

Financial Disclosures: Dr Kneebone reported owning shares in Medical Skills Ltd, which provides training in procedural skills using multimedia CD-ROMs and models for simple clinical procedures.

REFERENCES

1. Aggarwal R, Darzi A. Technical-skills training in the 21st century. *N Engl J Med*. 2006;355(25):2695-2696.
2. Yule S, Flin R, Paterson-Brown S, Maran N. Non-technical skills for surgeons in the operating room: a review of the literature. *Surgery*. 2006;139(2):140-149.
3. Gaba DM. The future vision of simulation in health care. *Qual Saf Health Care*. 2004;13(suppl 1):2-10.
4. Paige JT, Kozmenko V, Yang T, et al. High-fidelity, simulation-based, interdisciplinary operating room team training at the point of care. *Surgery*. 2009;145(2):138-146.
5. Ericsson KA. Deliberate practice and the acquisition and maintenance of expert performance in medicine and related domains. *Acad Med*. 2004;79(10)(suppl):S70-S81.
6. Chaffin R, Imreh G, Crawford M. *Practicing Perfection: Memory and Piano Performance*. Mahwah, NJ: Lawrence Erlbaum Associates; 2002.
7. Lehmann A, Sloboda J, Woody R. *Psychology for Musicians: Understanding and Acquiring the Skills*. Oxford, UK: Oxford University Press; 2007.
8. Davidson J, King E. Strategies for ensemble practice. In: Williamon A, ed. *Musical Excellence*. Oxford, UK: Oxford University Press; 2004:105-122.
9. Kneebone R, Nestel D, Wetzel C, et al. The human face of simulation: patient-focused simulation training. *Acad Med*. 2006;81(10):919-924.
10. Nestel DF, Black SA, Kneebone R, et al. Simulated anaesthetists in high fidelity simulations for surgical training: feasibility of a training programme for actors. *Med Teach*. 2008;30(4):407-413.

EDITORIAL

Editorials represent the opinions of the authors and *JAMA* and not those of the American Medical Association.

Enhancing Meaning in Work

A Prescription for Preventing Physician Burnout and Promoting Patient-Centered Care

Tait D. Shanafelt, MD

BURNOUT IS A PERVERSIVE PROBLEM AMONG PHYSICIANS.¹ The burnout syndrome is characterized by losing enthusiasm for work (emotional exhaustion), treating people as if they were objects (depersonalization), and having a sense that work is no longer meaningful (low personal accomplishment).² Numerous global studies involving nearly every medical and surgical specialty indicate that approximately 1 of every 3 physicians is experiencing burnout at any given time.¹

The prevalence of burnout among physicians is cause for concern. Burnout appears to alter both the physician-patient relationship and the quality of care physicians provide. Physicians' degree of burnout and professional satisfaction are related to physician empathy and compassion, prescribing habits, referral practices, professionalism, and the likelihood of making medical errors.^{1,3-5} Physician burnout also appears to influence patient adherence to recommended therapy, the degree of trust and confidence patients have in their physician, and patients' satisfaction with their medical care.^{6,7} In addition to these professional repercussions, burnout can have profound personal consequences for physicians, including substance abuse, intent to leave medical practice, and suicide.^{1,8}

Factors that contribute to physician burnout are complex. Most studies find loss of autonomy, decreased con-

rol over the practice environment, and inefficient use of time due to administrative requirements to be central factors.¹ Other surveys implicate workload, specialty choice, practice setting, sleep deprivation, lack of work-life balance, medical errors, risk of malpractice suits, characteristics of treated patients, and the methods physicians use to deal with patient death and illness as contributing factors.¹ These variables interact in unique ways depending on each physician's personal responsibilities, personality, coping strategies, and other factors, which likely account for variation in burnout among physicians in similar professional circumstances.⁹

Despite the prevalence of burnout and its potential for serious consequences, few studies have tested interventions to address the problem. Most analyses have focused on individual interventions, such as stress reduction training, rather than organizational interventions. Although these studies have suggested possible benefits, they are limited by small sample sizes, short follow-up, nonrandomized study designs, and failure to incorporate intent to treat analysis.^{10,11} Few studies have evaluated organizational interventions to reduce clinician distress. For instance, a multisite, primary care clinic was established with the organizational value that physician well-being is of equal importance to care quality and financial viability. The clinic leadership aimed

Author Affiliation: Mayo Clinic Department of Medicine Program on Physician Well-being, Mayo Clinic, Rochester, Minnesota.

Corresponding Author: Tait D. Shanafelt, MD, Department of Medicine Program on Physician Well-being, Mayo Clinic, Rochester, MN 55905 (shanafelt.tait@mayo.edu).

See also p 1284.

to promote physician well-being by cultivating efficiency, autonomy, and meaning in work through a continuous improvement process along with longitudinal monitoring of physician well-being.¹² This strategy was associated with an increase in physician satisfaction and lower physician burnout at the organizational level over a 4-year interval.¹²

Other studies have suggested that fostering self-awareness can help physicians identify what they value and connect with what is most meaningful in their work.¹³ A variety of methods can be used to help promote awareness and reflection. For example, physicians may be asked to privately reflect on or write a brief narrative about a specific personal experience in their practice (eg, being with a patient at the end of life, making a medical error, recall of a particularly meaningful encounter) with a focus on how they reacted to and worked through the situation.¹⁴ Participants may then share their experience (and listen to those of others) with a small group of colleagues who listen with the intent of understanding the speaker's experience rather than interpreting or judging.¹⁴ Although the goal of such "mindfulness training" is to increase attention, awareness, intention, and self-reflection, it is hypothesized these traits may also reduce physician distress.¹¹

In this issue of *JAMA*, Krasner and colleagues¹⁵ report the results of a single-group cohort study that evaluated the effect of a mindfulness and self-awareness curriculum on primary care physician burnout, empathy, and mood. Participants engaged in an intensive mindfulness education program that involved a 52-hour curriculum administered over a 1-year interval that included training in appreciative inquiry, narrative medicine, and mindful meditation. The study used a before-and-after intervention design and comprehensively measured changes in mindfulness, burnout, mood disturbance, and patient orientation using standardized instruments.

The results were striking. Participants had large increases in mindfulness skills and orientation that were immediately detectable and were sustained for up to 15 months.¹⁵ The physicians also had large, durable improvements in burnout, mood disturbance, and empathy. These changes correlated with the improvements in mindfulness, suggesting that enhancing physicians' attention to their own experience not only increases their orientation toward patients but also reduces physician distress.¹⁵

As acknowledged by the authors, the study has several limitations. First, only 70 of 871 invited physicians (<10%) participated in the study. It is unknown whether these participants are representative of physicians in general or whether those who did not volunteer would have derived equal benefit. Second, the before-and-after study design provides less strength of evidence than a randomized trial. The improvements observed could be due to the Hawthorne effect or simply spending time with colleagues. However, the large improvement in mindfulness (the focus of the curriculum) suggests that additional time spent with colleagues was not

the sole benefit of the intervention. Third, because the study was limited to primary care physicians, it is unknown whether the intervention would be beneficial for physicians in other specialties, particularly surgical disciplines or specialties with minimal direct patient contact (eg, radiology, pathology). Despite these limitations, the study evaluated a well-conceived, comprehensive, and portable intervention that was appropriately executed, longitudinally evaluated with standardized metrics, and included long-term follow-up investigating the durability of effect.

The study by Krasner and colleagues is part of a growing body of research suggesting that enhancing meaning in work increases physician satisfaction and reduces burnout. A recent study of academic physicians demonstrated that physicians' ability to focus on the aspect of work most meaningful to them (eg, patient care, research, education) had a strong inverse relationship with burnout.¹⁶ Qualitative studies suggest that physicians primarily derive professional satisfaction from relationships with patients, relationships with colleagues, and the day-to-day rewards of practice such as intellectual stimulation.¹⁷ The most meaningful professional role varies from physician to physician but often centers on being a healer, developing expertise, being a teacher, or making scientific discoveries.¹⁸ Physicians may also derive different degrees of meaning from specific aspects of their work and may be able to tailor their practice accordingly. For primary care physicians, this may include focusing on geriatric care, hospital medicine, palliative care, health education, or administration.

Can promoting physician well-being truly improve quality of care? In one of the few studies to evaluate the effect of a clinician-based intervention on quality outcomes, a large medical malpractice insurer developed and tested a stress reduction program for hospital employees that focused on individual training in stress management and organizational control of factors that produced stress. A pilot study found a reduction in medication errors after implementation of the program at a single hospital.¹⁹ The investigators subsequently conducted a controlled trial that evaluated the longitudinal effect of the program on malpractice claims at 22 participating hospitals relative to 22 control hospitals matched for size, practice scope, geography, and baseline frequency of malpractice claims. Malpractice claims over the ensuing year were reduced by 70% at intervention hospitals compared with a 3% reduction at control hospitals ($P < .01$).¹⁹ Additional studies evaluating the effect of organizational interventions to promote physician well-being on quality of care are needed.

Physicians in the United States will face a host of new challenges over the next decade as the nation reforms its health care system. This restructuring will likely result in reduced physician compensation and autonomy, increased time pressure, and myriad new administrative challenges. These changes have the potential to increase the already epidemic levels of burnout among physicians

and to overwhelm those currently near their limits. Although many physicians may be tempted to respond to this challenge by retreating from work (eg, more time off, reduced scope of practice, retirement), the study by Krasner and colleagues¹⁵ demonstrates that training physicians the art of mindful practice has the potential to promote physician health *through* work. Physicians continue to control the most sacred and meaningful aspect of medical practice—the encounter with the patient and the reward that comes from restoring health and relieving suffering. Reminding physicians of this fact and helping them recognize and enhance the meaning they derive from the practice of medicine may help protect against burnout and promote patient-centered care for the benefit of both physicians and their patients.

Financial Disclosures: Dr Shanafelt reported receiving salary support for directing the Mayo Clinic Department of Medicine Program on Physician Well-being.

Additional Contributions: David Steensma, MD, Mayo Clinic, provided a critique of this editorial without compensation.

REFERENCES

1. Shanafelt T, Sloan J, Habermann T. The well-being of physicians. *Am J Med*. 2003;114(6):513-517.
2. Maslach C, Jackson S, Leiter M. *Maslach Burnout Inventory Manual*. 3rd ed. Palo Alto, CA: Consulting Psychologists Press; 1996.
3. 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(9):1071-1078.
4. Grol R, Mokkink H, Smits A, et al. Work satisfaction of general practitioners and the quality of patient care. *Fam Pract*. 1985;2(3):128-135.
5. Melville A. Job satisfaction in general practice: implications for prescribing. *Soc Sci Med Med Psychol Med Sociol*. 1980;14A(6):495-499.
6. DiMatteo MR, Sherbourne CD, Hays RD, et al. Physicians' characteristics influence patients' adherence to medical treatment: results from the Medical Outcomes Study. *Health Psychol*. 1993;12(2):93-102.
7. Haas JS, Cook EF, Puopolo AL, Burstin HR, Cleary PD, Brennan TA. Is the professional satisfaction of general internists associated with patient satisfaction? *J Gen Intern Med*. 2000;15(2):122-128.
8. Dyrbye LN, Thomas MR, Massie FS, et al. Burnout and suicidal ideation among US medical students. *Ann Intern Med*. 2008;149(5):334-341.
9. Linzer M, Visser MR, Oort FJ, Smets EM, McMurray JE, de Haes HC; Society of General Internal Medicine (SGIM) Career Satisfaction Study Group (CSSG). Predicting and preventing physician burnout: results from the United States and the Netherlands. *Am J Med*. 2001;111(2):170-175.
10. McCue JD, Sachs CL. A stress management workshop improves residents' coping skills. *Arch Intern Med*. 1991;151(11):2273-2277.
11. Shapiro SL, Astin JA, Bishop SR, Cordova M. Mindfulness-based stress reduction for health care professionals: results from a randomized trial. *Int J Stress Manag*. 2005;12:164-176.
12. Dunn PM, Arnetz BB, Christensen JF, Homer L. Meeting the imperative to improve physician well-being: assessment of an innovative program. *J Gen Intern Med*. 2007;22(11):1544-1552.
13. Epstein RM. Mindful practice. *JAMA*. 1999;282(9):833-839.
14. Rabow MW, McPhee SJ. Doctoring to heal: fostering well-being among physicians through personal reflection. *West J Med*. 2001;174(1):66-69.
15. 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(12):1284-1293.
16. Shanafelt TD, West CP, Sloan JA, et al. Career fit and burnout among academic faculty. *Arch Intern Med*. 2009;169(10):990-995.
17. McMurray JE, Williams E, Schwartz MD, et al; SGIM Career Satisfaction Study Group. Physician job satisfaction: developing a model using qualitative data. *J Gen Intern Med*. 1997;12(11):711-714.
18. Shanafelt T, Chung H, White H, Lyckholm LJ. Shaping your career to maximize personal satisfaction in the practice of oncology. *J Clin Oncol*. 2006;24(24):4020-4026.
19. Jones JW, Barge BN, Steffy BD, Fay LM, Kunz LK, Wuebker LJ. Stress and medical malpractice: organizational risk assessment and intervention. *J Appl Psychol*. 1988;73(4):727-735.