



Environmental Scan of PACE Articles 2009 - 2016

This document summarizes select research on PACE. Please feel free to contact Chris van Reenen at chrisvr@npaonline.org with any questions.

Article Citation	Data Sources	Article Focus	Key Findings	Key PACE References	Summary of Research and Analysis/Future PACE Research Needs
<p>Cortes, T.A., Sullivan-Marx, E.M. (2016). A Case Exemplar for National Policy Leadership: Expanding Program of All-Inclusive Care for the Elderly (PACE). <i>Journal of Gerontological Nursing</i>, 42 (3): 9-14.</p>	<p>This article did not contain a study.</p>	<p>Impact of nursing on the PACE program and the future growth of PACE.</p>	<p>“Nursing has been central to the PACE care model since its inception, yet few nurses in long-term care are acquainted with the model or can speak to its benefits.”</p> <p>“The results of the high satisfaction for PACE members and families and the quality of care and cost saving belied the lack of full expansion of PACE over the past several decades.”</p> <p>The PACE Innovation Act of 2015 provides CMS with authority to develop PACE pilots to serve new populations and to promote PACE growth and innovation. “This program offers new opportunities to existing PACE providers and other for-profit as well as non-profit providers to explore new ways of providing services.”</p>	<p>“Evaluations have demonstrated that PACE enrollees have increased use of ambulatory services, lower rates of nursing home use and in-patient hospitalization, lower rates of functional decline, and better reported health status and quality of life than among comparison populations.”</p>	<p>“PACE expansion will serve individuals with long term care needs by providing access to the full continuum of preventative, primary, acute and long-term care services.”</p>

<p>Covington, L.P., McCarrell, J., Hoerster, N.S. (2016). Prevalence of Anticholinergic Medication Use in the Program of All-Inclusive Care for the Elderly. <i>The Consultant Pharmacist</i>, 31 (3): 168-174.</p>	<p>The authors performed a retrospective chart review comparing 128 participants in the Texas PACE program, The Basics at Jan Werner, with 105 nursing home residents.</p>	<p>Comparison of prescribed medication use, fall rates and hospital rates.</p>	<p>Anticholinergic medication prescribing was significantly lower in the PACE program (2.3% of total medications vs. 3.9%) as well as total medication use (12.1 medications per subject vs. 20.8 in the long-term care environment).</p> <p>Texas PACE participants also had lower Anticholinergic Risk Scale scores (score of 0, 60.2% PACE vs. 16.2%), reduced fall rates (23.8 per month PACE vs. 66.9), and similar hospitalization rates (5.4 per month PACE vs. 5.7).</p>		<p>PACE participants were prescribed fewer medications and had lower anticholinergic burden, which potentially lowers their risk of adverse effects. “These data support the PACE interdisciplinary model by demonstrating the benefit of team care in appropriate use of medications. It provides a potential blueprint to organizations aimed at reducing potentially inappropriate medication prescribing in older adults.”</p>
<p>Meunier, M.J., Brant, J.M., Audet, S., Dickerson, D., Gransbery, K., Ciemins, E.L. (2016). Life after PACE (Program of All-Inclusive Care for the Elderly): A retrospective/prospective, qualitative analysis of the impact of closing a nurse practitioner centered PACE site. <i>Journal of the American Association of Nurse Practitioners</i>, 5 (27): 1–6.</p>	<p>A baseline assessment and interviews were conducted on all participants prior to closure of a PACE site. After closure, the authors gathered data every 6 months for 2 years via phone surveys on 34 former participants. The survey included questions regarding satisfaction, ADLs, IADLs, emergency department visits, hospitalization, and use of home health services. Deaths and nursing home placements were monitored.</p>	<p>Impact of PACE site closure.</p>	<p>Higher numbers of emergency department visits, hospitalizations, and nursing home placements occurred post-PACE. The majority of participants (67%) reported a higher satisfaction when receiving PACE services.</p> <p>“There were a total of 17 nursing home placements over the 2-year period with a cost to Medicaid of \$2,040,000. For the same amount of money, the state could have continued to support the PACE program for the . . .2-year time period.”</p> <p>“Each hospitalization cost Medicare \$6962.90 above what they would have paid for PACE in that month. If that amount is multiplied by 32, the number of hospitalizations found after PACE closed, total cost to Medicare was</p>		<p>Further research regarding participant groups such as age, gender or cognitive score could be carried out to evaluate differences between these groups.</p>

			<p>\$222,812.80 enough to cover the cost of PACE for 7.5 participants.”</p> <p>Home care, a covered PACE service, may prove to be a substantial benefit in reducing emergency department visits and hospitalizations. Each hour of home health per month decreased the number of ED/hospital visits in a 6-month period by 5.4%.</p>		
<p>Fretwell, M.D., Old, J.S., Zwan, K., Simhadri, K. (2015). The Elderhaus Program of All-inclusive Care for the Elderly in North Carolina: Improving Functional Outcomes and Reducing Cost of Care: Preliminary Data. <i>Journal of the American Geriatrics Society</i>, 63 (3): 578-83.</p>	<p>This article compares Elderhaus PACE’s use of services and spending with other PACE programs of comparable size.</p>	<p>Comparison of Elderhaus PACE with other PACE programs.</p> <p>Use of a care plan around functional domains.</p>	<p>The use of a plan of care organized according to standard domains and updated every 6 months is a critical factor in improved outcomes and lower costs. Using the data points, PACE can determine whether there are specific domains of function that are problematic.</p> <p>During the first 5 years of operations, the Elderhaus PACE in North Carolina has reduced use of acute hospital care and skilled nursing home care while demonstrating that 46% of their participants improved and 20% of participants maintained their functional independence.</p> <p>Elderhaus uses days of center attendance, social work visits, primary care visits, and physical and occupation therapy with less use of ED visits, hospital admissions, and permanent NH placements.</p>		<p>Elderhaus is providing more social, physical function and primary care while less specialty and acute hospital care. In the future, the plan of care process could be disseminated to other PACE programs to measure its effect on function and cost.</p> <p>Further study on how other programs use the plan of care organized according to domains is merited to determine whether hospitalization, ED, and NH rates decrease.</p>

<p>Kohli, P., Arbaje, A.I., Leff, B., Statom, D., McNabney, M. (2015). Assisted living facility use by the Program of All-inclusive Care for the Elderly. <i>Journal of the American Geriatrics Society</i>, 63 (3): 594-6.</p>	<p>This study was conducted at one PACE site—Hopkins Elder Plus (HEP)—with two research components: a cross-sectional examination of patient-level data abstracted from charts at HEP and a qualitative content analysis of three PACE staff focus group discussions. 126 charts were abstracted, and participants were categorized according to four residential types: home alone, home with family, ALF, and NH.</p>	<p>Potential advantages and disadvantages with assisted living facility use by a Maryland PACE program.</p>	<p>Participants residing in assisted living facilities were older and more functionally dependent than those living at home enrolled in PACE.</p> <p>PACE programs chose assisted living over nursing home care due to cost concerns.</p> <p>Assisted living was also being used frequently for a temporary, monitored living situation to meet a short-term need.</p>	<p>The potential advantages of collaboration between ALFs and PACE include the clinical support that PACE provides which can fill gaps in the capacity of ALFs to care for PACE residents as well as short term usage for supervised care.</p>	<p>ALFs offer the additional resource of continuously supervised residential care, which can work synergistically with the clinical support and care direction of PACE toward the goal of extending care outside of NHs, meeting individual care needs, and providing high-value care.</p>
<p>Poku, M. (2015). The Program of All-Inclusive Care for the Elderly Model: Lessons for the Medicare-Medicaid Coordination Office. <i>Journal of the American Geriatrics Society</i>, 63 (10): 2223-4.</p>	<p>This article did not contain a study.</p>	<p>Goals for the Medicare-Medicaid Coordination Office (MMCO).</p>	<p>“Although some studies suggest that PACE enrollees have lower rates of inpatient admissions and mortality than individuals in traditional Medicare also enrolled in Medicaid, the evidence is not robust.”</p>		<p>“Moving forward, the MMCO must strive to collect more rigorous data on PACE and other models to drive informed decisions on how best to care for dually eligible individuals.”</p>
<p>Segelman, M., Cai, X., van Reenen, C., Temkin-Greener, H. (2015). Transitioning from Community-Based to Institutional Long-Term Care: Comparing 1915(c) Waiver and PACE Enrollees. <i>The Gerontologist</i>, August: 1-9.</p>	<p>Cohorts of 1915(c) waiver and PACE enrollees in 12 states were identified and followed using the Medicaid Analytic Extract Personal Summary and the Minimum Data Set from 2005 to 2009. There were 97,035 waiver enrollees and 4,733 PACE participants included in the time to NH admission analysis. There were 15,727 waiver enrollees and 587 PACE enrollees in the analysis of functional and cognitive status component. County-level covariates were included. Analyses employed multivariable models including competing risk proportional</p>	<p>Confirm that PACE reduced long-term nursing home admissions compared to waiver programs.</p> <p>Determine whether PACE enrollees had greater functional and/or cognitive impairment, because both are predictive of NH admission.</p>	<p>Compared with waiver enrollees, those who entered PACE were less likely (13% vs. 17%) to enter a NH for a long-term admission.</p> <p>PACE enrollees had a 31% lower instantaneous risk of long-term NH admission than waiver program enrollees.</p> <p>No statistically significant difference with regard to functional status at NH admission was found between the two cohorts.</p> <p>PACE enrollees had 55% greater odds of being severely cognitively impaired and 45% greater odds of</p>	<p>“The worse cognitive status, greater likelihood of having severe cognitive impairment, and increased likelihood of having overall high impairment of PACE enrollees at the time of long-term NH admission suggest that at least some of the reduction in risk of long-term NH admission was due to the effect of PACE relative to the waiver programs.”</p> <p>The finding that PACE enrollees have worse cognitive status at the time of long-term NH admission may suggest that PACE, with its comprehensive services, is better equipped to handle enrollees with</p>	<p>Further study is needed on the issue of targeting—whether some individuals would be better served in a particular program. Policymakers should pay increased attention to which individuals are best served by which forms of long term services and supports.</p>

	hazard, and linear and logistical regressions.		overall high impairment at time of long-term NH admission. Part of the reason PACE had lower long-term NH use may be attributed to the support which these programs provide to their participants, enabling them to remain in the community longer despite their impairments. Blacks and Hispanics are at lower risk of NH admission.	cognitive impairment than less integrated waiver programs.	
Stefanacci, R.G., Reich, S., Casiano, A. (2015). Application of PACE Principles for Population Health Management of Frail Older Adults. <i>Population Health Management</i> , 18 (5): 367-72.	The authors conducted a literature search and survey to identify and prioritize comprehensive care principles under PACE. PACE medical directors and members of the PACE interdisciplinary team were surveyed to gain their insights on end-of-life management, caregiver support, management of red flags, medication management, participant and caregiver healthcare system literacy, and care coordination. Finally, the authors evaluated measures that could be used to assess six PACE practices. 49 sites that included 54 respondents (mostly medical directors) answered the survey.	Effective interventions and core practices.	Of the 6 core practices, Management of Red Flags was identified as having the most impact in avoiding hospitalization/ED admissions, while Caregiver Support was the most influential in avoiding nursing home care. Medication Management was more frequently identified by medical directors as being more influential in avoiding nursing home placement and hospitalization/ED admissions, whereas more nonmedical IDT members rated Caregiver Support and Care Coordination as most influential in improving care and maintaining independence.		The six PACE core practices should be utilized to guide PACE providers. “The practices identified earlier may increase the quality of life of frail older adults as well as decrease health expenditures.”
JEN Associates, Inc. (2014). Massachusetts PACE Evaluation Nursing Home Residency Summary Report. July 24.	This study collected 2006-2011 Medicare and Medicaid claims and enrollment data for all Massachusetts Medicare and Medicaid dually eligible beneficiaries. For the same period, nursing home and MDS records were individually linked to the	Effect of PACE on nursing home residency.	Compared to the non-PACE control population, nursing home residency was substantially reduced in PACE’s population. PACE enrollee nursing home residency rates remain significantly below the comparison population for up to 20 months		Additional investigation is needed to elicit the association of PACE with other costly health services such as hospitalization and short term rehabilitation stays.

	Medicaid and Medicare claims history. The study used head to head comparisons.		after enrollment. From months 0-19, PACE and the control group averaged 11.8% and 18.1% respectively. PACE enrolls a population with higher risk of mortality, service utilization and cost before PACE entrance.		
Madden, K.A., Waldo, M., Cleeter, D. (2014). The Specialized Role of the RN in the Program of All-inclusive Care for the Elderly (PACE) Interdisciplinary Care Team. <i>Geriatric Nursing</i> , 35 (3): 199-204.	The authors interviewed 45 PACE nurses via survey; nurses completed a 32-item survey. The authors interviewed seven national PACE nursing leaders through telephone interview. The survey questions focused on the types of roles, services and activities performed by nurses and personal care assistants in PACE.	The role of the RN in PACE.	Close to half of the nurses are BSN prepared RNs. Nurses were commonly noted to be directors within the PACE organization. A primary RN case management role is central to how care is delivered within PACE; half of the interviewees reported primary RNs operate as clinic nurses. Nurses are also involved in care planning and after-hours care.		Future work is recommended to evaluate nursing care models (functional, primary or care management) using specific quality measures such as 30-day hospital readmissions, pressure ulcer prevalence, and participant/family satisfaction surveys.
Segelman, M., Szydlowski, J., Kinoshian, B., McNabney, M., Raziano, D.B., Eng, C., van Reenen, C., Temkin-Greener, H. (2014). Hospitalizations in the Program of All-Inclusive Care for the Elderly. <i>Journal of the American Geriatrics Society</i> , 62 (2): 320-24.	61 PACE sites provided program enrollment and hospital inpatient usage data from June 1, 2008 to May 31, 2010. The raw data contained records for 18,502 hospitalizations from 25,021 people. Fewer than 2% of hospital records were excluded. In analyzing variations between PACE sites, hospitalization rates were risk adjusted. Hospitalization and potentially avoidable hospitalizations (PAH) rates were measured per 1,000 person-years. Readmission was defined as any return to the hospital within 30 days of prior hospitalization discharge. PAHs were defined as hospitalizations for conditions that previously established criteria	Rates of hospitalization, readmission and potentially avoidable readmission in PACE.	There was substantial variation in hospitalization rates between PACE sites. The hospitalization rate for PACE (547/1000) was 24% lower than the rate for dually eligible beneficiaries receiving Medicaid NH services (719/1000). Again, there was substantial readmission variation between PACE sites. The 30-day readmission rate in PACE was 16% lower than the readmission rate of 22.9% for the dually eligible beneficiaries. 5,792 of 16,996 PACE hospitalizations (34%) were classified as potentially avoidable hospitalizations (PAC) which was	“PACE is a provider-based model with direct and frequent interaction between enrollees and members of the program’s interdisciplinary team. ... Although the current study does not identify the components of the PACE model that may be important in achieving lower hospitalization rates, a prior study suggested that capitation alone is not likely to affect the differences in rates observed.”	Two areas for future study were identified: The observed variations suggest there is an opportunity to narrow the gap between PACE plans with regard to hospitalization metrics. Further research is necessary to identify how best-performing PACE organizations prevent acute care conditions from arising and how such conditions are detected and managed on site.

	have identified as possibly preventable or manageable without hospitalization.		44% lower than the rate for dually eligible Medicaid NH residents. Rates for specific chronic conditions – COPD, asthma and CHF accounted for half of the hospitalizations and were substantially lower in PACE than in the waiver populations. Variation exists between PACE plans.		
Shaw, L. (2014). Program of All-Inclusive Care for the Elderly: A Comprehensive, Cost-Effective Alternative for Frail Elderly Individuals. <i>North Carolina Medical Journal</i> , 75 (5): 344-45.	The author evaluated the North Carolina Piedmont Health Senior Care PACE Program.	A review of the North Carolina Piedmont Health Senior Care PACE Program.	According to the executive director of Piedmont Health Senior Care, during the period from January 1, 2010 to December 31, 2013, participants in this PACE program experienced 0.4 hospitalizations per member per year and 0.3 emergency department visits per member per year; all of these rates were lower than those of comparable participants in other Medicaid programs. Despite being eligible for nursing home care, only 6% of PACE participants were in a nursing home or assisted living facility.	Nationally, only 8% of PACE participants reside in a nursing home.	The PACE program has been growing in North Carolina, but Medicaid funding and administrative issues have curtailed growth substantially.
Sloane, P.D., Oudenhoven, M.D., Broyles, I., McNabney, M. (2014). Challenges to Cost-Effective Care of Older Adults with Multiple Chronic Conditions: Perspectives of Program of All-Inclusive Care for the Elderly Medical Directors. <i>Journal of the American Geriatrics Society</i> , 62 (3): 564-5.	The authors interviewed 16 medical directors via telephone. The interviewer inquired specifically about preventive services, consultations/referrals, laboratory and radiological tests, outpatient medications and therapies, hospital activities, and palliative care. In addition, qualitative analysis was conducted by the research team.	Best practices identified by PACE medical directors.	Strategies implemented effectively by PACE programs include: (1) strengthening the role of primary care teams in decision-making (e.g., monitoring and approving all orders for tests and procedures by consulting physicians, minimizing emergency department visits and hospitalizations through same-day home visits and frequent follow-up of acute problems, and care coordination and discharge planning during hospitalizations);		The steps recommended are likely to be largely generalizable to programs that work with older adults with multiple comorbid conditions. Key among interviewees' recommendations include: strong primary care; aggressive case management; relationship-building with patients and families by an interdisciplinary team; a shared vision for appropriate goals of care among primary care providers,

			(2) developing strong, ongoing relationships with patients and families; (3) cultivating relationships with consultants who understand the PACE model; (4) substituting less costly alternatives when no evidence of added benefit is present (e.g., generic medications whenever appropriate; good shoes instead of “diabetic shoes”); and (5) development and use of guidelines and protocols.		consultants, and patients and families; and decision-making guidelines that offer less costly alternatives when appropriate.
Wieland, D., Kinosian, B., Stallard, E., Boland, R. (2013). “Does Medicaid pay more to a program of all-inclusive care for the elderly (PACE) than for fee-for-service long-term care? <i>Journals of Gerontology</i> , 68 (1): 47-55.	The study population is comprised of dually eligible individuals entering long term care from the community between 1994 and 2005 who reside in the South Carolina PACE two-county catchment area and participate in one of three long-term care programs (PACE, waiver, nursing home). One-year follow-up status was available for all admissions. The authors calculated a payment blend fitting PACE between FFS cohorts whose post admission utilization was converted to attrition-adjusted outlays.	Cost of PACE to Medicaid compared to FFS long term care.	PACE’s capitation was well under outlays for equivalent patients in alternative care, creating a substantial savings for Medicaid. In FY05 dollars, this comprised a savings of more than \$8.5 million in the first year for patients admitted to PACE over 11 years.	“The ability to locate and price the community/institutional blend allows payers and providers to negotiate appropriate discounts to Medicaid, shared savings, and rate adjustments contingent on case mix changes, encouraging expansion and availability of these [PACE] programs nationally.”	“Our methods have obvious relevance for rate settings. . .The ability to locate and price the community/institutional blend allows payers and providers to negotiate appropriate discounts to Medicaid, shared savings, and rate adjustments contingent on case mix changes, encouraging expansion and availability of these programs nationally.”
Bouwmeester, C. (2012). The PACE Program: Home-Based Long-Term Care. <i>The Consultant Pharmacist</i> , 27 (1), 24-30.	None, this was a policy article.	Role of the pharmacist in PACE.	PACE regulations do not specify that a pharmacist review each participant’s medications; however, there is a requirement for a biannual medication review which can be fulfilled in some states by a pharmacist. Additionally, pharmacists are members of the IDT, provide medication management, dispense medications, and have	“PACE programs may recognize substantial cost savings by using pharmacists to track medication incidents and provide recommendations for system changes.”	If allowed under state law, pharmacists can provide services using different models: the independent consultant-pharmacist model, the corporate model, the IDT employee model, or the pharmacy benefits manger model.

			administrative and quality assurance roles.		
Pak, E., Peretto, C., Yu, Q., McNabney, M. (2012). Effect of enrollment in the Program of All-inclusive Care for the Elderly on end-of-life care. <i>Journal of the American Geriatrics Society</i> , 60 (1):166-7.	The authors performed a retrospective chart review of 93 participants who had died while enrolled in Hopkins Elder Plus from 2007 to 2009. In addition to patient specific demographic and medical information, all documentation of advanced directives was noted.	Advance care planning in PACE.	Code status designations were one of four types: full code; DNR but hospitalize; DNR and do not hospitalize but treat; and DNR, DNH and comfort measures. At time of entry, 34.4% of participants had chosen full code. At time of death, only 6.5% had chosen full code. The authors concluded that longer time of enrollment in PACE was independently associated with change in code status toward less-aggressive care. 88% of participants received care consistent with their code status at time of death.		Longer exposure to PACE results in less-aggressive code status at the time of death. "Efforts to elicit and document patient preferences and assigned health care agent designation possibly resulted in the death of the participants in the current study having better alignment with their preferences."
Vouri, S.M., Tiemeier, A. (2012). The ins and outs of pharmacy services at a program of all-inclusive care for the elderly. <i>The Consultant Pharmacist</i> , 27 (11): 803-7.	This article did not contain a study, but rather discussed the role of dispensing and clinical pharmacy services at PACE Program Alexian Brothers Community Services (ABCS) of St. Louis, Missouri.	Role of the pharmacist in PACE.	Few PACE programs have a physical dispensing pharmacy on premises and even fewer offer clinical pharmacy services. At ABCS PACE, members of the team include a dispensing pharmacist, pharmacy technician and a clinical pharmacist with some duties fulfilled at an onsite dispensing pharmacy. In addition, the consultant clinical pharmacist uses an office at ABCS outside the clinic to perform assessments, exams, fulfill administrative roles and provide education. The ABCS pharmacy service integration can offer a model for the incorporation		Further study is needed regarding best-practice models for pharmacotherapy within the PACE model.

			of pharmacy services into other PACE organizations.		
Bloom, S. (2011). Caring for Seniors: PACE Programs Offer Seniors All-Inclusive Services and Care. <i>ADVANCE for Nurses</i> , Oct. 25.	This article did not contain a study.	Review of PACE.	“The success of PACE is now reflected in ideas healthcare reform seeks to implement throughout the healthcare delivery system.”		
Bloom, S., Sulick, B., Chin Hansen, J. (2011). Picking up the PACE: The Affordable Care Act can grow and expand a proven model of care. <i>Generations: Journal of the American Society on Aging</i> , 35 (1): 53-55.	This article did not contain a study.	PACE expansion.	Many obstacles exist to further implementation of PACE including monetary issues and the cooperation of state Medicaid agencies. Additionally, characteristics of the PACE model such as the requirement that PACE participants receive their primary medical care from PACE physicians is a barrier.	<p>“PACE has already implemented several healthcare delivery system reforms included in the ACA.”</p> <p>“PACE organizations provide accountable care across preventative, primary, acute, and long-term care services.”</p> <p>“PACE program is the epitome of medical health homes, providing care 24 hours a day, seven days a week.”</p>	
Fretwell, M.D., Old, J.S. (2011). The PACE Program: Home-Based Care for Nursing Home-Eligible Individuals. <i>North Carolina Medical Journal</i> , 72 (3): 209-11.	The author detailed outcomes from 90 participants in the Elderhaus PACE program accumulated over 3 years of care.	Review of Elderhaus’ PACE program.	Over 3 years of providing care to 90 individuals, Elderhaus accumulated 14 hospital stays, with a mean length of stay of less than 3 days, and 19 emergency department visits. Elderhaus had 15 deaths (16.7% of the baseline population), with more than 50% occurring in the participant’s home. Participants have been able to continue coming to the day center up to 10 days prior to their death. While falls are frequent (Elderhaus discourages the use of wheelchairs), 96% of falls resulted		

			in no or minor injuries. Central to Elderhaus' success are the following specific features: (1) building primary care relationships of trust; (2) maintaining exhaustive efforts to obtain advance directives early in the enrollment; (3) creating a loving and stimulating environment in the day center; and (4) evolving a "culture of exercise" in the day center.		
Meret-Hanke, L.A. (2011). Effects of the program of all-inclusive care for the elderly on hospital use. <i>The Gerontologist</i> , 51(6), 774–785.	The authors evaluated the effects of PACE on hospital use over four 6-month intervals and a 2-year follow-up period. The study included data from DataPACE along with a comparison sample of similarly frail community-dwelling adults from the Medicare Current Beneficiary Survey (MCBS). The sample had 6,992 PACE enrollees and 3,103 MCBS subjects.	Hospital use within PACE.	Although PACE enrollees had higher hospital use in the six months before baseline, they had substantially lower use during the two-year follow-up period. PACE enrollees had higher average hospital use in the six months before baseline (1.58 days per month alive vs. 1.04 days per month alive) but lower average hospital use after baseline (0.22 days per month alive vs. 0.8 days per month alive). Over six months, PACE enrollees spent between 0.5 and 1.4 days in the hospital and matched comparison subjects spent between 3.2 and 4.4 days in the hospital.	"PACE enrollment is associated with a decline in the amount of hospital use among hospitalized subjects when controlling for all other factors." "PACE provides an example for controlling costs while achieving high-quality care."	
Boult, C., Wieland, G.D. (2010). Comprehensive Primary Care for Older Patients with Multiple Chronic Conditions. <i>JAMA</i> , 304 (17): 1936-43.	The authors searched MEDLINE to find articles between September 1, 1999 to August 30, 2010, that reported the results of studies about the effects of the models of comprehensive primary care for older patients with multiple chronic conditions. The selected articles compared an intervention group with an equivalent concurrent control group to	Review of comprehensive primary care models for older patients including PACE programs.	The article compared the Geriatric Resources for Assessment and Care of Elders (GRACE) model, Guided Care and PACE. The articles quoted several studies that demonstrated PACE benefits such as less pain and fewer unmet ADL needs, fewer hospitalizations, more screenings, more advanced directives and longer median survival. Greater nursing home	Options for physicians or others seeking PACE include: (1) refer patients to a PACE site; (2) support local PACE sites where PACE is a Medicaid-covered option; and (3) urge state Medicaid programs to designate PACE as a covered option.	"More research is needed to define the optimal methods for identifying the patients who will benefit most, for providing the essential critical process, for disseminating and expanding the reach of these models, and for paying for excellent chronic care. Also necessary will be significant advances in the education of health care professionals and the

	evaluate the effect of the intervention on the quality of health care, quality of life, functional status, and the use or cost of health services.		utilization under PACE was also reported.		managerial infrastructure that underlies new models of care.”
Wieland, D., Boland, R., Baskins, J., Kinoshian, B. (2010). Five-Year survival in a program of all-inclusive care for elderly compared with alternative institutional and home- and community-based care. <i>The Journals of Gerontology Series A: Biological Sciences and Medical Sciences</i> , 65A (7), 721–726.	The authors compared 554 enrollees in the South Carolina PACE—Palmetto Senior Care (PSC)—with 1,108 enrollees in the aged and disabled waiver program and 468 nursing home entrants. Participants were followed for 5 years or until death.	A comparison and outcome analysis for three models of care, including PACE.	Compared to the waiver and nursing home populations, PACE participants were older, more cognitively impaired, faced a higher mortality risk, and had more ADLs. Stratifying for mortality risk, PACE participants had a substantial long-term survival advantage compared with aged and disabled waiver clients into the fifth year of follow-up. Median NH survival was 2.3 years, waiver survival was 3.5 years and PACE was 4.2 years. Accounting for risk, PACE’s mortality advantage is significant among moderate and high risk admissions compared to waiver and NH admissions.	“That the benefit (PACE) seemed most apparent in moderate- to high-risk admissions suggests the particular importance of an integrated, team-managed medical home for the older, more disabled participants more commonly admitted to PACE.”	Most long term care comparative effectiveness work on alternative long-term care arrangements is limited to two years or less. States should make investments in research that includes longer service periods and the necessary data infrastructure to evaluate long term care options (such as PACE).
Hirth, V., Baskins, J., Dever-Bumba, M. (2009). Program of All-Inclusive Care (PACE): Past, Present and Future. <i>Journal of the American Medical Directors Association</i> , 10: 155-60.	There is no study contained in this article.	Review of PACE history and future program recommendations.	The PACE enrollees with the most severely limiting conditions at baseline tend to experience the largest gains as measured by functional status such as the very old or cognitively impaired. African American PACE participants were found to have a survival advantage over white patients.		Below are issues for the “future” consideration of PACE program development. First, PACE is hard to transition into large-scale growth. Second, expansion of PACE is difficult for the non-Medicaid population because of high out-of-pocket costs. Long term care insurance and Money Follows the Person were cited as potential solutions to this problem. Third, PACE has difficulty in enrollment because of the limited

					<p>service choices for participants and reliance on day care. Choice of community-based physicians should be a future consideration.</p> <p>Fourth, rural PACE has particular challenges such as staffing, financing, risk management, and infrastructure.</p> <p>Finally, PACE sites should consider extending their services to the young disabled.</p>
<p>Petigara, T., Anderson, G. (2009). Program of All-Inclusive Care for the Elderly. <i>Health Policy Monitor</i>, April.</p>	<p>There is no study contained in this article.</p>	<p>PACE barriers.</p>	<p>Barriers to PACE program entry and limited availability include: (1) lack of appeal to older adults because of the adult day care center or losing the primary care physicians; (2) lack of attraction for non-profit provider; (3) for-profit plans have not entered the market; (4) need for better education about PACE; (5) lack of state support; (6) unaffordability for middle income individuals; and (7) inaccessibility for large rural populations.</p>		<p>PACE must be modified to grow as follows:</p> <p>First, the program must be made affordable for middle income persons who do not qualify for Medicaid.</p> <p>Second, programs should accommodate those who do not wish to receive their care at an adult day center or want to continue with their own providers</p> <p>Third, states should increase support for PACE programs as well as coordination among state programs.</p>