Program of All-Inclusive Care for the Elderly (PACE)

PROGRAM DESCRIPTION

The Program of All-Inclusive Care for the Elderly (PACE) features a comprehensive and seamless service delivery system and integrated Medicare and Medicaid financing. Eligible individuals are age 55 years or older and meet the clinical criteria to be admitted to a nursing home but choose to remain in the community. An array of coordinated services is provided to support PACE participants to prevent the need for nursing home admission. An interdisciplinary team, consisting of professional and paraprofessional staff, assesses participants' needs; develops care plans; and delivers or arranges for all services (including acute care and, when necessary, nursing facility services), either directly or through contracts. PACE programs provide social and medical services, primarily in an adult day health center setting referred to as the "PACE center," and supplement this care with in-home and referral services in accordance with the participants' needs. Each participant can receive all Medicare- and Medicaid-covered services, as well as other care determined necessary by the interdisciplinary team.

Important note about implementation requirements:
For a health care organization to be approved as a PACE program, the State must elect PACE as a voluntary State option under its Medicaid plan. In addition, the prospective PACE organization and the State must work together in the development of the PACE provider application. On behalf of the prospective provider, the State submits the application to the Centers for Medicare and Medicaid Services with assurance of the State's support of the application and its contents. Each approved PACE program receives a fixed amount of money per PACE participant regardless of the services the participant utilizes.

DESCRIPTIVE INFORMATION

Areas of Interest	▸ Health and wellness ▸ Long-term services and supports ▸ Mental health promotion
Outcomes	**Review Date: October 2012** ▸ Care management ▸ Health status, functioning, and mental health ▸ Utilization of health services ▸ Long-term survivability **Review Date: June 2007** ▸ Utilization of medical services ▸ Utilization of support services ▸ Perceived health status, functional status, and overall quality of life ▸ Mortality rate ▸ Comorbidity diagnoses
Ages	▸ 50–60 (Older adult) ▸ 61–74 (Older adult) ▸ 75–84 (Older adult)

	85+ (Older adult)
Genders	Female Male
Races/Ethnicities	Asian Black or African American Hispanic or Latino White Race/ethnicity unspecified
Settings	Home Outpatient Residential care facility Other community settings
Geographic Locations	Urban Suburban Rural and/or frontier
Adverse Effects	No adverse effects, concerns, or unintended consequences were identified by the developer.
Implementation History	The PACE model of care can be traced to the early 1970s, when the Chinatown community of San Francisco saw the pressing need for long-term-care services for immigrant elders and their families. The On Lok Senior Health Services nonprofit corporation was formed to create a community-based system of care based on the British day-hospital model, combining housing, medical, and social services. In 1997, Federal legislation authorized PACE as a permanent Medicare benefit and a Medicaid State plan optional service. As of August 2014, there were 104 PACE organizations providing care to more than 30,000 individuals in 31 States.
Adaptations	No population- or culture-specific adaptations were identified by the developer.

QUALITY OF RESEARCH

Review Date: October 2012

Documents Reviewed

The documents below were reviewed for Quality of Research. The research point of contact can provide information regarding the studies reviewed and the availability of additional materials, including those from more recent studies that may have been conducted.

Study 1

Beauchamp, J., Cheh, V., Schmitz, R., Kemper, P., & Hall, J. (2008). *The effect of the Program of All-Inclusive Care for the Elderly (PACE) on quality. Final report presented to Centers for Medicare & Medicaid Services.* Princeton, NJ: Mathematica Policy Research. Retrieved from https://www.cms.gov/Research-Statistics-Data-and-Systems/Statistics-Trends-and-Reports/Reports/downloads/Beauchamp_2008.pdf

Study 2

Wieland, D., Boland, R., Baskins, J., & Kinosian, B. (2010). Five-year survival in a Program of All-Inclusive Care for Elderly compared with alternative institutional and home- and community-based care. *Journals of Gerontology, Series A: Biological Sciences and Medical Sciences, 65*(7), 721–726. PubMed abstract available at http://www.ncbi.nlm.nih.gov/pubmed/20354065

Study 3

Meret-Hanke, L. A. (2011). Effects of the Program of All-Inclusive Care for the Elderly on hospital use. *Gerontologist, 51*(6), 774–785. PubMed abstract available at http://www.ncbi.nlm.nih.gov/pubmed/21737398

Supplementary Materials

Carey, E. C., Covinsky, K. E., Lui, L.-Y., Eng, C., Sands, L. P., & Walter, L. C. (2008). Prediction of mortality in community-living frail elderly people with long-term care needs. *Journal of the American Geriatrics Society, 56*(1), 68–75. PubMed abstract available at http://www.ncbi.nlm.nih.gov/pubmed/18031487

Considerations for Monitoring Quality Assurance Across PACE Centers

National Pace Association. (n.d.). *How NPA supports PACE programs.* Alexandria, VA: Author.

Outcomes

Outcome 1: Care Management	
Description of Measures	Care management was assessed through a structured phone interview of participants, which was conducted by trained interviewers using a computer-assisted telephone interviewing system. The phone interviews gauged care management in the following areas: ▸ Advanced directive/living will. Each participant was asked whether he or she had an advanced directive, a living will, both, or neither. The participant's response was coded as 1 if he or she had an advanced directive, a living will, or both in place or 0 if neither an advanced directive nor a living will was in place. ▸ Pain management. Each participant was asked about the frequency and intensity of pain experienced during the past week. The participant's response was coded as 1 if he or she reported pain that interfered with a normal routine (i.e., mild, moderate, or severe pain either some, most, or all of the time) or 0 if pain did not interfere with a normal routine. ▸ Falls. Each participant was asked whether he or she had a fall in the past 6 months. The participant's response was coded as 1 if he or she had a fall or 0 if he or she did not fall. ▸ Unintended weight loss. Each participant was asked whether he or she had unintentionally lost 10 or more pounds in the past 6 months. The participant's response was coded as 1 if he or she had lost 10 or more pounds unintentionally or 0 if he or she had not. ▸ Unmet activities of daily living (ADLs) needs. Each participant was asked whether all needs for help had been met in regard to each of five ADLs: (1) getting around, (2) dressing, (3) bathing, (4) toileting, and (5) getting out of bed. Those who

	reported that they did not receive help with a particular ADL were asked whether they needed any help they did not receive. Those who reported that they received help with an ADL were asked whether they needed more help than they received. For each ADL, these two variables were collapsed into a single measure, with a coding of 0 indicating no unmet ADL needs and 1 indicating an unmet need.
Key Findings	A study was conducted with older adults who were enrolled in PACE or in Medicaid home and community-based services (HCBS). All participants were assessed approximately 18 months to 5 years after enrollment in PACE or HCBS (first interview) and again approximately 1 year after the first interview (second interview). Findings indicated the following: ▸ At the first interview, more PACE participants than HCBS participants had an advanced directive ($p < .01$), a living will ($p < .05$), both ($p < .05$), or either ($p < .01$) in place. At the second interview, more PACE participants than HCBS participants had an advanced directive ($p < .05$) or an advanced directive or a living will ($p < .05$) in place. ▸ At the first and second interviews, fewer PACE participants than HCBS participants had pain that interfered with a normal routine ($p < .01$ and $p < .05$, respectively). ▸ At the first interview, fewer PACE participants than HCBS participants had unmet needs in two ADLs: getting around ($p < .05$) and dressing ($p < .01$). At the second interview, fewer PACE participants than HCBS participants had unmet needs in three ADLs: getting around ($p < .05$), bathing ($p < .01$), and dressing ($p < .05$). ▸ There were no significant between-group differences regarding falls and unintended weight loss.
Studies Measuring Outcome	Study 1
Study Designs	Quasi-experimental
Quality of Research Rating (0.0–4.0 scale)	3.0

Outcome 2: Health Status, Functioning, and Mental Health

Description of Measures	Health status, functioning, and mental health were assessed through a structured phone interview of participants (and, for one item, their caregivers), which was conducted by trained interviewers using a computer-assisted telephone interviewing system. The phone interviews gauged health status, functioning, and mental health in the following areas: ▸ Self-rated health status. Each participant was asked to compare his or her health with that of other people the same age, using a scale ranging from 1 (poor health) to 5 (excellent health). Each participant then was asked to compare his or her current health with that from 1 year ago, using a scale ranging from 1 (much worse health) to 5 (much better health). ▸ Activities of daily living (ADLs). Each participant was asked whether he or she had difficulty with completing each of five ADLs during the past week: (1) getting

	around, (2) dressing, (3) bathing, (4) toileting, and (5) getting out of bed. Difficulty was defined as getting help from another person or needing but not getting help from another person. The participant's response was coded as 0 if he or she had no difficulty or had independence (i.e., either performing the ADL on his or her own or with the use of an assistive device) or 1 if the ADL was done with difficulty (including not doing the ADL at all, receiving help from another person, or needing but not receiving help). ▸ Depression. Each participant was asked whether he or she had any of four symptoms of depression in the past month: (1) felt down, depressed, or hopeless; (2) experienced little interest or pleasure in doing things; (3) worried a lot; or (4) felt keyed up or on edge. The participant's response for each symptom was coded as 1 if he or she had the symptom or 0 if not. ▸ Behavioral problems. Because of the high prevalence of cognitive impairment among residents of a nursing home and the association of cognitive impairment with behavioral problems, the interviewers asked proxy respondents (i.e., the participants' caregivers) to gauge four problem behaviors in regard to the associated participant: (1) wandering, (2) delirium, (3) physical aggression, and (4) verbal aggression. Each proxy was asked whether the behavior occurs with the participant more than once a week, less than once a week, or never. The proxy's response for each behavior was coded as 0 if the behavior never occurs or 1 if the behavior occurs (i.e., less than or more than once a week).
Key Findings	A study was conducted with older adults who were enrolled in PACE or in Medicaid home and community-based services (HCBS). All participants were assessed approximately 18 months to 5 years after enrollment in PACE or HCBS (first interview) and again approximately 1 year after the first interview (second interview). Findings indicated the following: ▸ At the first interview, PACE participants had a better self-rated health status than HCBS participants ($p < .01$). Also at the first interview, PACE participants had a better self-rated health status compared with that from 1 year ago relative to HCBS participants ($p < .01$). ▸ At the first interview, fewer PACE participants than HCBS participants had depressive symptoms in the past month in two areas of assessment: felt down, depressed, or hopeless ($p < .01$) and worried a lot ($p < .01$). At the second interview, fewer PACE participants than HCBS participants had depressive symptoms in the past month in one area of assessment: worried a lot ($p < .01$). ▸ However, more PACE participants than HCBS participants experienced behavioral problems in one area of assessment at each interview: at the first interview, delirium ($p < .05$), and at the second interview, physical aggression ($p < .01$). ▸ There were no significant between-group differences regarding ADLs.
Studies Measuring Outcome	Study 1
Study Designs	Quasi-experimental
Quality of Research Rating (0.0–4.0 scale)	3.0

Outcome 3: Utilization of Health Services

Description of Measures	In one study, utilization of health services was assessed through a structured phone interview of participants, which was conducted by trained interviewers using a computer-assisted telephone interviewing system. The phone interviews gauged utilization of health services in the following areas: ▸ Hospitalizations. Each participant was asked whether he or she had spent at least one night in a hospital in the previous year. The participant's response was coded as 0 if he or she did not spend time in a hospital or 1 if he or she did. ▸ Nursing home stays. Each participant was asked whether he or she had spent at least one night in a nursing home in the previous year. The participant's response was coded as 1 if he or she did not spend time in a nursing home or 0 if he or she did. ▸ Hearing screening. Each participant was asked whether he or she has had a regular hearing check (at least once a year). The participant's response was coded as 1 if he or she has had the screening (or is nonhearing) or 0 if he or she has not. ▸ Vision screening. Each participant was asked whether he or she has had a regular vision check (at least once a year). The participant's response was coded as 1 if he or she has had the screening (or is nonsighted) or 0 if he or she has not. ▸ Influenza vaccine. Each participant was asked whether he or she had received a flu shot since the previous September. The participant's response was coded as 1 if he or she received the shot or 0 if he or she did not. Each participant also was asked whether he or she was offered a flu shot. The participant's response was coded as 1 if he or she had access to a flu shot or 0 if he or she did not. ▸ Pneumococcal vaccine. Each participant was asked whether he or she has ever had a pneumococcal vaccine. The participant's response was coded as 1 if he or she has had the shot or 0 if he or she has not. In another study, utilization of health services (i.e., hospital use, defined as the average number of days per month that participants spent in a hospital) was assessed with data from two sources: ▸ DataPACE, a public use data set providing information for individuals enrolled in PACE between June 1, 1990, and June 30, 1998. This information includes participants' demographics, socioeconomics, health status and disability, medical history, utilizations of health services, and date of death. These data were collected by PACE program staff and include hospital-use data for as long as the enrollee remained in the program. ▸ Medicare Current Beneficiary Survey (MCBS), a nationally representative longitudinal survey of the Medicare population. The MCBS contains up to 3 years of hospital-use data.
Key Findings	One study was conducted with older adults who were enrolled in PACE or in Medicaid home and community-based services (HCBS). All participants were assessed approximately 18 months to 5 years after enrollment in PACE or HCBS (first interview) and again approximately 1 year after the first interview (second interview). Findings indicated the following:

	▸ At the first and second interviews, more PACE participants than HCBS participants indicated that they spent no time in a hospital in the previous year ($p < .01$ and $p < .05$, respectively). ▸ At the first and second interviews, more PACE participants than HCBS participants indicated that they spent no time in a nursing home in the previous year ($p < .01$ and $p < .01$, respectively). ▸ At the first and second interviews, more PACE participants than HCBS participants indicated that they had hearing screening in the previous year ($p < .01$ and $p < .01$, respectively). ▸ At the first and second interviews, more PACE participants than HCBS participants indicated that they had vision screening in the previous year ($p < .01$ and $p < .01$, respectively). ▸ At the first and second interviews, more PACE participants than HCBS participants indicated that they had a recent flu shot ($p < .01$ and $p < .01$, respectively). In addition, at the first and second interviews, more PACE participants than HCBS participants indicated that they were recently offered a flu shot ($p < .01$ and $p < .05$, respectively). ▸ At the first interview, more PACE participants than HCBS participants indicated that they had a pneumococcal vaccine ($p < .01$). Another study assessed hospital use by PACE enrollees and a control group of frail, community-dwelling older adults. Findings indicated that over a 2-year follow-up period, hospital use by PACE enrollees was less than that by older adults in the control group (0.2 vs. 0.8 days per month alive; $p < .01$).
Studies Measuring Outcome	Studies 1 and 3
Study Designs	Quasi-experimental
Quality of Research Rating (0.0–4.0 scale)	3.3

Outcome 4: Long-Term Survivability

Description of Measures	Long-term survivability was assessed with data from two sources: ▸ DataPACE, a public use data set providing information for individuals enrolled in PACE between June 1, 1990, and June 30, 1998. This information includes participants' demographics, socioeconomics, health status and disability, medical history, utilizations of health services, and date of death. These data were collected by PACE program staff. ▸ Records from the South Carolina Long-Term Care Assessment Form 1718. State regional teams used this form to assess long-term-care applicants. The records include data describing the medical, psychosocial, functional, environmental, and social supports of entrants, including date of death. In addition, the PACE Prognostic Index (PPI) was used at admission to assess the mortality risk of all participants. PPI risk factors were weighted as follows: male sex (2 points); age 75–84 (2 points) or 85 or older (3 points); dependence in toileting

	(1 point); dependence in dressing, partial (1 point) or full (3 points); malignant neoplasm (2 points); congestive heart failure (3 points); chronic obstructive pulmonary disease (1 point); and renal failure or insufficiency (3 points). All points were summed for each participant, and mortality risk was designated as low (0–3 points), moderate (4 or 5 points), or high (5 or more points). Participant cohorts were then stratified by these risk levels.
Key Findings	A study was conducted with older adults who received services through PACE; received services through Community Choices, a Medicaid community-based waiver program; or were residents of a nursing home. Participants were followed for 5 years or until death. After stratification by risk level, PACE participants had a 5-year survival advantage over Community Choices participants (*p* = .015). Among participants with a high mortality risk, PACE participants had a longer median survival than Community Choices participants (3.0 years vs. 2.0 years; *p* = .01). Among participants with a moderate mortality risk, PACE participants also had a longer median survival than Community Choices participants (4.7 years vs. 3.4 years); however, this finding was not significant. Before stratification by risk level, PACE participants had a longer median survival than that of Community Choices participants or participants in a nursing home (4.2 years vs. 3.5 years vs. 2.3 years); however, this finding also was not significant.
Studies Measuring Outcome	Study 2
Study Designs	Quasi-experimental
Quality of Research Rating (0.0–4.0 scale)	3.0

Study Populations

The following populations were identified in the studies reviewed for Quality of Research.

Study	Age	Gender	Race/Ethnicity
Study 1	▸ 50–60 (Older adult) ▸ 61–74 (Older adult) ▸ 75–84 (Older adult) ▸ 85+ (Older adult)	▸ 75% Female ▸ 25% Male	▸ 52% Race/ethnicity unspecified ▸ 26% Hispanic or Latino ▸ 22% Black or African American
Study 2	▸ 50–60 (Older adult) ▸ 61–74 (Older adult) ▸ 75–84 (Older adult) ▸ 85+ (Older adult)	▸ 68% Female ▸ 32% Male	▸ 55% Black or African American ▸ 45% Race/ethnicity unspecified
Study 3	▸ 50–60 (Older adult) ▸ 61–74 (Older adult) ▸ 75–84 (Older adult) ▸ 85+ (Older adult)	▸ 72% Female ▸ 28% Male	▸ 67% White ▸ 33% Race/ethnicity unspecified

Quality of Research Ratings by Criteria (0.0–4.0 scale)

Criterion	Ratings			
	Outcome 1	Outcome 2	Outcome 3	Outcome 4
Reliability of Measures	2.3	2.3	2.9	3.7
Validity of Measures	3.0	3.0	3.5	3.4
Intervention Fidelity	3.0	3.0	2.5	2.5
Missing Data and Attrition	3.0	3.5	3.8	2.5
Potential Confounding Variables	2.5	2.5	3.0	2.0
Appropriateness of Analysis	4.0	4.0	4.0	4.0
Overall Rating	**3.0**	**3.0**	**3.3**	**3.0**

Study Strengths

The instruments used to assess long-term survivability have standardized protocols and acceptable reliability and validity. There is evidence of acceptable fidelity in the systematic collection of data, and guidelines were used for monitoring quality assurance procedures and facilitating the fidelity of the program. Two studies used good methods to account for attrition; for example, a weighted adjustment factor was used to account for attrition between initial and follow-up interviews. Sophisticated analyses and the large sample size allow relationships between the intervention and the outcomes to be inferred in all three studies.

Study Weaknesses

In one study, the questions used in the structured phone interview to assess some of the outcomes were not tested for reliability and validity. In all three studies, some confounding variables were not adequately addressed; for example, there was some incompatibility with the data collected from separate sites, and a proxy was used to collect data for one outcome. In addition, psychosocial factors were minimally addressed (e.g., effects of varying community settings, decreasing incidence of depression), which might affect the program's impact on the outcomes.

Review Date: June 2007

Documents Reviewed

The documents below were reviewed for Quality of Research. The research point of contact can provide information regarding the studies reviewed and the availability of additional materials, including those from more recent studies that may have been conducted.

Study 1

Chatterji, P., Bustein, N. R., Kidder, D., & White, A. (1998, July). *Evaluation of the Program of All-Inclusive Care for the Elderly (PACE) demonstration: The impact of PACE on participant outcomes. Final report to the Health Care Financing Administration.* Cambridge, MA: Abt Associates.

Study 2

Wieland, D., Lamb, V. L., Sutton, S. R., Boland, R., Clark, M., Friedman, S., … Eleazer, G. P. (2000). Hospitalization in the Program of All-Inclusive Care for the Elderly (PACE): Rates, concomitants, and predictors. *Journal of the American Geriatrics Society, 48*(11), 1373–1380. PubMed abstract available at http://www.ncbi.nlm.nih.gov/pubmed/11083311

Williamson, J. D. (2000). Improving care management and health outcomes for frail older people: Implications of the PACE model. *Journal of the American Geriatrics Society, 48*(11), 1529–1530. PubMed abstract available at http://www.ncbi.nlm.nih.gov/pubmed/11083339

Study 3

Massachusetts Division of Health Care Finance and Policy. (2005). *PACE evaluation summary.* Unpublished manuscript.

Study 4

Sands, L. P., Wang, Y., McCabe, G. P., Jennings, K., Eng, C., & Covinsky, K. E. (2006). Rates of acute care admissions for frail older people living with met versus unmet activity of daily living needs. *Journal of the American Geriatrics Society, 54*(2), 339–344. PubMed abstract available at http://www.ncbi.nlm.nih.gov/pubmed/16460389

Supplementary Materials

Greenwood, R. (2001). The PACE model. *Center for Medicare Education Issue Brief, 2*(10), 1–7.

National PACE Association. (2001). *State assessment of PACE: Tennessee.* Alexandria, VA: Author.

National PACE Association. (2001). *State assessment of PACE: Texas.* Alexandria, VA: Author.

National PACE Association. (2003). *Core resource set for PACE. Considerations for monitoring quality assurance across PACE centers.* Alexandria, VA: Author.

National PACE Association: How NPA Supports Its Members

Outcomes

Outcome 1: Utilization of Medical Services

Description of Measures	Utilization of medical services was analyzed using the following measures: - Hospital utilization: any inpatient hospital admission, number of inpatient hospital days, and length of stay - Nursing home utilization: any nursing home admission and number of nights spent in a nursing home - Utilization of ambulatory services: any ambulatory care visits (i.e., visits with doctors, therapists, or other medical professionals) and number of ambulatory visits - Emergency department utilization: total emergency department visits - Acute admission: an acute illness that prevented the patient from remaining at home and would have required a hospital admission Data for these measures were from the Abt Associates, Inc., survey of PACE participants and program sites; DataPACE, a comprehensive data collection system containing data from PACE programs; and the Massachusetts Division of Health Care Finance and Policy.
Key Findings	In several studies, PACE participants were compared to various other groups: older adults who expressed interest in PACE but decided not to enroll, individuals receiving Medicare due to age or disability, nursing home residents, and older adults who were eligible for nursing home care but were receiving care at home. PACE participants had significantly lower rates of hospital, nursing home, and emergency department utilization and lower overall rates of inpatient days than participants in the comparison groups (p = .01–.10). Meanwhile, PACE enrollees had higher utilization of ambulatory services than comparison group members. The size of the impact of PACE on these results decreased over time.
Studies Measuring Outcome	Studies 1–4
Study Designs	- Quasi-experimental - Preexperimental
Quality of Research Rating (0.0–4.0 scale)	2.4

Outcome 2: Utilization of Support Services

Description of Measures	Utilization of support services was analyzed using the following measures:

	▸ Utilization of an adult day center: any attendance of an adult day center and frequency of attendance of an adult day center (times per week) ▸ Utilization of home nurses: any home visits from a nurse and number of visits from a nurse in the past 6 months ▸ Receipt of formal care: receipt of any formal (paid) care and receipt of formal care at least five times per week Data for these measures were from the Abt Associates, Inc., survey of PACE participants and sites.
Key Findings	PACE participants were far more likely to attend adult day centers and less likely to need any home visits by a nurse than comparison group members (individuals who expressed an interest in PACE but decided not to enroll) ($p < .05$). Meanwhile, the likelihood and intensity of formal care services were higher in the comparison group than among PACE participants, but the difference was not statistically significant.
Studies Measuring Outcome	Study 1
Study Designs	Quasi-experimental
Quality of Research Rating (0.0–4.0 scale)	2.5

Outcome 3: Perceived Health Status, Functional Status, and Overall Quality of Life

Description of Measures	To measure the impact of PACE on perceived health status and overall quality of life, participants (or their proxy respondent) were asked questions to determine, for example, whether the participant was in good or excellent health; whether the participant's life was satisfying; and whether the participant attended social, religious, or recreational programs at least once a week. For functional status, participants (or their proxy respondent) were asked about their activities of daily living (ADL) and instrumental activities of daily living (IADL) limitations (e.g., whether the participant had a behavioral problem, the number of ADL limitations, the number of IADL limitations, and whether the participant used an assistive device).
Key Findings	PACE participants reported better health status and quality of life and less deterioration in physical function than comparison group members (individuals who expressed an interest in PACE but decided not to enroll) ($p = .01–.10$). These effects were most dramatic during the first 6 months of enrollment in PACE.
Studies Measuring Outcome	Study 1
Study Designs	Quasi-experimental
Quality of Research Rating (0.0–4.0 scale)	2.5

Outcome 4: Mortality Rate	
Description of Measures	To measure the impact of PACE on mortality, data from Medicare enrollment records were used. The observation period for the analysis sample ranged from 11 days to 2.5 years.
Key Findings	Over the course of the observation period, 19% of PACE enrollees died, compared with 25% of comparison group members (individuals who expressed an interest in PACE but decided not to enroll) (*p* = .03).
Studies Measuring Outcome	Study 1
Study Designs	Quasi-experimental
Quality of Research Rating (0.0–4.0 scale)	2.5

Outcome 5: Comorbidity Diagnoses	
Description of Measures	Comorbidity diagnoses were measured using the average number of diagnoses per discharge. The data were from the Massachusetts Division of Health Care Finance and Policy.
Key Findings	One study compared PACE participants to two other groups: a waiver group consisting of people eligible for nursing home care but receiving care at home and a group of nursing home residents. Overall, the PACE group and waiver group had slightly fewer diagnoses per discharge (8.41 and 8.49, respectively) than the nursing home group (9.09).
Studies Measuring Outcome	Study 3
Study Designs	Quasi-experimental
Quality of Research Rating (0.0–4.0 scale)	2.3

Study Populations

The following populations were identified in the studies reviewed for Quality of Research.

Study	Age	Gender	Race/Ethnicity
Study 1	▸ 50–60 (Older adult) ▸ 61–74 (Older adult) ▸ 75–84 (Older adult) ▸ 85+ (Older adult)	▸ 69% Female ▸ 31% Male	▸ 46% Race/ethnicity unspecified ▸ 33% Black or African American ▸ 21% Hispanic or Latino
Study 2	▸ 50–60 (Older adult) ▸ 61–74 (Older adult)	▸ 71% Female ▸ 29% Male	Data not reported/available

	75–84 (Older adult) 85+ (Older adult)		
Study 3	50–60 (Older adult) 61–74 (Older adult) 75–84 (Older adult) 85+ (Older adult)	Data not reported/available	Data not reported/available
Study 4	50–60 (Older adult) 61–74 (Older adult) 75–84 (Older adult) 85+ (Older adult)	70% Female 30% Male	51% White 20% Black or African American 17% Asian 10% Hispanic or Latino 2% Race/ethnicity unspecified

Quality of Research Ratings by Criteria (0.0–4.0 scale)

Criterion	Ratings				
	Outcome 1	Outcome 2	Outcome 3	Outcome 4	Outcome 5
Reliability of Measures	2.5	2.5	2.5	2.5	2.5
Validity of Measures	2.5	2.5	2.5	2.5	2.5
Intervention Fidelity	2.0	2.0	2.0	2.0	2.0
Missing Data and Attrition	2.0	2.5	2.5	2.5	1.5
Potential Confounding Variables	2.0	2.0	2.0	2.0	2.0
Appropriateness of Analysis	3.4	3.5	3.5	3.5	3.5
Overall Rating	**2.4**	**2.5**	**2.5**	**2.5**	**2.3**

Study Strengths

A training manual that defined measures and training procedures was used to ensure adequate psychometric properties. The program showed basic fidelity and national program support for implementation. Analyses were thoughtful, appropriate, and well done.

Study Weaknesses

The methods of gathering information left questions about the data's accuracy. The comparison groups, when present, were convenience controls and limit inferences of causation to the outcomes. Attrition and missing data were often not addressed fully.

READINESS FOR DISSEMINATION

Review Date: June 2007

Materials Reviewed

The materials below were reviewed for Readiness for Dissemination. The implementation point of contact can provide information regarding implementation of the program and the availability of additional, updated, or new materials.

Greenwood, R. (2001). The PACE model. *Center for Medicare Education Issue Brief, 2*(10), 1–7.

National PACE Association. (2002). *Business planning checklist for new PACE programs.* Alexandria, VA: Author.

National PACE Association. (2003). *Core resource set for PACE. Considerations for monitoring quality assurance across PACE centers.* Alexandria, VA: Author.

National PACE Association. (2006). *PACE medical director's handbook.* Alexandria, VA: Author.

National PACE Association. (n.d.). *A guide to preparing the PACE provider application.* Alexandria, VA: Author.

PACE Web site, http://www.npaonline.org

Readiness for Dissemination Ratings by Criteria (0.0–4.0 scale)

Criterion	Rating
Implementation Materials	4.0
Training and Support	4.0
Quality Assurance	4.0
Overall Rating	**4.0**

Dissemination Strengths

The program materials include a comprehensive set of core resources providing guidance for starting, administering, and operating the PACE program. Program materials also include tips for partnering with State and Federal governments. High quality training and support resources are available online and through membership with the National PACE Association. Protocols for standardized implementation and oversight by the medical director are provided to support quality assurance.

Dissemination Weaknesses

Most of the detailed guidance documents are available only to members of the National PACE Association. Given the complexity of this model, it would be necessary to join this association in order to benefit from its work and that of its other members.

COSTS

The cost information below was provided by the developer. Although this cost information may have been updated by the developer since the time of review, it may not reflect the current costs or availability of items (including newly developed or discontinued items). The implementation point of contact can provide current information and discuss implementation requirements.

Implementation Materials

Item Description	Cost	Required by Developer
Exploring PACE membership	$3,000 per organization	Yes (one membership option is required)
Prospective provider membership	$11,400 per organization	Yes (one membership option is required)
Provider membership	$15,000 per organization, plus additional fees based on organization’s revenue	Yes (one membership option is required)
Training, technical assistance, consultation, and quality assurance materials	Contact the developer	Contact the developer

Additional Information

The start-up cost for each facility differs for a multitude of reasons, such as the cost of the lease of the building, the size of the facility, construction costs, consulting fees, equipment that must be purchased for everyday operations, transportation and vehicle costs, working capital, and solvency requirements. Total start-up costs can range from $1.5 million to over $5 million, depending on the size and location of the program.

PACE programs receive Medicare and Medicaid dollars to support the costs of services; in 2013, the Medicare and Medicaid capitation rate averages (per member, per month) were $2182.09 and $3,402.65, respectively.

OTHER CITATIONS

Hirth, V., Baskins, J., & Dever-Bumba, M. (2009). Programs of All-Inclusive Care (PACE): Past, present, and future. *Journal of the American Medical Directors Association, 10*(3), 155–160. PubMed abstract available at http://www.ncbi.nlm.nih.gov/pubmed/19233054

Kane, R. L., Homyak, P., Bershadsky, B., & Flood, S. (2006). Variations on a theme called PACE. *Journals of Gerontology Series A: Biological and Medical Sciences, 61A*(7), 689–693. PubMed abstract available at http://www.ncbi.nlm.nih.gov/pubmed/16870630

TRANSLATIONAL WORK

PACE programs are comprehensive community-based care models for frail, chronically ill older adults who are eligible for a nursing home because of their medical impairments. As such, Medicare and Medicaid programs have recognized the PACE model as a provider type since the 1990s, facilitating the expansion of PACE programs throughout the United States. The National PACE Association (NPA) provides a series of developmental opportunities to PACE organizations, including monthly informational teleconference calls with NPA members in PACE organizations; an interdisciplinary online training program designed to support PACE organizations in creating, training, and maintaining interdisciplinary teams; and annual conferences, forums, and summits. NPA supports the expansion of PACE by providing implementation resources to States through the Accelerating State Access to PACE (ASAP) program. The ASAP program is a grant-funded initiative providing direct training, technical assistance, and funding to States in order to expand the capacity of PACE. The growth of PACE programs has been documented in evaluation reports, case studies, and demonstration projects highlighting the strengths and limitations of implementation.

Providence ElderPlace in Portland, Oregon, was one of the first PACE sites. The PACE model has been successfully implemented to create Providence ElderPlace's Supportive Care Program, which provides palliative care. The Supportive Care Program is sustained by an interdisciplinary team with the goals of providing support and medical management to the Providence ElderPlace participants, easing participants' physical and emotional symptoms, and helping family members and caregivers through the bereavement process. A supportive care steering committee oversees program management and initiates improvements. Positive outcomes facilitated by the Supportive Care Program include an increase in the number of Providence ElderPlace participants who have a supportive care plan in place at their time of death, a decrease in the number of intensive care unit admissions in the last year of a participant's life, an increase in the percentage of participants who choose to remain in their place of residence until they die, and high satisfaction rates among participants' surviving family members with the end-of-life care provided to the participants. Program success has been attributed to the strong collaboration between Providence ElderPlace and caregivers from adult care, residential care, and assisted living organizations.

In 2001–2003, the PACE model was evaluated in three Veterans Affairs (VA) medical centers using three all-inclusive care models: a VA medical center in Ohio as the sole health care provider (Model I), a partnership between a VA medical center and a PACE provider in Colorado to share care responsibilities (Model II), and a contract generated by a VA medical center with a community PACE provider in South Carolina to provide all health care to veterans (Model III). The program evaluation examined health care utilization rates among 368 veterans 6 months before enrollment and 6–36 months after enrollment across the all-inclusive care programs.

Findings indicated that participants in Models II and III, which included a partnership with PACE, had higher utilization rates of adult day health care compared with participants in Model I. Participants in Model III had higher rates of nursing home use and home care use 6 months after enrollment compared with participants in Models I and II. In addition, findings demonstrated that the VA medical centers were able to successfully implement three variations of all-inclusive care models with veterans.

PACE of the Triad is a nonresidential facility serving the greater Greensboro, North Carolina, region. The facility provides hospice care, on-site medical care, adult day care services, home health care, medication, and transportation services through a partnership initiated in 2008 with a health system, a home health agency, a retirement community, and a hospice. The partnership began through the development of a steering committee to guide the planning, feasibility, and evaluation process to ensure that PACE was a suitable program for the region. Through grant funding from the health system, a marketing assessment and business plan were developed through consultation with a senior care research organization. The partnership recognizes that the start-up phase was very challenging, but the mutual team goal of improving the quality of care for frail older adults in the community was a powerful force to help overcome challenges. As of May 2011, PACE of the Triad began accepting applicants to receive services. All partners have contracts with PACE of the Triad to provide specific patient care services, and all partners are currently focused on ensuring long-term sustainability.

Site With Translational Work	Articles Describing Site’s Translational Work, by Category					
	Planning/ Partners	Adoption	Reach/ Recruitment	Implementation	Effectiveness	Maintenance
Providence ElderPlace, Portland, OR	Article 1	Article 1	—	Article 1	Article 1	Article 1
3 VA medical centers (in OH, CO, and SC)	Article 2	Article 2	Article 2	Article 2	—	—
PACE of the Triad, Greensboro, NC	Article 3	Article 3	—	—	—	—

Article Number	Article Reference
1	Lee, M., & Booth, S. (2008). The PACE program and end-of-life care. Providence ElderPlace in Portland, Ore., develops unique approach for enrolled participants. *Health Progress*, 89(3), 62–66. PubMed abstract available at http://www.ncbi.nlm.nih.gov/pubmed/18488705
2	Weaver, F. M., Hickey, E. C., Hughes, S. L., Parker, V., Fortunato, D., Rose, J., … Baskins, J. (2008). Providing all-inclusive care for frail elderly veterans: Evaluation of three models of care. *Journal of the American Geriatrics Society*, 56(2), 345–353. PubMed abstract available at

	http://www.ncbi.nlm.nih.gov/pubmed/18070006
3	Hospice and palliative care of Greensboro: Partnering to provide PACE. (2011, December). *NewsLine*. Retrieved from http://www.advhomecare.org/wp-content/uploads/PACEarticle_NHPCO.pdf

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Additional program information can be obtained through the following Web site:

http://www.npaonline.org

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