



Burnout and the role of mentorship for radiology trainees and early career radiologists

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ABSTRACT

Burnout is a widespread issue among physicians, including radiologists and radiology trainees. Long hours, isolation, and substantial stress levels contribute to healthcare workers experiencing a substantially higher rate of burnout compared with other professionals. Resident physicians, continuously exposed to stressors such as new clinical situations and performance feedback, are particularly susceptible. Mentorship has proven to be an effective strategy in mitigating burnout. Various mentorship delivery models exist, all aiming to have mentors serve as role models to mentees, thereby alleviating stress and anxiety. Physician groups and healthcare enterprises have actively implemented these programs, recognizing them as both successful and cost-effective. This article explores different mentorship models, their implementation processes, and the effectiveness of these programs as a standard component of academic departments.

KEYWORDS

Burnout, mentees, mentorship, radiology trainees, work related stress

Healthcare workers are pivotal in fostering a healthy society. The issue of physician burnout, long overlooked within the healthcare setting, has now reached a critical point, prompting many physicians to leave the profession. Confronting and reversing this trend is imperative to sustain our legacy of outstanding and compassionate healthcare for future generations. Mentorship has emerged as a key strategy in combating the growing issue of physician burnout. This article discusses various mentorship models and their impact on improving physician mental health. Additionally, it presents a compelling business case for the establishment of institutional mentorship programs.

The current state of burnout in medicine

Burnout is defined as a long-term stress reaction characterized by emotional exhaustion, depersonalization, and a diminished sense of personal accomplishment. The increasingly demanding healthcare workplace environment has accelerated burnout among physicians and other healthcare workers.¹ A 2011 study revealed that 45% of United States (U.S) physicians reported at least one manifestation of professional burnout and a decline in satisfaction with work-life balance compared with individuals of similar education levels working comparable weekly hours in non-healthcare fields. These gaps had widened by 2014, with 54% of physicians reporting burnout, a rate substantially higher than that of non-physicians.² This troubling trend was exacerbated by the coronavirus disease-2019 (COVID-19) pandemic, during which many specialties reported increasing rates of burnout. Notably, emergency department physicians experienced the highest levels of burnout, with an upward trend from 43% in 2020 to 60% in 2021, reaching 65% in 2022.^{3,4} Increases in burnout among specialties involving high degrees of patient interaction are not surprising, as previous studies have demonstrated that healthcare workers in clinical settings experience more burnout than those in research or non-clinical settings.⁵ The effects of burnout and other stressors induced by the COVID-19

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pandemic were pervasive throughout the physician workforce, also affecting radiologists. In 2022, 54% of radiologists reported feelings of burnout due to various factors, including long hours and feelings of isolation and inadequacy.^{4,6,7} Resident physicians were also substantially impacted by the emotional stressors of the pandemic, experiencing an increase in clinical responsibilities, a reduction in educational opportunities, and less frequent and effective performance feedback compared with the period prior to the pandemic.⁸

In addition to burnout, physicians have reported a steady increase in depression, with 38% experiencing depressive symptoms in 2011, 40% in 2014, and 42% in 2017.² By 2021, 64% of physicians felt “down” or “sad,” with 21% reporting clinical depression.³ The pandemic contributed to a continued rise in clinical depression rates, increasing to 23% in 2023.⁴

While the causes of burnout are undoubtedly multifactorial, commonly cited factors include increased regulations and oversight, reduced face-to-face time with patients, and a substantial administrative burden due to electronic health record usage, with physicians spending around half of their workday on these records. A pre-pandemic survey of neuroradiologists in the U.S revealed that 37% were likely to retire earlier than initially planned, with a statistically significant correlation between the inclination to retire early and the use of personal wellness measures alongside challenges in balancing clinical and non-clinical duties.⁹ This survey also indicated that pre-pandemic increases in workload led to cutbacks in resident teaching and mentoring, activities that typically provide satisfaction to physicians in the workplace.⁹ Moreover, economic constraints, along with increasing clinical volumes and escalating productivity demands in clinical

care, research, and teaching, contribute to emotional exhaustion.¹⁰

Certain groups within the physician population appear more prone to burnout. Women and those working in specific specialties such as emergency medicine and general internal medicine report higher rates of burnout and lower satisfaction with work-life balance.^{2,4,11} Working additional weekly hours was also independently associated with an increased risk of burnout.² Among all healthcare workers, women, Caucasians, millennials, and those in supervisory roles have been identified as substantially more likely to experience burnout.⁵ Interestingly, whereas women reported higher personal burnout scores than men, work-related and patient-related burnout did not show substantial differences between genders, suggesting that workplace factors are not the sole contributors to physician burnout.¹¹

Multiple studies have demonstrated that physicians without a mentoring relationship exhibit higher levels of burnout.^{5,11} Conversely, burnout scores are lower in workplaces that offer well-being consultation services.¹¹ The implementation of mentoring as an organizational objective is particularly crucial, as organization-directed interventions focusing on enhancing workplace communication and skills have proven more effective in treating and preventing burnout than interventions directed at individuals.¹² Moreover, hospital executives at leading U.S academic institutions, such as the Mayo Clinic, have implemented formal organizational strategies to identify, develop, and support physician leaders. These strategies are recognized as cost-neutral, and substantially promote physician well-being.¹³ These executives also noted that mentorship and organizational efforts to engage physicians in work they find meaningful can dramatically reduce the risk of burnout.¹³

While not all causes of burnout are work-related, its effects are visibly manifested in the workplace. Outcomes such as early retirement, reduced working hours, and the desire to leave one’s current place of employment reflect burnout and dissatisfaction with work-life balance among U.S physicians.¹⁴ For those choosing not to retire, decreased productivity, cynicism, depression, substance abuse, and an increased rate of clinical errors are well-documented consequences of burnout.¹⁰ A Stanford University study conservatively estimates the annual cost of physician burnout in the U.S at \$4.6 billion, with other studies suggesting figures as high as \$10

billion.^{2,15} Perhaps more alarming than the financial impact is the threat burnout poses to the already limited available physician workforce. Recruitment and retention strategies must address the effects of burnout and develop mitigating approaches to prevent a catastrophic workforce shortage that could substantially affect patient care.

The role of mentorship in combating burnout

Efforts are underway to address burnout, with organizations such as the American Medical Association and the National Academy of Medicine initiating multidisciplinary efforts to engage regulators, healthcare organizations, and other groups in addressing system-wide issues contributing to burnout. Despite these efforts, the outcomes have been discouraging. For instance, the 2022 Physician Burnout and Depression Report revealed an increase in burnout, with several specialties reporting that over 50% of their members experience such feelings.¹⁶ The COVID-19 pandemic has substantially contributed to these trends and may confound the assessment of the outcomes of these mitigation efforts.¹⁶ Institutions have identified concrete steps to reduce burnout, including investing time and resources in leadership development and mentorship programs for employees.⁵

Mentorship is defined as a relationship in which a more experienced or knowledgeable person guides a less experienced or less knowledgeable person. At its core, mentorship focuses on the individual development of navigating challenges rather than acquiring specific knowledge or technical skills.¹⁰ Various models of mentorship exist. The most common is the dyad model, in which one person mentors a single mentee. This model is straightforward to implement and facilitates the development of structure, goals, and accountability between the mentor and the mentee. However, the dyad model may not meet all the needs of its participants as it is limited by the expertise and skill set of a single mentor. In contrast, mosaic mentorship models offer a more comprehensive experience. These models involve multiple mentors and various forms of mentorship, such as group or peer mentorship, focusing on learning from and challenging peers at a similar expertise level. These less traditional mentorship models offer benefits such as enhanced support and more dynamic relationships while mitigating concerns related to perceived power differentials and providing access to a diverse array of mentors.¹⁷

Main points

- Burnout is an increasingly common problem among healthcare workers.
- Mentorship programs have been implemented to combat rising concern over burnout.
- Various mentorship delivery models have been rigorously studied and analyzed. We present and discuss the outcomes of these different models.
- The positive outcomes of mentorship programs, along with their substantial benefits to mentees, mentors, and the health organization, are illustrated.

The benefits of mentorship across various medical disciplines have been extensively researched and documented.¹⁸ A notable study conducted at Massachusetts General Hospital investigated the impacts of a mentorship program that paired junior faculty with senior faculty. After 1 year, the junior faculty reported substantial increases in the department's emphasis on professional development, peer support, and their ability to balance work and family commitments.¹⁸ In this cohort, 43% of junior faculty received grant funding, and 50% were honored with departmental awards during the study period. Remarkably, 10 junior faculty members, including three from under-represented minority groups, were promoted within the 1-year study period, a substantial increase from an average of 4.2 promotions per year prior to the mentorship program (with no promotions from under-represented minority groups).¹⁸ These early career interventions are crucial, as evidenced by another study revealing that 36% of academic radiologists struggle to balance work and life demands, and a majority leave academic practices early in their careers.^{19,20}

Additionally, the role of mentorship in mitigating burnout has been explored, with findings suggesting benefits for both mentors and mentees. Mentors often experience a renewed sense of purpose and rejuvenation, while mentees gain valuable insights and guidance for navigating workplace challenges.¹⁰ Early interventions prove particularly effective. For example, a short-term study involving medical students on emergency medicine rotations demonstrated an increase in personal accomplishment and a trend toward reduced emotional exhaustion and depersonalization among participants in a mentorship program.²¹ Institutions must implement early strategies to combat burnout, especially since only 13% of physicians seek professional help for burnout, 41% fear repercussions from their medical board or employer, and over half perceive a stigma associated with burnout and depression.⁴ These findings underscore the need for early career interventions before symptoms manifest and call for the broader implementation of such programs.

The relationship between mentoring and burnout is not exclusive to the medical field. A large study among telecommunications workers demonstrated that mentoring and providing adequate resources to employees substantially reduced burnout and increased retention.²² The study also highlighted the importance of flexible scheduling to en-

hance work-life balance, transparency in evaluations and pay, and avoiding overwork as key factors in mitigating burnout.²²

Altruism is a commendable quality in mentors, and numerous benefits of mentorship have been identified. Studies show that physicians serving as mentors report an increase in leadership skills, heightened confidence in their mentoring abilities, a stronger sense of purpose, and renewed interest in their specialty.^{10,21} Researchers from the University of South Florida studied healthcare employees at an undisclosed organization in the U.S and discovered that those with mentoring experience reported higher salaries and more promotions than those without mentoring experience.²³ The same study noted that the average timeframe for advancement within the company was approximately 1 year following the participants' initial mentoring experience. Furthermore, subjective assessments of personal success are substantially higher among mentors compared with non-mentors.²³

Mentorship benefits also extend to the institutional level. Most radiologists who leave academic medicine do so within their first few years, with almost 70% departing after an average of 3.28 years, and the majority indicate that they would not consider returning to academic medicine.¹⁹ A lack of mentorship has been identified as a critical factor in these physicians' decision to leave. This issue is particularly acute among women physicians, who often cite inadequate mentorship as a career obstacle. The disproportionately small number of women holding professorships and departmental leadership positions in academic medicine creates substantial barriers to securing mentorship for many women physicians.²⁴ This challenge is pronounced in fields with a lower percentage of women members. As of 2022, 73% of practicing radiologists and 72% of current ACGME radiology residents and fellows were identified as men.²⁵ Promoting and retaining a diverse workforce can aid in the future retention of underrepresented physicians by providing trainees and early career physicians access to a diverse set of mentors and leaders, as positive mentorship has been shown to increase job satisfaction and organizational commitment among healthcare workers.^{10,26-28}

This institutional commitment to the retention of professionals can be demonstrated by incentivizing mentorship through financial means and promotions. While many institutions focus on the recruitment and

retention of "star" employees, implementing such measures with the average employee in mind will better foster diversity, versatility, and growth at the institutional level. Developing this breadth ensures that future employees do not need to find a "perfect" mentor, as a diverse network of mentors can offer benefits and guidance in various areas.¹⁰

Implementing effective mentorship programs

There is robust evidence supporting the benefits of mentorship programs for physicians in training; however, the implementation of these programs often lacks clarity. A survey of radiology residency program directors revealed that while 85% recognized the importance of mentorship, only 52% reported that their residents utilized a mentor, and there was no consensus on the structure of mentorship programs.²⁸ Common goals for mentorship programs include focusing on the mentee's development and providing emotional and psychological support to foster the mentee's independent professionalism.²⁹ Most authors in our review advocated for the mosaic mentorship model, in which a mentee has multiple mentors who collectively address the specific needs of the mentee.²⁹⁻³² As Ayyala et al.²⁷ noted, the mosaic model is particularly beneficial for physicians from underrepresented groups, enabling these individuals to seek out specific mentors for needs that may not be met by a single mentor. For instance, studies have indicated that most women program directors believe having a female mentor is crucial for women radiology residents. However, this mentor may differ from those sought for research- or practice-specific advice.^{27,28,30,31}

An initial barrier identified by trainees in forming productive mentoring relationships is the challenge of identifying a suitable mentor.³³ There are various approaches to pairing mentors with mentees. A formal, department-led process of assigning trainees to faculty mentors offers the advantage of being easier to structure, monitor, and evaluate. Conversely, an informal process in which trainees select their mentors can be more organic and potentially more aligned with the individual needs of the trainee.³⁰ In training programs with limited faculty resources, leveraging alumni networks or collaborating with local and national organizations can enhance mentorship opportunities.^{33,34} An advantage of the mosaic mentorship model is that it allows for the simultaneous pursuit of these various methods.

Regardless of the method of mentor selection, several key elements of a productive mentor-mentee relationship have been identified. The mentee's responsibilities include respecting the mentor's time and expectations, being honest about their goals and abilities, and being receptive to feedback.^{29,30,33} Conversely, the mentor's responsibilities include demonstrating enthusiasm, being available, and being transparent about the scope and timeline of projects.^{31,33} Notably, one of the most substantial contributions a mentor can make is to direct a trainee toward another mentor better suited to address specific needs. Once mentorship is established, setting clear goals and mutually understanding how to achieve these goals is crucial. Articulating these objectives in a written mission statement can help hold both parties accountable.³⁰

Peer and near-peer mentoring have also proven effective in physician training programs. A study of a peer mentoring cohort in an academic radiology residency found that the most commonly discussed topics included study strategies, rotation-specific advice, and preparation for on-call duties.³⁵ Peer and near-peer mentoring offers highly accessible relationships for trainees, allowing them to share the responsibility of teaching junior residents.

The clinical department plays a pivotal role in providing the institutional framework necessary for successful mentoring relationships. If reducing burnout is a departmental goal, an important initial step is to help members identify the drivers of burnout. The Mayo Clinic has developed an excellent model that outlines the challenges of physician burnout. The authors discuss integrating this model into everyday practice.^{36,37} Once the drivers of burnout are recognized, mentorship can be leveraged to address them.

Departments can encourage mentorship by implementing several concrete steps: providing protected time for mentorship meetings -since a lack of such time has been identified as a major obstacle to effective mentorship- and offering mentorship training before the initiation of a mentoring partnership.^{30,32} Benchmarks such as publications, promotions, and the implementation of new procedures can serve as opportunities for recognition by the department or individual mentors.³⁰ Other departmental incentives, such as formal recognitions or awards and the provision of continuing education credits, play a crucial role in promoting mentorship.^{29,32}

Departmental leadership and committees are responsible for overseeing the matching of mentors with mentees, the allocation of resources and stipends, and the monitoring of progress and satisfaction within the pairings.^{31,32,38} While departmental leaders, such as the department chair and program director, are instrumental in supporting mentorship programs, several authors recommend that these leaders refrain from holding personal mentorship positions to prevent perceived favoritism among trainees and to enable trainees to engage openly with their mentors without fear of repercussion regarding their evaluations.^{30,31}

The benefits of mentorship extend beyond just residents. The transition from being a trainee to independent practice can be overwhelming, and early-career physicians face similar challenges. Establishing mentorships can help new faculty members quickly adapt to a new system or workload.³⁸⁻⁴⁰ The mosaic model of mentorship is especially useful in this group, as young physicians often face financial strains and family responsibilities that can add to the pressure.³² Additionally, physicians who are transitioning into new roles in private practice, administration, or legislative committees can benefit from mentors who are more experienced in these areas.³¹ As radiologists progress in their careers, the concept of coaching, which focuses on enhancing an individual's awareness of their existing strengths, may become more substantial than traditional mentorship.⁴¹

Conclusion

In conclusion, although there is no data to support the superiority of one mentorship style over another, ample data exists to support the benefits of mentorship in enhancing the well-being and progression of residents and early-career radiologists. These advantages are crucial in today's healthcare landscape, where burnout, depression, and job dissatisfaction are prevalent and contribute to medical errors, staff turnover, and financial losses. Productive mentorship has been demonstrated to be a low-cost or cost-neutral approach to enhancing physician retention, morale, and productivity.

Conflict of interest disclosure

The authors declared no conflicts of interest.

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