PACE | **An Evaluation**

Report Number 8.26 | **P**rogram of **A**ll-Inclusive **C**are for the **E**lderly

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In conjunction with the DSHS Aging and Disability Services Administration

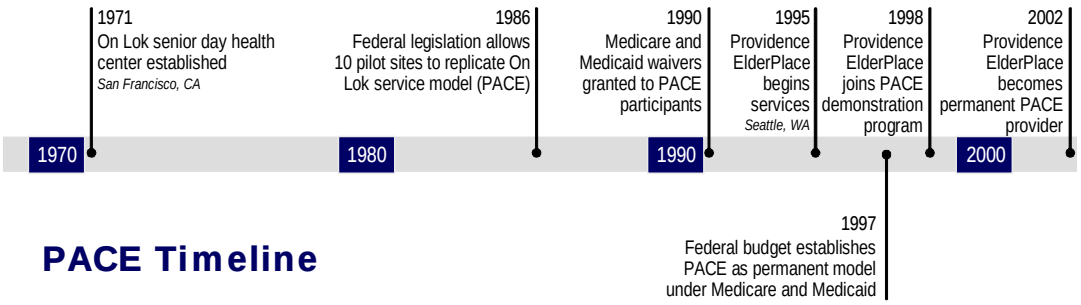
The Program of All-Inclusive Care for the Elderly (PACE) provides integrated acute medical care and long-term care services to frail seniors. PACE provides a community-based alternative to nursing home care when nursing home placement seems necessary. PACE uses blended Medicare and Medicaid financing to provide care for clients.

This report assesses mortality, functional status, and cost outcomes for clients enrolled in the Providence ElderPlace PACE site in Seattle, compared to outcomes for clients who receive other long-term care services funded by the DSHS Aging and Disability Services Administration (ADSA).

Key Findings

- **PACE clients have a significantly lower risk of dying**, compared to similar clients who receive care in other home- and community-based service (HCBS) modalities. In the first 12 months after enrollment only 13 percent of PACE clients died, compared to 19 percent of HCBS clients. By year three, 29 percent of PACE enrollees had died, compared to 45 percent of HCBS clients.
- **PACE clients experience greater stability in physical functioning**, compared to similar clients receiving HCBS services. The HCBS group experienced deterioration in functional status to levels comparable to clients entering skilled nursing facilities, while PACE clients were maintained at significantly higher levels of functioning.
- **PACE clients are much more expensive than HCBS clients.** PACE clients cost $2,791 per member per month (pmpm) in the first follow-up year, compared to $1,349 pmpm for the HCBS comparison group – a difference of $1,442 pmpm. The gap between expenditures on PACE and HCBS clients declines to $1,018 pmpm in the fourth follow-up year.
- **The gap in costs between PACE and HCBS clients narrows primarily due to rising nursing home costs for the HCBS group.** However, although HCBS clients experienced deterioration in functional status to levels comparable to clients entering skilled nursing facilities, most HCBS clients continued to be served in the community at lower cost than PACE enrollees.
- **Given the cost of the PACE program, it would be desirable for the program to enroll clients who face greater risk of institutionalization.** Clients who enrolled in PACE earlier in our study period had baseline levels of functioning comparable to clients entering skilled nursing facilities. More recent PACE enrollees have higher baseline levels of functioning more comparable to clients receiving less costly HCBS services.

PACE Timeline



Background

PACE is a capitated benefit authorized as a State option under Medicaid. The Balanced Budget Act of 1997 created PACE as a permanent provider under Medicare. The PACE program offers frail seniors a community-based alternative to nursing home care when nursing home placement seems necessary. Key features of the program include:

- Integrated and coordinated acute and long-term care services;
- Primary and specialty medical care, including inpatient acute care, hospital outpatient, ER services, pharmacy, durable medical equipment, dentistry, supplies, and ancillary services;
- Care management provided by an interdisciplinary team under the direction of a geriatrician, including nursing, social work and therapy services;
- Provision of most ambulatory care services through a PACE Center which includes an adult day health and primary care medical clinic;
- Home health, home care, and individual providers are provided or paid for by PACE;
- Residential services including adult family homes, assisted living, and nursing homes;
- Mental health and substance abuse services; and
- Capitated Medicaid and Medicare funding that puts the PACE site at full financial risk.

This study examines outcomes for clients participating in the Providence ElderPlace PACE site in Seattle, Washington. Participants at the PACE site must be at least 55 years old, live in King County, and be COPES[1] eligible or certified as eligible for nursing home care.

This report addresses three main questions:

- Does PACE help clients maintain physical functioning over time?
- Does PACE reduce clients' risk of death?
- Are Medicaid costs under the PACE program comparable to Medicaid costs for similar clients served through fee-for-service acute medical and long-term care service modalities?

We use client-level administrative data to assess the impact of the PACE program on client outcomes and costs. See the technical note on page 10 for more information about data sources.

LONG-TERM CARE SERVICES

ADSA offers a wide range of services for elderly or disabled adults who need help with personal care or health problems. In addition to PACE, major long-term care service modalities include:

Home- and community-based services:

- In-home services provide assistance with personal care needs such as bathing and dressing.
- Adult residential care (ARC) facilities provide lodging, meals, personal care, and general supervision of residents. Enhanced adult residential care (EARC) facilities are similar to ARC facilities but also provide limited skilled nursing care.
- Assisted Living services include everything provided through an EARC in apartment-like units with a private bath and kitchen area. The participant's community case manager and caregivers at the facility develop a negotiated service plan for the participant.
- Adult family homes provide lodging, meals, laundry, social activities, supervision, personal care, and help with medications. Some provide nursing care or may specialize in serving people with mental health problems, developmental disabilities, or dementia.

Skilled nursing facilities:

- These represent the highest level of care. Nursing facilities provide 24-hour supervised nursing care, personal care, therapy, nutrition management, organized activities, social services, room, board, and laundry.

[1] To be eligible for the Community Options Program Entry System (COPES), clients must meet the requirements outlined in WAC 388-71-0435. The goal of the COPES program is to allow clients who are at-risk of institutionalization to remain in the community.

Identifying Comparison Groups

We assess the impact of the PACE program by comparing outcomes for PACE clients to outcomes for clients receiving care in other long-term care service modalities. The main challenge in evaluating the PACE program in the absence of random assignment is the identification of appropriate comparison clients. Following the approach proposed by Mathematica Policy Research for their national evaluation of PACE, we considered: (1) a nursing home comparison group selected from clients entering skilled nursing facilities, and (2) a home- and community-based services (HCBS) comparison group selected from clients who received in-home services or who entered an adult family home, an adult residential care facility, or an assisted living facility.

To be consistent with PACE program eligibility requirements, comparison clients were restricted to being age 55+ and residing in King County throughout the study period. Comparison clients were selected from the broader population of clients receiving HCBS or nursing home services using the propensity-score method described in the technical note on page 10. This method ensures that PACE and comparison clients are similar at baseline in the following characteristics:

- Demographic characteristics including age, gender, and race
- Baseline functional status as measured by the ADL/IADL total score (see box below)
- Baseline assessed level of care and COPES eligibility status
- Baseline medical cost risk score[2]
- Months of medical assistance eligibility in the baseline year

We rely primarily on the HCBS comparison group because we believe it provides a more appropriate projection of the mortality and functional status outcomes PACE clients would have experienced if they had not enrolled in PACE.[3] We include the nursing home comparison group only in our cost analysis.

MEASURING FUNCTIONAL STATUS

The ADL/IADL Total Score

The ADL/IADL total score is a global measure of functioning based on measures of a client's ability to perform Activities of Daily Living (ADLs) and Instrumental Activities of Daily Living (IADLs). ADLs are activities related to personal care and include bathing, dressing, using the toilet, and eating. IADLs are activities related to independent living and include preparing meals, managing money, shopping for groceries, performing housework, and using a telephone.

The combined ADL/IADL total score is based on 26 measures related to eating, toileting, ambulation, transfer, positioning, specialized body care, personal hygiene, dressing, bathing, self-medication, travel to medical services, essential shopping, meal preparation, laundry, housework, and wood supply. Each measure is scored based on the client's perceived level of need: none, minimal, substantial or total. Each need value is numerically weighted and summed together to produce a single total score, which is used as our global measure of functioning. Generally speaking, a higher total score indicates a greater level of need and a lower level of functioning.

For example, a client assessed with the following needs would receive a total score of 83:

- Total support with dressing, bathing, self-medication, and shopping;
- Substantial support with eating, toileting, specialized body care, and personal hygiene;
- Minimal support in ambulation and transferring; and
- No need for support in other areas.

This is a typical baseline ADL/IADL total score for clients entering the PACE program.

[2] Risk scores were computed using the Medicaid Rx system. (Gilmer T, Kronick R, Fishman P, Ganiats TG. The Medicaid Rx model: pharmacy-based risk adjustment for public programs. *Medical Care*. 2001; 39: 1188-202)

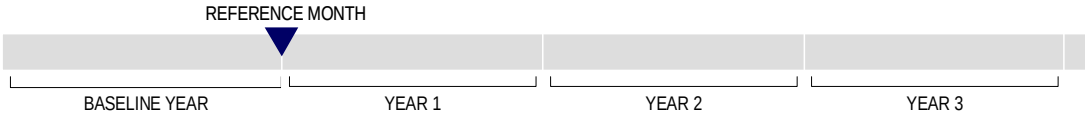
[3] For example, even after selecting clients with comparable baseline characteristics, the nursing home comparison group had extremely high mortality rates in the first 12 months after entering a skilled nursing facility compared to clients enrolling in PACE or beginning an HCBS service spell.

Study Timeline

The study spans the five-year period from July 1998 to June 2003. A "reference month" was determined for each client based on when they were first observed to receive long-term care services in the study period.

- **For PACE clients**, the reference month is the month they were first observed to enroll in PACE.
- **For HCBS comparison clients**, the reference month is the first month they were observed to receive in-home services or to begin residing in an adult family home, an adult residential care facility, or an assisted living facility.
- **For nursing home comparison clients**, the reference month is the first month they were observed to reside in a skilled nursing facility in the study period.

For each client, "baseline" and "follow-up" time periods are measured relative to their reference month. The baseline year is the 12 months leading up to and including the reference month. The baseline year is used to measure baseline ADL/IADL total scores, level of care, COPES eligibility status, medical cost risk scores, and medical assistance eligibility. Clients who did not have a complete Comprehensive Assessment in their baseline year were excluded from the analysis.



The first follow-up year includes the first 12 calendar months after the reference month, the second follow-up year includes the second 12 calendar months after the reference month, and so on. Clients have a varying number of follow-up years depending on the timing of their reference month in the study period. For example, a client who first enrolled in PACE in December 2000 would have two complete follow-up years: January to December 2001 and January to December 2002. We excluded from the analysis clients whose reference month occurred after June 2002 because they did not have a complete follow-up year over which to measure outcomes.

Baseline Client Characteristics

Out of a population of 8,815 *potential* HCBS comparison group clients meeting our study criteria, a final HCBS comparison group of 1,891 clients was identified using our propensity score method. Similarly, we identified a nursing home comparison group of 399 from the 3,514 nursing home clients who met our study criteria.

Table 1 verifies that the propensity-score method used to select comparison clients produces comparison groups with baseline characteristics that are similar to PACE clients:

- About 60 percent are aged 76 or above in their reference month.
- About two-thirds are female.
- About two-thirds are White and a quarter are African-American.[4]
- The average baseline ADL/IADL total score is about 83.
- About one in five was assessed at the highest level of care (level 3) at baseline.

The propensity-score method used to select comparison clients reduces – but does not eliminate – the risk that PACE and comparison groups may differ systematically in ways that affect their measured outcomes. Propensity score matching ensures that PACE and comparison clients have similar *measured* baseline characteristics, but there may still be *unmeasured* baseline differences between PACE and comparison clients that could account for subsequent differences in client outcomes and costs.

[4] The proportion of clients that are African-American is much higher in the PACE program than in the overall population of HCBS or nursing home clients in King County. Again, our propensity score method for selecting comparison clients ensures that the PACE and comparison groups used in our analyses include similar proportions of African-American clients.

Table 1

Baseline Characteristics of Pace Enrollees and Comparison Clients

	HCBS Comparison Group	Nursing Home Comparison Group	PACE Enrollees
Clients			
	1,891	399	227
Age in Reference Month			
55-60	7%	7%	7%
61-65	11%	12%	12%
66-70	8%	6%	7%
71-75	13%	14%	14%
76-80	20%	23%	21%
81-85	22%	22%	21%
86+	18%	17%	18%
Gender			
Female	66%	66%	65%
Male	34%	34%	35%
Race			
White	66%	67%	64%
African-American	26%	27%	28%
Asian	6%	5%	7%
American Indian/Alaska Native	1%	1%	1%
Other	0%	0%	0%
ADL/IADL Total Score Baseline Year			
Average	83.2	82.8	83.7
Level of Care			
0	10%	11%	11%
1	29%	30%	28%
2	40%	36%	39%
3	21%	23%	22%
COPES Eligible?			
No	2%	1%	2%
Yes	98%	99%	98%
Months of Eligibility Baseline Year			
Medicaid-only	1.5	1.1	1.4
Dual Eligible	7.3	7.4	7.5
Medical Cost Risk Score Baseline Year			
Average	0.69	0.64	0.67

Mortality

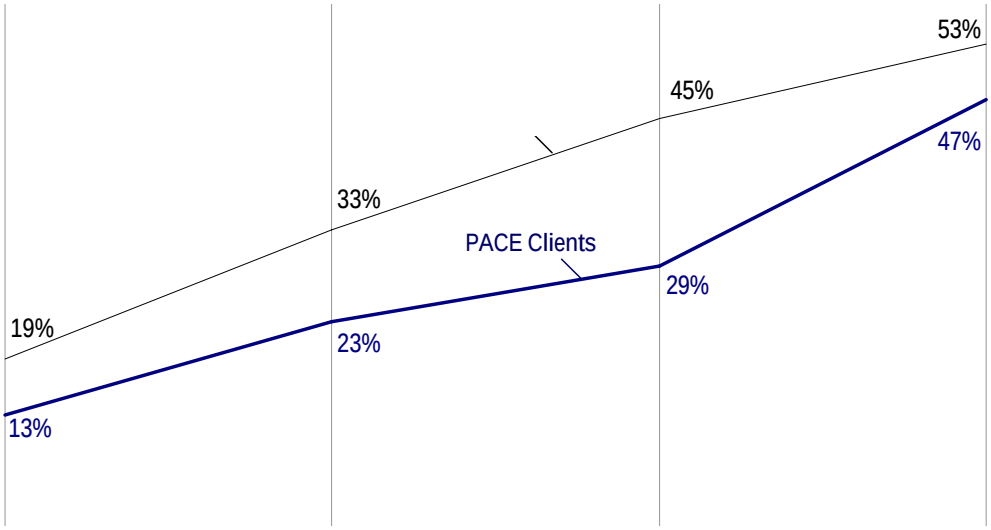
Data from the Department of Health's Vital Registration System were used to identify clients who died during the study period. Differences in mortality between PACE clients and HCBS clients were estimated using logistic regression models that controlled for baseline differences in age, gender, race, functional status, level of care, COPES eligibility, medical cost risk score, and medical assistance eligibility.

PACE clients have a significantly lower risk of death, compared to similar clients who receive home- and community-based services (Figure 1):

- 13 percent of PACE clients died in the first 12 months after enrolling in PACE, compared to 19 percent of HCBS clients who died in the first follow-up year.
- The gap in mortality rates increased in the second and third follow-up years. By year three, 45 percent of the HCBS comparison group had died, compared to 29 percent of PACE enrollees. The mortality gap diminished in the fourth follow-up year.

We do not report estimates using the nursing home comparison group because we do not believe the nursing home comparison group provides a plausible projection of the mortality outcomes PACE clients would have experienced if they had not enrolled in PACE. One third of the nursing home comparison group died in the first year after entering a nursing facility. This extremely high mortality rate suggests that there are systematic differences in mortality risk between PACE and nursing home clients, even after controlling for baseline client characteristics.

Figure 1: PACE clients have significantly lower risk of death
Percentage of clients dying, by follow-up year
Regression adjusted [5]



MORTALITY | Observations per follow-up year[6]				
	Year 1	Year 2	Year 3	Year 4
PACE Clients	227	192	152	101
HCBS Clients	1,891	1,654	1,421	1,196

[5] Separate logistic regression models were estimated for each follow-up year. The "year 1" PACE effect was statistically significant at the 10 percent level. The "year 2" and "year 3" PACE effects were statistically significant at the 1 percent level. The year 4 PACE effect was not statistically significant at standard levels (p-value = 0.28).

[6] The number of clients available for analysis declines with the length of follow-up period because clients who began receiving PACE or HCBS services later in our study period have less follow-up time.

Functional Status

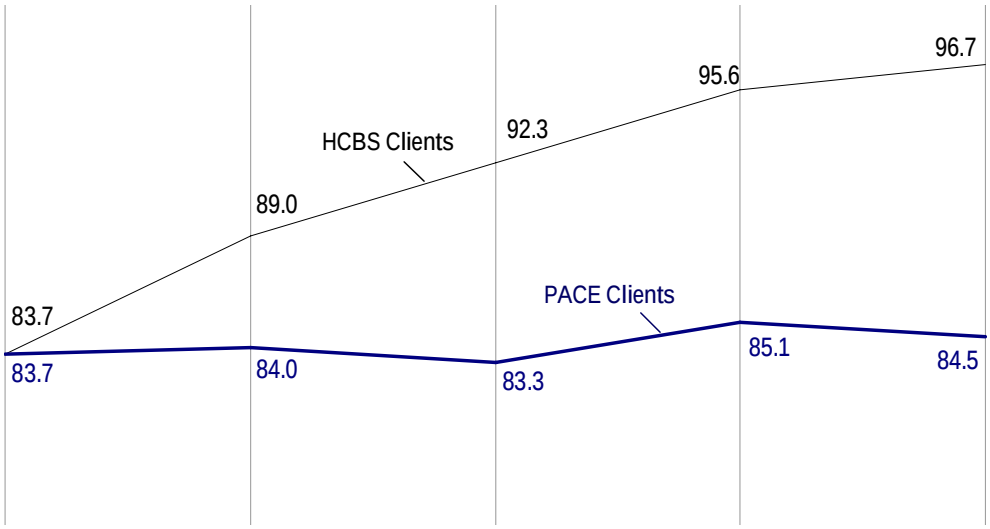
Comprehensive Assessment (CA) data were used to identify baseline and follow-up ADL/IADL total scores. Clients who were not eligible for medical assistance or did not have a complete CA in the follow-up year were excluded from the analysis.[7] Due to these exclusions, fewer observations were available for the analysis of changes in functional status than were available for the mortality analysis. The effects of PACE on changes in functional status were estimated using regression models that controlled for baseline differences in age, gender, race, medical cost risk score, and medical assistance eligibility.

PACE clients experience greater stability in physical functioning over time, compared to similar HCBS clients (Figure 2):

- For PACE clients, ADL/IADL total scores remain almost unchanged over the four follow-up years.
- For HCBS clients, ADL/IADL total scores increase significantly from a regression-adjusted average of 83.7 at baseline to 96.7 by the fourth follow-up year.

To put these scores in perspective, the average ADL/IADL total score was 91 for age 55+ clients in King County who entered a nursing home during the study period. Thus, by the second follow-up year the HCBS group had levels of need (as measured by the ADL/IADL total score) that were comparable to the typical client entering a nursing home, while PACE clients were maintained at a significantly lower level of need.

Figure 2: PACE clients experience greater functional stability
Average ADL/IADL total score, by follow-up year
Regression adjusted[8]



FUNCTIONAL STATUS | Observations per follow-up year	Year 1	Year 2	Year 3	Year 4
PACE Clients	122	112	73	34
HCBS Clients	1,540	986	657	458

[7] We used the last complete assessment in the baseline or follow-up year if the client had more than one complete CA in the period.
[8] Separate regression models were estimated for each follow-up year. The dependent variable in each model was the change in ADL/IADL total score from the baseline year to the follow-up year. The "year 1" and "year 4" PACE effects were statistically significant at the 5 percent level. The "year 2" and "year 3" PACE effects were statistically significant at the 1 percent level.

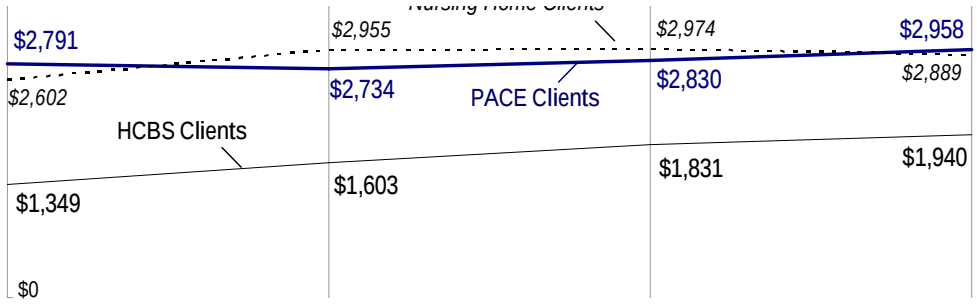
Medicaid Costs

Medicaid acute medical and long-term care expenditures were obtained from the Client Services Database. The OFM Eligibility File was used to measure monthly medical assistance eligibility in order to construct per member per month (pmpm) expenditure measures. Costs were averaged over all months of medical assistance eligibility in the follow-up year, not just those months in which clients received acute medical or long-term care services. Clients who were not eligible for medical assistance in the follow-up year were excluded from the analysis.

PACE clients are much more expensive than clients receiving HCBS services (Figure 3):

- PACE clients cost $2,791 pmpm in the first follow-up year, compared to $1,349 pmpm for the HCBS comparison group – a difference of $1,442 pmpm. The gap in expenditures declines to $1,018 pmpm in the fourth follow-up year ($2,958 pmpm for PACE clients vs. $1,940 pmpm for HCBS clients).[9]
- Over time, the gap between PACE and HCBS clients narrows primarily due to rising nursing home costs for the HCBS comparison group. Nursing home costs for the HCBS group increase from $115 pmpm in the first follow-up year to $524 pmpm in the fourth follow-up year (although most HCBS comparison clients did not enter a nursing home during the study period). Acute medical and HCBS service costs increased much more slowly over time for the HCBS comparison group.
- Although HCBS clients experienced declines in functional status that made them look comparable to clients entering nursing homes (Figure 2), most HCBS clients continued to be served in the community at much lower cost than PACE enrollees.
- PACE clients are about as expensive as clients receiving nursing home services.[10] PACE clients were slightly more expensive than nursing home comparison clients in the first and fourth follow-up years, and slightly less expensive in second and third follow-up years.

Figure 3: PACE clients are much more expensive than HCBS clients
Medicaid acute medical and long-term care expenditures, by follow-up year
Per member per month, regression adjusted[11]



Medicaid Costs | Observations per follow-up year

	Year 1	Year 2	Year 3	Year 4
PACE Clients	227	156	105	58
HCBS Clients	1,878	1,288	890	599
Nursing Home	398	191	129	66

[9] The PACE program has a low disenrollment rate which indicates high levels of client satisfaction with the program. In these analyses, clients who leave the PACE program were retained in the PACE client group throughout their follow-up period. Excluding disenrollees from the PACE client group would *widen* the cost gap between PACE and HCBS comparison clients because clients tend to cost less after they leave the PACE program.

[10] Nursing home comparison clients generally do not remain continuously institutionalized after first entering a skilled nursing facility.

[11] Separate regression models were estimated for each follow-up year. The dependent variable was the total pmpm MAA acute medical and ADSA long-term care expenditure in the follow-up year. Differences between PACE and HCBS clients were statistically significant at the 1 percent level in all follow-up years. Differences between PACE and nursing home clients were statistically significant at the 5 percent level in the first follow-up year, but were not statistically significant in subsequent years.

Discussion

The mortality and functional status analyses indicate that PACE clients experience highly favorable health outcomes compared to clients served through alternative HCBS modalities. However, these favorable outcomes are achieved at considerable cost. Although HCBS clients experienced deterioration in functional status to levels of need comparable to clients entering skilled nursing facilities, most of these clients continued to be served in the community at much lower cost than PACE enrollees.

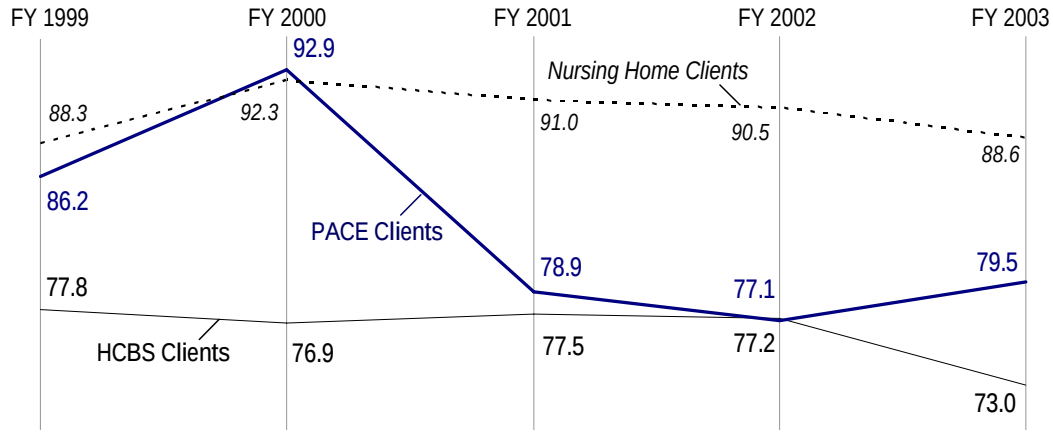
Clients enrolled in the PACE program are about as costly as nursing home comparison clients. Although nursing home clients are usually more expensive than PACE clients *while they are institutionalized*, clients generally do not remain continuously institutionalized. Averaging over all subsequent months of medical assistance eligibility, costs for PACE clients and nursing home clients are comparable.

However, it is unlikely that PACE clients face the same risk of institutionalization as clients who actually enter a skilled nursing facility. Although nursing home comparison clients were selected to have the same measurable baseline characteristics as PACE clients, there appear to be systematic differences between the health status of PACE and nursing home comparison clients that are not captured by the available baseline measures. The very high mortality rate for nursing home clients in the first follow-up year is one indication that nursing home clients have more severe health problems than PACE or HCBS clients, even after controlling for measurable baseline health characteristics.

Given the cost of the PACE program, it is desirable for the program to serve clients who are at very high risk of institutionalization. However, a striking pattern emerges when we examine the trend in the baseline functional status of clients enrolling in PACE. Figure 4 reports the trend in average baseline ADL/IADL total scores from FY 1999 to FY 2003 for age 55+ clients in King County who: (1) entered PACE, (2) entered a skilled nursing facility, or (3) began an HCBS service spell in the fiscal year.[12]

Clients enrolling in PACE in FY 1999 or FY 2000 had baseline functioning comparable to clients entering skilled nursing facilities, while clients enrolling in PACE in the FY 2001-03 period had baseline functioning more comparable to lower acuity HCBS clients. The PACE program had little control over the client referral process during the study period, so this enrollment pattern did not result from actions taken by the program. However, given the cost of the PACE program it would be desirable for the program to enroll clients with a higher baseline level of need who are likely to face greater risk of institutionalization.

Figure 4: More Recent PACE enrollees are higher functioning
Average baseline ADL/IADL total score, by Fiscal Year



[12] This analysis is not restricted to the selected HCBS and nursing home comparison clients.

Data Sources

Comprehensive Assessment (CA) data were used to measure baseline functional status and changes in functional status over time. Data from the Department of Health's Vital Registration System were used to measure impacts on client mortality. Pharmacy claims from the Medicaid Management Information System (MMIS) were used to measure baseline medical cost "risk scores." Medical and long-term care expenditure data were drawn from the Client Services Database (CSDB), maintained by the DSHS Research and Data Analysis Division, and the MMIS Extended Database (MMIS-EDB). The Office of Financial Management (OFM) Eligibility File was used to measure Medicaid eligibility. Costs for HCBS and Nursing Home comparison clients include an additional $71 per client per month for care coordination services provided by Area Agencies on Aging (AAAs), based on estimated costs in FY 2004 for these services.

Exclusion of Mental Health Costs

Costs for mental health services funded through the DSHS Mental Health Division (MHD) were not included in the cost analyses presented in this report. Prior to November 2002, these services were carved out of the PACE service package. Beginning in November 2002, these services were added to the PACE service package, and the PACE program began receiving a separate payment for PACE enrollees to cover the cost of these services. This payment is equivalent to the King County Regional Support Network (RSN) capitation payment.

Throughout the study we consistently excluded mental health service costs for both PACE and non-PACE comparison clients. In the absence of selection bias in the mental illness characteristics of PACE enrollees, there would be no significant difference in Medicaid mental health costs for PACE enrollees and comparison clients. This is because PACE and comparison clients would have similar mental health capitation rates, given that they have similar age and medical assistance eligibility characteristics (which are used to determine RSN capitation rates).

We conducted supplemental analyses to verify that the PACE program does not face "adverse selection" in the mental illness characteristics of its clients, compared to HCBS and nursing home comparison clients who receive services through the King County RSN. Psychotropic medication use is highly predictive of mental health service utilization, and we found similar levels of baseline psychotropic medication use for PACE and comparison clients.

Percentage of clients with antidepressant or anti-anxiety medication in baseline period:

- PACE group = 29%
- HCBS comparison group = 27%
- Nursing home comparison group = 27%

Percentage of clients with antipsychotic or anti-mania medication in baseline period:

- PACE group = 9%
- HCBS comparison group = 8%
- Nursing home comparison group = 11%

In other words, PACE enrollees and comparison clients have almost identical baseline levels of psychotropic medication use, which means that it is unlikely that the PACE program faces significant adverse selection in terms of the prevalence of mental illness among its enrollees.

Exclusion of Chemical Dependency Treatment Costs

Chemical dependency treatment costs were not included in the cost analyses presented in this report. Prior to November 2002, these services were carved out of the PACE service package. Beginning in November 2002, these services were added to the PACE service package, and the PACE program began receiving a separate payment for PACE enrollees to cover the cost of these services. This payment is 15 cents per enrolled client per day. Throughout the study we consistently excluded chemical dependency treatment costs for both PACE and non-PACE comparison clients.

Selecting Comparison Groups

This study used a variation of propensity score matching to select HCBS and nursing home comparison groups. First, we used logistic regression models to estimate the probability of entering the PACE program for each person in the treatment (PACE) and comparison group (HCBS or nursing home) as a function of baseline client characteristics including age, gender, race, ADL/IADL total score, level of care, COPES eligibility status, medical cost risk score, and months of medical assistance eligibility.

Next, we grouped comparison groups into strata based on the estimated probability of enrolling in PACE. Then we proportionally allocated a random sample of comparison clients out of these strata so that the distribution of the estimated probability of PACE enrollment for sampled comparison group clients matched the distribution for PACE enrollees. This method for selecting comparison group clients ensures that PACE and comparison clients will be similar at baseline in the characteristics used to predict PACE enrollment. However, there may still be unmeasured baseline differences between PACE and comparison clients that could account (at least in part) for subsequent differences in client outcomes and costs.

Controlling for Baseline Chronic Conditions

This study used a pharmacy-based medical cost risk adjustment model (the Medicaid Rx model) to help control for baseline differences in chronic physical conditions between PACE clients and comparison group clients. Pharmacy-based risk adjustment is more appropriate than diagnosis-based risk adjustment in this context because most study clients are dually eligible for Medicare and do not have complete diagnosis information available in their baseline year fee-for-service Medicaid claims.

Funding

This report was made possible through funding from the DSHS Aging and Adult Services Administration.

Acknowledgements

The authors would like to thank Kristi Knudsen and Bill Moss for their contributions to this study.

About the DSHS Research and Data Analysis Division

Within DSHS headquarters, the Research and Data Analysis Division (RDA) is a central information resource providing rigorous and accurate analyses of government-funded social and health services in Washington State. RDA maintains databases that cross-match client, fiscal, service and outcome information, allowing the department to analyze its services to 1.4 million residents each year, and monitor the department's $8 billion annual budget.

This central analysis capability allows DSHS to assess service use and need; describe service use, sequence and cost; and evaluate the outcomes of alternative service designs. Agency managers, the Governor's Office, the Washington State Legislature, local governments, and human service providers all use RDA information to manage and plan human services.

RDA has developed considerable expertise in matching administrative records on clients, and using that data to study clients who use services from multiple DSHS programs. Because we develop client data that spans the agency, our researchers are able to look across DSHS programs and determine specific risks, use patterns, and costs. Because we have learned to match client data with administrative records from outside the agency, we can analyze such program outcomes as arrests, deaths, births, accidents, employment, and schooling. These analyses can be statewide, regional or local, and they can span one month, one year, or several years.

Additional copies of this report may be obtained from:
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