Physician Burnout: Making the Case for the Cure

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This is to acknowledge that Ogechi N. Dike, M.D. has disclosed that she does not have any financial interests or other relationships with commercial concerns related directly or indirectly to this program. Dr. Dike will not be discussing off-label uses in her presentation

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Biography

Dr. Dike is originally from Hillside, New Jersey. She received her undergraduate degree from Rutgers University in New Brunswick, New Jersey and her medical degree from Robert Wood Johnson Medical School in Piscataway New Jersey. She completed her residency training at Beth Israel Deaconess Medical Center in Boston, Massachusetts and joined the faculty of UT Southwestern in 2015. Her academic interests include quality, safety and medical education. She leads the Patient Safety/Morbidity and Mortality committee for the Clements University Hospitalist Group, started the Hospital Medicine Interest Group for residents and physician assistant students at CUH, and serves as a mentor in the Gotcha Covered mentor program through the Office of Student Diversity and Inclusion.

Purpose and overview

Physician burnout affects nearly half of all physician. This lecture will discuss the impact and consequences of burnout for physicians, patients and health care organizations as demonstrated in the literature. The lecture will also explore the drivers of burnout out and interventions/strategies to reduce physician burnout.

Educational objectives

At the conclusion of this lecture the listener should be able to:

1. To define burnout
2. Explain how burnout impacts physicians, patients and health care organizations
3. Understand the drivers of physician burnout
4. Become familiar with strategies to reduce physician burnout

Introduction

Sir Winston Churchill once said, "Healthy citizens are the greatest asset any country can have". Physicians are important citizens of health-care systems, and evidence indicates that many physicians are unwell.[1] Physician burnout—a condition in which physicians lose satisfaction and a sense of efficacy in their work—is an issue of growing concern in the medical community. The prevalence of burnout has reached epidemic proportions affecting nearly half of all physicians. Burnout can lead physicians to engage in disruptive and destructive behaviors such as substance abuse, have increased interpersonal conflicts, broken relationships and a poor quality of life. As a result, withdrawal, depression, suicidal ideation, and suicide may be the tragic consequences.[2] Physicians who remain in practice while burned out show higher propensities for making medical errors as well as a diminished quality of medical practice and professionalism. These effects do not go unnoticed by patients, as burnout is associated with lower rates of patient satisfaction as well as a decrease in patient adherence to their physician's recommendations.[4] The US Department of Health and Human Services (HHS) predicts a shortage of up to 90,000 physicians by the year 2025. One of the underlying drivers of this shortage will be the loss of practicing clinicians leaving medicine due to burnout. [5] Such a shortage impacts patients' access to care and comes at steep cost to employers to the amount of $500,000-$1,000,000 to cover the cost of recruiting and replacing a physician.[6] When burnout was viewed as a crisis of wellbeing—affecting physicians' personal lives and work satisfaction—it garnered very little public sympathy. Now that a growing body of evidence demonstrates the systemic impact of physician burnout, there is a heightened sense of urgency to address it head on.

How Do We Define Burnout?

In 1974, American psychologist Herbert J. Freudenberger coined the term burnout. The term was used to describe the consequence of severe or prolonged stress and anxiety experienced by those working in the "healing professions". In his paper *Staff Burn-Out,* Freudenberger described the behavioral and physical signs of burnout as it pertained to staff working in a free medical clinic in New York. Freudenberger identified the physical signs of burnout as, *"a feeling of exhaustion and fatigue, being unable to shake a lingering cold, suffering from frequent headaches and …sleeplessness*". He goes on to describe the behavioral signs of burnout as follows, *"A staff member's quickness to anger and his instantaneous irritation and frustration response are signs. The burn-out candidate finds it just too difficult to hold in feelings. He cries too easily, the slightest pressure makes him feel overburdened and he yells and screams … He may resort to an excessive use of tranquilizer and barbiturates. Or get into pot and hash quite heavily. He does this with the 'self con' that he needs the rest and is doing it to relax himself. He blocks progress and constructive change... because change means another adaption and he is just too tired to go through more changes. He becomes the 'house cynic' anything that is suggested is bad rapped or bad mouthed."*[7] While Freudenberger's description was written over 50 years ago, the unfortunate reality is many of those same physical and behavioral descriptors can be observed in physicians affected by burnout today.

The World Health Organization (WHO) defines burnout as a "state of vital exhaustion" in the International Classification of Disease (ICD) 10. [8] The current definition of burnout is problematic because it is nonspecific and does not reflect the correlation between burnout and one's occupation. This has caused those affected by burnout to suffer from the stigma of burnout as a self- inflicted predicament rather than an occupational hazard. To better delineate the relationship between burnout and occupation, WHO announced that it would update its definition of burnout in the new ICD 11 (effective January 2022). The updated definition is more detailed and is the first time the organization has recognized burnout as an occupational phenomenon. The ICD 11 definition of burnout is *"a syndrome conceptualized as resulting from chronic workplace stress that has not been successfully managed. It is characterized by three dimensions: feelings of energy depletion or exhaustion, increased*

mental distance from one's job, or feelings of negativism or cynicism related to one's job; and reduced professional efficacy. Burn-out refers specifically to phenomena in the occupational context and should not be applied to describe experiences in other areas of life." Anxiety, mood disorder and other stress-related disorders must be ruled out. [9]

It important to distinguish burnout from stress or depression. Stress is experienced by nearly all physicians at one time or another and can be a normal, healthy response to many situations. Burnout however represents a pathologic response to the stressors in one's work environment. It is the tipping point at which stress begins to overwhelm physicians and places them at an increased risk of depression and suicide. [10]

How is Burnout Measured?

The oldest and most widely used tool to measure the risk of burnout is the Maslach Burnout Inventory (MBI). The MBI was developed by Drs Christina Maslach, PhD a social psychologist/professor and her graduate student at the time Susan E. Jackson, PhD at the University of California Berkley. It is considered the standard tool for research in studying burnout and has been translated and validated in many languages. The MBI addresses the three dimensions of the burnout experience: emotional exhaustion, depersonalization and personal achievement. [11] Respondents are asked to rate the frequency they experience several statements categorized under the three dimensions of burnout.

Emotional Exhaustion measures feelings of being emotionally overextended and exhausted by one's work.

Questions:	Never	A Few Times per Year	Once a Month	A Few Times per Month	Once a Week	A Few Times per Week	Every Day
Section A:	0	1	2	3	4	5	6
I feel emotionally drained by my work.							
Working with people all day long requires a great deal of effort.							
I feel like my work is breaking me down.							
I feel frustrated by my work.							
I feel I work too hard at my job.							
It stresses me too much to work in direct contact with people.							
I feel like I'm at the end of my rope.							
Total score – SECTION A							

Depersonalization measures an unfeeling and impersonal response toward recipients of one's service, care treatment, or instruction.

Questions:	Never	A Few Times per Year	Once a Month	A Few Times per Month	Once a Week	A Few Times per Week	Every Day
Section B:	0	1	2	3	4	5	6
I feel I look after certain patients/clients impersonally, as if they are objects. I feel tired when I get up in the morning and have to face another day at work.							
I have the impression that my patients/clients make me responsible for some of their problems.							
I am at the end of my patience at the end of my work day.							
I really don't care about what happens to some of my patients/clients. I have become more insensitive to people since I've been working. I'm afraid that this job is making me uncaring.							
Total score – SECTION B							

Personal Accomplishment measures feelings of competence and successful achievement in one's work

Questions:	Never	A Few Times per Year	Once a Month	A Few Times per Month	Once a Week	A Few Times per Week	Every Day
Section C:	0	1	2	3	4	5	6
I accomplish many worthwhile things in this job.							
I feel full of energy.							
I am easily able to understand what my patients/clients feel.							
I look after my patients'/clients' problems very effectively.							
In my work, I handle emotional problems very calmly.							
Through my work, I feel that I have a positive influence on people.							
I am easily able to create a relaxed atmosphere with my patients/clients.							
I feel refreshed when I have been close to my patients/clients at work.							
Total score – SECTION C							

SCORING RESULTS – INTERPRETATION

Section A: Burnout
Burnout (or depressive anxiety syndrome): Testifies to fatigue at the very idea of work, chronic fatigue, trouble sleeping, physical problems. For the MBI, as well as for most authors, "exhaustion would be the key component of the syndrome." Unlike depression, the problems disappear outside work.

- Total 17 or less: Low-level burnout
- Total between 18 and 29 inclusive: Moderate burnout
- Total over 30: High-level burnout

Section B: Depersonalization
"Depersonalization" (or loss of empathy): Rather a "dehumanization" in interpersonal relations. The notion of detachment is excessive, leading to cynicism with negative attitudes with regard to patients or colleagues, feeling of guilt, avoidance of social contacts and withdrawing into oneself. The professional blocks the empathy he can show to his patients and/or colleagues.

- Total 5 or less: Low-level burnout
- Total between 6 and 11 inclusive: Moderate burnout
- Total of 12 and greater: High-level burnout

Section C: Personal Achievement
The reduction of personal achievement: The individual assesses himself negatively, feels he is unable to move the situation forward. This component represents the demotivating effects of a difficult, repetitive situation leading to failure despite efforts. The person begins to doubt his genuine abilities to accomplish things. This aspect is a consequence of the first two.

- Total 33 or less: High-level burnout
- Total between 34 and 39 inclusive: Moderate burnout
- Total greater than 40: Low-level burnout

A high score in the first two sections and a low score in the last section may indicate burnout.

Burnout: How bad is the problem?

Burnout out affects nearly half of all practicing US physicians and is more prevalent among physicians than any other US workers. These findings are demonstrated in a series of studies published by *Shanafelt et al.* from the Mayo Clinic. The inaugural study, conducted in 2011, measured the rates of burnout, symptoms of depression, suicidal ideation, and satisfaction with work-life balance among US physicians compared to the general US population. The 2011 study was designed to re-evaluate the well-being and satisfaction of US physicians approximately every 3 years to assess trends in physician burnout and satisfaction with work-life balance over time compared to the general US population. [12] The study was repeated in 2014 and again in 2017 using similar methods. Physicians from all specialties were invited to participate using the American Medical Association (AMA) Physician Master File (PMF), which is a nearly complete record of all US physicians independent of AMA membership. For comparison to physicians, a probability-based sample of individuals from the general US population was surveyed in the same year. There was modest oversampling of individuals between the ages of 35 and 65 years to better match the age range of practicing US physicians. The general US population survey was conducted using the Knowledge Panel, a probability based panel designed to be representative of the US population. Only employed individuals were surveyed.

Burnout was measured using the MBI. Symptoms of depression were assessed using the 2-item Primary Care Evaluation Mental Disorders: *1.During the past month, have you often been bothered by feeling down, depressed, or hopeless? 2. During the past month, have you often been bothered by little interest or pleasure in doing things?* Recent suicidal ideation was evaluated by asking participants, "*During the last 12 months, have you had thoughts of taking your own life?*" Satisfaction with work –life integration (WLI) was assessed by the item, "*My work schedule leaves me enough time for my personal/family life*". The response options were reported as strongly agree, agree, neutral, disagree or strongly disagree.

Findings from the most recent study conducted in 2017 showed an increase in burnout among physicians from 2011 to 2014 (45.5% vs 54.4% P< .001). However in 2017 the rate of burnout decreased compared to 2014 (43.7% vs 54.4 P < .001), but was still close to the levels in 2011. The proportion of

physicians screening positive for depression also showed an increase between 2011 and 2017. Satisfaction with WLI was greater in 2017 than in 2014 but remained lower than 2011 levels.

TABLE 2. Physician Burnout, Depression, Career Satisfaction, and Satisfaction With Work-Life Integration in 2017 Compared With 2014 and 2011[a,b]

Variable	2017 (N=5445)	2014 (N=6880)	2011 (N=7288)	*P* value, 2017 vs 2014	*P* value, 2017 vs 2011
Burnout indices[c]					
Emotional exhaustion					
Median	22.0	25.0	21.0	<.001	.03
Mean (SD)	23.2 (13.2)	25.5 (13.5)	22.7 (13.0)	<.001	.03
Low score	1991 (41.0)	2299 (34.1)	3041 (42.2)	<.001	.40
Intermediate score	989 (20.3)	1283 (19.0)	1433 (19.9)		
High score	1881 (38.7)	3165 (46.9)	2734 (37.9)		
Missing	584	133	80	NA	NA
Depersonalization					
Mean (SD)	6.8 (6.5)	8.1 (6.6)	7.1 (6.1)	<.001	<.001
Low score	2644 (54.2)	2951 (44.0)	3601 (50.1)	<.001	<.001
Intermediate score	907 (18.6)	1434 (21.4)	1476 (20.5)		
High score	1331 (27.3)	2325 (34.6)	2116 (29.4)		
Missing	563	170	95	NA	NA
Burned out[d]	2147/4893 (43.9)	3680/6767 (54.4)	3310/7227 (45.8)	<.001	.04
Depression					
Screening positive for depression	2022/4854 (41.7)	2715/6818 (39.8)	2753/7213 (38.2)	.05	<.001
Career satisfaction					
Would choose to become a physician again	3508/5122 (68.5)	4476/6676 (67.0)	5081/7236 (70.2)	.10	.04
Work-life integration					
Work schedule leaves me enough time for my personal and/or family life					
Strongly agree	602 (12.5)	706 (10.6)	1233 (17.0)	<.001	<.001
Agree	1454 (30.2)	2012 (30.3)	2279 (31.5)		
Neutral	796 (16.6)	973 (14.6)	1046 (14.4)		
Disagree	1272 (26.5)	2004 (30.1)	1775 (24.5)		
Strongly disagree	685 (14.2)	956 (14.4)	911 (12.6)		
Missing	636	229	44	NA	NA

[a]NA = not applicable.
[b]Data are presented as No. (percentage) unless indicated otherwise.
[c]As assessed using the full Maslach Burnout Inventory. Per the traditional scoring for health care workers, physicians with scores ≥27 on the emotional exhaustion subscale, ≥10 on the depersonalization subscale, or <33 on the personal accomplishment subscale are considered to have a high degree of burnout in that dimension.
[d]High score on emotional exhaustion and/or depersonalization subscales of the Maslach Burnout Inventory (see "Participants and Methods").

In contrast to physicians, the rate of burnout for the general US working population remained steady from 2011 to 2017 (2011, 28.6%; 2014, 28.4%; 2017, 28.1% Comparison 2017 to 2011, p=.58; comparison 2017 to 2014, p=.72) Satisfaction with work-life integration for the general US working population improved from 2011 to 2014 and remained steady in 2017 (2011, 55.1%; 2014, 61.3%; 2017, 61.0%; comparison 2017 to 2011, p<.001; comparison 2017 to 2014:, p=.71).

Compared to the general US working population, physicians experienced higher rates of burnout in 2017 (39.8% vs 28.1% OR 1.69 p<.001) even after adjusting for age, sex, relationship status, and hours worked per week. Physicians also had a lower rate of satisfaction with work life integration than the general US population (40.0% vs 61 % OR 0.43 p< 0.001) ,again this held true after adjusting for age, sex relationship status and hours worked per week. [13]

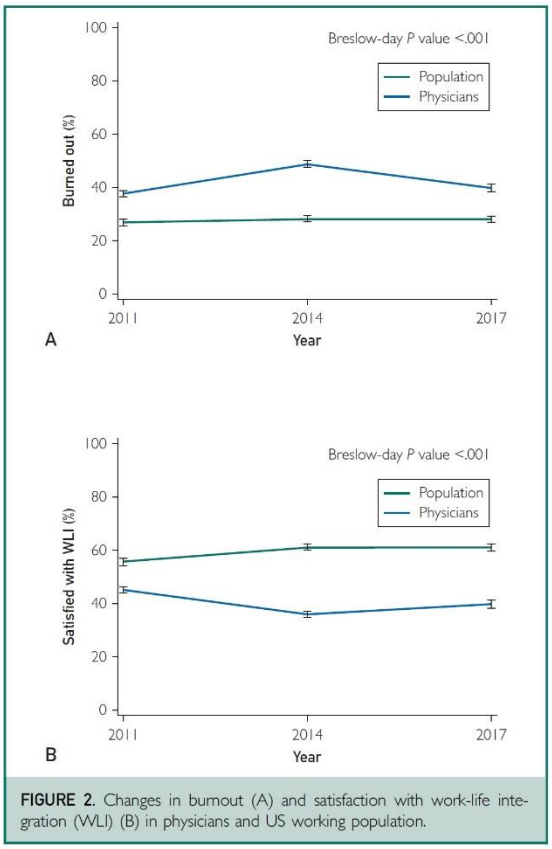
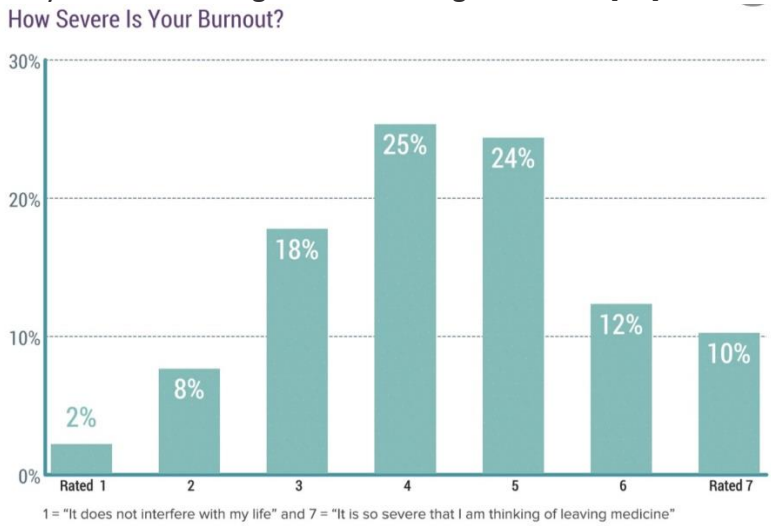


FIGURE 2. Changes in burnout (A) and satisfaction with work-life integration (WLI) (B) in physicians and US working population.

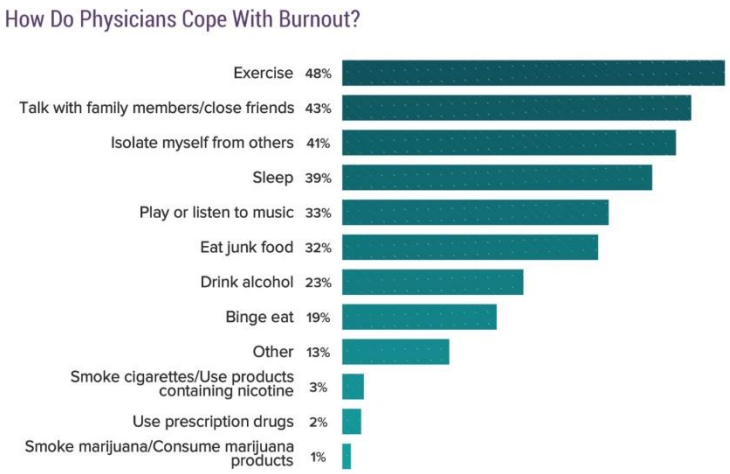
The findings from this study, regarding the prevalence of burnout among physicians, has been substantiated in other studies as well. In January, Medscape published the "*National Physician Burnout, Depression & Suicide Report 2019".* The report surveyed 15,069 physicians in over 29 specialties across the United States about their degree of burnout and depression and how they cope. In the report, 44% of physicians admitted to being burned out, 11 % admitted to being colloquially depressed (feeling down, blue or sad), and 4% were clinically depressed. The report also found that burnout was so severe that nearly half of those surveyed were leaning toward leaving medicine. [14]



Burnout: Who is Actually Affected?

The evidence is clear. Physician burnout has reached epidemic proportions, to the point that leading health care organizations have declared it a public health crisis. Burnout does not only affect physicians, but it also affects the patients they care for and the health care organizations that employ them. [15]

Burnout, for obvious reasons, most directly affects individual physicians and gives rise to substantial consequences. Cross-sectional studies have found burnout among physicians to be independently associated with a 25 percent increased odds of alcohol abuse/dependence and a 200 percent increased odds of suicidal ideation.[16] Additionally, burnout is often associated with other disruptive and destructive behaviors including substance abuse, increase in interpersonal conflicts, broken relationships and poor quality of life. [2] The 2019 Medscape survey found that while most physicians reported positive coping strategies to deal with burnout such as exercise and talking with family and close friends there was a substantial percentage that reported maladaptive coping strategies such as becoming isolated from others, binge eating, drinking alcohol, as well abuse of prescription drugs and illicit substances. [14]



As burnout evolves, physicians' work performance may deteriorate, generating an increase in medical errors and compromise of patient care. *Tawfik et al.* from Standford published a study in 2018 to evaluate the relationship between physician burnout and medical errors. The study found that physicians who reported major medical errors had a higher prevalence of overall burnout than those who did not report burnout. [17]

TABLE 2. Burnout, Well-being, and Prevalence of Perceived Major Medical Errors Among 6695 Participants[a]

Variable	All (N=6586 [98.4%])	Recent error (n=691 [10.5%])	No recent error (n=5895 [89.5%])	Odds ratio (95% CI)[b]
Burnout				
Emotional exhaustion (scale 0-54; n=6501)[c]				1.05 (1.04-1.05)
Median score	25.0	34.0	24.0	
Low score	2182 (33.6)	100 (14.7)	2082 (35.8)	
Intermediate score	1253 (19.3)	117 (17.2)	1136 (19.5)	
High score	3066 (47.2)	464 (68.1)	2602 (44.7)	
Depersonalization (scale 0-30; n=6476)[d]				1.10 (1.09-1.12)
Median score	7.0	12.0	6.0	
Low score	2827 (43.6)	131 (19.3)	2696 (46.5)	
Intermediate score	1379 (21.3)	133 (19.6)	1246 (21.5)	
High score	2270 (35.1)	414 (61.1)	1856 (32.0)	
Personal accomplishment (scale 0-48; n=6419)[e]				0.95 (0.94-0.96)
Median score	41.0	38.0	42.0	
High score	3944 (61.4)	295 (44.0)	3649 (63.5)	
Intermediate score	1442 (22.5)	199 (29.7)	1243 (21.6)	
Low score	1033 (16.1)	176 (26.3)	857 (14.9)	
Participants with burnout[f]	3574 (54.3)	536 (77.6)	3038 (51.5)	3.33 (2.76-4.03)
Quality of life[g]				0.81 (0.78-0.84)
Median	8.0	7.0	8.0	
Fatigue[h]	2163 (32.8)	322 (46.6)	1841 (31.2)	1.92 (1.64-2.25)
Suicidal ideation	427 (6.5)	88 (12.7)	339 (5.8)	2.40 (1.87-3.08)
Depressive symptoms	2634 (40.0)	430 (62.2)	2204 (37.4)	2.76 (2.35-3.25)

[a]Data are presented as No. (percentage) of participants who provided information on symptoms of burnout. Percentages may not total 100 because of rounding.
[b]Odds of perceived major medical error associated with 1-point change in scale for burnout subscales and quality of life measurements and with positive response (vs not) for burnout, fatigue, suicidal ideation, and depressive symptoms.
[c]Denominators are 681 with recent error and 5820 with no recent error.
[d]Denominators are 678 with recent error and 5798 with no recent error.
[e]Denominators are 670 with recent error and 5749 with no recent error.
[f]High score on emotional exhaustion and/or depersonalization scale.
[g]Linear analog scale (0-10).
[h]Low score (0-4) on a 0-10 linear analog scale ($^1/_2$ standard deviation below the mean of a normative sample).

A systematic review and meta-analysis published in JAMA Internal Medicine Sept 2018 found that physician burnout is associated with an increased risk of patient safety incidents (OR, 1.96; 95% CI, 1.59-2.40),poorer quality of care due to low professionalism (OR, 2.31; 95% CI, 1.87-2.85), and reduced patient satisfaction (OR, 2.28; 95% CI, 1.42-3.68). [18]

In addition to its impact on the quality of patient care, burnout also has the potential to affect patient access to medical care. The US Department of Health and Human Services has predicted a shortage of up to 90,000 physicians by the year 2025. One of the underlying drivers for this shortage will be the loss of practicing clinicians leaving medicine due to burnout. [19] Physicians who experience high levels of exhaustion on the burnout scale are more likely to reduce their clinical schedules, reduce the number of patients in their practice, leave the practice, or retire. [20]

A longitudinal study conducted at Mayo Clinic found similar findings. The study evaluated the association between physician burnout and changes in professional work effort. Physicians at Mayo fill out a survey every 24 months that covers several topics including professional burnout and satisfaction with the organization. Data from this survey was used to assess changes in burnout and satisfaction overtime. Administrative and payroll records of the respondents were used to assess their clinical Full Time Equivalent (FTE). The study found that physicians with greater degrees of emotional exhaustion and lower degrees of satisfaction were more likely to reduce their FTE over the following 24 months. A dose-response relationship was also found between burnout and professional work effort. Independent of age, sex, and specialty, each 1-point change in emotional exhaustion (7-point scale) or satisfaction (5-point scale) was associated with a 43% and 34% higher likelihood of reducing FTE over the next 24 months respectively. [19]

While reducing professional work hours may be a helpful strategy for individual physicians experiencing burnout, it has the potential to further exacerbate the impending physician workforce shortage. It could also impact continuity of care for patients and compound the challenge that many

medical centers have in preserving adequate patient access to physicians, especially to primary care physicians who notably experience some of the highest rates of professional burnout.

The Cost of Burnout

The effect of burnout leading physicians to leave clinical practice also has significant economic implications. This effect is in part related to the expense that health care organizations incur due to physician turnover as well as a decrease in productivity. Turnover results in direct costs associated with the recruitment process, lost revenue during recruitment, onboarding, and the time it takes for a new physician to reach optimal efficiency in a new system. [22] Some studies suggest that the cost to replace a physician is 2 to 3 times the physician's annual salary. A 2012 report from the Association of Staff Physician Recruiters indicated that the average "hard costs" associated with recruiting a physician (eg. recruiting agency fees, advertisements, interview costs) are $88,000 before factoring in lost revenue during the recruitment and onboarding process. [21] The experience of Atrius Health (a large health care organization in the Northeast) estimates that their organization's cost to replace a physician who leaves is $500,000 to $1,000,000 due to recruitment, training, and lost revenue during this time. [15]

There is also the disruptive impact of turnover on patients and other members of the care team. Turnover of any member of the care team increases the risk of burnout among all members of the care team over the next 12 months even if someone is hired to replace that individual. Physician turnover can therefore increase burnout rates for both the colleagues left behind as well as other members of the care team. [23] If a pattern ensues where more physicians and members of the care team leave an organization due to burnout, the organization can quickly become subject to the substantial financial costs of turnover if burnout is not appropriately addressed.

Reduced productivity, as a result of burnout, also has a financial impact on healthcare organizations. However, this dimension is difficult to fully quantify. Many health care organizations have high fixed costs and as a result even a small change (1%-2%) in productivity can have large effects on an organization's bottom line. Even if a health care organization does not directly employ the physician (e.g., a hospital with an open staff model), they are nonetheless affected by declines in productivity due to burnout (e.g., fewer elective surgical cases, admissions, imaging). [22]

A recent cost-consequence analysis found that burnout costs health care organizations approximately $4.6 billion a year in physician turnover and reduced productivity. The burnout-attributable cost per physician is estimated at $7,600, with a range of $3,700 to $11,000. It is important to note that this cost analysis is a conservative estimate, and actual costs attributed to burnout are likely much higher. The study only accounted for costs directly related to physician replacement (termed friction costs by economists) which includes search costs, hiring costs, physician startup costs, and the lost income from unfilled physician positions.

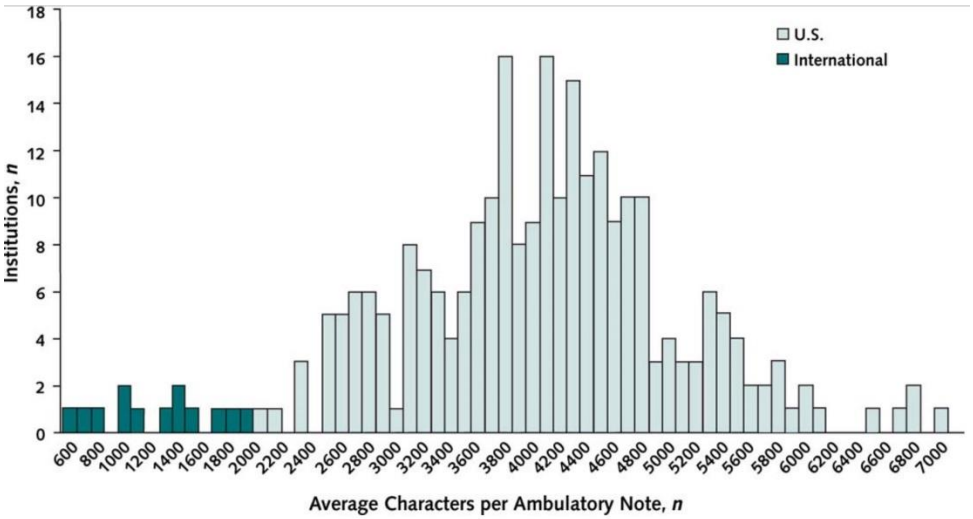
Other burnout related costs that are difficult to quantify, but which may have both direct economic and indirect reputational costs, were not accounted for in the cost estimate. Such factors include the other friction costs involved with physician replacement, such as disruptions in continuity of patient care, the effects on other members of the care team, and costs associated with reduced patient access to care as departing physicians wind down their practices and replacement physicians build up theirs. Physicians who leave a practice may cause their patients to seek an alternate practice for their care, thus incurring further revenue losses. This factor is particularly significant for large urban medical centers who face strong competition from nearby organizations. The analysis also did not account for the indirect revenue lost due to physician vacancy, such as the reduction in revenue derived from facility fees or from tests and procedures. In addition, as patient satisfaction diminishes with reduced quality of care from physician burnout, the organization may get less favorable contracting with payers or they may see reduced annual reimbursements drop because of low patient satisfaction scores. These factors also decrease revenue and adversely impact the organization's bottom line. [24]

What are the drivers of physician burnout?

Increasing clerical burden is cited as one of the biggest drivers of burnout for physicians. The increasing clerical burden that many physicians face can be tied to the "meaningful use" incentives introduced in 2009 as part of the Health Information Technology for Economic and Clinical Health (HITECH) Act. The HITECH Act, an effort led by the Centers for Medicare & Medicaid Services (CMS), facilitated the widespread implementation of electronic health records (EHR) across practices and hospitals across the country. Implementation of EHRs was tied to incentive payments by CMS, and failure to implement EHRs was tied to negative adjustments to providers' Medicare/Medicaid fees. [25] The goal of this program was to foster and accelerate the transition to electronic records in order to improve quality of care and patient communication. [26] Unfortunately, this program has caused a multitude of unintended consequences for physicians.

EHRs are required to have easily extractable measures as mandated by payers and governments. However there are no standards to address the usability and workflow concerns of physicians who use these platforms. This poses significant obstacles to physicians in their ability to use the EHR to deliver patient care. These challenges include but are not limited to poor workflow, distracting and unhelpful alerts, and inefficient and burdensome documentation processes. The quantity of mandatory measurements and documentation imposed by current EHRs due to regulatory and payer requirements means that physicians spend more time on the computer than on patient care. [26] One study found that for every hour physicians spend with patients, they spend one to two more hours on the EHR doing tasks such as finishing notes, documenting phone calls, ordering tests, reviewing results, responding to patient requests, prescribing medications, and communicating with staff. Little of this work is currently reimbursed and is instead done during the physicians "time off", spilling over into their nights, weekends, and even vacation. [27] Another study found that during an ambulatory patient encounter US physicians spent 44% of computer facing time on documentation and only 24% on patient communication. [28]

Interestingly EHRs are not met with same aversion globally. Physicians abroad are more likely to report satisfaction with EHR use and cite it as a tool that has improved their efficiency. This is likely due to the difference in clinical documentation between the United States and other countries. In other countries clinical documentation tends to be far briefer. It contains only essential clinical information and omits much of the compliance and reimbursement documentation that commonly bloats the American clinical note. Across the same EHR, clinical notes in the Unites States were found to be nearly 4 times longer on average than in other countries.



EHRs and US documentation requirements have made physicians the highest paid clerical workers in the office and hospital. Physicians serve as data entry clerks required to document not only diagnosis, physician orders and patient visit notes, but also an increasing amount of low-value administrative data

that do little if anything to advance the goals of patient care. To justify billing to such payers as the Centers for Medicare & Medicaid Services, physicians must specify diagnoses from long and confusing lists of choices relating to each test or procedure and document a clinically irrelevant number of elements for the history of present illness, review of systems, and physical examination. [29] It is likely that US documentation requirements and the time physicians have to spend to fulfill these requirements drives much of the dissatisfaction with EHRs.

Loss of autonomy is another factor contributing to physician burnout. Autonomy is defined as the basic ability of individuals to exercise their judgment in terms of how to spend their time, attention, and resources. With respect to the delivery of medical care, this could include the ability to decide when to see each patient, how much time to spend with each patient, what questions to ask them, when to see them next, what kinds of tests to perform, and what kinds of treatments to try out and for how long [30]. This desired physician autonomy is generally in conflict with the current practice of medicine with its standardized workflows and algorithms, reimbursement policies, documentation and technology demands and intense oversight and control of physicians. [2] In the absence of autonomy, physicians often feel like cogs in a wheels.

The National Academy of Medicine Website published a discussion paper entitled *Burnout Among Health Care Professionals: A Call to Explore and Address This Underrecognized Threat to Safe, High-Quality Care* which analyzed the results of several studies to identify drivers of physician burnout. The authors found that inefficient work processes, (e.g., computerized order entry and documentation), excessive workloads (e.g., work hours, overnight call frequency), work-home conflicts, and deterioration in control, autonomy, and meaning at work are associated with burnout among physicians. Multivariate analyses of data from cross-sectional studies of physicians found independent relationships between burnout and several work related factors:

- **Working too many hours** increases the chances that you burn out, with the odds rising by 3 percent for each additional hour you work a week.
- **Taking night or weekend call** increases your odds of burnout by 3 to 9 percent for each additional night or weekend you spend on call.
- **Performing work-related tasks at home** increases your odds of burning out by 2 percent for each additional hour you work at home per week.
- **Having a work-home conflict** increases burnout odds by 200 to 250 percent.
- **Practicing in certain specialties**, such as emergency medicine, general internal medicine and neurology, increases your odds of becoming burned out by as much as 300 percent when compared with burnout in other specialties.
- **Working in a private practice** increases your odds of burnout by about 20 percent no matter what your specialty or work hours.
- **Receiving incentive pay** increases your burnout odds by 130 percent when compared to physicians who are paid under other salary models.
- **Having a career that doesn't fit what you find most personally meaningful** increases the odds of becoming burned out, with studies finding that burnout is 275 percent more likely among physicians who spend less than 20 percent of their work effort on this.
- **Using computerized physician order entry or enduring other clerical burdens** drives burnout, with burnout 29 percent more likely among physicians who enter orders into a computer.

Leadership behaviors impact burnout as well. How well leaders seek input from, inform, mentor, and recognize individuals for their contributions relates to burnout and the career satisfaction of the physicians they lead. Additionally organizations that provide physicians with control over workplace issues are more likely to employ physicians with higher career satisfaction and lower reported stress. [16]

Although there are a number of factors that contribute to burnout they can be largely group into 7 dimensions: workload, efficiency, flexibility/control over work, work-life integration, alignment of

individual and organizational values, social support/community at work, and the degree of meaning derived from work. [31] Thus, interventions to reduce burnout should try to address issues in each dimension.

Strategies and Interventions to Reduce Physician Burnout

Interventions to reduce burnout can be classified into two main categories: physician-directed interventions (targeting individuals) and organization-directed interventions (targeting the work environment). Physician-directed interventions typically involve mindfulness techniques or cognitive behavioral techniques to improve communication skills and personal coping strategies. Organization-directed interventions can involve simple changes in schedules, reductions in the intensity of workload or more ambitious changes to the operation of practices and whole health care organizations. The literature suggests that organization-directed interventions are associated with higher treatment effects when compared to physician-directed interventions. [32]

Health care organizations should have a vested interest in reducing burnout among physicians. Any organization that recognized it had a systems issue that jeopardized the quality of patient care, decreased patient satisfaction, limited patient access to care and cost the system billions of dollars a year would readily mobilize organizational resources to address the problem. Physician burnout is precisely such an issue. The organization and practice environment play critical roles in whether physicians remain engaged or burn out. Mistakenly most hospitals, medical centers, and practice groups operate under the framework that burnout and professional satisfaction are the sole responsibility of the individual physician. This results in organizations pursuing a narrow list of "solutions" (e.g. stress management workshops and individual training in mindfulness/ resilience), that are unlikely to result in meaningful reduction of burnout. Such strategies neglect the organizational factors that are the primary drivers of burnout. Consequently, these interventions are viewed with skepticism by physicians as an insincere effort by the organization to address the problem. Framing the issue as a personal problem can also lead individual physicians to pursue solutions that are personally beneficial but detrimental to the organization and society, such as reducing professional work effort, retiring early or leaving clinical medicine all together. [31]

Although the need for system-level solutions has been recognized, there are two misconceived notions that prevent organizations from taking effective action. The first misconception is that the steps necessary to promote physician well-being will conflict with other organizational objectives. The second misconception is the assumption that all effective interventions to reduce burnout will be cost prohibitive. The reality is that an engaged physician workforce is a prerequisite to achieving institutional objectives, small investments can have a large impact, and many effective interventions are cost neutral. [31] The Mayo Clinic has developed nine organizational strategies that can be used to promote physician well-being, reduce burnout and promote physician engagement.

1. **Acknowledge and Asses the Problem:** Acknowledging the problem of burnout is the first step to demonstrate that the organization cares about the well-being of its physicians. Once the problem is acknowledged, it is necessary to measure physician well-being as a routine institutional performance metric. Organizations measure the things that they believe are critical to achieving their mission. Metrics that are routinely assessed include patient volume, payer mix, quality/safety, patient satisfaction and financial performance. Overwhelming evidence indicates that physician well-being is equally important to the health and long-term viability of the organization, and should therefore be measured as a quality metric.
2. **Harness the Power of Leadership**: The leadership behavior of the physician supervisor plays a vital role in the well-being of the physicians they lead. A 2013 study of more than 2800 physicians at Mayo Clinic found that each 1-point increase in the leadership score of a physician's immediate supervisor (division /department chair) (on a 60 point scale) was associated with a 3.3 % decrease in the likelihood of burnout ($P < .001$) and a 9.0 % increase in satisfaction for individual physicians

(P<.001) after adjusting for age, sex and specialty. Ideal leaders should have the ability to listen to, engage, develop, and lead physicians. These individuals should also be developed, prepared, and equipped for their leadership role. In addition, the performance of leaders should be regularly assessed by the individuals they lead. Presently, leaders of many health care organizations are solely assessed based on whether they deliver on organizational performance targets. It believed that leaders not only be assessed based on whether they achieve such targets but the way in which they do so (as evaluated by the people they are leading). At the Mayo Clinic physicians evaluate the leadership behaviors of their immediate supervisors annually using the scale below which has been shown to correlate with burnout and satisfaction within the work-unit. This information is used for leaders' yearly performance reviews with executive management. Organizations must also be willing to make leadership changes when necessary. In most organizations, a leader who consistently underperforms on financial metrics would be removed from leadership. A similar approach should be applied to those leaders who continue to receive low leadership behavior scores from those they lead despite appropriate support, coaching, and mentorship. It is likely that leader is ill-suited to lead physicians, and a leadership change may be required.

	*To what extent do you agree or disagree with each of the following statements about (**name of immediate supervisor**)?*
1	Holds career development conversations with me[b]
2	Empowers me to do my job[b]
3	Encourages employees to suggest ideas for improvement[b]
4	Treats me with respect and dignity[b]
5	Provides helpful feedback and coaching on my performance[b]
6	Recognizes me for a job well done[b]
7	Keeps me informed about changes taking place at ***name of organization***[b]
8	Encourages me to develop my talents and skills[b]
9	Overall, how satisfied are you with (***name of immediate supervisor***)[c]
	Total Score[d]

3. **Develop and Implement Targeted Interventions**: Although the drivers of burnout have been defined, the specific way in which they manifest and which dimension is dominant varies by specialty and work unit. For example, inefficiency in the practice environment (including clerical burden) is a universal driver of dissatisfaction and burnout, but how it manifests and the specific factors that create inefficiency vary widely among surgical, primary care, radiology, and pathology work units and across organizations. Although general principles can be established (eg, we aim to minimize clerical burden and maximize physician efficiency), this variability makes it challenging for executive leaders to effectively address burnout at the enterprise level. Many of the challenges and solutions are local. Information on the prevalence of burnout, engagement, and satisfaction at the division/department level allows senior leaders to identify "high-opportunity work units." Once identified the units should be systematically engaged to identify local factors that can be rapidly altered to improve physician burnout and satisfaction via the process below. The process is structured to transition away from generalities regarding burnout, focus on the specific issue(s) in the local work unit, and identify, develop, and implement an initial intervention. This approach helps transform the physician's mindset from that of a victim in a broken system to an engaged and empowered partner working constructively with leaders to make change.

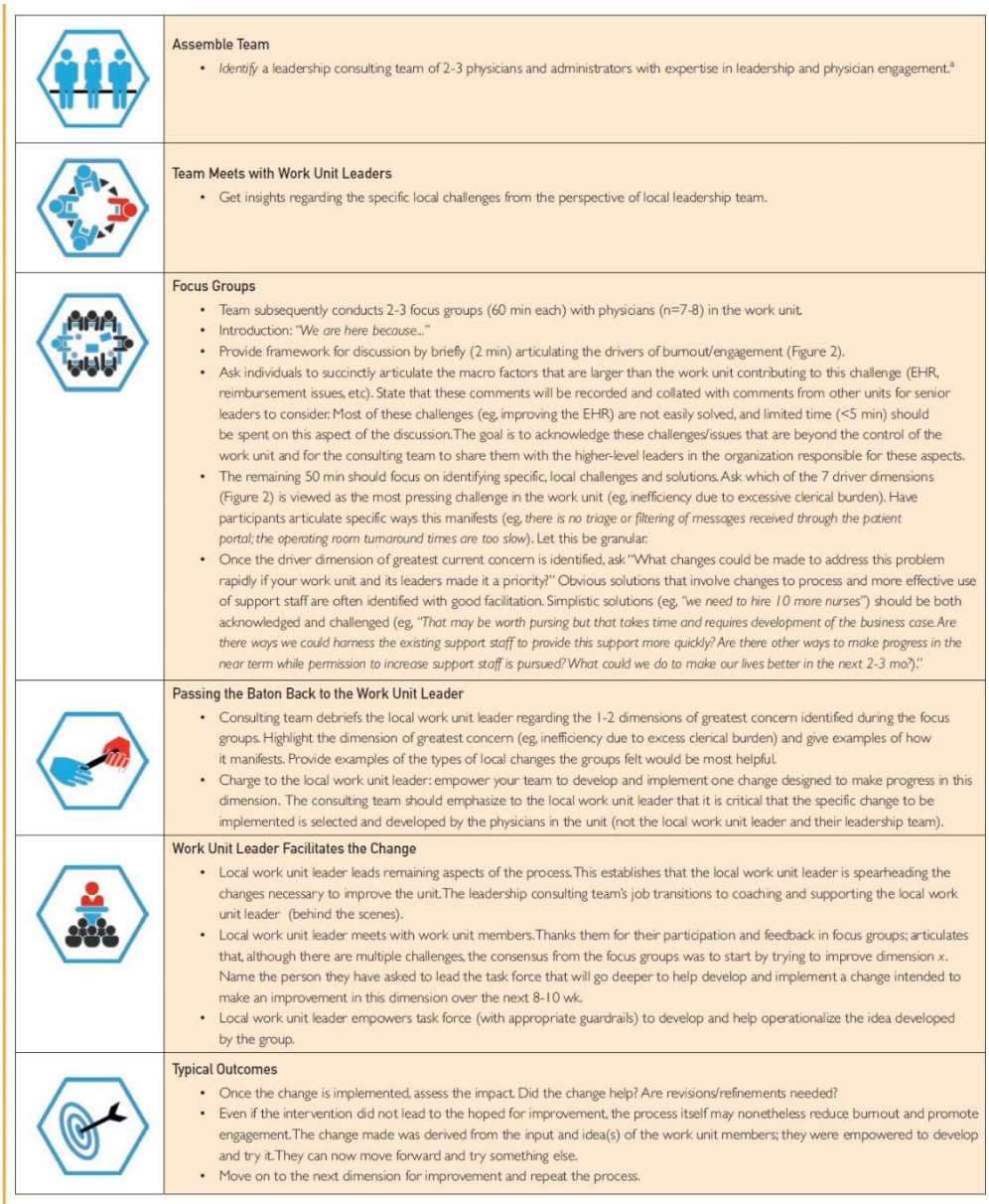


FIGURE 4. A stepwise process for targeted work unit interventions. [a]This process can also be applied to other units that do not meet the high-opportunity criteria, and, in such cases, it may be possible for some steps performed by the consulting team to be performed by work unit leaders. EHR = electronic health record.

4. **Cultivate Community at Work**: Physicians deal with unique professional challenges such as medical errors, malpractice suits, loss of patient, diagnostic dilemmas) Peer support has always been critical to helping physicians navigate these professional challenges in both formal and informal settings. Historically, such interactions happened organically during the course of discussing interesting cases or spending time together in the physicians' lounge. In most organizations however these interactions have dwindled as an unintended casualty of increasing productivity expectations, documentation requirements, and clerical burden. Well-intentioned efforts to create a more egalitarian environment have also led many organizations to eliminate formal spaces for physicians to interact (e.g., physicians' lounge or dining room) without recognizing the important role that this dedicated space played in fostering interpersonal connections among physicians. Collectively, these changes have led to an erosion of peer support and a greater sense of isolation for many physicians.

   Creating a common physical environment where doctors can gather can help build faculty comradery. University of California at San Francisco (UCSF) has brought back the concept of the

doctor's lounge with amenities such as chargers for electronics, printers, snacks etc. and burnout rates have decreased as a result of physicians feeling like they are cared for. [33] These spaces allow physicians to congregate and discuss non-work matters such as family life and vacation time, which helps to increase communication and foster more personal relationships among colleagues. It also results in informal peer support and mentorship among colleagues to discuss difficult situations physicians may face, discuss challenging cases or collaborate on project ideas. [34]

In 2012 a randomized trial at Mayo Clinic found that providing physicians with 1 hour of protected time every other week to meet with a small group of colleagues and discuss topics related to the experience of physicianhood improved meaning in work and reduced burnout. A follow-up trial evaluated a revised format to make these COMPASS (Colleagues Meeting to Promote And Sustain Satisfaction) groups more cost-effective. Participating physicians signed up with a group of 6 to 7 colleagues, shared a meal together at a restaurant in town once every 2 weeks, and spent the first 20 minutes of that gathering discussing a question that explored the virtues and challenges of being a physician. Funds to cover the cost of the meal were provided by Mayo Clinic. The randomized trial again found that these meetings with colleagues led to an improvement in both meaning in work and burnout for participants. The COMPASS groups are now available across the Mayo Organization to all physicians and scientists with more than 1100 physicians joining within the first 10 months that the program was started.

5. **Use Rewards and Incentives Wisely**: People can be motivated by rewards, and health care organizations capitalize on this principle by linking physicians' financial compensation to productivity. In some settings physicians' incomes are entirely based on productivity and in others it is structured as a base salary with a productivity bonus. Although some variation in productivity (e.g., patient volumes and relative value unit generation) can be attributed to a physician's experience, efficiency, and skill, such variation is relatively narrow. Physicians in an equally efficient practice environment primarily increase productivity or revenue generation by shortening the time spent per patient, ordering more tests/procedures, or working longer hours. The first 2 approaches may erode quality of care, and the third approach increases the risk of physician burnout.

   To mitigate the potential negative effects of productivity-based pay, some medical centers have incorporated other dimensions (e.g., patient satisfaction and quality measures) as part of the productivity-based pay formula. Other centers have incorporated dimensions of self-care and well-being as part of the formula to calculate productivity-based pay, which may provide a safeguard to counter the incentive to overwork. Another aspect of productivity-based compensation to consider is what "carrot" is used as a reward. Rewards such as greater flexibility (which can facilitate work-life integration) or protected time to pursue personally meaningful aspects of work (e.g., quality improvement work, community outreach, research, education, or mentorship) may allow more productive physicians to shape their work to create personal and professional fulfillment. In contrast, using a simple financial incentive may be less effective and encourage overwork that erodes meaning and fuels burnout.

6. **Align Values and Strengthen Culture:** Most health care organizations have an altruistic mission statement that centers on serving patients and providing them the best possible medical care. An organization's culture, values, and principles determine whether it will achieve its mission. It is critical for organizations to be mindful of factors that influence culture, assess ways to keep values fresh, and periodically assess whether actions and values are aligned.

7. **Promote Flexibility and Work-life Integration**: Physicians are nearly twice as likely to be dissatisfied with work-life integration compared to US workers in other fields. This problem is likely, in part, explained by differences in work hours. Approximately 45% of physicians work more than 60 hours per week compared with less than 10% of US workers in other fields. The long work hours expected of a full-time position in medicine make it difficult for physicians to integrate their personal and professional lives. Providing physicians with the option to adjust professional work effort (with a commensurate reduction in compensation) allows them to tailor their work hours to meet both personal and professional obligations. Depending on the specialty and the size of the organization, it may not always be possible for a physician to work less than full time. However, organizations should seek to make this option available to the greatest extent possible. With a substantial physician workforce shortage anticipated over the next 10 years, providing the option to work less than fulltime may become an increasingly important strategy for recruitment and retention.

   Organizations should also strive to provide physicians greater flexibility in when and how they work. Allowing physicians to start the work day earlier/later or to work longer hours on certain days of the week and shorter hours on others may allow individual physicians to meet personal responsibilities without having to reduce total work effort. This is typically preferable to the organization than having a part-time physician and can represent a win-win for both the individual and the organization. Institutions should also comprehensively examine the structure of their vacation benefits, coverage for life events (eg, birth of a child, illness/death in family), approach to scheduling, and strategy for coverage of nights and weekends. Compensation practices that disincentive using vacation should be avoided.

   In a pilot program initiated at Stanford Hospital in California, the idea of "time banking" was adopted to counteract the rising rate of burnout and promote flexibility and work life integration. The pilot was based on the premise that physicians don't just encounter work-life conflict, but especially in academic medicine face work-work conflict as well. On any given day or given week your time may be split between research, clinical care, teaching, mentoring, and administration. Some of those activities get recognized, such as research which goes toward promotion, but other activities that are necessary for the institution may not get recognized in a meaningful way. The time-banking system highlights work activities that aren't typically recognized or that support the flexibility of a colleague. In clinical care, this would include a physician stepping in to fill a shift at the last minute for a colleague who needs support. It can also include teaching or mentoring students and sitting on an institutional committee. When these occur, a physician can receive credits to purchase time in the form of academic support activities, such as manuscript editing, grant writing, PowerPoint design help, lab management or speech coaching. Credits can also be used for home-support activities to help free up time including house cleaning, meal deliveries, dry cleaning, picking up children from school, elderly care and any other tasks that can be completed by other able-bodied individuals. The program changed the culture at Stanford Hospital and afforded physicians the ability to make the work-life balance more achievable.[35]

8. **Provide Resources to Promote Resilience and Self-care:** Although the primary focus for organizations should be to optimize the practice environment and create a healthy organizational culture, they should also provide resources that make it easier for physicians to implement individual strategies to prevent burnout, deal with distress, and promote well-being. Unfortunately, most medical centers have made such individual intervention the centerpiece of their strategy without implementing concurrent efforts to address the system based issues

contributing to burnout. As a result this approach is typically met with skepticism and resistance by physicians ("they are implying I am the problem…. you only want to make me more resilient so you can further increase my workload"). Therefore it is important that such individual offerings are part of a broader strategy that demonstrates that the organization is also doing its part to address issues in the system and work environment.

Providing individual physicians with tools for self-calibration, resources to promote self-care, and training in skills that promote resilience are ways that organizations can help individuals care for themselves. The available data indicate that individual physicians do not accurately calibrate their personal level of well-being/distress and suggest that providing them objective information on how their well-being compares with that of physicians nationally helps promote behavior change. Linking such tools for self-calibration to resources may help physicians take action. Such resources should be comprehensive and address work-life integration, exercise/fitness, sleep habits, diet, relationships, hobbies, and preventive medical care.

9. **Facilitate and Fund Organizational Science:** Instituting operational efforts to reduce burnout and promote physician engagement will be the primary objective for most medical centers. Large research institutions, however, have the additional responsibility of developing the evidence-based strategies that these other centers will implement. The Mayo Clinic Program on Physician Well-being, founded in 2007, was launched precisely to help generate such evidence based strategies. The program has been effective in developing new metrics, establishing national benchmarks, implementing practice analytics, and conducting intervention studies and randomized trials with respect to physician burnout and well-being. Stanford University School of Medicine/Medical Center has also made major institutional investments in launching a similar program with its WellMD Center. The goal is for other premier institutions to follow suit. As opposed to employee assistance programs or offices/committees on physician wellness that provide support to physicians already experiencing distress, the focus of such programs is the creation of new knowledge and evidence on how to reduce burnout and promote engagement in physicians through organizational science. Given the profound effect of physician well-being on quality of care, patient satisfaction, and access to care, such knowledge will be critical to the long-term health and viability of the nation's health care delivery system.

Conclusion

In summary physician burnout has proven to be a problem of epidemic proportions. There is a societal imperative to provide physicians a better option than choosing between reducing their professional effort, burning out or leaving the profession all together. This is especially true in light of the impending physician shortage. It is readily apparent that interventions to prevent and reduce burnout are critical now more than ever especially with the impact that is has on physicians' personal and professional well-being, patients' safety and quality of care, and the economic burden to health care organizations. The primary focus should be on organization–directed interventions to address the drivers of burnout. Further studies by premier research institutions will be needed to provide more evidence based strategies to reduce and prevent physician burnout.

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