 65 or older be Medicaid eligible be Medicare Parts A and B eligible meet Nursing Home Level of Care reside in own home, in their caregiver's home, or in an Assisted Living Facility meet one or more of the following: <ul style="list-style-type: none"> require some help with five or more activities of daily living (ADLs); require some help with four or more ADLs plus require supervision or assistance with administration of medication; require total help with two or more ADLs; have a diagnosis of Alzheimer's disease or dementia and require some help with three or more ADLs; or have a diagnosis of a degenerative chronic condition requiring daily nursing services
Reimbursement	Fee-for-Service	Mixed: Medicaid reimburses for assisted living services at a daily rate and case management services at a monthly rate. Medicaid reimburses incontinence supplies separately, on a monthly basis, based on use.	Actuarially certified capitated risk-adjusted monthly rate that varies by plan and county. ⁶

¹ The Department of Children and Families is responsible for serving individuals between the ages of 18 and 59, and the Agency for Health Care Administration is responsible for serving beneficiaries age 21 or older who no longer qualify to receive home-based medical services through the Department of Health's Children's Medical Services program.

² Includes only those enrolled in the Department of Elder Affairs' portion of this waiver.

³ Alachua, Brevard, Broward, Charlotte, Citrus, Clay, Collier, Duval, Escambia, Flagler, Hendry, Hernando, Highlands, Hillsborough, Indian River, Lake, Lee, Manatee, Marion, Martin, Miami-Dade, Nassau, Okaloosa, Okeechobee, Orange, Osceola, Palm Beach, Pasco, Pinellas, Polk, Santa Rosa, Sarasota, Seminole, St. Johns, St. Lucie, Sumter, Volusia, and Walton.

⁴ The program is authorized to expand to the remaining 29 counties; however the program it is not yet available in these counties because providers have not contracted to provide services.

⁵ Since all Nursing Home Diversion waiver program participants are dually eligible for both Medicare and Medicaid, acute medical services only include Medicaid-funded services (excluding transportation) that are not covered by Medicare.

⁶ The Department of Elder Affairs risk adjusts base rates using several factors including level of assistance needed with activities of daily living, instrumental activities of daily living, the presence of specific chronic conditions, and level of cognitive impairment.

Appendix B

Data and Methodology Used for Comparing Outcomes and Costs

To evaluate the effectiveness of the Aged and Disabled Adult, the Assisted Living for the Elderly, and the Nursing Home Diversion waiver programs in delaying nursing home care and reducing state costs, we compared the likelihood that elders served by these waiver programs entered a nursing home and the state's costs to serve these individuals.

Data sources

To conduct these analyses, we examined Medicaid expenditures, Department of Elder Affairs' general revenue program expenditures, client demographics, and provider data on services delivered within the Nursing Home Diversion waiver program. We also examined long-term care assessments which contain medical, cognitive, and functional impairment levels of individuals seeking admission to Medicaid paid nursing home care and home and community-based services.

Dr. Glenn Mitchell, currently director of the Pepper Data Center at Florida State University's Claude Pepper Center, provided these data, valuable insight, and technical assistance. Ms. Su Wang, formerly at the Florida Policy Exchange Center on Aging at the University of South Florida, compiled these data except for Nursing Home Diversion service information. The Agency for Health Care Administration's contracted actuary, Milliman, Inc., provided Nursing Home Diversion service data.

Medicaid recipients selected for the study

Cohort selection rules for diversion and cost analyses. We focused our study on frail elders who were newly enrolled into the Aged and Disabled Adult, Assisted Living for the Elderly, and Nursing Home Diversion waiver programs for whom long-term care assessment information were available, which we used to ensure that all elders in our study met nursing home criteria. Thus, all elders in our study were 65 years of age or older, eligible for Medicaid and Medicare Parts A and B, met a nursing home level of care, and met at least one of the following: required some help with five or more activities of daily living; required some help with four or more activities of daily living plus required supervision or assistance with administration of medication; required total help with two or more activities of daily living; or had a diagnosis of Alzheimer's disease or dementia and required some help with three or more activities of daily living.¹²

Table B-1 shows that while the cohorts included in our analyses were relatively similar, there were some differences between the three groups. For example, elders in the Assisted Living for the Elderly waiver program were somewhat more likely to have dementia or need supervision and less likely to have an available caregiver compared to participants in the other programs. Because these factors can affect the likelihood of entering nursing homes and state costs, we used statistical techniques to account for these differences.

¹² Activities of daily living are related to a person's ability to perform personal care activities such as bathing, dressing, and eating. Instrumental activities of daily living are related to a person's ability to live independently and include activities such as performing light or heavy housework, preparing meals, managing money, and shopping for groceries or personal items.

Table B-1
Aged and Disabled Adult, Assisted Living for the Elderly, and Nursing Home Diversion Waiver Program
Participants We Examined Had Similar Characteristics

	Aged and Disabled Adult	Assisted Living for the Elderly	Nursing Home Diversion
Demographics			
Average age	81.3	83.2	83.0
Percentage female	76.4%	78.2%	75.2%
Percentage white	46.2%	73.1%	61.1%
Percentage widowed	55.4%	64.2%	55.8%
Frailty and Caregiver Availability			
Average number of activities of daily living requiring some or total help (maximum 6)	5.0	4.7	4.9
Average number of instrumental activities of daily living requiring some or total help (maximum 8)	7.4	7.7	7.5
Average number of serious health conditions (maximum 10) ¹	3.8	3.5	3.5
Percentage with dementia	51.5%	73.8%	61.2%
Percentage needing supervision	60.2%	81.9%	68.8%
Percentage with incontinence	67.7%	69.7%	61.5%
Percentage with available caregiver	74.3%	4.5%	24.8%
Total Number of Participants	3,801	2,167	12,048

¹ Serious health conditions include arthritis, bed sores, cancer, dementia, diabetes, emphysema, heart disease, incontinence, liver disease, and strokes.

Source: OPPAGA analysis of long-term care assessments for elders in our study who entered these waiver programs from January 2005 – June 2008.

Data limitations. While our research design sought to select similar groups and statistically adjust for remaining differences between groups, some differences between the three waiver program populations that were not reflected in the available data could affect participant outcomes. In addition, data limitations precluded comparing the outcomes of the three waiver programs to elders who were served only by the traditional Medicaid fee-for-service program. Most elders who were not in a waiver program did not have a full Comprehensive Assessment and Review for Long-Term Care Services (CARES) assessment that would allow determination of whether they met Nursing Home Diversion waiver program eligibility requirements. Of those elders with full assessments who were not in a waiver program, most were slightly younger than our study groups and, as indicated by their pattern of expenditures, typically only needed temporary assistance while recovering from an illness or injury; thus, these elders were not comparable to waiver program participants and could not be included in our analysis.

Study period. To analyze the time to enter a nursing home, we selected a cross-section of all recipients newly enrolling within a 42-month period from January 2005 through June 2008 and examined their nursing home use through June 2008. Depending on when a person enrolled during this time period, we were able to examine between 1 and 42 months of data for each person. For the cost analysis, we selected a cohort of all elders who newly enrolled between January 2005 and June 2006 and examined the total costs for each person in the cohort over the next 24 months.¹³

¹³ We limited our analysis to 24 months of costs because data was only available through June 2008 and this allowed us to track total costs for each person for the same length of time.

Analysis of nursing home entry

To evaluate the extent to which the Aged and Disabled Adult, Assisted Living for the Elderly, and Nursing Home Diversion waiver programs delay nursing home entry, we used Cox's proportional hazard modeling, commonly referred to as survival analysis. This technique accounts for the time a person is in care, as well as differences in recipient characteristics across groups to estimate the probability of entering a nursing home. Exhibit 2 of the report presents 'survival' curves for each of the waiver programs. These curves plot the probability of entering a nursing home against the number of months in care for participants in the three major Medicaid waiver programs for frail elders.

Our analysis assessed the probability of entering a nursing home for an extended stay over a 42-month period. We defined an extended stay as receiving nursing home care for at least 30 days within two months.¹⁴ Our analysis statistically accounted for differences between waiver program participants in functional impairments (number of primary and instrumental activities of daily living requiring some or total assistance), health status (number of chronic health conditions and whether the person has bed sores, dementia, or is incontinent), cognitive functioning (inability to perform a simple cognitive task), caregiver availability, and participants' marital status, age, gender, race, and whether they died during the study period or received nursing home care within the three years before the study period.

Analysis of program participants' costs

We used ordinary least squares regression to compare the total state costs of providing care to participants in the Aged and Disabled Adult, Assisted Living for the Elderly, and Nursing Home Diversion waiver programs. Total state costs included Medicaid expenditures and costs associated with programs for elders funded exclusively with general revenue.¹⁵ Medicaid costs included waiver program services; Medicaid medical services provided to dual eligibles, including physicians' visits, inpatient hospital stays, and outpatient hospital procedures; nursing home care; Medicaid-paid premiums for Medicare; and other services such as therapies, transportation, and hospice. Examining all costs allowed us to account for differences in the services provided by waiver programs and for nursing home costs avoided through participation in waiver programs.¹⁶ The regression analysis estimated the total costs per month for people who enrolled in each type of care. Our cost analysis statistically accounted for differences between waiver program participants.

¹⁴ Medicaid nursing home claims only include the month of entry, not the exact date an individual entered a nursing home, so the actual time until nursing home entry may vary by up to one month. In addition, the Nursing Home Diversion waiver program's service data did not include any service information for 4.5% of program enrollees. As a result, the effectiveness of the Nursing Home Diversion waiver program in delaying nursing home entry may be slightly overstated.

¹⁵ Other programs included in our analysis are managed by the Department of Elder Affairs and are funded with general revenue. These include the Community Care for the Elderly, Home Care for the Elderly, the Alzheimer's Disease Initiative, and other local community-based long-term care support programs. The average monthly costs of these programs for individuals included in our study cohorts varied, ranging from \$3 per month for persons enrolled in the Assisted Living for the Elderly and Nursing Home Diversion waivers to \$65 per month for persons enrolled in the Aged and Disabled Adult waiver program. In August 2008, the department instituted a policy that persons cannot be dually enrolled in the Aged and Disabled Adult waiver program and the Home Care for Elderly program.

¹⁶ To accurately compare costs across waiver programs, we included all Medicaid and state program costs in our analysis, instead of limiting our analysis to only waiver program costs.

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