Special Article

Building Resilience for Palliative Care Clinicians: An Approach to Burnout Prevention Based on Individual Skills and Workplace Factors

Anthony L. Back, MD, Karen E. Steinhauser, PhD, Arif H. Kamal, MD, MHS, and Vicki A. Jackson, MD, MPH
Fred Hutchinson Cancer Research Center (A.L.B.), University of Washington, Seattle, Washington; Center for Health Services Research in Primary Care Durham VA Medical Center (K.E.S.), the Department of Medicine, Division of General Internal Medicine, Duke University; Duke University (A.H.K.), Durham, North Carolina; and Massachusetts General Hospital (V.A.J.), Boston, Massachusetts, USA

Abstract

For palliative care (PC) clinicians, the work of caring for patients with serious illness can put their own well-being at risk. What they often do not learn in training, because of the relative paucity of evidence-based programs, are practical ways to mitigate this risk. Because a new study indicates that burnout in PC clinicians is increasing, we sought to design an acceptable, scalable, and testable intervention tailored to the needs of PC clinicians. In this article, we describe our paradigm for approaching clinician resilience, our conceptual model, and curriculum for a workplace resilience intervention for hospital-based PC teams. Our paradigm for approaching resilience is based on upstream, early intervention. Our conceptual model posits that clinician well-being is influenced by personal resources and work demands. Our curriculum for increasing clinician resilience is based on training in eight resilience skills that are useful for common challenges faced by clinicians. To address workplace issues, our intervention also includes material for the team leader and a clinician perception survey of work demands and workplace engagement factors. The intervention will focus on individual skill building and will be evaluated with measures of resilience, coping, and affect. For PC clinicians, resilience skills are likely as important as communication skills and symptom management as foundations of expertise. Future work to strengthen clinician resilience will likely need to address system issues more directly. J Pain Symptom Manage 2016;52:284–291. *© 2016 American Academy of Hospice and Palliative Medicine. Published by Elsevier Inc. All rights reserved.*

Key Words

Resilience, burnout, well-being, work engagement, palliative care

Introduction

For palliative care (PC) clinicians, the work of caring for patients with serious illness can put their own well-being at risk. What they often do not learn in training, because of the relative paucity of evidence-based programs, are practical ways to mitigate this risk. Because a new study indicates that burnout in PC clinicians is increasing, we sought to design an acceptable, scalable, and testable intervention tailored to the needs of PC clinicians. In this article, we describe our paradigm for approaching clinician resilience, our conceptual model, and curriculum for a workplace resilience intervention for hospital-based PC teams.

How researchers see burnout has changed substantially. In 1974, Freudenberger (a psychologist) noticed how clinicians drawn by their ideals to work at a free clinic eventually became depleted by that work.[1] However, the ideas underlying burnout had appeared in popular literature before Freudenberger's initial report, notably in Graham Greene's 1960 novel "A Burnt-out Case" featuring an architect who leaves his successful practice to work at a leper colony in the Congo.[2,3] In the 1980s, Maslach established burnout as a psychological syndrome affecting professionals

Address correspondence to: Anthony L. Back, MD, Cambia Palliative Care Center of Excellence, Harborview Medical Center, 325 9th Avenue, Seattle, WA 98104, USA. E-mail: tonyback@uw.edu

Accepted for publication: February 13, 2016.

0885-3924/$ - see front matter
http://dx.doi.org/10.1016/j.jpainsymman.2016.02.002

whose work involved service to others, characterized by emotional exhaustion, cynicism (originally called depersonalization), and feelings of ineffectiveness (originally called low personal accomplishment)—all symptoms at the level of the individual.[4,5] But subsequent research by Maslach and others demonstrates that burnout is also related to how systems structure work for individuals,[6] and some believe that intervening in burnout may require intervening in the system.[7] Most recently, clinicians familiar with positive psychology have argued that focusing on factors that lead to burnout might cause researchers to overlook factors that foster a clinician's ability to bounce back from stressful events.[8,9]

In this article, we outline a prevention paradigm for addressing burnout and resilience in PC that aims at upstream intervention. We discuss why burnout merits attention now, the early state of interventions for improving clinician well-being, and outline a new approach tailored to the needs of PC clinicians. Our conceptual model posits that clinician well-being is influenced by personal resources and work demands. We hypothesize that a clinician's personal resources could be augmented by training in resilience skills and that work demands could be modified in areas important for workplace engagement. This model suggests that targeting both clinician skills and workplace engagement will ultimately be needed for sustainable clinician well-being and clinical work that furthers the mission of PC. As a starting point, our project will focus on building resilience skills, and assessing workplace engagement. Our ultimate goal is to define how individual resilience skills could be learned and how workplace engagement could be maximized. Although our project has not yet yielded results, we hope that this description will stimulate dialogue about clinician burnout and resilience and further experimentation that will contribute to the well-being of clinicians in PC and other specialties.

Why Burnout Merits Attention Now

The prevalence of burnout appears to be increasing. A new study demonstrates that burnout in PC has reached a level that threatens to undo what PC has achieved. In a 2014 survey of AAHPM members, 62% of respondents met criteria for burnout, significantly more than other medical subspecialties and worse than historical data.[10,11] This same study documents that this high prevalence of burnout influences job turnover: almost half of these clinicians expect to leave their job in the next 10 years, with 24% citing burnout as the primary cause.[10] Combined with studies demonstrating that clinicians meeting criteria for burnout deliver poorer quality of care,[12,13] make more medical errors,[14–17] and display low empathy,[16,18] these data paint a worrisome picture of PC as a specialty unable to fulfill its mission because of workforce shortages and clinician underperformance due to burnout.

System issues may contribute to the high prevalence of burnout in PC clinicians. The rapid implementation of PC in U.S. hospitals has resulted in many small services dependent on one or two key clinicians,[19] working without clear productivity expectations, and ambitious goals for program growth. Many of these key clinicians have moved into PC from other specialties or graduated recently from PC fellowship training, so they experience the pressure of establishing their clinical credibility on top of normal developmental stresses for clinicians new to PC. Established PC services face different system stresses with referrals of increasing acuity, as straightforward cases no longer warrant routine PC consultation.

Finally, clinicians are poorly calibrated with regards to their awareness of burnout and resilience practices. In a large study of U.S. surgeons, 89% believed that their well-being was at or above average, although 70% had scored in the bottom 30% relative to national norms.[20] In a study of Australian registrars, only 10% scored high in resilience skills.[21] Although clinicians are aware that burnout is an occupational hazard, they may not realize how much they are affected themselves or may be reluctant to admit to themselves that they are experiencing burnout or may lack knowledge of what they could do to address burnout and resilience. Notably, use of effective coping mechanisms is associated with less burnout.[22]

The State of the Science on Clinician Well-Being

The existing state of interventions to prevent or treat burnout or improve clinician well-being shows that the science is in an early phase of development. Currently available interventions are almost entirely single-arm pre-post studies, and many lack evidence to indicate efficacy in improving well-being, creating behavioral changes in clinician practice, or reductions in burnout.[23–27] A notable exception was a randomized study of a mindfulness intervention that showed some gains in clinician well-being, albeit in a modestly powered small study.[28] Another notable exception is a single-arm study of 80 primary care physicians that demonstrated large changes in burnout and empathy,[29] involving an intervention based on mindfulness and reflective practice, but required a time commitment (>100 hours) unsuitable as a first-step intervention in a busy clinical setting. Another single-arm study, notable for including a multidisciplinary group of clinicians, found decreases in stress and increases in perspective taking with a 12-hour, five-session relaxation response intervention.[30] The

single-arm studies do indicate that a variety of modalities are acceptable to clinicians and feasible,[31–33] but single modality intervention studies may reflect selection bias—for example, our experience suggests that a subset of clinicians are simply unwilling to commit to a mindfulness-only intervention.

Design Parameters for a New Intervention

Based on a review of the literature and discussions with a wide-ranging group of stakeholders (including trainees, clinicians, leaders, administrators, psychologists, coaches), we identified the following design parameters for a new intervention.[34]

1. Burnout or resilience is the end result of the interaction of personal resources with work demands. Put simply, burnout occurs when work demands outstrip personal resources. Conversely, resilience occurs when personal resources can rise to meet work demands. Note that in Figure 1, personal resources and work demands are depicted as independent factors, but not shown in the figure are potential interactions between the workplace and personal resources that will be described ahead.
2. Targeting the intervention upstream, at burnout prevention, enables both individuals and systems to frame the issues using a growth mindset, as resilience. Rather than using a "burnout-treatment" approach, which focuses on diagnosing and treating established burnout, a proactive prevention approach engages individuals and systems in a growth mindset.[35] In addition, literature suggests that once burnout is established, individuals generally leave the workplace and intervention is "too little, too late."
3. At the individual level, a "multiple exposure" approach allows clinicians to select a repertoire of specific skills that they are motivated to develop. A qualitative study of PC clinicians identified several skill domains of interest: cognitive skills, mind-body skills, resiliency enhancing skills, and coping skills.[32] Given that preliminary evidence indicates efficacy for all of these skills (although mostly not studied in PC clinicians), an introductory strategy that enables clinicians to experience a variety of skills seems likely to build interest and self-efficacy.
4. A workplace intervention would increase impact because it would be more scalable. Although many resilience or burnout interventions occur in offsite locations (retreats, workshops), a workplace-based intervention that introduces clinicians to resilience skills seems most likely to reinforce skills in real-time and therefore have broad impact.[36] Placing the intervention in the workplace emphasizes that this work is "part of the job" rather than an afterthought.
5. Leader involvement is necessary to address work demands at the system level. Studies of workplace engagement indicate that system factors clearly influence burnout, which means that PC leaders need to understand how their decisions influence turnover, absenteeism, performance—and ultimately patient and family outcomes.[37] Although we recognize that even PC leaders may not have ultimate control over system issues, our hypothesis is that leader involvement will influence workplace engagement favorably.
6. The intervention should ultimately be customized to different segments of the PC workforce. We have started with hospital-based PC teams because they have seen the most rapid growth over the past 2 years and have attracted a large number of clinicians who are new to PC. However, other segments of PC, such as home hospice agencies, and community-based PC teams, likely face somewhat different challenges.[38] Involving the interdisciplinary team may leverage aspects of interaction between professions that may ameliorate burnout.[39,40]

Fig. 1. Conceptual model for clinician resilence and burnout.

A Prevention Paradigm for Clinician Resilience

Given the dearth of resilience education in the formal training of most PC clinicians, it is worth exposing the common beliefs and tacit assumptions related to burnout.[41] At the individual level, a common belief is that burnout occurs when a clinician has given everything she has to her work; the tacit assumption is that clinicians possess a fixed quantity of energy, or compassion, that becomes fatigued because it can be used up and cannot be modified. However, studies suggest that flourishing is based on specific skills and can be increased.[42] Another common belief is that when one becomes fatigued, it is best to "tough it out"; the tacit assumption here is that the most efficient approach is to work continuously, when studies demonstrate that short breaks actually improve efficiency and productivity.[43] At the system level, a common belief is that clinicians are responsible to cope with their workplace stress outside

of the workplace; the tacit assumption is that workplace stress is the responsibility of the individual.

These tacit assumptions about burnout and resilience echo earlier views about communication skills. Before empirical research that began appearing in 2002,[44] communication skill was assumed to be the spontaneous creation of a gifted, charismatic individual, and being a good communicator was something that "couldn't be trained." Not understanding the different needs of novice, intermediate, and expert learners, educators routinely misapplied techniques for novices to experts (resulting in boredom) or vice versa (resulting in confusion). We suggest that a similar process is evident now in the tacit assumptions held by clinicians and leaders about burnout and resilience.

The new paradigm that we propose overturns these assumptions. To begin with, clinicians should learn that career longevity is not solely a matter of character, but rather that PC work entails both cognitive load[45] and emotional labor[46]—both capacities can be trained specifically over time. A clinician's capacity for complex work is not a matter of grit but fluctuates in predictable ways during an average workday. A clinician's propensity for burnout or resilience is not just an individual matter that should be cared for outside the workplace but is highly influenced by the way the system constructs the work and the team. In this new paradigm, sustainable clinical PC is the result of individual clinicians who have well-developed resilience skills working in a system that is designed to maximize work engagement. This meets the proposed "quadruple aim" of healthcare that adds clinician well-being to the usual focus on costs, population health, and patient experience.[47]

What Are Clinician Resilience Skills?

At the individual level, we frame the intervention as building resilience skills. The content of the skills is derived from intervention studies using cognitive-behavioral therapy, positive psychology, and mindfulness (Table 1). Framing these content areas as skills directs clinicians to develop the personal resources needed to respond to work demands, using skills that can be learned, strengthened, and refined. To emphasize the skills frame, we designed the curriculum based on challenges that clinicians commonly face. For each skill, there is a brief reflection, to enable clinicians to identify how they experience the challenge; an evidence overview, to provide cognitive scaffolding; an experiential exercise, to provide supervised practice; and an assignment to try out the skill at work, including debriefing with a peer learner before the next session. This multiple exposure and practice structure provides an introductory learning experience for a variety of skills that we view as critical to resilience. Although individual clinicians may wish to work further on a particular skill, or start at a particular point, our own view as clinicians is that we depend on all of these and would not want to be without any of them.

Conceptualizing individual resilience as skill-based offers some key advantages. Perhaps the most important advantage is that this conceptualization suggests that clinicians can manage stressful situations by drawing on specific resilience skills—rather than feeling like they lack character or grit. Every clinician has moments when they feel stressed out, regardless of how much experience they have or how robust their coping skills are, and understanding this may prevent

Table 1
Clinician Resilience Skills

Clinician Challenge	Common Pitfall	Resilience Skill
I can't fix everything	Adapting the biomedical "identify the pathology" approach to resilience	Leveraging personal strengths
I'm feeling overwhelmed or I'm feeling numb	Trying to "power through" rather than taking a break	Tracking activation during the day
The work I could do feels like too much right now	Thinking that my doing more will always help and overlooking how setting boundaries facilitates therapeutic relationships	Setting healthy external boundaries
Can I be present to this patient without being sucked in to the tragedy?	Internalize problems, for example, "I am overwhelmed by all the suffering I see—what's wrong with me?"	Self-regulating emotions
I am going over and over this case in my mind	Assume that thinking more will produce a resolution—overlooking dangers of rumination and catastrophizing	Recognizing cognitive distortions
I have to work at a pace I can't maintain to feel competent	Accepting a perfectionist's assessment on what work is enough	Developing realistic expectations for one's own performance
I don't think my work is meaningful	Assuming that meaning only happens in huge dramatic moments	Finding meaning in daily work
I'd like to be done with this	Viewing resilience as "been there, done that"	Committing to long-term development

some clinicians from catastrophizing about their own futures.

The point of building individual resilience skills, however, is not to suggest that these individual skills could obviate the need for attention to the workplace. We share concerns raised by others that resilience training aimed only at individuals could be seen as simply as a productivity booster or ignore the reality that even the most resilient clinician will burnout in an environment that is unsupportive or in which the workload is consistently overwhelming.[48]

Readers familiar with the wide-ranging literature relevant to clinician resilience may notice that we have not included multidimensional constructs such as compassion fatigue,[49] secondary or vicarious trauma,[50] moral distress,[51] and post-traumatic stress[52] or growth.[53] Although these constructs represent important work that we have drawn from, we chose rather to structure our approach as proactive skills-based rather than deficit centered and thus have described all the issues relative to specific, trainable skills.

What Workplace Features Create Work Engagement?

At the system level, we have drawn on Leiter and Maslach's Areas of Worklife, which defines work engagement as the opposite of burnout.[6] Burnout feels like emotional exhaustion; work engagement feels like energy; burnout manifests as cynicism, work engagement as involvement; finally, burnout feels like inefficacy, engagement feels like efficacy. Leiter and Maslach identified six areas of the work environment relevant to how clinicians experience work demands: workload, control, reward, community, fairness, and values.[6] We have reworded these areas slightly as "workplace engagement factors" to parallel the clinician resilience skills in the preceding section (Table 2). These workplace engagement factors give slightly different language for what other authors would call interdisciplinary teamwork, and we find them useful because they identify aspects of team function from a workplace perspective.

The responsibility for addressing these system factors is shared by the clinicians, service leaders, and administrators. Although we recognize that modifying a system factor may be seen by a clinician as beyond their power, preventing burnout and building a sustainable practice environment must be a collaboration between service leaders and clinicians. Creative solutions are often possible to address issues in each of these domains when a space is provided for such dialogue. Leaders also need to be equipped with the data to advocate for more resources at the institutional level (Fig. 2).

What Outcomes Should Be Measured?

Current measurement strategies to evaluate interventions have largely addressed clinician qualities, such as resilience,[54] empathy,[55] mindfulness,[56–58] affect,[59] or burnout.[5] A variety of studies have examined correlations between burnout and simulated encounters or real encounters but did not test an intervention. At the system level, workplace factors have been measured, but little intervention work has been conducted in medical settings.

The next generation of intervention studies should expand outcomes to include clinician self-efficacy, uptake of specific resilience skills, and intervention effects on clinician affect, mood, and actions taken to manage stress. The system measurements should include intervention effects on workplace engagement factors,[60] and teamwork,[61] and cross-team evaluations.[62]

Finally, after establishing uptake of skills training, the next step in the science of PC clinician resilience

Table 2
Workplace Engagement Factors

System Challenge	Common Pitfall	Workplace Engagement Factor
Clinicians have no input or influence on how their work is structured.	New services scramble to see patients, are not involved in structuring their work.	Enabling control through some influence on decisions that affect work
Few opportunities exist to recognize clinician effort, dedication, or creativity.	Busy teams forget to invest in team building or the belief that rewards are only monetary.	Structuring rewards that are monetary, social, or recognition of a job well done
Workplace culture seems based on individual clinician effort.	Teamwork and conflict resolution are taken for granted.	Building community to support clinicians and promote culture where conflicts can be managed openly
Clinicians perceive that system decisions lack fairness and transparency.	Emphasis on implementing new plans leaves clinicians out of the loop	Promoting fairness in decisions that affect clinician work
Clinicians feel their values are at odds with system priorities and incentives.	Assuming that clinicians and systems hold the same motivations, ideals, and aims	Recognizing values that inspire clinicians in system operations and priorities
Clinician workload is not scaled to patient volume and acuity.	Startup time for new services not included in productivity expectations.	Calibrating workload so that work demands do not exceed limits of any human

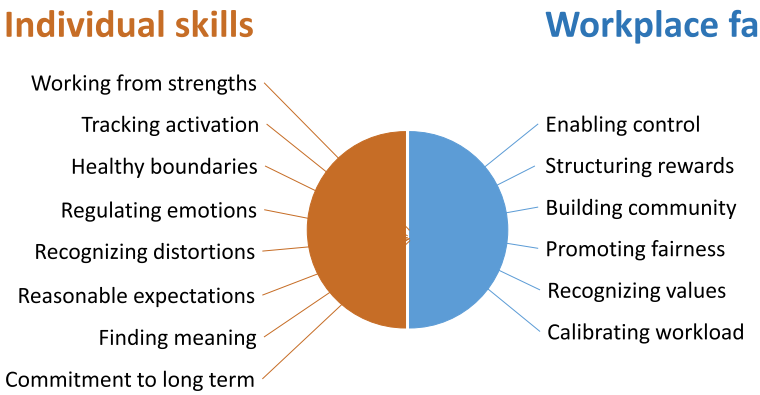

Fig. 2. Resilience skills and workplace factors.

is to test intervention in randomized or pragmatic trials that include patient and family perception of quality of care, clinician empathy, and system responsiveness.[63]

Conclusion

This conceptual model of clinician resilience focused on individual skills and system factors enables the construction of a curriculum aimed at developing a repertoire of individual skills and system assessments enable clinicians to respond proactively to common challenges, and points to outcomes such as resilience, affect, clinician skill uptake, and team actions to address system issues. A pilot test of this model is underway, with funding from the National Palliative Care Research Center. In future iterations, we hope that system issues can be addressed more systematically, and ultimately that outcomes could be extended to patient- and family-level measures, and quality of care. Perhaps future clinicians will view resilience skills as equal in importance to communication skills and symptom management as the foundations of expertise in PC.

Disclosures and Acknowledgments

The authors gratefully acknowledge funding from the National Palliative Care Research Center, Arnold P. Gold Foundation and support from the American Academy of Hospice and Palliative Medicine. The authors declare no conflicts of interest.

References

1. Freudenberger HJ. Staff burn-out. J Soc Issues 1974;30:159–165.

2. Greene G. A burnt-out case. Penguin Classics, 1992.

3. Maslach C, Schaufeli WB. In: Schaufeli WB, Maslach C, Marek T, eds. Professional burnout: Recent developments in theory and research. Taylor & Francis, 1993:1–16.

4. Maslach C, Schaufeli WB, Leiter MP. Job burnout. Annu Rev Psychol 2001;52:397–422.

5. Kalliath TJ, O'Driscoll MP, Gillespie DF, Bluedorn AC. A test of the Maslach Burnout Inventory in three samples of healthcare professionals. Work Stress 2000;14:35–50.

6. Leiter MP, Maslach C. Six areas of worklife: a model of the organizational context of burnout. J Health Hum Serv Adm 1999;21:472–489.

7. Leiter MP. Key worklife areas contributing to health care burnout: reflections on the ORCAB project. Br J Health Psychol 2015;20:223–227.

8. Aspinwall LG, Tedeschi RG. The value of positive psychology for health psychology: progress and pitfalls in examining the relation of positive phenomena to health. Ann Behav Med 2010;39:4–15.

9. Fredrickson BL. The role of positive emotions in positive psychology: the broaden-and-build theory of positive emotions. Am Psychol 2001;56:218–226.

10. Kamal A, Bull JH, Wolf SP, et al. Burnout among palliative care clinicians in the United States: results of a national survey. *J Clin Oncol* Available at http://meetinglibrary.asco.org/content/132497-144

11. Shanafelt TD, Boone S, Tan L, et al. Burnout and satisfaction with work-life balance among US physicians relative to the general US population. Arch Intern Med 2012;172:1377.

12. Argentero P, Dell'Olivo B, Ferretti MS. Staff burnout and patient satisfaction with the quality of dialysis care. Am J Kidney Dis 2008;51:80–92.

13. Poghosyan L, Clarke SP, Finlayson M, Aiken LH. Nurse burnout and quality of care: cross-national investigation in six countries. Res Nurs Health 2010;33:288–298.

14. Prins JT, van der Heijden FMMA, Hoekstra-Weebers JEHM, et al. Burnout, engagement and resident physicians' self-reported errors. Psychol Health Med 2009;14:654–666.

15. Shanafelt TD, Balch CM, Bechamps G, et al. Burnout and medical errors among American surgeons. Ann Surg 2010;251:995–1000.

16. West CP, Huschka MM, Novotny PJ, et al. Association of perceived medical errors with resident distress and empathy: a prospective longitudinal study. JAMA 2006;296:1071.

17. Williams ES, Manwell LB, Konrad TR, Linzer M. The relationship of organizational culture, stress, satisfaction, and burnout with physician-reported error and suboptimal patient care: results from the MEMO study. Health Care Manage Rev 2007;32:203–212.

18. Tei S, Becker C, Kawada R, et al. Can we predict burnout severity from empathy-related brain activity? Transl Psychiatry 2014;4:e393.

19. Kamal AH, Bull J, Wolf S, et al. Characterizing the hospice and palliative care workforce in the U.S.: clinician demographics and professional responsibilities. J Pain Symptom Manage 2015, http://dx.doi.org/10.1016/j.jpainsymman.2015.10.016.

20. Shanafelt TD, Kaups KL, Nelson H, et al. An interactive individualized intervention to promote behavioral change to increase personal well-being in US surgeons. Ann Surg 2014;259:82–88.

21. Cooke GP, Doust JA, Steele MC. A survey of resilience, burnout, and tolerance of uncertainty in Australian general practice registrars. BMC Med Educ 2013;13:2.

22. Koh MY, Chong PH, Neo PSH, et al. Burnout, psychological morbidity and use of coping mechanisms among palliative care practitioners: a multi-centre cross-sectional study. Palliat Med 2015;29:633–642.

23. Potter P, Deshields T, Rodriguez S. Developing a systemic program for compassion fatigue. Nurs Adm Q 2013;37:326–332.

24. Harding R, Higginson I. What is the best way to help caregivers in cancer and palliative care? A systematic literature review of interventions and their effectiveness. Palliat Med 2003;17:63–74.

25. Fillion L, Duval S, Dumont S, et al. Impact of a meaning-centered intervention on job satisfaction and on quality of life among palliative care nurses. Psychooncology 2009;18:1300–1310.

26. Treating compassion fatigue. Brunner-Routledge, 2002.

27. Kearney MK, Weininger RB, Vachon ML, et al. Self-care of physicians caring for patients at the end of life: 'Being connected… A key to my survival'. JAMA 2009;301:1155.

28. West CP, Dyrbye LN, Rabatin JT, et al. Intervention to promote physician well-being, job satisfaction, and professionalism: a randomized clinical trial. JAMA Intern Med 2014;174:527–533.

29. Krasner MS, Epstein RM, Beckman H, et al. Association of an educational program in mindful communication with burnout, empathy, and attitudes among primary care physicians. JAMA 2009;302:1284–1293.

30. Mehta DH, Perez GK, Traeger L, et al. Building resiliency in a palliative care team: a pilot study. J Pain Symptom Manage 2016;51:604–608.

31. Mehta D, Chittenden E, Denninger J, et al. Promoting resiliency among palliative care clinicians: a pilot intervention. J Altern Complement Med 2014;20:A102.

32. Perez GK, Haime V, Jackson V, et al. Promoting resiliency among palliative care clinicians: stressors, coping strategies, and training needs. J Palliat Med 2015;18:332–337.

33. Fortney L, Luchterhand C, Zakletskaia L, et al. Abbreviated mindfulness intervention for job satisfaction, quality of life, and compassion in primary care clinicians: a pilot study. Ann Fam Med 2013;11:412–420.

34. Brown T, Katz B. Change by design: how design thinking transforms organizations and inspires innovation. Harper Business, 2009.

35. Mangels JA, Butterfield B, Lamb J, et al. Why do beliefs about intelligence influence learning success? A social cognitive neuroscience model. Soc Cogn Affect Neurosci 2006;1:75–86.

36. Vanhove AJ, Herian MN, Perez ALU, et al. Can resilience be developed at work? A meta-analytic review of resilience-building programme effectiveness. J Occup Organ Psychol 2015, http://dx.doi.org/10.1111/joop.12123. n/a–n/a.

37. Spence Laschinger HK, Fida R. New nurses burnout and workplace wellbeing: the influence of authentic leadership and psychological capital. Burn Res 2014;1:19–28.

38. Slocum-Gori S, Hemsworth D, Chan WW, Carson A, Kazanjian A. Understanding compassion satisfaction, compassion fatigue and burnout: a survey of the hospice palliative care workforce. Palliat Med 2013;27:172–178.

39. Dréano-Hartz S, Rhondali W, Ledoux M, et al. Burnout among physicians in palliative care: impact of clinical settings. Palliat Support Care 20151–9, http://dx.doi.org/10.1017/S1478951515000991.

40. Hernandez-Marrero P, Pereira SM, Carvalho AS, On behalf of DELiCaSP. Ethical decisions in palliative Care: interprofessional relations as a burnout protective factor? results from a mixed-methods multicenter study in Portugal. Am J Hosp Palliat Med 2015, http://dx.doi.org/10.1177/1049909115583486.

41. Montgomery A. The inevitability of physician burnout: implications for interventions. Burn Res 2014;1:50–56.

42. Seligman MEP. Flourish: A Visionary New Understanding of Happiness and Well-being. Atria Books, 2012.

43. Tucker P. The impact of rest breaks upon accident risk, fatigue and performance: a review. Work Stress 2003;17:123–137.

44. Fallowfield L, Jenkins V, Farewell V, et al. Efficacy of a Cancer Research UK communication skills training model for oncologists: a randomised controlled trial. The Lancet 2002;359:650–656.

45. Burgess DJ. Are providers more likely to contribute to healthcare disparities under high levels of cognitive load? how features of the healthcare setting may lead to biases in medical decision making. Med Decis Making 2010;30:246–257.

46. Larson EB. Clinical empathy as emotional labor in the patient-physician relationship. JAMA 2005;293:1100.

47. Bodenheimer T, Sinsky C. From triple to quadruple aim: care of the patient requires care of the provider. Ann Fam Med 2014;12:573–576.

48. Cartwright S, Holmes N. The meaning of work: the challenge of regaining employee engagement and reducing cynicism. Hum Resour Manag Rev 2006;16:199–208.

49. Figley CR. Compassion fatigue: psychotherapists' chronic lack of self care. J Clin Psychol 2002;58:1433–1441.

50. Sinclair HAH, Hamill C. Does vicarious traumatisation affect oncology nurses? A literature review. Eur J Oncol Nurs 2007;11:348–356.

51. Rushton CH, Kaszniak AW, Halifax JS. A framework for understanding moral distress among palliative care clinicians. J Palliat Med 2013;16:1074–1079.

52. O'Mahony S, Gerhart JI, Grosse J, Abrams I, Levy MM. Posttraumatic stress symptoms in palliative care professionals seeking mindfulness training: prevalence and vulnerability. Palliat Med 2016;30:189–192.

53. Taubman–Ben-Ari O, Weintroub A. Meaning in life and personal growth among pediatric physicians and nurses. Death Stud 2008;32:621–645.

54. Windle G, Bennett KM, Noyes J. A methodological review of resilience measurement scales. Health Qual Life Outcomes 2011;9:8.

55. Hojat M, Gonnella JS, Nasca TJ, et al. Physician empathy: definition, components, measurement, and relationship to gender and specialty. Am J Psychiatry 2002;159:1563–1569.

56. Lau MA, Bishop SR, Segal ZV, et al. The Toronto Mindfulness Scale: development and validation. J Clin Psychol 2006;62:1445–1467.

57. Baer RA. Using self-report assessment methods to explore facets of mindfulness. Assessment 2006;13:27–45.

58. MacKillop J, Anderson EJ. Further psychometric validation of the Mindful Attention Awareness Scale (MAAS). J Psychopathol Behav Assess 2007;29:289–293.

59. Watson D, Clark LA, Tellegen A. Development and validation of brief measures of positive and negative affect: the PANAS scales. J Pers Soc Psychol 1988;54:1063–1070.

60. Schaufeli WB. The measurement of work engagement with a short questionnaire: a cross-national study. Educ Psychol Meas 2006;66:701–716.

61. Deneckere S, Euwema M, Van Herck P, et al. Care pathways lead to better teamwork: results of a systematic review. Soc Sci Med 2012;75:264–268.

62. Hülsheger UR, Anderson N, Salgado JF. Team-level predictors of innovation at work: a comprehensive meta-analysis spanning three decades of research. J Appl Psychol 2009;94:1128–1145.

63. Lee THL. An Epidemic of Empathy in Healthcare: How to Deliver Compassionate, Connected Patient Care That Creates a Competitive Advantage. McGraw-Hill Education, 2015.