

Evidence-Based Interventions for Medical Student, Trainee and Practicing Physician Wellbeing: A CHARM Annotated Bibliography

For the Collaborative for Healing and Renewal in Medicine (CHARM) *Best Practices Subgroup*

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INTRODUCTION

The clinical and academic development, as well as wellbeing, of medical trainees is fundamental to the delivery of American health care. Students, residents and fellows are central to care teams in many hospitals and clinics, and possess the medical knowledge, curiosity, idealism and compassion necessary for successful clinical outcomes and continued advancement of scientific knowledge. Young doctors are the talent pool from which academic and community institutions alike find the staff clinicians, educators, researchers, policy makers and administrators of the future.

There is increasing recognition that the burnout affecting practicing physicians may significantly impact students and trainees. The reasons for practicing physician burnout are variable and complex, and range from unsustainable workloads with increasing regulatory and administrative demands, to tensions between work and home, poor systems of practice support, chaotic work environments, EHR-related problems, work compression, lack of alignment with leadership and lack of time and strategies for self-care. Trainees struggle with similar workplace challenges, and also face unique sources of stress and distress, such as sleep impairment, fear of failure and negative evaluations, competency issues, relocation, financial challenges, and minority, gender and cultural concerns.

The consequences of trainee burnout are undeniable. Medical students with burnout are more likely to engage in unprofessional behaviors, lose altruistic professional values, have serious thoughts of dropping out of school, misuse alcohol and have suicidal thoughts. Residents with burnout are more likely to commit medical errors, deliver suboptimal care, feel dissatisfied with their careers, consider changing specialty or leaving the profession, experience suicidal thoughts and may even have a higher rate of motor vehicle accidents and needle stick injuries. Studies also suggest burnout can impair concentration, impede cognitive processes needed for knowledge and skill acquisition and application, and negatively impact medical knowledge and clinical reasoning. In short, burnout negatively impacts learning, as well as personal and professional identity formation.

In response to the current burnout crisis, the Collaborative for Healing and Renewal in Medicine (*CHARM*) was formed in January of 2016, in association with the Alliance for Academic Internal Medicine (AAIM), for the specific purpose of analyzing trainee wellness and burnout, exploring interventions to reduce it, and identifying goals for faculty development and further research. Co-chaired by Drs. Hasan Bazari and Jonathan Ripp, *CHARM* is presently summarizing best practices, promoting investigation of the impact of learner burnout, developing tools for educators to address learners in distress and advocating for the recognition and inclusion of initiatives that foster wellbeing among learners.

The *CHARM* Best Practices subcommittee was charged with cataloguing and summarizing published strategies for improving wellbeing and decreasing burnout among medical students and trainees. However, given the widespread prevalence of physician burnout beyond training and the closely intertwined impact of senior physician burnout on team dynamics and junior team-member wellbeing, we have also summarized the intervention literature as it relates to practicing physicians. Interventions can be individual-focused, organization-focused or a combination of both. Individual-focused strategies are more prevalent in the literature and include mindfulness-based approaches, stress management, resiliency and self-care training, facilitated and non-facilitated small group curricula and communication skills training. Organization-focused interventions include shortened attending rotation length, shortened resident shifts, resident duty hour restrictions, protected naps on overnight shifts, and various practice delivery changes.

Description: Twenty controlled studies involving 1550 physicians were included. Seven of the studies involved interns and/or residents. Organization-focused strategies included workload reduction through shortened rotation blocks or shortened shifts, protected naps during in-house overnight call, adjusted ICU staffing schedules, protected time for facilitated discussion groups and targeted projects to improve teamwork and communication. Individual strategies included mindfulness, meditation, stress management and communication training, debriefing sessions, self-care workshops, an incentivized exercise program and other facilitated small groups. Authors chose a core outcome of burnout scores in the emotional exhaustion domain. Overall, existing burnout interventions were associated with small, significant reductions in burnout. Notably, subgroup analysis suggested significantly improved treatment effects for organization-focused interventions compared with individual-focused ones. There was also a trend toward greater effectiveness with interventions delivered to experienced physicians in practice five years or more, and in primary care settings, though these group differences were not significant.

Contribution: The results of this study provide additional evidence that physician burnout is rooted in the organizational coherence of the health care system and not simply a problem of individuals. They suggest that organization-focused strategies might be more effective than individual-focused ones. While not statistically significant, there was trend toward interventions being less effective in less experienced physicians and in secondary care settings.

Cost: Varied by intervention; the authors noted that concerns about implementation and delivery costs of organization-directed interventions, especially if they involve complex and major health care system changes, might explain their scarcity.

West CP, Dyrbye LN, Erwin PJ, Shanafelt TD. Interventions to prevent and reduce physician burnout: a systematic review and meta-analysis. *Lancet* 2016;388:2272-81. doi: [10.1016/S0140-6736\(16\)31279-X](https://doi.org/10.1016/S0140-6736(16)31279-X).

Impetus: Prior to this extensive publication there was a need for a comprehensive systematic review and meta-analysis of published physician burnout interventions that used strict methodological standards to overcome the limitations and heterogeneity present in the literature.

Description: The authors performed an extensive literature review and identified 15 randomized controlled trials (716 physicians) and 37 observational studies (2914 physicians) on individual-focused and organization-focused interventions to reduce burnout. Mindfulness and stress management training and small group discussions were common individual strategies. Shortened shifts, shortened rotations and work process modifications were the organizational strategies studied. Resident physicians from various specialties were involved in half the studies reviewed. Authors found both individual and organization-focused efforts have a modest but significant effect on overall burnout, as well as on the individual domains of emotional exhaustion and depersonalization, with absolute risk reductions in the range of 10-15%. Limitations of this meta-analysis were the methodological heterogeneity of the 52 studies, the paucity of randomized studies of organizational interventions, the lack of long-term follow-up in many cases and absence of data on combined individual and organizational strategies.

Contribution: This systematic review and meta-analysis identified a modest but significant decrease in burnout with a variety of existing interventions. The authors emphasized that further research using rigorous, well-designed, generalizable studies is needed to establish which interventions are most effective

in specific populations, as well as how individual and organization-focused strategies might be combined for a potentially greater impact.

Cost: Varied by intervention.

Raj KS. Wellbeing in residency: a systematic review. *J Grad Med Educ* 2016;8(5):674-84.

doi: [10.4300/JGME-D-15-00764.1](https://doi.org/10.4300/JGME-D-15-00764.1).

Impetus: This review sought to identify predictors of resident wellbeing, to summarize interventions that promote wellbeing, and provide a framework for future research.

Description: Twenty-six studies published between 1989 and 2014 met inclusion criteria. Articles with a specific focus on duty hours were excluded. A sense of control and autonomy, the building of clinical competence, the pursuit and achievement of goals, opportunities for learning, positive feedback and positive colleague relationships were associated with greater wellbeing. Autonomy, competence and relatedness had the strongest correlations, in agreement with current psychological research on wellbeing. Sleep and time away from work were also strongly correlated. Limitations included the fact that 65% of included papers were cross-sectional analyses of factors associated with resident wellbeing, as well as a lack of a universal definition of resident wellbeing and the variety of scales used to measure the construct.

Contribution: Autonomy, building clinical competence, strong social relatedness, sleep and time away from work were strongly associated with resident wellbeing in this systematic review. The first three coincide well with the psychological research on wellbeing. Rigorous research focused on these factors is needed to better define possible interventions for improving wellbeing.

Cost: Varied by intervention.

Daskivich TJ, Jardine DA, Tseng J, et al. Promotion of wellness and mental health awareness among physicians in training: perspective of a national, multispecialty panel of residents and fellows. *J Grad Med Educ* 2015;7(1):143-7. doi: [10.4300/JGME-07-01-42](https://doi.org/10.4300/JGME-07-01-42).

Impetus: In response to the suicide deaths of two resident physicians in New York in 2014, the ACGME conducted an appreciative inquiry exercise with residents and fellows in an effort to provide concise, meaningful recommendations about wellness best practices from physicians-in-training to the GME community.

Description: Twenty-nine residents and fellows on the ACGME Council of Review Committee Residents (from geographically diverse areas and from multi-specialties) answered a series of appreciative inquiry questions about current resources for promotion of wellness in trainees, characteristics of the ideal learning environment and strategies for moving existing learning environments closer to the ideal. Qualitative analysis of individual answers identified strong consensus on overarching themes. Personal support and mentorship from peers and faculty, systems to prevent and respond to resident distress and mental health problems, and solicitation of trainee input to improve the learning environment were identified as current best practices. Ideal learning environments were characterized by destigmatizing mental health issues, community support (from peers, faculty, staff and others), mentorship, a supportive culture (in particular after bad events) and easy access to mental health services. Five recommendations about how to move learning environments toward the ideal emerged: (1) increase awareness of stress and depression in

residency, thereby destigmatizing it; (2) develop systems to confidentially identify and treat depression in trainees, and reduce barriers to accessing help; (3) enhance mentoring by senior peers and faculty; (4) promote a supportive culture, and (5) encourage further research into resident wellness and depression to better understand problem areas and highlight best practices.

Contribution: This article provides the resident and fellow perspective on current wellness best practices, which are nearly all organizational, and describes features of the ideal learning environment for the promotion of wellness. The learning environment is portrayed as a modifiable factor that may be transformed to better support physicians in training. Specific recommendations about how to improve current learning environments are provided.

Cost: The authors suggest some of the recommendations could be readily achieved through local education and culture change. Others, such as building systems to identify and treat depression, might be more costly to implement.

Linzer M, Levine R, Meltzer D, Poplau S, et al. Ten bold steps to prevent burnout in general internal medicine. *J Gen Intern Med* 2014;29(1):18-20. doi: [10.1007/s11606-013-2597-8](https://doi.org/10.1007/s11606-013-2597-8).

Impetus: In relation to the worsening shortage of primary care physicians in the US health-care system, this brief article summarizes primarily organization-focused interventions to decrease physician burnout in the primary clinic setting.

Description: Recommendations for combating burnout are divided into four categories: institutional metrics, work conditions, career development and self-care. Authors advocate for measurement and monitoring of physician burnout and its predictors as quality metrics, utilizing the data in a continuous quality improvement (QI) model to address predictors and eventually drive burnout down. Increasing clinic visit length to accommodate electronic documentation or adding "desktop" slots for electronic health record (EHR) work are proposed mechanisms for decreasing EHR-related stress. Suggested work environment improvements include providing sufficient clinical supplies, exam rooms and equipment; optimizing primary care panel sizes, visit length and staffing ratios using practice models and customized schedules which preserve physician work control; and maintaining a dedicated float pool to cover physicians' predictable life events. Additional recommendations include promotion of self-care as an element of professionalism, incorporating mindfulness and teamwork into clinic practice, having flexible career policies to allow part-time work and/or job sharing, and finding ways to protect time for physicians' academic pursuits and professional development.

Contribution: This article effectively describes the clinical, personal, financial and health system consequences of burnout among general internists, emphasizing the need for organizational strategies which help prevent burnout, improve the clinic environment, make primary care careers more sustainable and rewarding and attract the next generation of trainees into clinic practice. Ten recommendations directed at healthcare organizations are outlined.

Cost: The short-term costs of various interventions would be offset in the long-run if primary care faculty are retained and the need for continual recruitment of new providers could be avoided.

Regehr C, Glancy D, Pitts A, Leblanc VR. Interventions to reduce the consequences of stress in physicians: a review and meta-analysis. *J Nerv Ment Dis* 2014;202(5):353-9. doi: [10.1097/NMD.000000000000130](https://doi.org/10.1097/NMD.000000000000130).

Impetus: Over the past 10 years, there has been increasing attention focused on the role that the medical environment plays in the stress and burnout of both students and physicians. This meta-analysis examines the role of individual-based behavioral, cognitive, and mindfulness interventions in reducing physician/medical student stress and burnout.

Description: This meta-analysis study included 12 studies involving 1034 participants: four were controlled trials with physicians, four were controlled studies with medical students, and three were parallel single-group design studies with physicians. Stress and anxiety symptoms were measured by various standardized scales such as the Spielberger State Trait Anxiety Inventory (STAI), the Perceived Stress Scale (PSS), and the Profile of Mood States (POMS); burnout was more consistently measured by the Maslach Burnout Inventory (MBI). Results of the meta-analysis show that cognitive, behavioral and mindfulness interventions were associated with significantly decreased symptoms of stress and anxiety in physicians and medical students. For the secondary outcome measure of burnout, interventions incorporating psychoeducation, interpersonal communication and mindfulness meditation were associated with decreased burnout in physicians only. Limitations of this meta-analysis were the methodological heterogeneity of the studies included, and as with any meta-analysis, publication bias exists because studies with negative findings are often not published. Additionally, because single-group design studies were included in the meta-analysis for burnout interventions, the improvement in burnout scores could have been attributed to other factors, including spontaneous remission.

Contribution: This meta-analysis demonstrates that individual-based interventions based upon cognitive, behavioral, and mindfulness principles significantly reduced stress and anxiety in both physicians and medical students. While the data is not as strong for improvement of burnout, this meta-analysis provides emerging evidence that these models may also contribute to lower levels of burnout in physicians.

Cost: Varied by intervention.

Awa WL, Plaumann M, Walter U. Burnout prevention: a review of intervention programs. *Patient Educ Couns* 2010;78(2):184–90. doi: [10.1016/j.pec.2009.04.008](https://doi.org/10.1016/j.pec.2009.04.008).

Impetus: There are few papers which directly compare individual and organizational strategies to reduce burnout. A team from Hanover Medical School's Institute for Epidemiology, Social Medicine and Health System Research performed this systematic review to evaluate and compare the effectiveness of individual, organization-directed and combined burnout interventions in a broad range of medical and non-medical professionals. Authors identify work-related risk factors for burnout, including being in a "helping" profession (teaching, medicine, nursing and social work), imbalance between job demands and skills, lack of job control, effort-reward imbalance and prolonged workplace stress. They highlight the large economic losses associated with burnout because of absenteeism, sick leave, physical and mental health problems and job turnover.

Description: Primary studies between 1995 and 2007 are reviewed, with 25 included in the final systematic analysis. Level of evidence is assessed for each. Seventeen studies tested individual-based strategies, with 82% showing significant reduction in burnout or a positive impact on risk factors that persisted 6-12 months

depending on the study. Two studies tested purely organizational interventions, one of which reduced burnout for a year. All six studies of combined interventions showed significant positive effects on burnout, 80% lasting up to one year. Half of the combination studies were assigned the highest level of evidence.

Contribution: This systematic review directly compared individual, organizational and combined approaches for reducing burnout, with an emphasis on effect duration. While acknowledging the wide range of study designs as the major limitation, authors conclude a variety of burnout intervention programs are beneficial; however, combined approaches seem to most positively influence burnout and worksite mental health.

Cost: Varied by intervention.