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Feature Editor: Mellar P. Davis, MD, FCCP, FAAHPM

PC-FACS (**F**ast **A**rticle **C**ritical **S**ummaries for Clinicians in **P**alliative **C**are) *provides hospice and palliative care clinicians with concise summaries of the most important findings from more than 100 medical and scientific journals. If you have colleagues who would benefit from receiving PCFACS, please encourage them to join the AAHPM at aahpm.org. Comments from readers are welcomed at pcfacs@aahpm.org.*

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Paladino J, Bernacki R, Neville BA, et al. Evaluating an intervention to improve communication between oncology clinicians and patients with life-limiting cancer [published online ahead of print on March 14, 2019]. *JAMA Oncol.* https://doi.org/10.1001/jamaoncol.2019.0292.

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Summaries With Commentaries

Effect of Antidepressant Desipramine on the Emotional Consequences of Neuropathic Pain

Background. Functional impairment of the noradrenergic system is implicated in a worsening of

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https://doi.org/10.1016/j.jpainsymman.2019.05.001

mood coinciding with long-term neuropathic pain.[1,2] Can desipramine treat neuropathic pain—induced noradrenergic impairment?

Design and Participants. This study evaluated the efficacy of tricyclic antidepressant desipramine (a noradrenaline reuptake inhibitor) in preventing and relieving neuropathic pain—induced noradrenergic dysfunction in the locus coeruleus (LC). Treatment (10 mg/kg/day or saline for 2 weeks) started before or after the onset of anxiodepressive behavior ("early or late treatment") in chronic sciatic constriction (CSC)—injured adult rats. The modified forced swimming test (mFST) modeled behavioral despair, the elevated zero maze assessed fear-motivated unconditioned behavior, and place escape/avoidance evaluated the affective dimension of pain. To study CSC and desipramine's effects on LC noradrenergic activity, tyrosine hydroxylase (TH; an enzyme in noradrenaline biosynthesis), noradrenaline transporter (NAT), and pCREB (modulates TH) expression were measured along with LC alpha2-adrenoceptor sensitivity. Analyses used 1-way and repeated/nonrepeated 2-way ANOVAs (+Tukey's test), Fisher's test, and the K^2 D'Agostino and Pearson normality test.

Results. Rats exhibited mechanical/thermal sensitivity 2-6 weeks post-CSC. Electrophysiology and western blots showed LC dysfunction (increased bursting activity, alpha2-adrenoceptor sensitivity, and TH and NAT expression 4-6 weeks post-CSC ($P<0.05$). These noradrenergic changes were associated with anxiety- and despair-like features (eg, number of mFST immobility episodes) 4 weeks post-CSC ($P<.05$). Desipramine produced analgesia, reduced the burst rate and TH expression, and counteracted depressive behavior (all irrespective of treatment onset) and anxiety (late treatment only; $P<0.05$). Desipramine also modified the affective component of pain (early treatment only) and reduced the spontaneous LC electrical activity (irrespective of treatment onset; $P<.001$).

Commentary. This well-designed study found desipramine attenuated neuropathic pain and anxiodepressive symptoms; when given prophylactically, despair improved but not anxiety-like behavior. Desipramine minimized changes in the noradrenergic pathways associated with chronic pain, and the authors hypothesize this pathway also mediates anxiodepressive behavior with the caveat that other pathways may provide significant influence on anxiety-like behavior. Confirmation in clinical trials will be important given that animals were standardized for sex, age, and genetic background, factors known to influence mood and pharmacologic interventions in humans. The study highlights that the time-sensitive nature of interventions for symptom control can have both positive and negative effects. Examples include the use of prophylactic gabapentin to prevent pain from radiation-induced mucositis[3] and the administration of steroids in the evening, resulting in insomnia.

Bottom Line. In rats, desipramine successfully treated neuropathic pain and anxiodepressive symptoms, and early treatment prevented the onset of despair but not anxiety-like behavior.

Reviewer. Kenneth Cornetta, MD, Indiana University School of Medicine, Indianapolis, IN

Source. Alba-Delgado C, Llorca-Torralba M, Mico JA, Berrocoso E. The onset of treatment with the antidepressant desipramine is critical for the emotional consequences of neuropathic pain. *Pain.* 2018;159(12):2606-2619.

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Engaging the African American Church to Improve Communication About Palliative Care and Hospice

Background. African Americans often underuse palliative care and hospice (PCH) services in favor of life-prolonging measures, contributing to end-of-life (EOL) care inequities.[1,2] Can the African American church provide a community resource for education about PCH?

Design and Participants. This descriptive study aimed to encourage African American churches to embrace PCH by creating venues to improve communications about PCH. Experiences in 5 urban Philadelphia-region churches (4 Baptist and 1 consortium of 3 African Methodist Episcopal [AME]) were compared, targeting pastors and other church leaders, congregants with life-limiting illnesses (CWLLIs), and general congregants. The authors created 1) a 4-hour leadership-education program, 2) a training program for church-based lay-companions (visitors to CWLLIs to communicate about end-of-life care and decision making), and 3) messages/materials (during church services and in bulletins) to educate and influence attitudes about

PCH. Each pastor was to identify a church liaison (CL) to provide project oversight.

Results. Two churches maintained all project elements for 4 years. One could not identify a CL and consequently could not initiate lay-companion training. Two had intermediate success. In the 3 where pastors were least involved, the lay-companion program stalled. A CL (ambassador, coordinator, or planner) was critical to all levels of church engagement. Leadership education was successful in all churches: 131 Baptist and 9 AME members completed training. Lay-companion training was completed by 35 Baptist and 10 AME members; the 2 churches successful in enlisting congregants to accept visits were those with the most active pastors and CLs. Lay-companion program impact was limited by the small number of CWLLIs accepting visits.

Commentary. Conducting such a study in African American churches is a most appropriate first step, as the church can be the center of community life, including health care. Intensive educational efforts and strong pastor/leadership engagement/CL advocates were critical for successful implementation of the project. The study demonstrated feasibility and some level of success in terms of integrity. A logical next step would be deeper exploration of the barriers and facilitators of the various aspects of the program.

Bottom Line. Integrating and engaging with African American churches to improve EOL communication is feasible. Further investigation is required to determine its impact on EOL communication in African Americans.

Reviewer. Mona Patel, DO, New Jersey Veterans Health Care System, East Orange, NJ

Source. Johnson J, Hayden T, Taylor LA, et al. Engaging the African American church to improve communication about palliative care and hospice: lessons from a multilevel approach [published online ahead of print December 12, 2018]. *J Palliat Care.* 825859718810718.

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The Program's Association With Mortality and Quality of Care

Background. The Hospital Readmissions Reduction Program (HRRP) has been associated with reduced readmission rates for heart failure (HF), acute myocardial infarction (AMI), and pneumonia.[1,2] Is the HRRP associated with change in patient mortality?

Design and Participants. This retrospective cohort study evaluated whether HRRP announcement and implementation was associated with increased patient-level mortality. HF, AMI, and pneumonia hospitalizations among Medicare fee-for-service beneficiaries (aged ≥65) across 4 periods 2005-2015 were analyzed: P1 and P2 occurred pre-HRRP to establish baseline trends (2005-2007 and 2007-2010); P3 and P4 were post-HRRP announcement (2010-2012) and implementation (2012-2015). Outcome: inverse probability-weighted mortality ≤30 days postdischarge, stratified by whether there was an associated readmission. Logistic regression and a propensity score approach were used.

Results. There were 3.2 million hospitalizations for HF, 1.8 million for AMI, and 3 million for pneumonia; 7.9 million (mean [SD] age 80 [8.7] years; 53% female) were alive at discharge. There were 270,517 HF deaths ≤30 days postdischarge, 128,088 for AMI, and 246,154 for pneumonia. For HF, mortality increased postannouncement (0.49% P2-P3; difference in change=0.22%; *P*=.01) and postimplementation (0.52% P3-P4; difference in change=0.25%; *P*=.001). For AMI, mortality decreased 0.08% postannouncement (difference in change=-0.26%; *P*=.01) and did not change postimplementation. For pneumonia, mortality increased 0.26% postannouncement (difference in change=0.22%; *P*=.01) and 0.44% postimplementation (difference in change=0.40%; *P*<.001). The HF and pneumonia mortality increases were mainly related to outcomes among patients who were not readmitted but died ≤30 days postdischarge. For all conditions, implementation was not associated with increased mortality ≤45 days postadmission, relative to pre-HRRP trends.

Commentary. This study looks at the impact of the Centers for Medicare & Medicaid Services' (CMS) HRRP on patient mortality, showing an increased postdischarge mortality for patients hospitalized for HF and pneumonia. Such a significant increase in mortality, mainly driven by patients who were not readmitted within 30 days of discharge, might be an unintended consequence of this program. Hospitals may have felt pressured and even been fined for early readmissions, forcing medical teams to keep sicker patients under observation status or discharge them directly from the emergency department. This study raises an ethical concern about possible lack of adequate quality of care in the midst of such regulations that incentivize preventing rehospitalization more than other goals, such as decreasing mortality.

Bottom Line. Hospital teams should be mindful of policies, such as HRRP, that may inadvertently affect quality of care and attempt to avoid having them alter care decisions, including admitting patients if clinically indicated.

Reviewer. Ahsan Azhar, MD FACP, The University of Texas MD Anderson Cancer Center, Houston, TX

Source. Wadhera RK, Joynt Maddox KE, Wasfy JH, Haneuse S, Shen C, Yeh RW. Association of the hospital readmissions reduction program with mortality among Medicare beneficiaries hospitalized for heart failure, acute myocardial infarction, and pneumonia. *JAMA.* 2018;320(24):2542-2552.

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Racial Differences in Health Care Transitions and Hospice Use at the End of Life

Background. More than 80% of 2011 Medicare decedents had care transition during the last 6 months of life MOL), and about 10% of 2015 Medicare decedents had care transition during the last 3 days of life.[1,2] What racial/ethnic differences exist in patterns of end-of-life care transition?

Design and Participants. This retrospective analysis characterized racial/ethnic differences in care transition patterns in the last 6 MOL among Medicare beneficiaries aged ≥66 who died July-December 2011. Outcomes were number of healthcare transitions, hospice enrollment in the last 6 MOL, and in-hospital death. Using Medicare claims data, hospital, skilled nursing facility, inpatient hospice, home hospice, and home settings were included. Analysis included standard descriptive statistics, Sankey diagrams, and bootstrap resampling.

Results. Versus non-Hispanic whites (n=573,236), Hispanics (n=11,198) were older (P=0.006) and African Americans (n=55,837) were younger (P<0.001). Across-group preexisting chronic conditions differed (eg, 25% of whites and African Americans had chronic cancer, vs. about 18% of Hispanics and Asian Americans [n=9,206]). The mean number of transitions in the last 6 MOL was 2.9 (whites, SD=2.7), 3.4 (African Americans, SD=3.2), 2.8 (Hispanics, SD=3.0), and 2.4 (Asian Americans, SD=2.7). Adjusting for age/sex, having ≥4 transitions was more common for African Americans (39%; 95% CI=39%-40%) vs. whites (33%, 32%-33%), and less common among Hispanics (31%, 30%-32%) and Asian Americans (27%, 26%-28%). Having no transition was more common for Asian Americans (33%, 32%-34%) and Hispanics (29%, 28%-30%), vs. African Americans (19%, 19%-20%) and whites (19%, 19%-19%). Hospice lengths-of-stay were similar among whites (48 days, 48-48), African Americans (48, 47-49), and Hispanics (48, 47-50), but shorter among Asian Americans (39, 38-40); disenrollment was more common among nonwhites.

Commentary. This study of Medicare decedents confirms Asian Americans and Hispanics are less likely to enroll in hospice and have a decreased hospice length of stay if enrolled.[3,4] Interestingly, these groups have significantly fewer end-of-life care transitions. This may be attributable to differences in cultural approaches to death as well as family-centered models of decision making distinct from a traditionally applied Eurocentric model of autonomy.[5] Encouragingly, this substantiates earlier work showing no difference in length of stay in hospice between African Americans and whites.[6] However, African Americans had the most care transitions and were most likely to revoke hospice—possibly attributable to cultural beliefs or scarce caregiver resources.[7] The potential for undue suffering from too many or too few transitions is concerning; greater upstream family/caregiver involvement in advance care planning may mitigate these harms.

Bottom Line. Significant racial/ethnic differences exist in transitions of care at the end of life among Medicare decedents.

Reviewers. Kathryn Jones, MD, and Kyle Neale, DO, Cleveland Clinic, Cleveland, OH

Source. Wang SY, Hsu SH, Aldridge MD, Cherlin E, Bradley E. Racial differences in health care transitions and hospice use at the end of life [published online ahead of print January 7, 2019]. *J Palliat Med.*

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Evaluating Communication in Serious Illness Care Programs for Patients with Cancer

Background. High-quality conversations between clinicians and seriously ill patients about values and goals may improve outcomes, but they occur infrequently.[1,2] Are clinician-patient communication quality-improvement interventions effective?

Outpatient Oncology

Design and Participants. This trial examined feasibility and acceptability of a patient-clinician communication quality-improvement intervention (Serious Illness Care Program at the Dana-Farber Cancer Institute [SICP-DFCI]) and its effect on patients with advanced cancer. SICP-DFCI included training, coaching, and prompts for oncologists; information for patients and their families/caregivers; tools for identifying suitable patients and prompting conversations; and a mechanism for documenting discussions in the electronic medical record (EMR). Coprimary outcomes: end-of-life goal-concordant care and peacefulness. Secondary outcomes: therapeutic alliance, anxiety, depression, and survival.

Results. Ninety-one clinicians (intervention=48; control=43; 57% female) and 278 patients (intervention=134; control=144; 53% female) participated. In total, 98% of clinicians rated the training as effective (mean [SD] score=4.3 [0.7] of 5 possible). Of 39 clinicians receiving a reminder, 87% completed $\geq$1 conversation (median duration=19 minutes; range=5-70). Primary-outcome intervention-control differences were null (n=64). Patient percentages with anxiety (10% vs. 5%) and depression (21% vs. 11%) 14 weeks postbaseline were reduced. Twenty-four-week anxiety, but not depression, reduction was sustained (10% vs. 4.2%). Survival and therapeutic alliance were unchanged (all $P \leq .05$).

Interventions

Design and Participants. This trial further evaluated SICP-DFCI efficacy (primary outcomes reported above). Secondary outcomes were process measures: documentation of $\geq$1 serious illness conversation, timing of the initial conversation, quality of conversations, and their accessibility in the EMR.

Results. A higher proportion of intervention patients had a documented discussion (96% vs. 79%), and conversations occurred a median 2.4 months earlier. Conversation documentation for intervention patients was more comprehensive and patient-centered, with greater focus on values/goals (89% vs. 44%), prognosis/illness understanding (91% vs. 48%), and life-sustaining treatment preferences (63% vs. 32%). Documentation about end-of-life (EOL) care planning was unchanged. EMR-accessible documentation was increased (61% vs. 11%; all $P < .01$).

Commentary. Conversation is the kiss of life and good conversations at the EOL should have tangible clinical outcomes. Perhaps if the study was fully powered or if there were fewer inevaluable patients, outcomes would have been different. A single conversation of 19 minutes is likely to be less effective than multiple conversations over time. The quality of conversations was not assessed, but in chart review the interventional group had more comprehensive patient-centered conversations that occurred earlier in the course of illness (2.4 months earlier). The disappointment is not in the effort but in the outcome. In the end, a documented EOL conversation needs to improve patient-centered clinical outcomes, such as the preferred location of care at the EOL, if it is to be valuable. Perhaps to truly influence goal-concordant care at the EOL it requires integrated palliative care in addition to serious illness conversations by oncologists.[3]

Bottom Line. A serious illness conversation tool for oncologists improved process measures, such as documentation of patient goals, but it did not translate to goal-concordant care at the EOL.

Reviewer. Mellar P. Davis, MD FCCP FAAHPM, Geisinger Medical Center, Danville, PA

Sources. Bernacki R, Paladino J, Neville BA, et al. Effect of the serious illness care program in outpatient oncology [published online ahead of print on March 14, 2019]. *JAMA Intern Med.* https://doi.org/10.1001/jamainternmed.2019.0077.

Paladino J, Bernacki R, Neville BA, et al. Evaluating an intervention to improve communication between oncology clinicians and patients with life-limiting cancer [published online ahead of print on March 14, 2019]. *JAMA Oncol.* https://doi.org/10.1001/jamaoncol.2019.0292.

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Evaluating the Relationship Between Catastrophizing and Emotional Outcomes in Children With Chronic Pain

Background. Pain catastrophizing has been linked with poor functional outcomes in children with chronic pain.[1,2] Is catastrophizing interrelated to anxiety, depression, and quality of life?

Design and Participants. This study 1) meta-analytically quantified the relationship between catastrophizing and pain and functional/psychosocial outcomes in children with chronic pain and 2) examined age, sex, pain intensity, pain duration, pain diagnosis, and measure type as moderators of these relationships. Relevant articles published through March 2017 were identified using PsycInfo, Medline, PubMed, and Embase databases. Studies were included that had measures of child-reported catastrophizing and ≥1 of the following: pain intensity, physical functioning, depression, anxiety, or change in quality of life and were based on an independent child or adolescent sample (ages 8-21) with chronic pain (persistent pain for ≥3 months). Analyses used Pearson *r*, Fisher r-to-Z transformation, a random-effects model, a failsafe-N analysis, and Egger's regression test of asymmetry.

Results. In this study, 111 effect sizes from 38 studies (63% American and 95% outpatient) were analyzed. Participants (n=6,202) were mean age 14 years (range=11-18), 72% female, and 80% white. Study quality was not a significant moderator for any of the relationships between catastrophizing and pain outcomes. Effect sizes ranged medium to large, with anxiety (r=0.55 [95% CI=0.50-0.59]; z=18.96, $P<0.01$), depression (r=0.49 [95% CI=0.43-0.55]; z=12.58, $P<0.01$), and quality of life (r=-0.48 [95% CI=-0.56–0.39]; z=9.32, $P<0.01$) demonstrating a strong association with catastrophizing. Pain intensity (r=0.29 [95% CI=0.24-0.34]; z=11.37, $P<0.01$) and physical disability/functioning (r=0.39 [95% CI=0.35-0.43]; z=15.26, $P<0.01$) had a moderate association with catastrophizing. These relationships were robust, minimizing potential publication bias. None of the examined moderators were significant.

Commentary. Chronic pain negatively impacts emotional and physical functioning for children and adolescents, in part because it leads patients to catastrophize (ie, ruminate on the pain, magnify their suffering, and feel helpless). Several psychological interventions have been shown to improve catastrophizing in children, including cognitive behavioral therapy, relaxation techniques, and acceptance and commitment therapy. However, in limited studies these interventions have not been shown to impact psychological outcomes associated with catastrophizing (including anxiety and depression). The effect of parental catastrophizing—which was examined in a previous issue of *PC-FACS*[3]—also has not been meta-analytically quantified and may itself impact child pain outcomes.[4]

Bottom Line. There is a strong relationship between catastrophizing and emotional outcomes in children with chronic pain, but additional research is necessary to determine what treatments are effective in reducing not only catastrophic thinking but also associated anxiety and depression.

Reviewer. Megan J. Thorvilson, MD MDiv, Mayo Clinic Children's Center, Rochester, MN

Source. Miller MM, Meints SM, Hirsh AT. Catastrophizing, pain, and functional outcomes for children with chronic pain: a meta-analytic review. *Pain.* 2018;159(12):2442-2460.

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Role of the Prefrontal Cortex in Pain Perception in Older Adults

Background. Pain perception is modified during aging.[1,2] In elderly participants, are prefrontal cortex (PFC) functional changes associated with lack of descending inhibition of nociceptive inputs?

Design and Participants. This study investigated whether functional modifications in the PFC are associated with the lack of descending inhibitory control of pain in older pain-free participants. To estimate frontal functioning, executive functions supported by the frontal cortex were assessed. Conditioned pain modulation (CPM) investigated endogenous inhibition of pain; the test stimulus was heat pain threshold, and the conditioning stimulus (CS) was contact cold pain. Pain thresholds pre- vs. post-CS in older and younger participants, and in seniors (from a database of 500 healthy adults age >60) with poor and good performances on executive tests (high performers [HPs] and low performers [LPs]), were compared. The Kolmogorov-Smirnov test, 1-way ANOVA, repeated measures ANOVA, and Newman-Keuls' multiple comparisons post hoc test were used.

Results. HPs (n=34; 53% female; mean age=67 years) and LPs (n=27; 56%; 67) were selected randomly. Two young adult groups were recruited through local newspaper advertisements: one (n=19; 53%; 22) performed the same CPM paradigm as elderly individuals; the other (n=10; 50%; 23) was not exposed to the CS (control). Time before pain was lower in the younger group vs. HPs (P=0.05) and LPs (P=0.04), but the difference between HPs and LPs was insignificant. In pre- vs. post-CS, young participants' pain thresholds increased 3.1°C (mean=49°C, SD=2.02°C; vs. mean=52°C, SD=2.17°C; P<0.001). HPs' pain thresholds did not change pre- vs. post-CS, whereas LPs' thresholds decreased 3.4°C (mean=52°C, SD=3.06; vs. mean=48°C, SD=2.67°C; P<0.001).

Commentary. The prevalence of chronic pain increases with aging.[3] The PFC shows significant atrophy with aging and may influence pain processing in both the perception and modulation of pain through descending spinal pathways. In this study, participants categorized as LPs in cognitive function showed a decreased pain threshold and a facilitation of pain processing. This study excluded older adults with dementia, anxiety, or depression but showed that impaired cognitive function still correlated with changes in pain regulation and perception. This highlights the need to treat pain differently in this patient population. Tricyclic antidepressants and other norepinephrine reuptake inhibitors could be more effective treatments as research shows these medications can help restore an impaired descending inhibitory system in patients with chronic pain.[4,5] It is unclear whether these medications would have the same effect in patients with functional changes to the PFC. Further research is needed to 1) determine how significant the role of age-related changes to the PFC are in pain perception and modulation and 2) better address therapies targeted to the lack of descending inhibition.

Bottom Line. Cognitive function correlates with pain perception in otherwise healthy elderly adults (age 60 or older).

Reviewer. Sara F. Martin, MD, Vanderbilt University Medical Center, Nashville, TN

Source. Lithfous S, Després O, Pebayle T, Dufour A. Modification of descending analgesia in aging critical role of the prefrontal cortex. *Clin J Pain.* 2019;35(1):23-30.

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Rave Reviews

Austin P, Macdonald J, MacLeod R. Measuring spirituality and religiosity in clinical settings: a scoping review of available instruments. Religions. 2018;9(3):70.

This was a scoping review of primarily self-reporting measures currently used to identify and evaluate levels of spirituality, well-being, distress, and religion in clinical settings. The conclusions included a need for more clinician-administered measures of spiritual needs and distress and further development of self-administered instruments. The review highlights the most commonly used and reported measures with the aim to equip healthcare professionals (not only clinical chaplains) with the emotional, social, and spiritual resources to both evaluate and carry out their work. Both the new and seasoned palliative physician might benefit from enhanced familiarity with these most commonly used instruments.

Schneider J. The arts as a medium for care and self-care in dementia: arguments and evidence. Int J Environ Res Public Health. 2018;15(6):1151.

The growing number of people living with dementia for extended periods has fueled the pursuit of interventions to alleviate or delay its effects through improved function, quality of life, and satisfaction. This review makes the case for adopting arts-based interventions that promote dignity, autonomy, reciprocity, lack of stigma, and social integration to meet the psychosocial needs of people with dementia and their caregivers. This analysis results in five reasons to support the use of arts in this population and a number of useful questions for the evaluation of interventions. This review highlights the benefits to the patient and echoes the benefits of similar interventions for family caregivers and healthcare professionals found in similar studies.

PC-FACS Feedback

We appreciate your feedback. Help us help you—send your comments to pc-facs@aahpm.org.

PC-FACS was created in 2005 by Founding Editor-in-Chief *Amy P. Abernethy, MD, PhD, FACP, FAAHPM.* The Academy is deeply grateful to Dr. Abernethy for creating this important publication and for her many contributions to the field of hospice and palliative medicine.

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