Burnout prevention among anesthesiologists

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Abstract

Burnout is a significant issue among healthcare professionals, particularly anesthesiologists, with rates considerably higher than in other fields. Recognized as an occupational hazard due to unmanaged workplace stress, it manifests through emotional exhaustion, depersonalization, and decreased personal accomplishment. Contributing factors include high workloads, lack of autonomy, and poor peer-support, often coupled with sleep deprivation and team disconnection. The intensified demands from the COVID-19 pandemic triggered an increase in its relevance. These stressors impact both healthcare workers' mental health, leading to conditions like depression and anxiety, and patient safety by increasing error rates and reducing care quality. Interventions to combat burnout target individual resilience, organizational changes, and enhanced teamwork. Effective strategies recently applied to the anesthesiology environment include structured team briefings, meaning-centered psychotherapy to restore purpose, and flexible scheduling systems to improve work-life balance. Some initiatives promote positive work environments by fostering robust metrics and team dynamics, while other programs emphasize social support and resilience building. Addressing these elements, particularly for anesthesiology staff and trainees, can improve both provider wellbeing and patient care quality, offering a path to mitigate the burnout crisis in healthcare.

Keywords: Burnout, Anesthesiology, Patient Safety, Fatigue, Resilience.

Introduction

Burnout was defined in 1997 by Maslach et al as a psychological syndrome of emotional exhaustion, depersonalization, and reduced personal accomplishment that can occur among individuals who work with other people in some capacity¹. In 2019 burnout was included in the 11th revision of the International Classification of Diseases as a syndrome resulting from unsuccessfully managed workplace stress. Three dimensions were identified, namely, feeling of depletion or exhaustion, increased mental distance or feeling of negativism or cynicism related to the job, and a sense of lack of accomplishment².

Burnout among medical professionals

A mental health crisis is underway, with rising rates of depression, burnout, and suicide risk among medical professionals³. Studies have shown that the prevalence of burnout is higher for medical professionals than the general population with studies showing a prevalence of burnout of 17% to 47% among physicians compared to the 18% of general working population⁴. Factors that contribute to burnout among physicians are the high workloads, lack of autonomy, poor professional support, low rewards, occupational interpersonal relationships, unbalanced work-life, personal debt and value, empowerment/enslavement paradox, and pandemic post-traumatic stress disorder^{5,6}. The medical profession often requires a high level of emotional processing which, when having to be undertaken during periods of high stress while dealing with sleep deprivation, can elevate the risk of burnout⁷.

Furthermore, the COVID-19 pandemic was characterized by an increase in workload and greater complexity⁸. Physicians suffered from a lack of regular information during the pandemic progression which was associated with increased emotional exhaustion, depersonalization, and the loss of a sense of personal accomplishment, all of which are determinants of burnout syndrome⁹. The lack of social interaction and connection which was especially prominent during the pandemic, led to a decrease in feelings of community and belonging which can contribute to the development of burnout¹⁰. Overall, the pandemic was associated with higher burnout rates up to more than twice between 2019 and 2020¹¹.

Burnout among anesthesiologists

Among healthcare providers, anesthesiologists are at increased risk for burnout compared to other specialties. Various studies have reported the significant prevalence of burnout in anesthesiologists, for instance, 18% in Switzerland, 24% in France, and up to 40% in Greece¹²⁻¹⁴. The rates of burnout among anesthesiologists seem to be increasing, from 37.5% in 2020 to 61.7% in 2021¹⁵.

The nature of anesthesiologist's work is high-stress and high stakes as they undertake the care of acutely ill patients and trauma management tasks. As part of the perioperative team, anesthesiologists face some unique risk factors for burnout such as surgical logistics interplaying with healthcare systems, teams, patients and patients families; complex and changing regulatory and legal mandates on practical methods, procedures, pharmaceuticals and equipment use; multidepartment initiatives that lack clarity for appropriate coordination; and clinical pathways implementations from nonsurgical departments which override physician autonomy despite their aim to reduce burnout⁶.

Also, the multifaceted nature of their required skillset must include a combination of intellectual abilities and physical dexterity, with necessary attention to detail and quick decision-making skills in urgent situations. Anesthesiologists must undertake the challenge of long working hours while maintaining concentration and decisionmaking¹⁶. This often leads to emotional exhaustion and a feeling of depersonalization and detachment from patients. Moreover, within the surgical staff, anesthesiologists are more likely to experience reduced personal accomplishment due to lack of recognition for their work⁶.

Within the anesthesiology staff, trainees are at an increased risk of suffering burnout with studies showing a prevalence of 38% among anesthesiology residents¹⁷. European anesthesiology trainees experience a high prevalence of fatigue with its main risk factors being poor quality of sleep between and after nights, lack of sleep during night shifts, frequent or 24-hour night shifts, and lack of rest facilities in the hospital¹⁸. Factors contributing to this high prevalence are fatigue, lack of experience possibly leading to imposter syndrome, and bullying from other members of staff or trainees¹⁶.

Impact of burnout for professionals and patient safety

At an organizational level, lack of health at work leads to high staff turnover, absenteeism, and elevated costs¹⁹. Burnout syndrome is linked with job cessation and absenteeism which poses a public health risk¹³. In the last few years, the increase in burnout rates have been strongly associated with physician's plan to reduce their workload, their scope of practice, or leave the workforce entirely or early. This has resulted in a large turnover rate, with more physicians leaving than entering the field, resulting in a deficit of 45000 to 90000 professionals throughout all specialties. Consequently, the fall in healthcare capacity has increased workload for the remaining physicians in turn promoting an increase in burnout rates. The high turnover rate, early exit from medical practice, and high recruitment expenses caused by the rising burnout rates have resulted in 4.6 billion dollars per year in mounting direct and undirect costs on the healthcare system^{7,20}.

At an individual level, poor health at work results in consequences for healthcare workers. Poor work-life balance, obesity, reduced quality of life, substance abuse, and even suicide are associated with lack of health at work¹⁹. Within the realm of mental health, medicine is a profession associated with a higher-than-average suicide and suicide attempt rate. The highest rates are in surgical specialties, while practicing anesthesiology has been identified as an occupational specific factor contributing to suicide ideation^{21,6}. Burnout has been associated with suicidal ideation before, although not after, adjusting for depression, whereas depression has been associated with suicidal ideation after adjusting for burnout. Therefore, the association of suicide ideation with burnout may be indirect due to the association of burnout with depression or a result of a confounding effect by comorbid depression²¹.

Burnout contributes to the development of mental disorders such as depression, anxiety, and sleep problems⁵. Sleep-related impairment has been recognized as an occupational hazard for physicians as sleep deprivation causes emotional dysregulation by disrupting the connectivity and processing within and between the amygdala, anterior cingulate, and medial prefrontal cortex⁷. Sleep deprived physicians can experience a decreased capacity for empathy and personal engagement, a reduced capacity to maintain attention, and a reduced ability to perform critical cognitive tasks of patient care such as assessment and treatment planning. It is thus not surprising that sleep-related impairment has been largely associated with self-reported medical errors among attending physicians and particularly physicians in post-graduate training. Moreover, increased unsolicited patient complaints and lower patient satisfaction scores have been associated with sleeprelated impairment, burnout, and low professional fulfilment7,22.

Burnout among health professional has an impact on the quality of the health services delivered. The decreased job satisfaction that physicians experience coupled with the decrease of positive feeling towards their patients poses a risk as it decreases the quality of care and safety of patient management^{13,14,23}.

A highly reliable surgical team is essential to provide high quality care. However, emotionally exhausted physicians affect team dynamics by engaging less in teamwork²⁴. A negative correlation has been found between physician burnout and patient safety, with burnout doubling the risk of mistakes. Stress and burnout related impairment has shown to contribute to 7% to 10.6% of serious medical errors²⁵. Physicians suffering overall burnout present a tree-fold chance of making self-perceived errors compared to peers without burnout²⁶.

In a vicious circle, significant clinical errors affect the healthcare professionals as 'second victims'. Up to 25.9% of healthcare workers experience high fear of clinical errors. Burnout, major depressive disorders, and sleep disorders contribute to fear of error⁵.

Prevention of burnout

The realms that current interventions address in the prevention of burnout are individual, organizational, and societal. Individual directed interventions are cognitive-behavioral procedures aimed towards promoting job competence, personal resilience, and coping skills. These strategies have proven effective in the reduction of emotional exhaustion but less successful for alleviating depersonalization and personal accomplishment²⁷. On the other hand, organizational directed interventions entail changes in work procedures such as task restructuring, work evaluation and supervision aiming to decrease job demand, and increasing job control or participation in decision-making. The strategies addressing autonomy, workload, clarity, and teamwork have shown improvements in burnout. However, the strategies targeting communication, management, and leadership did not have the same effect. Finally, society directed interventions are focused on broadly improving policy at a hospital or state level to address clinician burnout²⁷.

The drivers of well-being and burnout must be explored to take steps toward the prevention of burnout in physicians, especially anesthesiologists. As burnout syndrome is an occupational phenomenon, preventative efforts must address the clinical work environment as well as individual well-being. The six components of work-life related to well-being have been described as a sustainable workload, choice and flexibility, culture appreciation, supportive work community, respect and social equity and justice, and meaningfulness within work. Out of these, residents have identified both individual and systemic factors as drivers of their well-being, namely, finding meaningfulness in work, working on resilience, and having a sense of control over time and schedule¹⁰.

Organizations should monitor their health at work to tackle the creation of an environment that fosters contentment and employees to flourish and achieve their full potential. Given the broad and diversity of factors contributing to health at work, organizations can use a wide variety of instruments to this aim. A recent scoping review identified 986 unique instruments, covering 251 different main constructs in the Netherlands. This could be confronted by determining the domain of interest through broader screening to identify areas of improvement on which to further explore using more specific instruments¹⁹. In any case, the burden of measuring needs to be carefully balanced, as the quality metrics have been described as a technological innovation providing insight into various areas of an organization, but their costs have shown little evidence of meaningful improvement in quality of care. In fact, the automatic nature of collecting and processing these quality measurements burden the clinical staff with hard wired alerts, in-box messages and other tools that can worsen burnout. Improvements are required such as implementing metrics focused on clinician's experience and reducing the overall metric load²⁸.

At a corporate level, the risk of fatigue amongst people with significant safety responsibilities must be recognized and minimized wherever possible as it poses a threat to the well-being of individuals and may be an important contributor to clinical errors. Fatigue risk management systems should be implemented in anesthesiology and intensive care and possibly other healthcare areas. Moreover, a culture shift is necessary, so fatigue is acknowledged and strategies to relieve its effect are implemented to prevent the development of burnout and the consequent loss of healthcare workers¹⁸.

Effective coping has been shown to alleviate the impact of acute and chronic job demands on health, work engagement, and burnout rates²⁹. Significant correlation has been found between emotional exhaustion and emotional and dysfunctional coping, along with depersonalization and dysfunctional coping. Physical well-being, clinical variety, setting boundaries, passion for one's work, realistic expectations, remembering patients, and organizational activities are coping mechanisms associated with a decrease in burnout. Moreover, coping strategies are influenced by the work context as well as personal factors. Studies have also shown that within work environments with well-defined roles, functions, and boundaries, workers have a decreased risk of developing burnout³⁰. Team coping by teammates may affect the need and effectiveness of the individual coping. Team coping has been shown to function as a compensatory mechanism for lack of individual coping and should be introduced as a complementary resource for individual resilience at the team level²⁹.

Team factors play a key role in the prevention of burnout. A dysfunctional team culture, characterized by unintentional inactions and subtle passive aggressive behaviors, can lead to unproductive team climates. The core problem of a dysfunctional team is the disconnection between team members³¹. Consequently, team identification, when the team play's a significant role in the worker's life, has been shown to ameliorate emotional exhaustion and disengagement through social support and higher cognitive self-efficacy³². Organizational aspects of teamwork and leadership may help mitigate burnout rates as individuals experiencing higher levels of teamwork and inclusive leadership experience less burnout³³. Furthermore, teams may suffer emotional contagion, with group dynamics and shared emotions 'spreading' burnout among members. On the other hand, positive interpersonal relationships and supportive teams can also be a source of joy in the workplace and contribute to

the worker's well-being. Thus, social relationships at work could play an important role in alleviating burnout, especially for anesthesiologists who in the context of critical care play an essential role in a team. Strategies to prevent burnout could integrate directed interventions aimed at fostering human connection to reverse or stop emotional contagion. These strategies would address the social nature of burnout syndrome, an aspect which is not covered by individual-directed activities and organizational policy changes²⁷.

Interventions for reducing burnout in anesthesiologists

Strategies to enhance wellbeing and aim at prevention of burnout should follow the themes of social support from peers, near-peers, and mentors, while building resilience, autonomy, and affirmation¹⁰. Following a thorough literature review, an overview of novel interventions aimed at the reduction of burnout has been compiled. These innovative strategies range from organizational to individual approaches (Table I).

Circle up

This intervention involves interprofessional on-shift team briefings and debriefings aimed at improving psychological health as well as healthcare quality. These conversations, Circle Up "micro check-ins", ad hoc informal peer support encounters interwoven with work, aim at including the whole team of clinicians and staff in developing a situational overview and plan for the shift, creating a regular time and place for problem-solving and connection between peers. The early results showed that these measures influence process improvement, speaking up, sense of agency, emotional support, and teamwork. The combination of peer support and process improvement appears to promote greater interprofessional peer connectedness and less psychological distress³⁴.

Meaning-Centered Psychotherapy

The paper by Rosa et al, identifies a lack of interventions aimed at reducing healthcare worker's distress through meaning and purpose. To that end, meaning-centred psychotherapy is described to promote communication and coping skills which can support healthcare workers in connecting deeply through a sense of meaning, leading to improved team-functioning. Although the authors do not report quantitative data, they claim sense of connection among co-workers is a crucial component of a positive work environment, contributing to mitigating burnout and providing improved quality of care to patients. This

Intervention name	Rationale	Intervention	Results	Author (year)
Circle up	The COVID-19 pandemic exacerbated the need for a proactive approach to improve team communication and psychological support to maintain quality care under stressful conditions.	Interprofessional on-shift team briefings and debriefings aimed at improving psychological health as well as healthcare quality.	Process improvement, speaking up, sense of agency, emotional support, and teamwork increase.	Rock (2020)
Meaning-Centred Psychotherapy	Identifies a lack of interventions aimed at reducing healthcare worker's distress through meaning and purpose.	Meaning-centred psychotherapy.	Improvement in the sense of connection and meaning among co-workers is a crucial component of a positive work environment.	Rosa (2022)
Evening staffing automated emails	Working late hours when not on call is a risk factor for burnout as it can impact work-life balance.	Automated email reminder to recruit additional personnel on days when the case volume requires it.	Increase in anaesthesiologists volunteering and working the relief shift, median number of slots filled increased from 1.8 to 2.6.	Robertson (2023)
TEAM-ICU	Recognizes that gratitude and peer recognition have been shown to enhance resilience and hope in groups.	Messaging interface that delivered positive feedback and messages between healthcare professionals.	Improvement in wellness in teamwork climate, from 82 to 88% and greater resiliency, from 3.6 to 3.7 (scale 1-5).	Green (2023)
TEAM index	Identifies the need for determining how teamwork relates to provider experience, burnout, and work intentions.	TEAM, 6-item measure of team effectiveness focused on efficiency, communication, continuous improvement, and leadership.	TEAM index provided useful information which may help optimize clinical work environments.	Nguyen Howell (2023)
Dynamic call marketplace	Call burden is associated to burnout as it has an impact on relationships and well-being.	Transactional market which allows for anaesthesiologists' call preferences to be considered.	Significant increase in anaesthesiologists participating in call exchange, from 20.8 to 61.7%, with positive effect on work-life balance and satisfaction.	Deshur (2024)
Operating room design	The physical environment of healthcare facilities plays a critical role in stress and burnout levels in individuals.	Survey and focus-group discussions to develop functional scenarios for ORs meeting the spacial needs of surgical teams.	Design factors associated with experiences, team relationships, and stress levels of surgical teams were identified.	Oh (2024)
HEAR program	Identifies the need to improve access to mental health services to tackle untreated burnout and depression in resident physicians.	Short-term therapy aimed at coping with challenges threatening well-being of residents and fellows.	Improvement in fulfilment, compassion, quality of life, and function. Decrease in burnout and depression intensity.	Zisook (2024)
Hello bundle	Identifies positive social interactions and a supportive work environment as factors for mitigating burnout.	'Hello bundle', containing 6-components aimed at enhancing interpersonal relationships, team cohesion, and reduce burnout rates.	Outcomes to be determined (protocol paper).	Azoulay (2024)

Table I. — Burnout prevention interventions in anaesthesiology.

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intervention gained importance as the effects of the COVID 19 pandemic worsened the disillusionment, disconnectedness, and burnout among healthcare workers³⁵.

Automated emails for evening staffing

Working late hours when not on call is a risk factor for burnout as it can impact work-life balance. Increasing the pool of anesthesiologists available to provide relief is one strategy to ensure end of the day predictability and improve work-life balance. The intervention described by Robertson et al aimed to address and relieve physician burnout by improving schedule flexibility and predictability at the end of a clinical workday by implementing an automated email reminder to recruit additional personnel on days when the case volume requires it. This intervention showed an increase in anesthesiologists volunteering for the relief shift, which relieves those who are not on the on-call team by no later than 5.00pm³⁶.

TEAM-ICU study

The Transforming Employee Attitudes via strengthens Interconnection, Messaging Communication and Unity (TEAM-ICU) pilot study investigates the feasibility of a low-cost behavioral intervention. The aim of the study was to test if positive reinforcement and the integration of a language of support among co-workers can promote resiliency, facilitate psychological wellness, and encourage hope. The study was conducted during the COVID 19 pandemic in a single center where a messaging interface that delivered positive feedback and gratitude messages between healthcare professionals was introduced. Consequently, the effect that this intervention had on teamwork climate, resiliency, and burnout during a global pandemic was measured. The results did not demonstrate a change in burnout levels but did show greater teamwork attitude and higher resiliency³⁷.

TEAM index

Nguyen Howell et al described the development and validation of a tight metric and subsequent measure, the TEAM index, to assess provider perceptions of well-led, high-functioning teams and determine if provider perceptions of their team's effectiveness related to their work experience, burnout, and intent to stay with the organization. The TEAM measure incorporates aspects of efficiency, communication, continuous improvement, and leadership, and was associated with lower burnout, higher intent to stay, and more favorable provider experience in a study of 1387 providers in a large, multisite provider organization. This study suggests that a brief TEAM index can provide valuable information that can be used to improve provider experience and therefore recruitment and retention³⁸.

Dynamic call marketplace for distributing anesthesia call

Deshur et al recently described a system consisting of a transactional marketplace for distributing call burden between anesthesiologists. Call burden has a marked impact on lifestyle by affecting relationships, well-being, and it has been associated with burnout. Working nights, weekends, and holidays are required in the field of anaesthesiology due to the 24-hour requirement of care of patients, and this can lead to burnout. Before the implementation of this intervention, anesthesiologists had to search for and contact coworkers with whom to reciprocally take on more or less calls. The dynamic call marketplace allows anesthesiologists to indicate how much call they will to take on at a series of hypothetical price points, from very low to high value of the call. Therefore, through offering flexible scheduling to the workforce, this system aims to reduce burnout in the workforce. The study showed that the implementation of a dynamic call marketplace can increase the participation in exchange of call. In a majority, respondents agreed that the system improved schedule satisfaction, improved overall job satisfaction, was impactful, and had an impact on work-life balance³⁹.

Operating room design

Oh et al developed and proposed an evaluation method for analyzing the design of operating rooms by considering the reported experiences and stress levels of surgical teams through several focus groups. After recognizing that the physical environments of healthcare facilities play a significant role on the stress and burnout levels of healthcare workers, they were able to quantitatively measure the elements of the design of the environment, both inside and outside of the operating room as a factor that can significantly influence workplace stress. Staff members noted the importance and the need for access to windows and natural light, briefings prior to cases and social interactions with co-workers to support staff mental health⁴⁰.

HEAR program

The University of California's Healer Education Assessment & Referral (HEAR) program offers residents and fellows flexible, individualized, and highly confidential short-term therapy. The non-specific, highly personalized form of psychotherapy offered by the program is focused on providing support for coping with challenges that threaten the well-being of physicians and trainees. These challenges include fatigue, imposter syndrome, burnout, isolation, loneliness, disconnection, compassion fatigue, interpersonal conflicts, financial strain, work-life imbalance, and grief. The pilot study's findings showed that this form of short-term therapy was feasible and improves fulfilment, compassion, quality of life, and function as well as decreasing burnout and depression⁴¹.

Hello bundle

This intervention has been developed from social psychology, positive psychology, and healthcare communication research and aims to enhance interpersonal relationships, improve team cohesion, and reduce burnout rates. The intervention, yet to be implemented, will entail simple, low-cost interventions such as Hello campaign posters, email reminders, integrating greetings in morning huddles, hello jars, lead-by-example initiatives, and daily updated hello board in each ICU. A further study will compare the proportion of healthcare providers experiencing symptoms of burnout between the interventional and control cluster⁴².

Conclusion

Burnout is a prevalent issue of high prevalence in medical professionals and especially among anesthesiologists and trainees. Burnout has an important impact on individual professionals, organizations, and notably on patient safety. Various prevention strategies exist and to offer comprehensive interventions, individual, team, and organizational factors in the healthcare system should be included. The interventions available strive towards providing meaningfulness in work, working on resilience, and providing a sense of control over time and schedule. By acknowledging and working towards prevention of burnout in anesthesiologists, an improvement in patient safety and quality of care may ensue.

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