CLINICAL REPORT Guidance for the Clinician in Rendering Pediatric Care

American Academy of Pediatrics
DEDICATED TO THE HEALTH OF ALL CHILDREN™

Physician Health and Wellness

Hilary H. McClafferty, MD, FAAP,[a] Dena K. Hubbard, MD, FAAP,[b] Dana Foradori, MD, MEd, FAAP,[c] Melanie L. Brown, MD, MSE, FAAP,[d] Jochen Profit, MD, MPH, FAAP,[e] Daniel S. Tawfik, MD, MS, FAAP,[f] and the SECTION ON INTEGRATIVE MEDICINE

Physician health and wellness is a complex topic relevant to all pediatricians. Survey studies have established that pediatricians experience burnout at comparable rates to colleagues across medical specialties. Prevalence of burnout increased for all pediatric disciplines from 2011 to 2014. During that time, general pediatricians experienced a more than 10% increase in burnout, from 35.3% to 46.3%. Pediatric medical subspecialists and pediatric surgical specialists experienced slightly higher baseline rates of burnout in 2011 and similarly increased to just under 50%. Women currently constitute a majority of pediatricians, and surveys report a 20% to 60% higher prevalence of burnout in women physicians compared with their male counterparts. The purpose of this report is to update the reader and explore approaches to pediatrician well-being and reduction of occupational burnout risk throughout the stages of training and practice. Topics covered include burnout prevalence and diagnosis; overview of national progress in physician wellness; update on physician wellness initiatives at the American Academy of Pediatrics; an update on pediatric-specific burnout and well-being; recognized drivers of burnout (organizational and individual); a review of the intersection of race, ethnicity, gender, and burnout; protective factors; and components of wellness (organizational and individual). The development of this clinical report has inevitably been shaped by the social, cultural, public health, and economic factors currently affecting our communities. The coronavirus disease 2019 (COVID-19) pandemic has layered new and significant stressors onto medical practice with physical, mental, and logistical challenges and effects that cannot be ignored.

BACKGROUND AND INTRODUCTION

Physician health and wellness is a complex topic relevant to all pediatricians. Pediatricians experience burnout at comparable rates to colleagues across medical specialties, compounded by a range of emotional factors that may present when caring for medically vulnerable children and their families. The purpose of this clinical

[a]*Department of Pediatrics, Section Chief, Pediatric Emergency Medicine, Tucson Medical Center, Tucson, Arizona;* [b]*Children's Mercy Kansas City, School of Medicine, University of Missouri Kansas City, Kansas City, Missouri;* [c]*Department of Pediatric Hospital Medicine, Cleveland Clinic Children's Hospital, Cleveland, Ohio;* [d]*Johns Hopkins University School of Medicine, Baltimore, Maryland; and* [e]*Divisions of Neonatal and Developmental Medicine and* [f]*Pediatric Critical Care Medicine, Department of Pediatrics, Stanford University School of Medicine, Stanford, California*

Drs McClafferty and Hubbard drafted the initial manuscript. Drs Tawfik, Profit, Foradori, and Brown contributed to specific sections and sequential manuscript draft revisions; and all authors approved the final manuscript as submitted and agree to be accountable for all aspects of the work.

DOI: https://doi.org/10.1542/peds.2022-059665

Address correspondence to Hilary H. McClafferty, MD, FAAP.
E-mail: hmcclafferty@arizona.edu

PEDIATRICS (ISSN Numbers: Print, 0031-4005; Online, 1098-4275).

To cite: McClafferty HH, Hubbard DK, Foradori D, et al; AAP Section on Integrative Medicine. Physician Health and Wellness. *Pediatrics.* 2022;150(5):e2022059665

report is to update the reader on the accruing research relevant to pediatricians since publication of the initial clinical report from the American Academy of Pediatrics (AAP) in 2014[1] and to explore new approaches and resources available to support pediatrician well-being and reduce burnout risk at all stages of training and practice.

Topics covered include burnout prevalence and diagnosis; overview of national progress in physician wellness; update on physician wellness initiatives at the AAP; an update on pediatric-specific burnout and well-being; recognized drivers of burnout (organizational and individual); a review of the intersection of race, ethnicity, gender, and burnout; protective factors; and components of wellness (organizational and individual). Table 1 contains a list of definitions relevant to these topics.

World events, including the global COVID-19 pandemic, have precipitated a frameshift in the dialogue about physician wellness and amplified a collective sense of urgency to protect and support the health and well-being of all health care professionals. A wealth of literature relevant to pediatricians has accrued on the topic since publication of the initial AAP clinical report on physician wellness,[1] making it important for pediatricians to be up-to-date on research and resources that can help them build and sustain a healthy career.

BURNOUT: AN EVOLVING UNDERSTANDING OF A COMPLEX ISSUE

Paraphrased by Maslach, a pioneer in the field, burnout starts when "energy turns into exhaustion, involvement turns into cynicism, and efficacy turns into ineffectiveness."[2] Its prevalence across medical specialties is striking and well documented.[3] The etiology is complex and suggests interplay between multilevel factors, some intrinsic—for example, perfectionism, altruism, or excess empathy—and others extrinsic—largely outside the individual's control, such as organizational culture, work-life balance,[4] and catastrophic events such as the global pandemic.[5]

For this reason, the clean demarcation of organizational versus human factors driving burnout is overly simplistic and not supported by current literature.[6–10] In fact, accumulating research identifies both organizational and individual factors, often in combination, as key contributors to burnout.[11–16] Especially important is rejection of the perception that burnout is solely equated with weakness or insufficient resilience. This outdated mindset risks shaming and blaming and has hindered solution-focused problem solving,[11] although it is known that high levels of chronic stress may predispose any professional to burnout when pushed to extremes and that individual susceptibility to stress varies.[1] Further blurring the clean demarcation between organizational and individual drivers is the fact that medical organizations are not faceless entities, but complex businesses run by individuals, frequently physicians, who may be experiencing burnout themselves, compounded by pressure from special interest groups and regulatory bodies with substantial economic and political influence.

It follows that solutions are elusive and similarly complex. And, although studies have recently addressed solution-based occupational factors,[17–19] promising evidence supported by randomized controlled trials also exists for interventions focused on strengthening individual well-being and resilience.[20–23]

Ultimately, burnout is a complicated, human-driven problem that has come to be defined as an occupational syndrome.[12] It requires an intelligent, well-coordinated, and multisystem approach, ideally led by physicians with high emotional intelligence and commitment to effective mentorship, with insight into the complex challenges faced by individuals, organizations, and multidisciplinary teams.[24]

Burnout Diagnosis

Burnout may be challenging to recognize in oneself or a colleague. As such, it may remain unrecognized until serious consequences result for the physician, patient, or institution.[6] Although burnout may be exacerbated by a preexisting mental health condition,[26] it is critically important to distinguish burnout from mental illness for 2 reasons: first, to uncouple from the stigma that has long hindered timely and effective solutions; second, because discrete mental health conditions such as negativity, pessimism, depression, anxiety, and other disorders require a more targeted approach, whereas burnout has been defined as a situational problem with some elements out of the individual's control, requiring multisystem solutions.[11]

Another compounder inherent to the professional environment,[6,27,28] particularly in pediatrics, pertains to trauma-informed care.[29] Although many pediatricians have life-affirming practices where the majority of children thrive in loving intact homes, caring for children who are chronically ill, disabled, maltreated, neglected, or otherwise medically vulnerable can take a toll, especially if processed by the physician in isolation. As a result, pediatricians may experience overlapping symptoms of compassion fatigue, secondary

TABLE 1 Definition of Terms

Term	Definition
Moral distress	When one believes there is a "right" way to do something but is prevented from doing it (by the organization, other providers, the family, or society as a whole). Definition from Jameton A. *Nursing Practice: The Ethical Issues*. Englewood Cliffs, NJ: Prentice-Hall; 1984:6.
Compassion fatigue	Reduced capacity and interest in being empathetic for a suffering individual (overwhelmed by empathy) as a survival mechanism or self-protection because of a single exposure or a cumulative amount of trauma. Definition from Figley CR. Compassion fatigue as secondary traumatic stress disorder: an overview. In: Figley CR, ed. *Compassion Fatigue: Coping with Secondary Traumatic Stress Disorder in Those who Treat the Traumatized*. New York, NY: Brunner/Mazel; 1995:1–20.
Secondary trauma	Phenomenon in which individuals experience the effects of trauma by learning about a traumatic event experienced by someone else without having directly experienced the trauma themselves. Secondary traumatic stress (STS) was developed by Beth Stamm, Charles Figley, and others in the early 1990s as they sought to understand why service providers seemed to be exhibiting symptoms similar to post traumatic stress disorder (PTSD) without having necessarily been exposed to direct trauma themselves. Definition from Stamm BH, Figley CR, Figley KR. *Provider Resiliency: A Train-the-Trainer Mini Course on Compassion Satisfaction and Compassion Fatigue*. Montreal, Quebec, Canada: International Society for Traumatic Stress Studies; 2010.
Vicarious traumatization (VT)	Coined by Pearlman and Saakvitne to describe the shift in world view that occurs when professionals work with individuals who have experienced trauma: fundamental beliefs about the world are altered and possibly damaged by being repeatedly exposed to traumatic material. Vicarious trauma is a process of change resulting from empathetic engagement with trauma survivors. Anyone who engages empathetically with survivors of traumatic incidents, torture, and material relating to their trauma is potentially affected, including doctors and other health professionals. Definition from Saakvitne KW, Pearlman LA; Traumatic Stress Institute, Center for Adult & Adolescent Psychotherapy. *Transforming the Pain: A Workbook on Vicarious Traumatization*. New York: W.W. Norton; 1996
Ethical dilemma	"Exists when some evidence indicates that an act is morally right and some evidence indicates that the same act is morally wrong, but the evidence on both sides in inconclusive." Definition from Monterosso L, Kristjanson L, Sly PD, et al. The role of the neonatal intensive care nurse in decision-making: advocacy, involvement in ethical decisions and communication. *Int J Nurs Pract*. 2005;11(3):108-117.
Burnout	Cumulative process marked by emotional exhaustion and withdrawal associated with increased workload and institutional stress, NOT trauma-related. Information from Ford EW. Stress, burnout, and moral injury: the state of the healthcare workforce. *J Healthc Manag*. 2019;64(3):125–127.
Commonalities of burnout and compassion fatigue	• Emotional exhaustion • Reduced sense of personal accomplishment or meaning in work • Mental exhaustion • Decreased interactions with others (isolation) • Depersonalization (symptoms disconnected from real causes) • Physical exhaustion

traumatic stress, vicarious traumatization, moral distress, countertransference, and ultimately burnout (Table 1).[30] Self-awareness is paramount to physician well-being. To this end, research, education, and open discussion about the early warning signs of physician and trainee distress is needed. Physicians and organizations can also consider routine self-monitoring for symptoms using validated burnout assessment tools, which can be chosen based on the physicians' preferred length, metrics, validation, and cost.[31,32] Within organizations, confidentiality must be ensured, and well-organized programs must be available to provide effective pathways to help physicians struggling with burnout[33] without fear of negative professional consequences.[34]

OVERVIEW OF NATIONAL PROGRESS

Substantial efforts have been focused on reduction of burnout prevalence over the past decade.

To date, the national medical community has collectively:

(A) Attempted to standardize a definition of physician wellness. This goal also remains elusive. Given the multifactorial nature of health, any approach to physician well-being necessarily requires a nuanced and multipronged approach.[35] A systematic review demonstrated that studies of physician wellness typically measure at least 1 aspect of physical, mental, social, spiritual, and integrated well-being.[35] A central theme of this clinical report is the recommendation and hope that organizational leaders and individual physicians will use a comprehensive approach to well-being and address the full range of factors affecting health, including mental, physical, emotional, spiritual, financial, and societal factors related to physician well-being.

(B) Defined and measured burnout. The Maslach Burnout Inventory uses 3 scales (emotional exhaustion, depersonalization, and sense of personal accomplishment) to measure characteristics of burnout.[2,36,37] More recent burnout tools have also attempted to measure positive aspects of well-being and to identify those who are thriving—for example, the Stanford Professional Fulfillment Index and the 9-Item Well Being Index,[32] as well as emotional thriving and recovery scales that are components of the Safety, Communication, Operational, Reliability, and Engagement (SCORE) survey.[22,38]

In addition, researchers have focused on reducing response burden in the measurement of burnout. For example, as part of the widely used Safety, Communication, Operational Reliability, and Engagement (SCORE) survey,[4,21,38–41] burnout is evaluated using a 5-item emotional exhaustion scale shown to have excellent psychometric properties,[21,22,39,42] external validity,[4,38,41] and responsiveness to interventions.[21,22,42]

(C) Collected substantial research on burnout prevalence and trends across medical specialties, including pediatrics,[3,11] (although it is important to recognize limitations based on survey response rates and variability of training among respondents) and established that burnout is higher in physicians than in the general population and peaks during training[43] as well as mid-career.[44]

(D) Documented the serious sequalae of burnout. These sequelae include increased medical errors, litigation, substance abuse, motor vehicle accidents, increased cardiovascular mortality, decreased physician well-being including mental health conditions, difficult interpersonal relationships at home and work, and decreased life expectancy. Burnout often leads to reduction in work hours or physician separation from an organization. The effects of burnout extend beyond the physician to the health care team and to patients. These extended effects include increased staff turnover; decreased productivity, morale, and team cohesiveness; and increased health care costs. Perhaps most concerning, effects also include decreased patient satisfaction, lower adherence to physician recommendations, and worse patient outcomes.[45–50]

(E) Established that the drivers of physician burnout are multifactorial, making both organizational and individual factors important to address.[6,11,12,27,51]

(F) Broadly agreed that the prevalence of physician burnout is unacceptably, unnecessarily, and dangerously high across medical specialties.

THE IMPACT OF THE COVID-19 PANDEMIC ON PHYSICIAN WELL-BEING

The development of this clinical report has inevitably been shaped by the dramatic social, cultural, public health, and economic factors currently affecting nearly every aspect of our communities. The COVID-19 pandemic has layered new and significant stressors onto medical practice, including physical, mental, and logistical challenges. For example, some physicians are experiencing new levels of fear, guilt, concern for occupational hazard, and economic uncertainty,[52] even as they recognize their right to protect their own health, protect their own families, and preserve their ability to care for future patients.[53,54] The pandemic has also highlighted the multiple roles women disproportionately fulfill in many households where they often assume primary responsibility for child care and, during the pandemic, homeschooling children.

Some physicians are feeling a sense of betrayal because of the politicization of a public health emergency. Others feel unprepared accepting responsibility for life-saving resource allocation, exacerbating the potential for and impact of moral injury,[55–57] defined as "when people feel implicated in harm, whether inadvertently causing harm, witnessing it, or feeling helpless to prevent it" (Table 1).[58] Such emotions and experiences may be unfamiliar for many dedicated, service-driven physicians and drain the mental, physical, emotional, and spiritual resources necessary to accommodate to rapidly changing work demands and professional duties.

Physician leaders can buffer burnout for their teams by moving quickly to apply the lessons from the early wave of the pandemic: streamline systems, delegate nonessential tasks, and support the fundamental needs of their workers.[59] Media coverage has highlighted the juxtaposition of the vital services rendered and the assumption of personal risk by doctors and allied health professionals and has resulted in some measure of recognition and appreciation for our work.

Yet, evidence is emerging that the pandemic continues to take a deep toll on the well-being of health care workers. For example, Haidari et al found high levels of burnout among neonatal and maternity care health professionals. Two thirds of respondents reported symptoms of burnout, and 73% felt burnout among their coworkers had

significantly increased. Only one third of respondents felt that workplace strategies to address their well-being were sufficient. Spillover effects into unprofessional behavior at work and patient safety lapses were apparent.[5]

Physicians must lead change to protect the vital human resource of all highly trained health care workers. To help support this mission internationally, the AAP is 1 of several global organizations lending leadership and support to the Women in Global Health Organization's COVID 50/50 initiative, which advocates for women in leadership positions in health care.[60]

It is hoped that this crisis will serve as a catalyst to break down silos between administration and frontline workers to eliminate inefficiencies, prioritize meaningful patient interaction, and help to restore trust and respect in the profession of medicine.

UPDATE OF PHYSICIAN WELLNESS ACTIVITIES AT THE AAP

The primary goals of the original AAP clinical report[1] were to identify factors affecting career satisfaction and longevity among pediatricians, to shift the focus from burnout treatment to preventive physician health and wellness, and to serve as a catalyst for more open discussion of physician health and wellness within the AAP. Substantial progress within the AAP continues in the form of national and local educational programs and ongoing leadership training (Tables 2–4).

UPDATE ON BURNOUT IN THE FIELD OF PEDIATRICS

A focus on physician well-being remains a priority in the field of pediatrics, in which burnout is prevalent and sustained in pediatric trainees and practitioners. Survey data from a large 3-year national sample (2016–2018; $n = 6050$, with 49 programs participating by year 3) in the Pediatric Resident Burnout-Resilience Study Consortium show that burnout prevalence in pediatric residents was greater than 50% in all years of training. Compared with residents who did not report burnout, residents experiencing burnout had significantly worse mental health, greater perceived stress, and more sleepiness. They also reported statistically significant ($P < .001$ for all) lower mindfulness and self-compassion scores and lower levels of empathy and resilience.[61]

Not surprisingly, data from the same survey in spring 2019 ($n = 1956$) showed that 45% reported weekly or more frequent burnout symptoms, 33% reported mistreatment, 19% reported bullying, 18% reported discrimination, 5% reported sexual harassment, and 1% reported physical violence. Primary sources of burnout stemmed from clinical staff (60%), patient families (54%), and faculty (43%). Women reported mistreatment more often than men (36% versus 25%; $P < .01$) Residents experiencing mistreatment were more likely to report symptoms of burnout, higher stress levels, and lower quality of life and were less positive about their program's educational and mentorship attributes ($P < .001$ for all).[62]

Burnout has also been correlated with decreased Pediatrics Milestones[63] performance for pediatric postgraduate year 1 residents in a survey of 1300 categorical pediatric residents whose programs were participating in the Pediatric Residency Burnout-

TABLE 2 AAP Specific Areas of Progress

Areas of Progress
• Development and publication of the Resiliency in the Face of Grief and Loss Curriculum (https://www.aap.org/en-us/advocacy-and-policy/aap-health-initiatives/hospice-palliative-care/Pages/Resilience-Curriculum.aspx)
• Serwint JR, Bostwick S, Burke AE, et al. The AAP Resilience in the Face of Grief and Loss Curriculum. *Pediatrics*. 2016;138(5):e20160791.
• Delivery of a 2017 Peds 21 Physician Wellness Conference
• Inclusion of Physician Well-being as an Academy Strategic Priority
• Physician Health and Wellness Advisory Board
• Physician Health and Wellness Special Interest Group
• Permanent Physician Wellness Booth at the National Conference and Exhibition (NCE) cosponsored by the Section on Integrative Medicine (SOIM) and the Section on Medicine-Pediatrics (SOMP)
• Monthly column "Member Health & Wellness" in *AAP News*
• Educational sessions at NCE
• Multiple local and regional workshops and presentations
• Financial advocacy on the federal level on Coronavirus Aid, Relief, and Economic Security (CARES) Act (https://downloads.aap.org/DOFA/COVID-19%20Advocacy%20Report%20April%2015%202020.pdf)
• AAP Mentorship Program (https://aapmentorship.chronus.com/about)

TABLE 3 AAP Involvement in National Initiatives

National Initiatives	Web site
National Academy of Medicine: clinician well-being	https://nam.edu/resource-toolkit-clinician-well-being-knowledge-hub/
Accreditation Council on Graduate Medical Education: improving physician well-being	https://www.acgme.org/What-We-Do/Initiatives/Physician-Well-Being
Women's Wellness through Equity and Leadership (WEL) project	https://drexel.edu/medicine/academics/womens-health-and-leadership/elam/blog/womens-wellness-through-equity-and-leadership-project/

TABLE 4 AAP Physician Health and Wellness Website

Topic	Web site
Main Web site	https://www.aap.org/en-us/advocacy-and-policy/aap-health-initiatives/physican_health_wellness/Pages/default.aspx
Individual resilience	https://www.aap.org/en-us/advocacy-and-policy/aap-health-initiatives/physican_health_wellness/Pages/Individual-Resilience.aspx
Practice environment	https://www.aap.org/en-us/advocacy-and-policy/aap-health-initiatives/physican_health_wellness/Pages/Practice-Environment.aspx
Learning environment	https://www.aap.org/en-us/advocacy-and-policy/aap-health-initiatives/physican_health_wellness/Pages/Learning-Environment.aspx

Resilience Study Consortium.[64] Depersonalization and low sense of personal accomplishment were also associated with lower patient care score ratings in postgraduate year 1 residents.[65]

The burnout rates recorded are consistent with prevalence recorded in studies on pediatric residents by Baer et al,[45] Starmer et al,[66] Pantaleoni et al,[67] and McClafferty et al.[68] Prevalence of burnout in pediatrics mirrors rates in other medical specialties (30% to 50%),[69,70] with higher rates documented in specialties such as pediatric hematology-oncology, neonatal intensive care, and pediatric surgery.[71–74]

Although pediatricians, overall, report less burnout than their adult primary care colleagues, the prevalence of burnout increased for all pediatric disciplines from 2011 to 2014. During that time, general pediatricians experienced a more than 10% increase in burnout, from 35.3% to 46.3%. Pediatric medical subspecialists and pediatric surgical specialists experienced slightly higher baseline rates of burnout in 2011 and similarly increased to just under 50%. All pediatricians surveyed reported a decrease in satisfaction with work-life balance. Relative to the general United States population, physicians have increasing disparity in burnout and satisfaction with work-life integration, even after adjusting for gender, age, hours worked, and relationship status.[11]

Burnout remained relatively unchanged among general pediatricians between 2014 and 2017 and significantly decreased among pediatric medical subspecialists and pediatric surgical specialists during the same time period.[3] During this same timeframe, however, satisfaction with work-life integration remained unchanged, with satisfaction among 46% of general pediatricians and 40% of pediatric medical subspecialists and pediatric surgical specialists.[3]

RECOGNIZED DRIVERS OF BURNOUT (ORGANIZATIONAL, LEADERSHIP, TECHNOLOGY, REGULATORY, AND INDIVIDUAL FACTORS INCLUDING GENDER AND ETHNICITY)

Organizational Costs and Quality of Care, Burnout Is "Bad for Business"

The US Department of Health and Human Services has predicted a shortage of up to 90 000 physicians by the year 2025. One important driver of this shortage will be the loss of practicing clinicians because of burnout. Efforts to replace lost physicians come at a steep cost to employers. One estimate of the lost revenue per full-time-equivalent physician is $990 000, and the cost of recruiting and replacing a physician can range from $500 000 to $1 million.[75] Physicians experiencing burnout are likely to reduce their work effort to part-time as a coping strategy. For example, in a longitudinal study of 2500 physicians at Mayo Clinic, each 1-point increase in burnout (on a 7 point scale) or 1 point decrease in professional satisfaction (on a 5 point scale) was associated with a 30% to 50% increase in likelihood that physicians would reduce their professional work effort over the following 24 months.[75]

Health care professional burnout has been associated with several dimensions of reduced quality of patient care, including poor adherence to practice guidelines, impaired communication, increased medical errors, adverse patient outcomes, and poor safety metrics.[50,76–79] Cross-sectional studies of pediatricians consistently demonstrate moderate to strong associations between burnout and impaired quality of care.[45,80–86] Among physicians caring for adults, longitudinal studies evaluating this relationship suggest that it is bidirectional in that burned out physicians may provide lower-quality care,[87,88] and conversely, exposure to adverse events or environments where lower quality of care is present can result in emotional and psychological distress, which in turn drives burnout.[86,89] This suggests the value of highlighting a multipronged approach that simultaneously targets provider well-being and patient safety.[46]

During times of increased financial pressure or in extraordinary times such as the COVID-19 pandemic, organizations may seek efficiency and reduction of expenses by asking more of physicians and allied health professionals. Pressure to complete more work more quickly and with fewer resources may lead to less engaged, more burned-out physicians.[50] Shanafelt et al identified imbalance in 7 broad categories that influence burnout within organizations: efficiency and resources, organizational culture and values, workload and job

demands, meaning in work, social support and community at work, control and flexibility, and work-life integration.[11]

A recent discussion paper[12] synthesized input from the National Academy of Medicine consensus study, "Taking Action Against Clinician Burnout: A Systems Approach to Professional Well-Being."[49] Lack of transparency and commitment to the issue of burnout, lack of clarity regarding burnout prevalence within an organization, a vacuum of leadership accountability, inefficient workflows, lack of representation at the executive level, value misalignment, and insufficient physician support were also identified as important drivers of burnout. Others include the "glass ceiling" limiting female physician advancement, a bully culture, pay discrepancies, and educational debt stress.[48] Second victim phenomenon after an adverse event is another driver of burnout in a "no tolerance" culture in which systems failures are not recognized and blame is placed on the physician.[90–92] In a survey of 10 627 health care workers (1468 physicians; 81% response rate), 36.3% indicated they knew at least 1 work colleague who had been traumatized by an unanticipated clinical event. Support varied widely across work settings and was strongly correlated with emotional exhaustion, burnout climate, and work-life balance.[93]

Leadership Matters

The caliber of leadership experienced by physicians also has a significant impact on burnout.[7,51] The strength of this correlation calls for more in-depth study of cause-and-effect factors in the leadership relationships that affect burnout and well-being, ideally leading to development of leadership benchmarks, skill development, and best practices in the service of sustainable change. Examples of national programs modeling this approach are provided in the Resources section.

Technology as a Driver of Burnout: A Double-Edged Sword

Advances in electronic health records (EHRs) have created new abilities for pediatricians to document and retrieve unprecedented amounts of clinical information, coordinate care among providers, and communicate directly with families in new ways.[94] However, these advances have also come with the cost of increased clerical tasks and billing-related documentation demanded of providers, resulting in an imbalance between job demands and resources.[95,96] It is now estimated that physicians in outpatient settings spend half to two thirds of their professional time on activities other than direct patient care.[97–99] This evolution of time allocation has been associated with physician burnout, and those with higher EHR task load, lower EHR usability, and more longstanding EHR use have higher likelihood of burnout symptoms, greater intent to leave practice, and lower job satisfaction.[100–103] In addition, frustration with technology is strongly associated with emotional exhaustion independent of measures of job demands, suggesting that improved design, training, or deployment of technology may reduce burnout.[104]

In general, institutional commitment is important to effectively mitigate negative experiences related to EHR use. Other strategies to mitigate this EHR contribution to burnout include transitioning to a model of team-based documentation or the use of scribes (nonlicensed team members specifically trained to document encounters with patients). Although not yet widely studied in pediatrics, the use of scribes in family practice clinics and emergency departments has been found to consistently improve practitioner satisfaction without adversely affecting patient satisfaction.[105–107]

Competency Requirements and Regulatory Drivers of Burnout

Increased regulatory and competency requirements create significant restraints, despite physicians having unprecedented modern diagnostic and treatment options.[108] Research shows that clerical burdens amplify work inefficiencies, divert physician time away from patient care, and can result in loss of meaning in work.[27] Interpretation and enforcement of well-intentioned regulatory requirements without additional supports and resources contribute to excessive physician workloads. Maintenance of certification, licensure and credentialing requirements, and compliance obligations vary from state to state and amplify inefficiencies and time pressures in the current health care environment. Physician payment models are complex, change frequently, and vary widely in their requirements for documentation, communication processes, and incentives, all of which further contribute to administrative burden.[49]

In particular, payment models related to incentives, productivity expectations, or poorly aligned quality metrics are tied to higher burnout rates compared with salaried physicians.[109]

Documentation for malpractice prophylaxis and billing and coding further contribute to a sense of loss of autonomy.[110] Physician-employees may experience additional loss of autonomy when shifting from private practices to large health care systems because of scheduling and workflow

adjustments, restrictions on vacation and conference attendance, and time constrictions placed on other professional activities.[111]

Similar to other professional industries, physician societies and lobbyists are active in advocating for healthier and safer work environments, and ongoing, organized change is needed.[112]

Individual Factors That Drive Burnout

Ironically, many of the character traits valued in pediatricians, such as compassion, altruism, and perfectionism, also can predispose to burnout when clinicians are pushed to mental or physical extremes.[113] Success in medical education and training necessitates a high degree of competitiveness, compulsiveness, guilt, self-denial, delayed gratification, and denial of personal vulnerability. Long-term, these same qualities, rooted in a culture that historically stigmatizes weakness and self-care, can lead to burnout.[114–116] Fatigue is also a significant contributor to burnout, particularly for emergency department and other hospital-based and on-call physicians who work frequent nights and weekends. In the same vein, such shift workers may struggle to find time for meetings and conferences that do not align with their clinical schedule, which may have negative impact on long-term career development and job satisfaction, compounding burnout.[117]

Demographic characteristics that have been associated with increased risk for burnout include age younger than 55 years (double the risk), private practice (20%), midcareer stage (25%), female (20% to 60%), having a child younger than 21 years (54%), and having a nonphysician spouse or partner in health care (23%).[27]

Conversely, physicians who are able to identify and spend a minimum of 20% of their professional time focused on work that is personally most meaningful are more likely to be engaged physicians and at a significantly lower risk for burnout.[16] Self-awareness and a healthy ability to set firm boundaries and limits, including delegating, prioritizing personal and work demands, and being intentional can optimize work-life integration.[6] Addressing chronic fatigue and sleep hygiene are foundational to health and well-being.

Gender and Burnout

Because women now make up an equal number of medical school trainees and a majority of pediatricians, gender has particular relevance in pediatric burnout and deserves comprehensive discussion beyond the scope of this report. Surveys report a 20% to 60% higher prevalence of burnout in women physicians compared with their male counterparts.[118–120]

It is unclear whether gender is an independent variable associated with the risk of burnout, as the gender disparity in burnout is not apparent after adjustment for personal and professional factors,[121] but these associations have not been widely studied.[122] There is a need to further analyze physician burnout by gender, including potential differences in prevalence, manifestation, driving factors, and mitigation strategies.[27]

Driving factors that could disproportionally affect women physicians include gender discrimination and bias, particularly for mothers[120,122–124]; sexual harassment[125–132]; disparities in professional development and promotion, including leadership positions, first authored publications, and earnings for comparable work[125–127,133–137]; and work-life integration with increased hours for domestic responsibilities, including caring for children or elderly parents and greater likelihood of having a partner or spouse employed full-time.[120,122–124,136–143] Despite the predominance of women in general pediatrics, this field features 1 of the largest disparities between men and women physicians, with women pediatricians reporting an average of 10 points worse work-life integration (on a 100-point scale), with this disparity particularly pronounced among mid-career physicians.[144]

Women of color, as well as women of underrepresented ethnic or other minoritized groups (including the LGBTQ community), may be at higher risk of burnout at all stages of their careers as discrimination in the workplace can affect their sense of well-being.[124] Women physicians are more likely to express burnout in the domain of emotional exhaustion as compared with depersonalization, which is more likely among male colleagues.[118,145] Women also report lower satisfaction regarding professional fulfillment, perceived appreciation, workload, and schedule control and autonomy.[146,147] Women physicians spend an average of 2 minutes more with each patient visit[148] and are more likely to explore socioemotional and psychosocial issues,[148] to use EHRs more extensively,[149] and to face different patient expectations compared with men.[150]

These factors may affect the burnout gap between genders, and more work is urgently needed to better understand the challenges encountered by women in medicine and how best to mitigate them. To address potential differences in burnout between women and men physicians, it is critical that demographics such as gender be included in physician wellness assessments and evaluations.

The Intersection of Race, Ethnicity, Gender, and Burnout

Sexism, racism, discrimination, microaggressions, and inequities may all influence the individual's experience of burnout and often overlap. As compared with non-Hispanic White physicians, those in underrepresented and minoritized racial and ethnic groups have reported discrimination and repeated microaggressions by both colleagues and patients, feelings of exclusion and social isolation, and delegation to nonclinical "diversity activities" based on their ethnic backgrounds.[152]

Both gender and race predict salary range in a large national representative of United States physicians. The US Census American Community Survey reviewed data from 2000 to 2013, including 12 843 White male physicians, 518 Black male physicians, 3880 White female physicians, and 342 Black female physicians across all years. White male physicians had a higher median annual income than Black male physicians, whereas race was not consistently associated with median income among female physicians. For example, between 2010 and 2013, White male physicians had an adjusted median annual income of $253 042 (95% confidence interval, $248 670 to $257 413) compared with $188 230 for Black male physicians ($170 844 to $205 616; difference, $64 812; $P < .001$). White female physicians had an adjusted median annual income of $163 234 ($159 912 to 166 557) compared with $152 784 ($137 927 to $167 641) for Black female physicians (difference $10 450; $P = .17$). Although racial disparities are less pronounced among female physicians, this seems to be driven in part by the fact that female physicians earn significantly less than either White or Black male physicians.[153] Of note, a 2016 AAP survey of its members about their life and career experience as pediatricians showed that women pediatricians in early to mid-career earn less than male pediatricians, after adjustment for labor force, physician-specific job, and work-family characteristics.[154] More work is needed to better assess, define, and address the unique needs of pediatricians in these demographics.

The Cost of Our Inaction is High: Stigma, Sanctions, Suicide

The question: "Is it worth the professional risk to seek help?" should never be part of the conversation when a physician is in distress, yet it would be naïve to think otherwise. Slow culture change is driven by legitimate fear of serious consequences.

A survey of all 50 US states and the District of Columbia medical board applications comparing questions on mental health to determine which states are most physician friendly reveals the intrusive, outdated, and highly punitive approach to physician's mental health still used in a majority of states.[155] Concerning findings include inappropriate inquiries about unrelated health matters, privacy violations, disclosure of medical details on social media, denial of privileges, and constant monitoring as examples of sequelae, raising concern for job security, ostracization for mental health conditions or substance abuse disorder, loss of medical license, and misplaced shame.[155]

Physicians may also need to consider the potential negative impact of mental health treatment on cost and availability of future insurance policies, including professional liability, disability, life, and health.[155] Growing recognition of the role of shame in physician well-being, exacerbated by bullying, medical errors, and perfectionism, among other factors, reinforces the urgent need for culture change in medicine.[156]

Physicians, like any member of our society, should be afforded respect, privacy, and the opportunity to be heard and treated without stigma or professional penalty.

At the Extreme of Burnout: Suicide

At the extreme of the burnout spectrum, suicidal ideation and, tragically, death by suicide are not uncommon, making the urgency of accurate and timely identification of burnout self-evident.[80] It is a sobering fact that every year an estimated 300 to 400 physicians in the United States die by suicide,[157] and the impact of the ongoing global COVID-19 pandemic on this statistic remains to be determined. Women physicians are at highest risk, with an estimated relative risk ratio of 2.7 for suicide in relation to the general female population,[158] double that of male physicians, and cause for heightened awareness and action in pediatrics, a field in which women now make up the majority of trainees.[159,160] Compared with the general population, physician suicide risk is increased by patient and family demands, frequent high-stakes decision making, fear of illness, unprocessed trauma and grief, uncertain job security, administrative friction, financial stressors, perceived lack of control, sleep disruption, threat of lawsuits or active litigation, license and regulatory constraints, social isolation, and work-home conflict.[161] Warning signs may include expressions of hopelessness, withdrawal, agitation, uncontrolled anger, reckless behavior, mood changes, increasing substance use, threats of hurting oneself, and talking and writing about dying and suicide.[162]

Shame and fear of professional consequences cost valuable time.

Recognition of warning signs in ourselves and colleagues is of utmost importance and must be followed by safe action. Despite their alarm, some physicians may feel uncomfortable in directly expressing concern for a distressed colleague. It is necessary to move past hesitation with compassion and convey concern, despite potential discomfort.

Protective Factors

There is no universally recognized solution for preventing burnout-associated suicide, but some personal protective factors include positive social support, cultivation of personal awareness and resilience measures, and treatment of unaddressed mental and physical medical conditions. Regular practice of structured debriefing with the medical team after difficult patient encounters or poor outcomes is important. This deliberate process normalizes the need for emotional processing, with potential to benefit physicians at all stages of training.[163]

In one 2013 study by Zwack and Schweitzer examining factors associated with lower burnout scores, interviews with 200 physicians revealed several positive resilience factors, including spiritual practice, physician self-awareness, gratification in work, accepting personal limitations, and learning how to better balance and prioritize.[164]

A Path Forward

Physicians in distress may struggle with barriers to seeking care, including stigma, minimization of symptoms, stoicism, fear of negative career consequence, and knowledge gaps regarding local resources.[165–167] Denial can be a powerful force. and it may take intervention by a colleague to raise an alarm.

The American Medical Association's Steps Forward material provides concrete examples and emphasizes: "While not every suicide may be preventable, suicide is not inevitable—people with suicidal feelings can be helped. It is also important to recognize that you do not need to be an expert to help."[161] The conversation need not be complicated. For example, one might say: "I am concerned about you. Have you had any thoughts about hurting yourself?"[161] If the answer is yes, help the suicidal physician to identify resources or reach out to a trusted friend or family member. Ideally, remain with the colleague until a safety plan is in place. If the answer is no, let the colleague know that you are available to connect, listen, or talk and to serve as a resource for him or her at any time and that he or she is not alone. (See Resources for more information.)

Clearly, a proactive approach to this issue begins with destigmatizing, recognizing, and addressing physician mental health needs before they reach the crisis point. This includes teaching physicians at all stages of training to recognize risk factors and signs of depression, substance abuse, suicidal ideation, and other signs in both themselves and others.

Discussions about physician-specific risks should be openly discussed at all career stages and be routinely included in continuing medical education courses. Support resources must be made accessible and take into consideration the barriers of demanding and variable physician schedules.

Professional organizations, institutions, hospitals, state medical boards, and malpractice insurers should encourage, rather than quell, help-seeking behaviors by physicians. Further research to identify potential best practices to identify risk factors, prevention strategies, and treatment is critical. The serious unaddressed needs of physicians affect far more than just physicians and their families but also patients and the health care system as a whole.[168]

Perhaps most importantly, individuals must strive to maintain sufficient self-awareness to recognize the true mental and physical cost of work in an unsupportive setting that resists change.

There is no professional position worth the pitfall of becoming a "second victim" to an unnecessarily toxic organization or institution. Despite the difficulties inherent in a job change or career shift, physicians can and should exercise self-efficacy, protect their mental and physical health, and demand healthy and supportive work settings.

COMPONENTS OF WELLNESS: ORGANIZATIONAL AND INDIVIDUAL

In reality, "organizational interventions" and "individual interventions" convey an umbrella of potential interventions. Very few have been proven or disproven to be effective in either category, making these areas of active research. Each has some examples of promise, although study heterogenicity is high. Some health care organizational interventions showed encouraging results in improvement of physician well-being indices,[6,12,75,169] but longitudinal data are lacking. Some examples in pediatrics include Leadership Walk Rounds[170] and Positive Rounding.[171] Organizational attention to work hours, shift scheduling, and realistic completion of nonclinical duties is another important area that ties back to management of chronic fatigue as a foundation of health.

On the other hand, 1 of the largest organizational studies to date, a randomized controlled trial in 32 974 nonhealth care workers consisting of education on nutrition, physical activity, and stress reduction failed to show significant effectiveness.[18] Although more prospective experiments are needed to test the effectiveness of organizational interventions, it is important to realize that these are very difficult experiments to undertake, requiring large numbers of institutions willing to implement an intervention with high fidelity. Ultimately, an investment in physician well-being is an investment in the well-being of health care institutions, and the nature of health care as a team endeavor suggests that a more inclusive approach may be warranted over physician-specific interventions, although there will always be unique considerations based on discipline, workflows, career stages, and other factors. This inclusive approach requires organizations to build on strong foundations of cultural humility and intention to create and celebrate, equity, diversity, and inclusion. Ideally, organizational culture should support physicians with leadership development, engagement in problem solving, assessment, and utilization of individual strengths in meaningful work, reinforced by alignment of the organization's aspirational mission and vision with its policies, procedures, and culture.[169]

When considering how to best support physician wellness specifically, key drivers of physician's engagement should be reviewed and reflected on, and then targeted interventions should be developed, by and for physicians, to address them. Sinsky et al[12] describe a step-wise approach to choosing and implementing such interventions, which essentially lean on standard quality improvement methods:

1. Solicit ideas from all stakeholders.
2. Identify interventions that align with other organizational priorities.
3. Seek out interventions that address both clinician wellbeing and patient experience.
4. Identify appropriate metrics to track.
5. Engage front-line clinicians in all stages of the intervention trial.
6. Pilot with small groups.
7. Be transparent with outcome results and use these for continuous learning and improvement.

Thus, the path for physician or health care worker well-being may follow that of the broader clinical quality improvement enterprise or even integrate with it. Already, the SCORE survey includes scales on improvement readiness, next to those of burnout, emotional thriving, and work-life balance, safety culture, and local leadership.[41] This approach requires continuous attention and integration of health care worker well-being and should include measures to identify and mitigate discriminatory practices.

Collaboration between physicians and executives is also necessary for these ideas to succeed—for example, addition of the Chief Wellness Officer and Health Care Chief Wellness Officer, ideally independently functioning C-suite level roles focused on improving work environment and culture.[172,173]

Individual Components of Wellness

When considering individual components of wellness, it is important to acknowledge the ingrained culture of unrealistic endurance many experienced in training. New approaches and attitudes are needed. What follows are examples of emerging research that may benefit individuals at any stage of training.

For example, it has been shown that physicians who incorporate healthy lifestyle habits have been perceived as more credible and motivating to their patients as well as the residents under their supervision.[174–177] Physician wellness activities frequently include hobbies, physical activity, sleep, nutrition, and vacations.[113,178] Wellness behaviors are additive, and thus, physicians should be encouraged to adopt a variety of approaches to best suit their individual needs and preferences.[179]

In the professional realm, components of wellness primarily focus on supporting a provider's career engagement, centering on topics such as the professional fulfillment, meaning in work, and vitality of the physician and medical team.[180–182] These efforts must also acknowledge the importance of the physician's unique personal and professional responsibilities and preferences.

In the personal realm, attention to well-being over time can enhance one's ability to recognize his or her vulnerability to burnout and other types of distress, creating an "early warning system" that should not be ignored. When identified, immediate measures should be taken to overcome and manage fatigue, stress, lack of physical activity, and loss of social connection to help reinforce resiliency. These steps build healthy resilience associated with thriving and continued personal growth. This overarching definition of realistic resilience refers to the ability to rebound from stressful situations in skillful ways and, moreover, to emerge stronger from the experience,[113] a characteristic strongly associated with physician well-being.

Hardiness is a facet of resilience relevant to work in the medical profession. The idea of hardy personality, or hardiness, was developed by Kobasa[183] and originates from the combination of 3 key dimensions: commitment to life and work, sense of control over events, and the aptitude to experience changes as challenges. In this context, hardiness can be understood as a protective resource that buffers health care professionals who face demanding situations and enables them to employ adaptive behaviors. Hardiness is inversely related to burnout symptoms, in particular the depletion of cognitive and emotional energy, emotional exhaustion, and cynicism.[184]

Additional components of resilience include gratification, useful attitudes, and resiliency -building practices,[164] which may be fostered with deliberate, simple, and inexpensive wellness habits.[185,186] Gratification includes components of connection, communication, and maintaining meaning in work,[113,187] and it may be fostered through gatherings and discussions with colleagues, narrative medicine, and establishing a personal philosophy.[70,113,188] Useful attitudes include self-awareness, acceptance, and adaptability. These attitudes may be strengthened with mindfulness, gratitude, and positive psychology practices.[113] Such strategies can be applied both in-the-moment during clinical practice, after-the-moment in reflection, or long-term to maintain well-being. Positive psychology approaches with substantial supporting literature, such as Three Good Things, have also shown promise in addressing components of burnout.[21] A multifaceted low-intensity positive psychology intervention program (WISER) has been shown to reduce NICU health care worker burnout and other aspects of well-being, including work-life integration and depression.[23]

Mindfulness is an ancient practice with modern relevance in medicine. Kabat-Zinn, a pioneer in the field, developed mindfulness based-stress reduction as a way to introduce and teach mindfulness skills to patients and clinicians.[189] In simplified terms, mindfulness refers to maintaining focused awareness by staying present in the moment, and it can be fostered by training and intentional practice.[113,189,190] Structured gratitude interventions, such as gratitude lists or letters used on a regular basis may also improve physician well-being.[42,113] Additional resiliency practices include self-care, self-compassion, and, as applicable, spirituality.

On the forward edge of this field of research are collaborative programs such as the Emory-Tibet Partnership at the Emory University Center for Contemplative Science and Compassion-Based Ethics[191] and the Stanford Center for Compassion and Altruism Research and Education.[192] These programs provide research context for approaches, such as applied mindfulness and compassion and how these can benefit overall health. Particularly relevant to physicians are the themes of gaining perspective on challenges, loss, and suffering and learning to leverage strengths to expand capacity for healthy resilience in the course of medical training and practice.

Although individual approaches to well-being are inherently variable, a summary of individual components of wellness considers the following:

- Consistent attention to healthy lifestyle fundamentals, such as nutrition, physical activity, sleep, and stress management.
- Plan and take regular time off and vacation time.
- Develop a hobby outside of one's regular medical practice.
- Cultivate a gratitude practice.
- Consciously build and maintain a supportive social and family network.
- Create a personal mission statement, what brings you joy in medicine, why did you choose the field, how will you thrive?
- Explore and practice mind-body approaches such as mindfulness that harness emerging research.

Physician Coaching

An optimal career fit values a physician's specific professional interests and is associated with decreased rates of physician burnout,[16] yet navigating personal and professional challenges can seem daunting for a time-stressed physician. Professional coaching is an area showing promise in improving physician well-being, either on an individual basis or within an organization, where it has been shown to help support physician challenges with work-life and work-work conflict.[193,194] For example, a longitudinal pilot study demonstrated significant individual and institutional financial benefit from a combination of physician coaching and time-banking for behaviors that support team success.[194]

Within the business literature, coaching has demonstrated a positive return on investment and is associated with improved individual performance, coping skills, work attitude, goal orientation, and well-being.[195–197] Coaching capitalizes on the individual's existing skills and strengths, improves self-awareness, enhances alignment of personal values with professional responsibilities, improves the individual's internal locus of control,[198] and may help individuals to clarify personal and professional goals as they evolve and change over time.[193,194]

CONCLUSIONS

Substantial work has been accomplished in the field of physician wellness over the past decade. Some of the most promising progress has targeted development of more responsive and resilient organizations that prioritize clinician input, connection, and support. Selected topics reviewed in this report include updates on: burnout prevalence and diagnosis; national progress in physician wellness; physician wellness initiatives at the AAP; pediatric-specific burnout and well-being; recognized drivers of burnout (organizational and individual); the intersection of race, ethnicity, gender, and burnout; protective factors; and components of wellness (organizational and individual).

Pediatricians have been at the forefront of this work nationally. Robust ongoing initiatives within the AAP reinforce the commitment to ensure the health, protection, and support of all pediatricians, regardless of training level, gender, race, or chosen specialty. Continued progress depends on maintaining a sense of urgency and the desire to shape the field of pediatrics so it is healthier, safer, and more satisfying for future trainees and practitioners.

The COVID-19 pandemic has highlighted concerning gaps in the interface of health care systems and governmental institutions along with a lack of effective crisis-management protocols and communication. It has brought the topic of physician health and well-being into sharp focus and highlighted the pressing need for a well-organized, equitable, and well-staffed health care system to ensure safety for all. The profession of medicine needs courageous and insightful leaders to reimagine a culture that values humanity over invincibility and prioritizes peer support over competition. It is hard to envision a more critical time to address individual and organizational cultural well-being and accelerate the urgent need for culture change in medicine.

Clinical reports from the American Academy of Pediatrics benefit from expertise and resources of liaisons and internal (AAP) and external reviewers. However, clinical reports from the American Academy of Pediatrics may not reflect the views of the liaisons or the organizations or government agencies that they represent.

The guidance in this report does not indicate an exclusive course of treatment or serve as a standard of medical care. Variations, taking into account individual circumstances, may be appropriate.

All clinical reports from the American Academy of Pediatrics automatically expire 5 years after publication unless reaffirmed, revised, or retired at or before that time.

RESOURCES

Examples of Progress: Creating a National Culture of Physician Wellness

- National Academy of Medicine: Action Collaborative on Clinician Well-Being and Resilience. https://nam.edu/action-collaborative-on-clinician-well-being-and-resilience-network-organizations/
- WellMD at Stanford Medicine and the Stanford Medicine Chief Wellness Officer Course https://wellmd.stanford.edu (accessed December 30, 2020). Stanford Medicine WellMD. n.d. Chief Wellness Officer Course. Available at: https://wellmd.stanford.edu/center1/cwocourse.html (accessed December 30 2020).
- Mayo Clinic: Program on Physician Well-Being https://www.mayo.edu/research/centers-programs/program-physician-well-being/mayos-approach-physician-well-being
- Duke University School of Medicine: https://medicine.duke.edu/medicinenews/our-well-being
- Vanderbilt Center for Professional Health, Vanderbilt University Medical Center. n.d. Center for Professional Health. Available at: https://med-sites.mc.vanderbilt.edu/cph/home
- American Medical Association: STEPS Forward modules.
  - Shanafelt TD, Ripp J, Brown M, Sinsky CA. Creating a Resilient Organization: Caring for Healthcare Workers during Crisis. 2020. American Medical Association. Available at: https://www.ama-assn.org/system/files/2020-05/caring-for-health-care-workers-covid-19.pdf
  - Sinsky CA, Shanafelt TD, Murphy MM, et al. Creating the Organizational Foundation for Joy in Medicine. AMA STEPS Forward. 2019. Available at: https://edhub.ama-assn.org/steps-forward/module/2702510
- Action Collaborative on Clinician Well-Being and Resilience case study series
  - Zindel M, Cappelucci K, Knight HC, Busis N, Alexander C. Clinician well-being at Virginia

Mason Kirkland Medical Center: a case study. *NAM Perspectives*. August 26, 2019. https://doi.org/10.31478/201908c

Crisis Resources

- National Suicide Prevention Lifeline (1-800-273-8255)
- Suicide and Crisis Hotline: Call or text 988 or chat 988lifeline.org. This new, shorter hotline number is now active and makes it easier for people to remember and access mental health services.
- State hotlines: www.suicide.org/suicide-hotlines.html
- Crisis chat service: www.crisischat.org
- Substance Abuse and Mental Health Services Administration mental health provider locator: http://store.samhsa.gov/mhlocator; 1-800-662-HELP (4357)
- Federation of State Physician Health Programs maintains a listing of state physician health programs that can facilitate private and confidential care, evaluation, treatment, and referrals: https://www.fsphp.org/

LEAD AUTHORS

Hilary McClafferty, MD, FAAP
Dena Hubbard, MD, FAAP
Dana Foradori, MD, MEd, FAAP
Melanie Brown, MD, MSE, FAAP
Jochen Profit, MD, MPH, FAAP
Daniel Tawfik, MD, MS, FAAP

SECTION ON INTEGRATIVE MEDICINE EXECUTIVE COMMITTEE, 2020–2021

Melanie L. Brown, MD, FAAP, Chairperson
Cora C. Breuner, MD, MPH, FAAP
Anna Esparham, MD, FAAP
Melanie Ariane Gold, DO
Sanghamitra Moulik Misra, MD, FAAPC
Claudia Regina Morris, MD, FAAP, Chairperson Elect
Shiu-Lin Tsai, MD, FAAP
Joy Arlyne Weydert, MD, FAAP, Immediate Past Chairperson

LIAISON

Hemangini C. Bhakta, MD, FAAP – AAP Section on Early Career Physicians

STAFF

Teri Salus, MPA

REFERENCES

1. McClafferty H, Brown OW; Section on Integrative Medicine; Committee on Practice And Ambulatory Medicine; Section on Integrative Medicine. Physician health and wellness. *Pediatrics*. 2014;134(4):830–835
2. Maslach CJS, Leiter MP. *Maslach Burnout Inventory*, 3rd ed. Mountainview, CA: Consulting Psychologists Press; 1996X
3. Shanafelt TD, West CP, Sinsky C, et al. Changes in burnout and satisfaction with work-life integration in physicians and the general US working population between 2011 and 2017. *Mayo Clin Proc*. 2019;94(9):1681–1694
4. Schwartz SP, Adair KC, Bae J, et al. Work-life balance behaviours cluster in work settings and relate to burnout and safety culture: a cross-sectional survey analysis. *BMJ Qual Saf*. 2019; 28(2):142–150
5. Haidari E, Main EK, Cui X, et al. Consequences of the COVID-19 pandemic on maternal and neonatal health care worker well-being and patient safety climate. *J Perinatol*. 2021;41(5): 961–969
6. Shanafelt TD, Noseworthy JH. Executive leadership and physician well-being: nine organizational strategies to promote engagement and reduce burnout. *Mayo Clin Proc*. 2017;92(1): 129–146
7. Shanafelt TD, Makowski MS, Wang H, et al. Association of burnout, professional fulfillment, and self-care practices of physician leaders with their independently rated leadership effectiveness. *JAMA Netw Open*. 2020;3(6):e207961
8. Ewen AM, Higgins MCSS, Palma S, Whitley K, Schneider JI. Residency and fellowship program administrator burnout: measuring its magnitude. *J Grad Med Educ*. 2019;11(4):402–409
9. West CP, Halvorsen AJ, Swenson SL, McDonald FS. Burnout and distress among internal medicine program directors: results of a national survey. *J Gen Intern Med*. 2013;28(8):1056–1063
10. McPhillips HA, Stanton B, Zuckerman B, Stapleton FB. Role of a pediatric department chair: factors leading to satisfaction and burnout. *J Pediatr*. 2007; 151(4):425–430
11. Shanafelt TD, Hasan O, Dyrbye LN, et al. Changes in burnout and satisfaction with work-life balance in physicians and the general US working population between 2011 and 2014. *Mayo Clin Proc*. 2015;90(12):1600–1613
12. Sinsky CA, Daugherty Biddison L, Mallick A, et al. Organizational evidence-based and promising practices for improving clinician well-being. *NAM Perspect*. 2020;2020:10.31478/202011a
13. Eden AR, Jabbarpour Y, Morgan ZJ, Wilkinson E, Peterson LE. Burnout among family physicians by gender and age. *J Am Board Fam Med*. 2020;33(3):355–356
14. McManus IC, Keeling A, Paice E. Stress, burnout and doctors' attitudes to work are determined by personality and learning style: a twelve year longitudinal study of UK medical graduates. *BMC Med*. 2004;2:29
15. West CP, Shanafelt TD, Kolars JC. Quality of life, burnout, educational debt, and medical knowledge among internal medicine residents. *JAMA*. 2011; 306(9):952–960
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. West CP, Dyrbye LN, Erwin PJ, Shanafelt TD. Interventions to prevent and reduce physician burnout: a systematic review and meta-analysis. *Lancet*. 2016;388(10057):2272–2281
18. Song Z, Baicker K. Effect of a workplace wellness program on employee health and economic outcomes: a

randomized clinical trial. *JAMA*. 2019; 321(15):1491–1501

19. Jha AK, Iliff AR, Chaoui AA, Defossez S, Bombaugh MC, Miller YR; Massachusetts Medical Society, Massachusetts Health and Hospital Association, Harvard T.H. Chan School of Public Health, and Harvard Global Health Institute. A crisis in health care: a call to action on physician burnout. Available at: www.massmed.org/News-and-Publications/MMS-News-Releases/Physician-Burnout-Report-2018/. Accessed February 22, 2021
20. Seligman ME, Steen TA, Park N, Peterson C. Positive psychology progress: empirical validation of interventions. *Am Psychol*. 2005;60(5):410–421
21. Sexton JB, Adair KC. Forty-five good things: a prospective pilot study of the Three Good Things well-being intervention in the USA for healthcare worker emotional exhaustion, depression, work-life balance and happiness. *BMJ Open*. 2019;9(3):e022695
22. Adair KC, Kennedy LA, Sexton JB. Three Good Tools: positively reflecting backwards and forwards is associated with robust improvements in well-being across three distinct interventions. *J Posit Psychol*. 2020;15(5):613–622
23. Profit J, Adair KC, Cui X, et al. Randomized controlled trial of the "WISER" intervention to reduce healthcare worker burnout. *J Perinatol*. 2021; 41(9):2225–2234
24. Panagioti M, Panagopoulou E, Bower P, et al. Controlled interventions to reduce burnout in physicians: a systematic review and meta-analysis. *JAMA Intern Med*. 2017;177(2):195–205
25. Epstein RM, Privitera MR. Physician burnout is better conceptualised as depression - authors' reply. *Lancet*. 2017;389(10077):1398
26. Melnick ER, Powsner SM, Shanafelt TD. In Reply—defining physician burnout, and differentiating between burnout and depression. *Mayo Clin Proc*. 2017; 92(9):1456–1458
27. West CP, Dyrbye LN, Shanafelt TD. Physician burnout: contributors, consequences and solutions. *J Intern Med*. 2018;283(6):516–529
28. West CP, Dyrbye LN, Sinsky C, et al. Resilience and burnout among physicians and the general US working population. *JAMA Netw Open*. 2020;3(7): e209385
29. Forkey H, Szilagyi M, Kelly ET, Duffee J; Council on Foster Care, Adoption, and Kinship Care, Council on Community Pediatrics, Council on Child Abuse and Neglect, Committee on Psychosocial Aspects of Child and Family Health. Trauma-informed care. *Pediatrics*. 2021;148(2):e2021052580
30. Davis P, Mulkey M. Staff wellness and its impact on interactions with children. *National Center on Early Childhood Health and Wellness and American Academy of Pediatrics, Region 8 Leadership Institute*; June 12, 2018; Denver, Colorado
31. Dyrbye LN, Meyers D, Ripp J, et al. *A Pragmatic Approach for Organizations to Measure Health Care Professional Well-being*. Washington, DC: National Academy of Medicine; 2018
32. National Academy of Medicine. Valid and reliable survey instruments to measure burnout, well-being, and other work-related dimensions. Available at: https://nam.edu/valid-reliable-survey-instruments-measure-burnout-well-work-related-dimensions/. Accessed February 22, 2021
33. Stanford Medicine. WellMD and WellPhD. Available at: https://wellmd.stanford.edu. Accessed February 20, 2022
34. Flowers SR, Hershberger PJ. Commentary: individual and organizational strategies for physician well-being. *Curr Probl Pediatr Adolesc Health Care*. 2019;49(12):100687
35. Brady KJS, Trockel MT, Khan CT, et al. What do we mean by physician wellness? A systematic review of its definition and measurement. *Acad Psychiatry*. 2018;42(1):94–108
36. Maslach C, Leiter MP. Early predictors of job burnout and engagement. *J Appl Psychol*. 2008;93(3):498–512
37. Brady KJS, Ni P, Sheldrick RC, et al. Describing the emotional exhaustion, depersonalization, and low personal accomplishment symptoms associated with Maslach Burnout Inventory subscale scores in US physicians: an item response theory analysis. *J Patient Rep Outcomes*. 2020;4(1):42
38. Adair KC, Quow K, Frankel A, et al. The Improvement Readiness scale of the SCORE survey: a metric to assess capacity for quality improvement in healthcare. *BMC Health Serv Res*. 2018; 18(1):975
39. Sexton JB, Adair KC, Leonard MW, et al. Providing feedback following Leadership WalkRounds is associated with better patient safety culture, higher employee engagement and lower burnout. *BMJ Qual Saf*. 2018;27(4):261–270
40. Rice HE, Lou-Meda R, Saxton AT, et al. Building a safety culture in global health: lessons from Guatemala. *BMJ Glob Health*. 2018;3(2):e000630
41. Sexton JB, Schwartz SP, Chadwick WA, et al. The associations between work-life balance behaviours, teamwork climate and safety climate: cross-sectional survey introducing the work-life climate scale, psychometric properties, benchmarking data and future directions. *BMJ Qual Saf*. 2017;26(8):632–640
42. Adair KC, Rodriguez-Homs LG, Masoud S, Mosca PJ, Sexton JB. Gratitude at work: prospective cohort study of a web-based, single-exposure well-being intervention for health care workers. *J Med Internet Res*. 2020;22(5):e15562
43. Dyrbye LN, West CP, Satele D, et al. Burnout among U.S. medical students, residents, and early career physicians relative to the general U.S. population. *Acad Med*. 2014;89(3):443–451
44. Dyrbye LN, Varkey P, Boone SL, Satele DV, Sloan JA, Shanafelt TD. Physician satisfaction and burnout at different career stages. *Mayo Clin Proc*. 2013; 88(12):1358–1367
45. Baer TE, Feraco AM, Tuysuzoglu Sagalowsky S, Williams D, Litman HJ, Vinci RJ. Pediatric resident burnout and attitudes toward patients. *Pediatrics*. 2017;139(3):e20162163
46. Tawfik DS, Profit J, Morgenthaler TI, et al. Physician burnout, well-being, and work unit safety grades in relationship to reported medical errors. *Mayo Clin Proc*. 2018;93(11): 1571–1580
47. Bodenheimer T, Sinsky C. From triple to quadruple aim: care of the patient requires care of the provider. *Ann Fam Med*. 2014;12(6):573–576

48. American Medical Association. STEPS forward. Available at: www.stepsforward.org. Accessed December 30, 2020

49. National Academies of Sciences, Engineering, and Medicine. *Taking Action Against Clinician Burnout: A Systems Approach to Professional Well-Being*. Washington, DC: National Academies Press; 2019

50. Tawfik DS, Scheid A, Profit J, et al. Evidence relating health care provider burnout and quality of care: a systematic review and meta-analysis. *Ann Intern Med*. 2019;171(8):555–567

51. Shanafelt TD, Gorringe G, Menaker R, et al. Impact of organizational leadership on physician burnout and satisfaction. *Mayo Clin Proc*. 2015;90(4):432–440

52. Ing EB, Xu QA, Salimi A, Torun N. Physician deaths from corona virus (COVID-19) disease. *Occup Med (Lond)*. 2020;70(5):370–374

53. Neto MLR, Almeida HG, Esmeraldo JD, et al. When health professionals look death in the eye: the mental health of professionals who deal daily with the 2019 coronavirus outbreak. *Psychiatry Res*. 2020;288:112972

54. Bakewell F, Pauls MA, Migneault D. Ethical considerations of the duty to care and physician safety in the COVID-19 pandemic. *CJEM*. 2020;22(4):407–410

55. Williamson V, Murphy D, Greenberg N. COVID-19 and experiences of moral injury in front-line key workers. *Occup Med (Lond)*. 2020;70(5):317–319

56. Williams RD, Brundage JA, Williams EB. Moral injury in times of COVID-19. *J Health Serv Psychol*. 2020;46(2):65–69

57. Borges LM, Barnes SM, Farnsworth JK, Bahraini NH, Brenner LA. A commentary on moral injury among health care providers during the COVID-19 pandemic. *Psychol Trauma*. 2020;12(S1):S138–S140

58. Institute for Healthcare Improvement. A guide to promoting health care workforce well-being during and after the COVID-19 pfandemic. Available at: www.ihi.org/resources/Pages/Publications/guide-to-promoting-health-care-workforce-well-being-during-and-after-the-COVID-19-pandemic.aspx. Accessed February 24, 2021

59. Dewey C, Hingle S, Goelz E, Linzer M. Supporting clinicians during the COVID-19 pandemic. *Ann Intern Med*. 2020;172(11):752–753

60. Women in Global Health. Operation 50/50: women's perspectives save lives. Available at: https://www.womeningh.org/covid5050. Accessed February 22, 2021

61. Kemper KJ, Schwartz A, Wilson PM, et al; Pediatric Resident Burnout-Resilience Study Consortium. Burnout in pediatric residents: three years of national survey data. *Pediatrics*. 2020;145(1):e20191030

62. Kemper KJ, Schwartz A; Pediatric Resident Burnout-Resilience Study Consortium. Bullying, discrimination, sexual harassment, and physical violence: common and associated with burnout in pediatric residents. *Acad Pediatr*. 2020;20(7):991–997

63. Carraccio C, Benson B, Burke A, et al. Pediatrics milestones. *J Grad Med Educ*. 2013;5(1 Suppl 1):59–73

64. Pediatric Resident Burnout-Resilience Study Consortium. About us. Available at: https://pedsresresilience.com/about/. Accessed December 30, 2020

65. Staples BB, Burke AE, Batra M, et al; Pediatric Resident Burnout-Resilience Study Consortium. Burnout and association with resident performance as assessed by Pediatric Milestones: an exploratory study. *Acad Pediatr*. 2021;21(2):358–365

66. Starmer AJ, Frintner MP, Freed GL. Work-life balance, burnout, and satisfaction of early career pediatricians. *Pediatrics*. 2016;137(4):e20153183

67. Pantaleoni JL, Augustine EM, Sourkes BM, Bachrach LK. Burnout in pediatric residents over a 2-year period: a longitudinal study. *Acad Pediatr*. 2014;14(2):167–172

68. McClafferty H, Brooks AJ, Chen MK, et al. Pediatric integrative medicine in residency program: relationship between lifestyle behaviors and burnout and wellbeing measures in first-year residents. *Children (Basel)*. 2018;5(4):54

69. Eckleberry-Hunt J, Van Dyke A, Lick D, Tucciarone J. Changing the conversation from burnout to wellness: physician well-being in residency training programs. *J Grad Med Educ*. 2009;1(2):225–230

70. 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(4):527–533

71. Goodman DC; Committee on Pediatric Workforce. The pediatrician workforce: current status and future prospects. *Pediatrics*. 2005;116(1):e156–e173

72. Shugerman R, Linzer M, Nelson K, Douglas J, Williams R, Konrad R; Career Satisfaction Study Group. Pediatric generalists and subspecialists: determinants of career satisfaction. *Pediatrics*. 2001;108(3):E40

73. Kushnir T, Cohen AH. Positive and negative work characteristics associated with burnout among primary care pediatricians. *Pediatr Int*. 2008;50(4):546–551

74. Leigh JP, Tancredi DJ, Kravitz RL. Physician career satisfaction within specialties. *BMC Health Serv Res*. 2009;9:166

75. Shanafelt T, Goh J, Sinsky C. The business case for investing in physician well-being. *JAMA Intern Med*. 2017;177(12):1826–1832

76. Dewa CS, Loong D, Bonato S, Trojanowski L. The relationship between physician burnout and quality of healthcare in terms of safety and acceptability: a systematic review. *BMJ Open*. 2017;7(6):e015141

77. Hall LH, Johnson J, Watt I, Tsipa A, O'Connor DB. Healthcare staff wellbeing, burnout, and patient safety: a systematic review. *PLoS One*. 2016;11(7):e0159015

78. Salyers MP, Bonfils KA, Luther L, et al. The relationship between professional burnout and quality and safety in healthcare: a meta-analysis. *J Gen Intern Med*. 2017;32(4):475–482

79. Panagioti M, Geraghty K, Johnson J, et al. Association between physician burnout and patient safety, professionalism, and patient satisfaction: a systematic review and meta-analysis. *JAMA Intern Med*. 2018;178(10):1317–1331

80. Menon NK, Shanafelt TD, Sinsky CA, et al. Association of physician burnout with suicidal ideation and medical

errors. *JAMA Netw Open.* 2020;3(12): e2028780

81. Rochefort CM, Clarke SP. Nurses' work environments, care rationing, job outcomes, and quality of care on neonatal units. *J Adv Nurs.* 2010;66(10): 2213–2224

82. Profit J, Sharek PJ, Amspoker AB, et al. Burnout in the NICU setting and its relation to safety culture. *BMJ Qual Saf.* 2014;23(10):806–813

83. Tawfik DS, Sexton JB, Kan P, et al. Burnout in the neonatal intensive care unit and its relation to healthcare-associated infections. *J Perinatol.* 2017; 37(3):315–320

84. Weigl M, Schneider A, Hoffmann F, Angerer P. Work stress, burnout, and perceived quality of care: a cross-sectional study among hospital pediatricians. *Eur J Pediatr.* 2015;174(9): 1237–1246

85. Dos Santos Alves DF, da Silva D, de Brito Guirardello E. Nursing practice environment, job outcomes and safety climate: a structural equation modelling analysis. *J Nurs Manag.* 2017; 25(1):46–55

86. Winning AM, Merandi JM, Lewe D, et al. The emotional impact of errors or adverse events on healthcare providers in the NICU: the protective role of coworker support. *J Adv Nurs.* 2018; 74(1):172–180

87. Halbesleben JR, Rathert C. Linking physician burnout and patient outcomes: exploring the dyadic relationship between physicians and patients. *Health Care Manage Rev.* 2008;33(1):29–39

88. Welp A, Meier LL, Manser T. The interplay between teamwork, clinicians' emotional exhaustion, and clinician-rated patient safety: a longitudinal study. *Crit Care.* 2016;20(1):110

89. Van Gerven E, Vander Elst T, Vandenbroeck S, et al. Increased risk of burnout for physicians and nurses involved in a patient safety incident. *Med Care.* 2016;54(10):937–943

90. Wu AW. Medical error: the second victim. The doctor who makes the mistake needs help too. *BMJ.* 2000; 320(7237):726–727

91. Wallace JE. Mental health and stigma in the medical profession. *Health (London).* 2012;16(1):3–18

92. Pham JC, Story JL, Hicks RW, et al. National study on the frequency, types, causes, and consequences of voluntarily reported emergency department medication errors. *J Emerg Med.* 2011;40(5):485–492

93. Sexton JB, Adair KC, Profit J, et al. Perceptions of institutional support for "second victims" are associated with safety culture and workforce well-being. *Jt Comm J Qual Patient Saf.* 2021;47(5):306–312

94. Washington V, DeSalvo K, Mostashari F, Blumenthal D. The HITECH era and the path forward. *N Engl J Med.* 2017; 377(10):904–906

95. Martin SA, Sinsky CA. The map is not the territory: medical records and 21st century practice. *Lancet.* 2016; 388(10055):2053–2056

96. Halamka JD, Tripathi M. The HITECH era in retrospect. *N Engl J Med.* 2017; 377(10):907–909

97. Sinsky C, Colligan L, Li L, et al. Allocation of physician time in ambulatory practice: a time and motion study in 4 specialties. *Ann Intern Med.* 2016; 165(11):753–760

98. Tai-Seale M, Olson CW, Li J, et al. Electronic health record logs indicate that physicians split time evenly between seeing patients and desktop medicine. *Health Aff (Millwood).* 2017;36(4): 655–662

99. Arndt BG, Beasley JW, Watkinson MD, et al. Tethered to the EHR: primary care physician workload assessment using EHR event log data and time-motion observations. *Ann Fam Med.* 2017; 15(5):419–426

100. Shanafelt TD, Dyrbye LN, Sinsky C, et al. Relationship between clerical burden and characteristics of the electronic environment with physician burnout and professional satisfaction. *Mayo Clin Proc.* 2016;91(7):836–848

101. Babbott S, Manwell LB, Brown R, et al. Electronic medical records and physician stress in primary care: results from the MEMO Study. *J Am Med Inform Assoc.* 2014;21(e1 E1): e100–e106

102. Tawfik DS, Phibbs CS, Sexton JB, et al. Factors associated with provider burnout in the NICU. *Pediatrics.* 2017; 139(5):e20164134

103. Melnick ER, Dyrbye LN, Sinsky CA, et al. The association between perceived electronic health record usability and professional burnout among US physicians. *Mayo Clin Proc.* 2020;95(3):476–487

104. Tawfik DS, Sinha A, Bayati M, et al. Frustration with technology and its relation to healthcare worker emotional exhaustion: a cross-sectional observational study. *J Med Internet Res.* 2021;23(7):e26817

105. Gidwani R, Nguyen C, Kofoed A, et al. Impact of scribes on physician satisfaction, patient satisfaction, and charting efficiency: a randomized controlled trial. *Ann Fam Med.* 2017;15(5):427–433

106. Heaton HA, Castaneda-Guarderas A, Trotter ER, Erwin PJ, Bellolio MF. Effect of scribes on patient throughput, revenue, and patient and provider satisfaction: a systematic review and meta-analysis. *Am J Emerg Med.* 2016; 34(10):2018–2028

107. Danak SU, Guetterman TC, Plegue MA, et al. Influence of scribes on patient-physician communication in primary care encounters: mixed methods study. *JMIR Med Inform.* 2019;7(3): e14797

108. Williams ES, Konrad TR, Scheckler WE, et al. Understanding physicians' intentions to withdraw from practice: the role of job satisfaction, job stress, mental and physical health. 2001. *Health Care Manage Rev.* 2010; 35(2):105–115

109. Friedberg MW, Chen PG, White C, et al. *Effects of Health Care Payment Models on Physician Practice in the United States.* Santa Monica, CA: RAND Corporation; 2015

110. Shanafelt TD, Mungo M, Schmitgen J, et al. Longitudinal study evaluating the association between physician burnout and changes in professional work effort. *Mayo Clin Proc.* 2016;91(4): 422–431

111. Dillon EC, Tai-Seale M, Meehan A, et al. Frontline perspectives on physician burnout and strategies to improve well-being: interviews with physicians

and health system leaders. *J Gen Intern Med*. 2020;35(1):261–267

112. Miller JD. Viewpoint. It's not burnout; it's physician disempowerment. *Emerg Med News*. 2017;39(11):3–4

113. Gogo A, Osta A, McClafferty H, Rana DT. Cultivating a way of being and doing: Individual strategies for physician well-being and resilience. *Curr Probl Pediatr Adolesc Health Care*. 2019; 49(12):100663

114. Miller NM, McGowen RK. The painful truth: physicians are not invincible. *South Med J*. 2000;93(10):966–973

115. Spickard A Jr, Gabbe SG, Christensen JF. Mid-career burnout in generalist and specialist physicians. *JAMA*. 2002;288(12):1447–1450

116. Wallace JE, Lemaire JB, Ghali WA. Physician wellness: a missing quality indicator. *Lancet*. 2009;374(9702): 1714–1721

117. Schaefer EW, Williams MV, Zee PC. Sleep and circadian misalignment for the hospitalist: a review. *J Hosp Med*. 2012;7(6):489–496

118. McMurray JE, Linzer M, Konrad TR, Douglas J, Shugerman R, Nelson K; The SGIM Career Satisfaction Study Group. The work lives of women physicians results from the physician work life study. *J Gen Intern Med*. 2000; 15(6):372–380

119. Dyrbye LN, Shanafelt CA, Sinsky PF, et al. *Burnout Among Health Care Professionals: A Call to Explore and Address This Underrecognized Threat to Safe, High Quality Care. NAM Perspectives. Discussion Paper*. Washington, DC: National Academy of Medicine; 2017

120. Templeton K, Bernstein CA, Sukhera J, et al. *Gender-Based Differences in Burnout: Issues Faced by Women Physicians. NAM Perspectives. Discussion Paper*. Washington, DC: National Academy of Medicine; 2019

121. Marshall AL, Dyrbye LN, Shanafelt TD, et al. Disparities in burnout and satisfaction with work-life integration in U.S. physicians by gender and practice setting. *Acad Med*. 2020;95(9): 1435–1443

122. Adesoye T, Mangurian C, Choo EK, Girgis C, Sabry-Elnaggar H, Linos E; Physician Moms Group Study Group. Perceived discrimination experienced by physician mothers and desired workplace changes: a cross-sectional survey. *JAMA Intern Med*. 2017; 177(7):1033–1036

123. Jagsi R, Griffith KA, Jones R, Perumalswami CR, Ubel P, Stewart A. Sexual harassment and discrimination experiences of academic medical faculty. *JAMA*. 2016;315(19):2120–2121

124. Corbie-Smith G, Frank E, Nickens HW, Elon L. Prevalences and correlates of ethnic harassment in the U.S. Women Physicians' Health Study. *Acad Med*. 1999;74(6):695–701

125. Tesch BJ, Wood HM, Helwig AL, Nattinger AB. Promotion of women physicians in academic medicine. Glass ceiling or sticky floor? *JAMA*. 1995;273(13):1022–1025

126. Kaplan SH, Sullivan LM, Dukes KA, Phillips CF, Kelch RP, Schaller JG. Sex differences in academic advancement. Results of a national study of pediatricians. *N Engl J Med*. 1996;335(17): 1282–1289

127. Fried LP, Francomano CA, MacDonald SM, et al. Career development for women in academic medicine: multiple interventions in a department of medicine. *JAMA*. 1996;276(11):898–905

128. National Academies of Sciences, Engineering, and Medicine. *Sexual Harassment of Women: Climate, Culture, and Consequences in Academic Sciences, Engineering, and Medicine*. Washington, DC: The National Academies Press; 2018

129. Brogan DJ, Frank E, Elon L, Sivanesan SP, O'Hanlan KA. Harassment of lesbians as medical students and physicians. *JAMA*. 1999;282(13):1290–1292

130. Richman JA, Rospenda KM, Nawyn SJ, et al. Sexual harassment and generalized workplace abuse among university employees: prevalence and mental health correlates. *Am J Public Health*. 1999;89(3):358–363

131. Giorgi G, Mancuso S, Fiz Perez F, et al. Bullying among nurses and its relationship with burnout and organizational climate. *Int J Nurs Pract*. 2016;22(2):160–168

132. Takeuchi M, Nomura K, Horie S, Okinaga H, Perumalswami CR, Jagsi R. Direct and indirect harassment experiences and burnout among academic faculty in Japan. *Tohoku J Exp Med*. 2018;245(1):37–44

133. Desai T, Ali S, Fang X, Thompson W, Jawa P, Vachharajani T. Equal work for unequal pay: the gender reimbursement gap for healthcare providers in the United States. *Postgrad Med J*. 2016;92(1092):571–575

134. Carr PL, Friedman RH, Moskowitz MA, Kazis LE. Comparing the status of women and men in academic medicine. *Ann Intern Med*. 1993;119(9): 908–913

135. Halley MC, Rustagi AS, Torres JS, et al. Physician mothers' experience of workplace discrimination: a qualitative analysis. *BMJ*. 2018;363:k4926

136. Buddeberg-Fischer B, Stamm M, Buddeberg C, et al. The impact of gender and parenthood on physicians' careers–professional and personal situation seven years after graduation. *BMC Health Serv Res*. 2010;10:40

137. Buckley LM, Sanders K, Shih M, Kallar S, Hampton C. Obstacles to promotion? Values of women faculty about career success and recognition. Committee on the Status of Women and Minorities, Virginia Commonwealth University, Medical College of Virginia Campus. *Acad Med*. 2000;75(3): 283–288

138. Dahlke AR, Johnson JK, Greenberg CC, et al. Gender differences in utilization of duty-hour regulations, aspects of burnout, and psychological well-being among general surgery residents in the United States. *Ann Surg*. 2018; 268(2):204–211

139. 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(18):1377–1385

140. Jolly S, Griffith KA, DeCastro R, Stewart A, Ubel P, Jagsi R. Gender differences in time spent on parenting and domestic responsibilities by high-achieving young physician-researchers. *Ann Intern Med*. 2014;160(5): 344–353

141. Yavorsky JE, Dush CM, Schoppe-Sullivan SJ. The production of inequality: the gender division of labor across

the transition to parenthood. *J Marriage Fam.* 2015;77(3):662–679

142. Yank V, Rennels C, Linos E, Choo EK, Jagsi R, Mangurian C. Behavioral health and burnout among physician mothers who care for a person with a serious health problem, longterm illness, or disability. *JAMA Intern Med.* 2019;179(4):571–574
143. Bernard R. Marriage, children burnout contributors: for women physicians, having a family may mean greater stress. *Contemp Ob Gyn.* 2017;62(5):16–18
144. Tawfik DS, Shanafelt TD, Dyrbye LN, et al. Personal and professional factors associated with work-life integration among US physicians. *JAMA Netw Open.* 2021;4(5):e2111575
145. Purvanova RK, Muros JP. Gender differences in burnout: a meta-analysis. *J Vocat Behav.* 2010;77(2):168–185
146. Rotenstein LS, Torre M, Ramos MA, et al. Prevalence of burnout among physicians: a systematic review. *JAMA.* 2018;320(11):1131–1150
147. Peckham C. Medscape national physician burnout and depression report. Available at: https://www.medscape.com/slideshow/2018-lifestyle-burnout-depression-6009235. Accessed February 24, 2021
148. Roter DL, Hall JA, Aoki Y. Physician gender effects in medical communication: a meta-analytic review. *JAMA.* 2002;288(6):756–764
149. Gupta K, Murray S, Sarkar U, Mourad M, Adler-Milstein J. Differences in ambulatory EHR use patterns for male vs. female physicians [published online ahead of print November 13, 2019]. *NEJM Catalyst.* doi: 10.1056/CAT.19.0690
150. Linzer M, Harwood E. Gendered expectations: do they contribute to high burnout among female physicians? *J Gen Intern Med.* 2018;33(6):963–965
151. Arnhart K. The rise of female international medical graduates and their contribution to physician supply in the United States. *J Med Regul.* 2017;103(1):5–11
152. Osseo-Asare A, Balasuriya L, Huot SJ, et al. Minority resident physicians' views on the role of race/ethnicity in their training experiences in the workplace. *JAMA Netw Open.* 2018;1(5):e182723
153. Ly DP, Seabury SA, Jena AB. Differences in incomes of physicians in the United States by race and sex: observational study. *BMJ.* 2016;353:i2923
154. Frintner MP, Sisk B, Byrne BJ, Freed GL, Starmer AJ, Olson LM. Gender differences in earnings of early- and midcareer pediatricians. *Pediatrics.* 2019;144(4):e20183955
155. Wible P, Palermini A. Physician-friendly states for mental health: a comparison of medical licensing board applications. *Qual Res Med Healthc.* 2019;3:107–119
156. Robertson JJ, Long B. Medicine's shame problem. *J Emerg Med.* 2019;57(3):329–338
157. Stehman CR, Testo Z, Gershaw RS, Kellogg AR. Burnout, drop out, suicide: physician loss in emergency medicine, part I. *West J Emerg Med.* 2019;20(3):485–494
158. Moutier C, Norcross W, Jong P, et al. The suicide prevention and depression awareness program at the University of California, San Diego School of Medicine. *Acad Med.* 2012;87(3):320–326
159. Schernhammer ES, Colditz GA. Suicide rates among physicians: a quantitative and gender assessment (meta-analysis). *Am J Psychiatry.* 2004;161(12):2295–2302
160. Frintner MP, Cull WL. Pediatric training and career intentions, 2003-2009. *Pediatrics.* 2012;129(3):522–528
161. Brooks E *AMA Steps Forward. Physician Suicide and Support Identify At-Risk Physicians and Facilitate Access to Appropriate Care.* Chicago, IL: American Medical Association; 2018
162. Brooks E. *AMA Steps Forward. Preventing Physician Distress and Suicide.* Chicago, IL: American Medical Association; 2018
163. Serwint JR. One method of coping: resident debriefing after the death of a patient. *J Pediatr.* 2004;145(2):229–234
164. Zwack J, Schweitzer J. If every fifth physician is affected by burnout, what about the other four? Resilience strategies of experienced physicians. *Acad Med.* 2013;88(3):382–389
165. Dutheil F, Aubert C, Pereira B, et al. Suicide among physicians and healthcare workers: a systematic review and meta-analysis. *PLoS One.* 2019;14(12):e0226361
166. Mihailescu M, Neiterman E. A scoping review of the literature on the current mental health status of physicians and physicians-in-training in North America. *BMC Public Health.* 2019;19(1):1363
167. Compton MT, Frank E. Mental health concerns among Canadian physicians: results from the 2007-2008 Canadian Physician Health Study. *Compr Psychiatry.* 2011;52(5):542–547
168. Kalmoe MC, Chapman MB, Gold JA, Giedinghagen AM. Physician suicide: a call to action. *Mo Med.* 2019;116(3):211–216
169. Olson K, Marchalik D, Farley H, et al. Organizational strategies to reduce physician burnout and improve professional fulfillment. *Curr Probl Pediatr Adolesc Health Care.* 2019;49(12):100664
170. Sexton JB, Sharek PJ, Thomas EJ, et al. Exposure to Leadership WalkRounds in neonatal intensive care units is associated with a better patient safety culture and less caregiver burnout. *BMJ Qual Saf.* 2014;23(10):814–822
171. Adair KC, Profit J, Frankel A, Proulx J, Jamal M, Sexton JB. Safety culture and workforce well-being associations with Positive Leadership WalkRounds. *Jt Comm J Qual Patient Saf.* 2021;47(7):403–411
172. Swensen S, Kabcenell A, Shanafelt T. Physician-organization collaboration reduces physician burnout and promotes engagement: the Mayo Clinic experience. *J Healthc Manag.* 2016;61(2):105–127
173. Ripp J, Shanafelt T. The health care chief wellness officer: what the role is and is not. *Acad Med.* 2020;95(9):1354–1358
174. Gautam M, MacDonald R. Helping physicians cope with their own chronic illnesses. *West J Med.* 2001;175(5):336–338
175. Frank E, Breyan J, Elon L. Physician disclosure of healthy personal behaviors improves credibility and ability to

motivate. *Arch Fam Med.* 2000;9(3): 287–290

176. Frank E, Rothenberg R, Lewis C, Belodoff BF. Correlates of physicians' prevention-related practices. Findings from the Women Physicians' Health Study. *Arch Fam Med.* 2000;9(4): 359–367

177. Howe M, Leidel A, Krishnan SM, Weber A, Rubenfire M, Jackson EA. Patient-related diet and exercise counseling: do providers' own lifestyle habits matter? *Prev Cardiol.* 2010;13(4):180–185

178. Serwint JR, Bostwick S, Burke AE, et al. The AAP resilience in the face of grief and loss curriculum. *Pediatrics.* 2016;138(5):e20160791

179. Shanafelt TD, Oreskovich MR, Dyrbye LN, et al. Avoiding burnout: the personal health habits and wellness practices of US surgeons. *Ann Surg.* 2012; 255(4):625–633

180. Pololi LH, Evans AT, Civian JT, et al. Faculty vitality—surviving the challenges facing academic health centers: a national survey of medical faculty. *Acad Med.* 2015;90(7):930–936

181. Trockel M, Bohman B, Lesure E, et al. A brief instrument to assess both burnout and professional fulfillment in physicians: reliability and validity, including correlation with self-reported medical errors, in a sample of resident and practicing physicians. *Acad Psychiatry.* 2018;42(1):11–24

182. Shanafelt T, Trockel M, Ripp J, Murphy ML, Sandborg C, Bohman B. Building a program on well-being: key design considerations to meet the unique needs of each organization. *Acad Med.* 2019;94(2):156–161

183. Kobasa SC. Stressful life events, personality, and health: an inquiry into hardiness. *J Pers Soc Psychol.* 1979; 37(1):1–11

184. Mazzetti G, Guglielmi D, Topa G. Hard enough to manage my emotions: how hardiness moderates the relationship between emotional demands and exhaustion. *Front Psychol.* 2020;11:1194

185. Fessell D, Cherniss C. Coronavirus disease 2019 (COVID-19) and beyond: micropractices for burnout prevention and emotional wellness. *J Am Coll Radiol.* 2020;17(6):746–748

186. Rosenberg AR. Cultivating deliberate resilience during the coronavirus disease 2019 pandemic. *JAMA Pediatr.* 2020;174(9):817–818

187. Serwint JR, Stewart MT. Cultivating the joy of medicine: a focus on intrinsic factors and the meaning of our work. *Curr Probl Pediatr Adolesc Health Care.* 2019;49(12):100665

188. Epstein RM. What's the opposite of burnout? *J Gen Intern Med.* 2017;32(7): 723–724

189. Kabat-Zinn J. Mindfulness-based interventions in context: past, present and future. *Clin Psychol Sci Pract.* 2003; 10(2):144–156

190. Kemper KJ, McClafferty H, Wilson PM, et al; Pediatric Resident Burnout-Resilience Study Consortium. Do mindfulness and self-compassion predict burnout in pediatric residents?. *Acad Med.* 2019;94(6):876–884

191. Emory University, Center for Contemplative Science and Compassion-Based Ethics. The compassion shift. Available at: https://www.compassion.emory.edu. Accessed February 24, 2021

192. Stanford University. The Center for Compassion and Altruism Research and Education. Available at: http://ccare.stanford.edu. Accessed February 24, 2021

193. Dyrbye LN, Shanafelt TD, Gill PR, Satele DV, West CP. Effect of a professional coaching intervention on the well-being and distress of physicians: a pilot randomized clinical trial. *JAMA Intern Med.* 2019;179(10):1406–1414

194. Fassiotto M, Simard C, Sandborg C, Valantine H, Raymond J. An integrated career coaching and time-banking system promoting flexibility, wellness, and success: a pilot program at Stanford University School of Medicine. *Acad Med.* 2018;93(6):881–887

195. McGovern J. Maximizing the impact of executive coaching: behavioral change, organizational outcomes and return on investment. *Manch Rev.* 2001;6(1): 1–9

196. Phillips JJ. Measuring the ROI of a coaching intervention, Part 2. *Perform Improv.* 2007;46(10):10–23

197. Theeboom T, Beersma B, van Vianen AEM. Does coaching work? A meta-analysis on the effects of coaching on individual level outcomes in an organizational context. *J Posit Psychol.* 2013; 9(1):1–18

198. Gazelle G, Liebschutz JM, Riess H. Physician burnout: coaching a way out. *J Gen Intern Med.* 2015;30(4): 508–513