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BURNOUT & WELLBEING

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Critical care professionals work in high-stress environments where they provide life-saving care to critically ill patients. The intense emotional and physical demands of our work make us particularly vulnerable to burnout—a state of depersonalisation, emotional exhaustion, and reduced personal accomplishment.

One of the primary causes of burnout in the ICU is the constant exposure to high-stakes decision-making, patient suffering, and, at times, poor outcomes despite best efforts. Long shifts, sleep deprivation, and a lack of control over patient prognoses can compound stress. Additionally, heavy workloads, staff shortages, and administrative burdens contribute to frustration and fatigue.

The consequences of burnout are severe, both for critical care providers and their patients. Emotionally exhausted clinicians may experience compassion fatigue, leading to depersonalisation. This detachment can impact patient care, increasing the risk of errors, misjudgements, and decreased quality of treatment. Burnout is also linked to higher turnover rates, absenteeism, and mental health struggles such as anxiety and depression.

Addressing burnout requires a multifaceted approach. Promoting staff well-being through adequate staffing, reasonable work hours, and access to mental health support is crucial. Encouraging peer support groups, stress management training, and resilience-building programmes can help critical care workers cope with emotional demands. Fostering a culture of open communication, where professionals feel heard and supported, is essential. Adequate staffing and flexible scheduling are extremely important to ensure critical care teams do not burn out fast. Allowing teams to ensure a work-life balance can help reduce the risk of burnout.

Critical care workers can also individually work towards managing burnout by taking breaks when possible, prioritising self-care by ensuring proper sleep and nutrition, debriefing and venting by talking to trusted colleagues, friends or therapists, focusing on things they can control and aiming for doing their best rather than achieving perfection.

Ultimately, preventing burnout in the ICU is not just about improving workplace conditions—it's about ensuring the sustainability of the critical care workforce and the delivery of compassionate, high-quality patient care.

As always, if you would like to get in touch, please email JLVincent@icu-management.org.

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The Value of Viewing Burnout as a Relationship Crisis

Understanding burnout in the ICU setting requires a nuanced approach that goes beyond recognising its symptoms. It demands that leaders address the structural and environmental factors that contribute to chronic stress, in addition to interventions that support resilience and well-being.

The intensive care environment is often described as exhilarating; it is also undeniably demanding. For many healthcare professionals, the pressures inherent to ICU work—combined with systemic challenges such as staffing shortages and electronic medical records—can lead to burnout. Recognising and addressing this phenomenon is critical, not only for the well-being of the professionals who make ICUs function but also for the patients who rely on their care.

The World Health Organization (WHO) defines burnout as an "occupational phenomenon" rather than a medical condition (ICD-11 2019). This distinction underscores that burnout arises from chronic workplace stressors that have not been successfully managed (ICD-11 2019). It is not a diagnosable disease but rather a syndrome with three primary dimensions:

1. **Emotional Exhaustion:** A pervasive sense of depletion or being worn out, which can manifest as physical and mental fatigue that undermines employees' ability to engage effectively with their work.
2. **Depersonalisation (or Cynicism):** A detachment or negative, callous attitude toward one's job or those being served, often as a psychological defence mechanism against being overwhelmed emotionally.
3. **Reduced Personal Accomplishment:** A decline in one's sense of competence and achievement, leading to feelings of inefficacy and frustration.

While these elements form the core of burnout as conceptualised by the WHO, popular usage often dilutes the term's meaning. In casual conversation, burnout is frequently used to describe temporary tiredness, boredom, or dissatisfaction. For example, a professional might say they're burned out after a long week or a demanding project. However, genuine burnout is a chronic and cumulative state, rooted in systemic stressors rather than momentary fatigue. This distinction is particularly important in the ICU context, where sustained exposure to high-stakes situations amplifies the risk of true burnout and its serious consequences.

For ICU professionals, burnout is not merely an individual challenge but also a systemic issue with far-reaching implications. Research has consistently linked burnout to reduced quality of care, increased medical errors, higher turnover rates, and even adverse patient outcomes. For example, a study by Shanafelt et al. (2010) found that physicians experiencing burnout were more likely to report making major medical errors, with emotional exhaustion being a significant predictor of these errors. Similarly, Panagioti et al. (2018) conducted a meta-analysis that revealed an association between burnout and poorer patient safety outcomes, including higher rates of preventable harm. High turnover rates among ICU staff have also been directly tied to burnout; research by Aiken et al. (2002) highlighted the link between nurse burnout and higher rates of job dissatisfaction and turnover intentions, which in turn disrupt care continuity and staffing stability. Furthermore, Poghosyan et al. (2010) demonstrated that burnout among nurses often leads to increased mortality rates and lower patient satisfaction, underscoring the systemic ripple effects of burnout on both caregivers and those under their care.

These findings emphasise that burnout is not just a personal problem but a critical healthcare challenge. By exacerbating medical errors, straining professional teams, and jeopardising patient outcomes, burnout undermines the very foundation of high-quality ICU care.

Understanding burnout in the ICU setting requires a nuanced approach that goes beyond recognising its symptoms. It demands a closer look at the structural and environmental factors that contribute to chronic stress, as well as interventions that support resilience and well-being. By addressing burnout holistically, healthcare institutions can foster a healthier workforce—one that is better equipped to deliver the high-quality care that patients deserve.

Reframing Burnout as a Crisis of Work Relationships

Recent approaches to burnout have begun to emphasise that it is not simply a matter of individual shortcoming but rather a crisis in the relationship between people and their work. In *The Burnout Challenge* by Christina Maslach and Michael Leiter (2022), burnout is framed as a

relational problem stemming from chronic mismatches between employees and their workplace environments. This perspective challenges the tendency to blame burnout solely on personal weaknesses, such as a lack of resilience or insufficient self-care. Instead, it highlights the ways in which systemic stressors, dysfunctional workplace cultures, and poor organisational practices erode the connection professionals have with their roles, their colleagues, and their sense of purpose.

Maslach and Leiter outline six key mismatches that can lead to burnout: workload, control, reward, community, fairness, and values. In ICUs, these mismatches are particularly pronounced. For example, excessive workload due to staffing shortages or high patient acuity leaves professionals overwhelmed and unable to provide the level of care they aspire to. A lack of control—whether it be over schedules, staffing decisions, or treatment plans—further compounds stress. Similarly, insufficient rewards, whether financial or emotional, undermine a sense of accomplishment and recognition. These factors can foster a breakdown in the sense of community and fairness within ICU teams, as frustrations and emotional fatigue spread among colleagues. When professionals feel that their personal values—such as providing compassionate, high-quality care—are routinely compromised by systemic pressures, the result is an erosion of trust and engagement with their work.

Contrasting this relational approach with the conventional view of burnout as an individual failure reveals its strengths. Historically, burnout interventions have often centred on personal coping mechanisms such as mindfulness training, stress reduction techniques, or wellness programmes. While these tools can provide temporary relief, they often fail to address the root causes of burnout: the workplace environment and culture. By focusing solely on individuals, organisations inadvertently place the burden on employees to fix themselves while ignoring systemic issues that perpetuate stress and disconnection. This approach risks stigmatising those who experience burnout, further isolating them and delaying meaningful change.

In contrast, treating burnout as a relational crisis acknowledges that people thrive when they work in supportive, fair, and purposeful environments. Recent research underscores that organisational interventions, such as improving staffing ratios, fostering supportive leadership, enhancing team communication, and aligning workplace values with those of employees, are far more effective in addressing burnout. For example, Bodenheimer and Sinsky (2014) argue that improving the joy in practice by streamlining workflows and fostering team-based care can significantly reduce emotional exhaustion. A study by West et al. (2016) also demonstrated that leadership behaviours—including promoting a culture of transparency and recognition—were associated with lower burnout rates among physicians. Additionally, Weigl et al. (2017) found that team cohesion and effective communication significantly decreased stress and depersonalisation among ICU staff, emphasising the role of strong interpersonal relationships in promoting resilience.

Studies further indicate that leadership practices prioritising fairness, recognition, and shared decision-making are central to preventing burnout. For instance, Shanafelt et al. (2017) showed that physicians who reported a supportive leadership culture experienced improved job satisfaction and reduced emotional exhaustion. Similarly, Rosenstein and O'Daniel (2008) demonstrated how enhanced communication and teamwork not only reduce burnout but also improve patient safety outcomes, creating a mutually reinforcing cycle of well-being and high-quality care.

In The Burnout Challenge, Maslach and Leiter (2022) argue that solutions must focus on rebuilding the relationships that employees have with their work and workplace. This means addressing mismatches at both the individual and systemic levels: reducing excessive workloads, creating autonomy and control, fostering recognition and support, and restoring a shared sense of purpose within the ICU environment. Approaching burnout through this lens shifts the narrative from personal failure to collective accountability, empowering organisations to take ownership of the environments they create.

By reframing burnout as a crisis of work relationships, ICU leaders and healthcare institutions can move beyond temporary fixes to create meaningful, systemic change. Addressing the root causes of burnout not only supports the well-being of healthcare professionals but also improves patient care, team dynamics, and the overall resilience of intensive care systems.

Preventing Burnout: Focusing on Context

Relationship problems at work require relationship solutions. The critical points in addressing burnout are the encounters where people experience mismatches between their aspirations and the enduring processes or structures at work. These encounters occur both in interactions with others—including supervisors, colleagues, or patients—and in the frustrations arising from tasks that feel constrained or devoid of purpose. A relational approach to burnout centres on finding accommodations that reconcile these mismatches, fostering alignment between people's needs and their work environments.

This approach involves considering both sides of the relationship: the organisation's procedures, culture, and structures, as well as employees' aspirations, work practices, and coping capacity. For example, accommodations might include providing flexible scheduling, restructuring tasks to better fit the capabilities of the team, or allowing employees greater autonomy over decision-making. Moreover, this relational perspective acknowledges that solutions must be integrated at multiple levels. This multi-faceted framework is known as the IGLOO approach: Individual, Group, Leader, Organisation, and Other entities (e.g., regulatory bodies and accreditation agencies) (Nielsen et al. 2020).

At the Individual level, interventions focus on supporting professionals in

aligning their work practices with their strengths and values. This might include offering training in coping strategies or providing opportunities for skill development to reduce feelings of inefficacy.

At the Group level, fostering teamwork and strong peer relationships is essential. Research by Weigl et al. (2017) emphasises that cohesive and communicative teams significantly reduce burnout symptoms like emotional exhaustion and depersonalisation.

At the Leader level, supportive leadership practices play a central role. Leaders who prioritise fairness, transparency, and recognition can rebuild trust and motivation within ICU teams. For example, Shanafelt et al. (2017) showed that leadership behaviours are strongly linked to reduced burnout and improved job satisfaction.

At the Organisation level, addressing systemic mismatches requires structural changes, such as improving staffing ratios, offering flexible work policies, and aligning workplace values with employee priorities. These measures not only mitigate burnout but also promote a healthier workplace culture.

At the Other entity level, external factors such as accreditation standards, regulatory requirements, and government policies can significantly influence workplace stressors. Organisations may advocate for systemic reforms that enable realistic workloads, adequate resources, and supportive policies.

By adopting a relationship-based, IGLOO-centred framework, healthcare leaders can create environments that foster alignment, trust, and purpose. This approach moves beyond individual blame and provides meaningful solutions to the relational mismatches that fuel burnout. For ICU professionals, this means not only experiencing improved well-being but also cultivating stronger teams, delivering better patient care, and building more resilient systems of care. Instead of focusing on individual coping, action develops processes and structures that improve the alignment of people with their workplaces.

Ultimately, addressing burnout as a crisis in workplace relationships underscores a critical truth: people do not thrive—or provide exceptional care—in isolation. They thrive in supportive, fair, and purposeful environments where relationships, both personal and professional, are nurtured and valued. By adopting this perspective, ICU teams and organisations can transform burnout from a chronic crisis into an opportunity for renewal and growth.

Conflict of Interest

None.

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Burnout in the ICU – Still a Work in Progress

Burnout of the healthcare workforce, and particularly of critical care clinicians, is an active global concern, which has been exacerbated by the COVID-19 pandemic. We present the definition and factors contributing to burnout specifically in the ICU, discuss the misconceptions around the use of burnout measurement tools, and highlight the challenges posed in conducting research and proposing solutions for this complex issue.

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Introduction

The Intensive Care Unit (ICU) is a high-stakes and high-emotion environment, where critically unwell patients face life-and-death situations. Physicians frequently make challenging decisions, especially since most deaths in ICU follow decisions to limit life-sustaining treatment (Avidan et al. 2021). Nurses and allied health professionals care daily for unwell patients of all ages, while simultaneously supporting their anxious and often bereaved families. Barring the emotional elements of working in the ICU, there are a number of other factors common to critical care, which may increase the stress experienced by the healthcare professionals (HCP), such as long working hours, frequent interruptions and alarms, high workload, disrupted awake/ sleep cycle and physical fatigue (Curtis and Puntillo 2007). This high level of chronic stress has been linked to increased levels of burnout, an issue that has reached epidemic proportions, especially since the COVID-19 pandemic (Saravanan et al. 2023).

Clinician burnout may have particularly important implications in critical care due to the nature of the quality of care and safety of a very vulnerable cohort of patients. Although a clear association between the consequences of burnout and patient safety in ICU is unclear, there is emerging evidence that overall physician burnout doubles patient safety incidents (Hodkinson et al. 2022). Reported unfavourable events include patient dissatisfaction, increased patient and family complaints, and compromised quality of care (Hall et al. 2016). Interestingly, the results are not unequivocal, as there are studies that have found no influence of burnout on the occurrence of medical errors, nor did they identify an association between the disease and patient safety culture scores (Welp et al. 2016).

Our review aims to summarise the definition and factors contributing to burnout specifically in the ICU, but also highlight the challenges posed in conducting research and proposing solutions for this complex issue.

Definition

Burnout was introduced into psychology in 1974, coining a term used in a novel by Graham Green, "A Case of Burnout" (1960). Maslach and Jackson (1986) reformulated the concept, providing a more specific and operational definition of burnout as a psychological syndrome characterised by three distinct traits: emotional exhaustion, cynicism or depersonalisation and reduced personal achievement (**Table 1**). Even from the early approaches to a definition, the explicit assumption was that people could experience various patterns of burnout, which might change at different points in time.

In 2019, the World Health Organization (WHO) finally included burnout in its International Classification of Diseases (ICD-10), describing it as a 'syndrome conceptualised as resulting from chronic workplace stress that has not been successfully managed' (Harrison et al. 2021; Drösler et al. 2021).

The focus on the work context is highlighted as the difference between burnout and depression, as the latter tends to pervade every domain of a person's life and not just the work environment (Maslach et al. 2001). Similarly, there are notable differences in presentation between burnout and stress (**Table 2**).

Causes of Burnout

Factors leading to burnout have been categorised into intrinsic/personal and extrinsic/organisational (Tung et al. 2020). Interestingly, no clear connection has been established between personal characteristics and the development of burnout, with studies reporting conflicting results. For

Dimension	Definition
Emotional exhaustion	A feeling of physical and psychological exhaustion and inability to give more of themselves; usually, the person wakes up in the morning with the feeling that they have not been able to get enough rest or recover from the fatigue caused by the previous day, feeling lack of energy to facing both the demands of a new working day and other people.
Cynicism or depersonalisation	The person's relationship with patients and colleagues becomes cold, distant and guided by some cynicism; depersonalisation is also an attempt made by the person to protect themselves from the exhaustion and disappointment that work causes them.
Reduced personal achievement	A feeling of incompetence, lack of confidence and inability to respond to the demands of the job. Can be accompanied by reduced productivity or capability, low morale, and an inability to cope.

Table 1. Three dimensions of burnout (from Leiter and Maslach 2016)

example, although older clinician age has been found to have a positive association (Michalsen and Hillert 2011; O'Connor et al. 2018), the impact of age is far from straightforward, as different studies have shown the opposite results (Adriaenssens et al. 2015). Similar heterogeneity is reported for gender, professional role, years of experience and social characteristics (Michalsen and Hillert 2011; van Mol et al. 2015).

The impact of organisational factors is more straightforward, with several job-related elements being associated with increased burnout risk. These include working patterns (e.g., shift work, number of working hours); ICU characteristics (e.g., number of beds, annual number of admissions, patient severity); work environment (e.g., presence of conflict, lack of control over one's decisions/progression, lack of leadership and role models) (Terzi et al. 2025; Teixeira et al. 2014; Wahlin et al. 2010).

Measuring Burnout

The most widely used, valid and reproducible instrument to assess burnout in healthcare professionals is the Maslach Burnout Inventory (MBI) (Maslach et al. 1996; Maslach et al. 2001), which contributed decisively to its conceptualisation and empirical study. The MBI is a 22-item questionnaire which asks respondents to indicate on a seven-point Likert scale the frequency with which they experience certain feelings related to their work. It evaluates three domains of burnout: emotional exhaustion, depersonalisation and reduced personal achievement. The emotional exhaustion subscale (nine items) assesses feelings of being emotionally overextended and exhausted by one's work. The depersonalisation subscale (five items) measures how empathetic and caring is the response towards patients, whereas the subscale of personal achievement (eight items) assesses feelings of competence and achievement in one's work.

The instrument was designed to provide a continuum of frequency from more positive to more negative, rather than an arbitrary dividing point between 'present' and 'absent' (Leiter and Maslach 2016). For this reason, the previous classifications ('high', 'moderate' and 'low') that were calculated by splitting any normative

Stress	Burnout
Overreactive emotions	Emotions are blunted
Produces urgency and hyperactivity	Produces helplessness and hopelessness
Loss of energy	Loss of motivation, ideals and hope
Leads to anxiety disorders	Leads to detachment and depression
Primary damage is physical	Primary damage is emotional

Table 2. Differences between burnout and stress

population into thirds were removed from the fourth edition of the MBI Manual and all associated MBI materials, as they had no diagnostic validity.

Other instruments have also been used, including the 16-item Oldenburg Burnout Inventory, which can be applied to any occupational group and unlike the MBI is free to use (National Academy of Medicine 2022); the 19-item Copenhagen Burnout Inventory, which was developed to address shortcomings of the MBI, including its proprietary nature and difficulty in translating into other languages (Kristensen et al. 2005); and the 23-item Burnout Assessment Tool, which yields a single, composite burnout score (Schaufeli et al. 2020).

Challenges With the Burnout Concept

Although the detrimental impact of burnout on well-being and absenteeism is almost universally accepted, significant challenges have been identified both with its definition and measurement. First, until the WHO 2021 definition, there were difficulties in the medical classification of the condition, whether it was a syndrome or disease or a sub-classification of another issue. This is important, as the lack of clear definition and understanding has led to fragmented research, disparate results and ineffective policy responses throughout Europe and the U.S.

The three different dimensions of burnout have also led to complexities in its measurement outside of the academic sphere, with attempts to translate the continuous scores of a research measure into a dichotomous burnout classification (Leiter and Maslach 2016). One approach was to oversimplify the instrument, either by adding the three scores together or choosing only one dimension (most commonly exhaustion) to decide whether a healthcare professional was burned out or not. These modifications led to heterogeneous results, sometimes implicitly proposing a new definition of burnout. The oversimplification was driven by the need for a clear 'diagnosis' that would enable the proposition of preventive and therapeutic strategies, with significant implications for insurance policies and public health funding.

Linked with the attempt to use the burnout assessment instruments as clinical diagnostic tools is the arbitrary use of cut-off points, 'diagnosing' healthcare providers as burned out or categorising them in 'high', 'moderate', and 'low' groups. The lack of an established level of burnout that correlates with negative outcomes is evident in the relevant literature and produces contrasting results. The pooled proportion of burnout in healthcare professionals has been quoted as 39% with very wide confidence intervals (95% CI 25–53%) and high heterogeneity (Nagarajan et al. 2024), with similar results seen in ICU clinicians (prevalence 0.41, range 0.15–0.71) (Papazian et al. 2023). The reported heterogeneity is concerning, as most studies did not explicitly give cut-off points for each scale; hence, results should be interpreted with caution, limiting meaningful comparisons.

Addressing Burnout

Several strategies have been proposed as effective for the prevention of burnout and promotion of work-related well-being, and they include both individual and organisational interventions (Edú-Valsania et al. 2022).

a. Interventions targeted at the individual

Physical exercise: Physical activity is often associated with a reduced risk of burnout, particularly in the domains of emotional exhaustion and depersonalisation, although significant heterogeneity in definitions, measurements, and analyses was observed (Mincarone et al. 2024).

Mindfulness training: Relaxation and mindfulness training, either practiced individually or with the help of a psychologist, may reduce burnout rates (van Mol et al. 2015).

Psychotherapy: Psychotherapeutic treatment of burnout may be of use when addressing the consequences of the syndrome. Psychotherapeutic treatment for burnout typically consists of developing emotional self-regulation and relaxation skills, problem-solving, and development of self-efficacy and assertiveness, and is generally based on the principles of cognitive-behavioural therapy (Ahola et al. 2017).

Time/workload management: The risk of burnout has been associated with clinicians feeling they lack the time to fulfil all their responsibilities. Interventions to address this include task prioritisation and organisation, as well as reduction of the time spent on ICU mandatory tasks (Lilly et al. 2019).

Job crafting: This intervention proposes a consistent and active modification of one's job and is commonly encountered in non-healthcare-focused literature. Table 3 describes four types of adjustments that can be made (Bakker et al. 2018).

Many of the strategies discussed pose particular challenges to those working in critical care. The emotional impact of ICU care is unavoidable, and strategies such as time management, can have limited impact due to the frequently emergency nature of the work. Similarly, nurses often work with one person for an entire shift, with little opportunity to step away. The highly emotional ICU environment is based on shiftwork, which predisposes to burnout, whereas downtime is dependent on social circumstances and hobbies/interests that cannot be easily modifiable. Hence, organisational level interventions are bound to have more significant effects when compared with individual-directed interventions (Panagioti et al. 2017)

b. Interventions targeted at the organisation

The realisation that organisational factors weigh more in the development of burnout than individual ones has led to actions that target systemic issues. Different categorisations have been proposed, e.g. the nine organisational strategies by Shanafelt et al, 2017:

- Acknowledge and assess the problem
- Harness the power of leadership
- Develop and implement targeted interventions
- Cultivate community at work
- Use rewards and incentives wisely

Increasing Structural Job Resources	Decreasing Job Demands	Increasing the Social Resources of Employment	Increasing the Challenges at Work
Doing what is possible to develop professional skills and learn new things on the job	Organising work in such a way that it does not cause too much stress, is mentally less intense, as well as avoiding emotionally complicated situations with customers and colleagues and trying not to make difficult decisions at work	Asking, if necessary, for help and feedback about the job from the supervisor and co-workers	When an interesting project comes up, proactively offer to work on it when there is little to do, offer help to co-workers and ask for more responsibility from the supervisor

Table 3. Summary of four types of job modification to reduce burnout (adapted from Edú-Valsania 2022)

- Align values and strengthen culture
- Promote flexibility and work-life integration
- Provide resources to promote resilience and self-care
- Facilitate and fund organisational science

Along the same lines are the strategies proposed to align with the six areas of work life (Leiter & Maslach, 1999):

The increasing number of actions, statements and guidance around the organisational aspects of burnout highlight the emerging awareness around the topic (Moss et al. 2016; Terzi et al. 2025) Addressing burnout is the shared responsibility of clinicians and the organisations in which they work in, since interventions that solely target the individual are flawed and bound to be unsuccessful. Organisations need to overcome artificial barriers, such as the assumption that all interventions aiming at reducing burnout will be cost-incurring or counterproductive.

Conclusion

Pressure on the healthcare workforce is an active global concern, which is particularly evident in critical care and exacerbated by the COVID-19 pandemic. Burnout is not a personal failure or disease; it is a syndrome directly related to chronic

Factor	Description
Workload	Time to gather information, communicate with family and professionals, and be present in end-of-life situations
Control	Lack of training and no backup, leading to a feeling of limited control over situations
Reward	Recognition of work, both financial (salary, bonuses) and emotional (acknowledgment, appreciation)
Sense of Community	Sources of support and what creates the most difficulty in terms of interpersonal relationships and team dynamics
Fairness	The distribution of assignment hours and how evenly or fairly they are shared among staff
Values	Alignment of the institution's actions with its mission statement and the ethical climate within the workplace

Table 4. Six areas of work life

workplace stress. A host of individual and organisational factors have been associated with the development of burnout; however, conflicting reports still exist. Several misconceptions and challenges around the use of burnout measurement tools (inability to distinguish between work stress and nonwork stress, lack of a universal cut-off point for severe burnout or a clear link between a score and healthcare outcomes) continue to exist. For future research to be able to inform individual or structural interventions for the prevention or management of burnout, it requires standardised definitions, which will enable appropriate comparisons and a better understanding of burnout variations in different clinician subgroups.

Conflict of Interest

None.

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Non-Invasive Technologies in Clinical Use on the Rise – A New Guideline

New guideline from the German Society for Anesthesiology that addresses the intraoperative clinical application of haemodynamic monitoring in non-cardiac surgical patients.

The Executive Board of the German Society for Anesthesiology recently adopted a new guideline that addresses the intraoperative clinical application of haemodynamic monitoring in non-cardiac surgical patients (Saugel et al. 2023).

Why Continuous Haemodynamic Monitoring?

The aim of this special guideline was to identify the questions that are important for daily clinical practice and to answer them based on current evidence. Haemodynamic monitoring and management ensure perioperative monitoring and therapy of cardiovascular function and form the basic pillars of perioperative anaesthesiological treatment to maintain organ functions. Furthermore, perioperative complications should be avoided, the rate of which is still very high at almost 20% (Saugel et al. 2023). Long-term morbidity with an influence on mortality and quality of life is very often the result.

Continuous blood pressure measurement enables the detection and thus immediate therapy of rapidly occurring hypotension or hypertension. Continuous blood pressure measurement can therefore help to reduce the occurrence of blood pressure fluctuations and intraoperative hypotension.

The assessment of volume responsiveness is an important component in volume therapy. Volume responsiveness means that the stroke volume/cardiac output can be increased by a fluid bolus. The test procedures are used to assess volume responsiveness after considering the clinical situation and taking into account the inherent limitations of the procedure. Basically, it is important to avoid both volume deficiency and volume overload

Recommendations of the Guidelines Expert Group for Continuous Monitoring

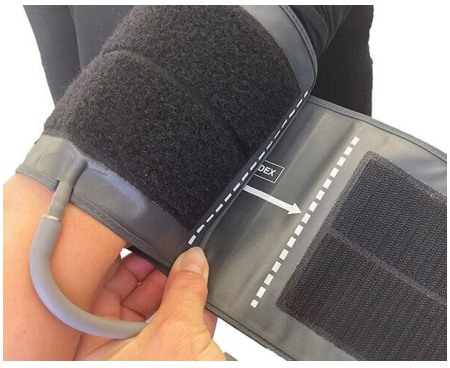
However, the individual components of haemodynamic monitoring can only represent partial aspects of the overall evaluation of the patient's clinical situation. The monitoring methods are therefore differentiated depending on the patient's condition in the context of his anamnesis and preliminary examinations. The spectrum ranges from non-invasive basic monitoring, which can be used in all patients, to the use of the pulmonary artery catheter in highly selected patients. According to the guidelines group, interdisciplinary communication is also essential here.

With regard to the intraoperative monitoring of haemodynamic values, in particular blood pressure, stroke and cardiac output, as well as dynamic fluid parameters, the new guideline contains the following recommendations:

- Continuous arterial blood pressure monitoring should be carried out in all patients who are at risk of complications such as hypo- or hypertension.
- Continuous measurements can be measured invasively or non-invasively (e.g. via a finger sensor), depending on the patient's clinical condition and history.
- In appropriate patients, e.g. low or intermediate risk, non-invasive continuous blood pressure monitoring may be considered.
- Continuous measurement of haemodynamic values should in principle be the preferred method over intermittent measurement.
- Stroke volume and cardiac output monitoring can be used in patients during surgery.
- Dynamic preload parameters (e.g. pulse pressure variation PPV or stroke volume variation SVV) should be used to evaluate volume responsiveness in controlled ventilated patients.
- If possible, the raw signals of the measurement should be displayed in addition to the numerical values of the haemodynamic measurement in order to detect artifacts and derive further diagnostic information.
- Reducing or avoiding invasive haemodynamic monitoring should be the goal to improve the risk-benefit ratio.

The Advantages of Non-Invasive Technologies

The technical options for cardiovascular monitoring have developed significantly in recent years; less invasive and non-invasive measurement methods are on the market, which can contribute to better treatment results in the long term as they significantly reduce risk and complications.



The findings of further studies by the team of authors from Hamburg also fall into this line. Non-invasive finger sensors enable continuous monitoring of blood pressure without having to insert an arterial catheter. Continuous monitoring during anaesthesia induction and during surgery reduces hypotension compared to the intermittent blood pressure measurement method.

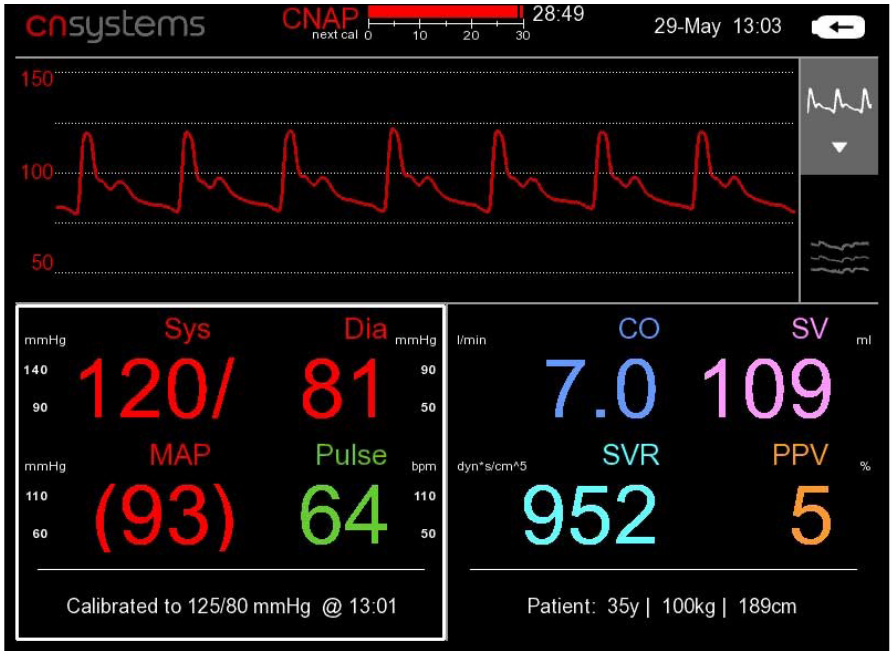
Recent Studies Favour Non-Invasive Continuous Monitoring

Continuous monitoring of arterial blood pressure using a finger cuff during non-cardiac procedures helps to effectively reduce hypotension within the first 15 minutes after the start of anaesthesia and thus prevent more serious drops in blood pressure (Gore et al. 2024). Again, the recommendation of the experts is as follows: "Clinicians might reasonably consider continuous finger cuff monitoring in patients who would otherwise be monitored with intermittent oscillometric monitoring" (Gore et al. 2024).

Apart from the reduced risk due to the better recognition of hypotonic episodes, the agreement between finger blood pressure measurement and intra-arterial measurement is far better than between oscillometric blood pressure measurement and intra-arterial catheter measurement. "Continuous monitoring of blood pressure is an intriguing new concept that has the potential to revolutionise patient care" (Kouz et al. 2023).

The study by Gore et al. goes one step further and addresses the question of whether non-invasive technologies for continuous blood pressure measurement have the potential to replace invasive measurements. The conclusions show that although we will certainly not eliminate arterial measurement for critically ill patients, we see promising fields of application for non-invasive blood pressure monitors:

"In the future, non-invasive continuous BP monitors will likely replace intermittent oscillometers in the operating room and the postoperative period" (Gore et al. 2024).



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Burnout and Well-Being in Critical Care

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The critical care environment is a stressful work setting for physicians, nurses, and other healthcare professionals who provide care to critically ill patients. As a result, critical care clinicians are at risk for experiencing burnout. Addressing organisational, individual, and care related factors that are associated with an increased susceptibility to develop burnout in critical care can help to mitigate and prevent burnout and promote well-being in critical care.

Overview

The fast paced, often unpredictable nature of the work environment in critical care can be stressful for physicians, nurses, advanced practice providers, and other healthcare professionals providing care to patients with life-threatening conditions. Additionally, long work hours, shift rotations, on-call time, staffing conflicts, moral distress, and providing emotional support to patients and their family members can place critical care clinicians at risk for experiencing burnout (Moss et al. 2016). Burnout syndrome is characterised by three psychological domains: (1) emotional exhaustion, (2) depersonalisation, and (3) lack of personal achievement (Maslach and Leiter 2016). Burnout is a state of emotional, mental, or physical exhaustion brought on by prolonged or repeated stresses at work (Mealer et al. 2016).

Burnout is recognised as a major contributor to physician and nurse turnover and reduced work hours (Pastores et al. 2019; Hodkinson et al. 2022; Niven and Sessler 2022). Burnout also has financial and quality implications for healthcare systems and can adversely impact well-being and team dynamics (Hodkinson et al. 2022; Mehta et al. 2022; Niven and Sessler 2022; Papazian et al. 2023; Pastores et al. 2019). Strategies that address key drivers of burnout, enhance unit-based teams, and support individual resiliency are important to reduce critical care professional burnout and improve patient safety and outcomes (Niven and Sessler 2022).

Risk Factors and Consequences

Organisational, individual, and critical care related factors are associated with an increased susceptibility to develop burnout in critical care. Organisational risk factors such as understaffing, administrative burden, and lack of control over the work environment can promote burnout in the critical care setting. Additionally, critical care specific risk factors such as providing care to high acuity patients, variability in work schedules, navigating ethical issues and end-of-life care and complex care decision making also place critical care clinicians at risk. Individual factors for critical care related burnout can include overcommitment, being self-critical, and having unrealistically high expectations (National Academy of Medicine 2016; Hodkinson et al. 2022; Mehta et al. 2022; Niven and Sessler 2022; Papazian et al. 2023; Pastores et al. 2019; Ramirez-Elvira et al. 2021).

While there are numerous drivers of burnout, a simplified approach supports focusing first on the work and the workers. Both the quantity and the quality of the work matter. Specifically, long hours, work at night and on weekends, and even the intense concentrated daily work performed in the critical care unit can contribute to burnout. While caring for critically ill patients is meaningful, work in healthcare – including the critical care unit – is fraught with time consuming tasks such as excessive documentation. Critical care professionals are accustomed to working hard – but it is critical that there are adequate support and resources to do this hard work, as well as time for worker decompression and recovery to avoid burnout.

In regard to the people doing the work, critical care is a team sport and the quality of relationships, and the culture of the unit is immensely important. Workplace conflict is unfortunately common and is a key driver of burnout for physicians, nurses and other members of the healthcare team. Achieving mutual respect, collaboration, civility, and trust among team members requires constant attention and open dialogue (AACN 2024). Effective communication within the ICU team is key as is communication with institutional leaders to achieve alignment of vision and values (Moss et al 2016). Finally, when

considering the importance of the work and the workers in mitigating burnout, it is critical to acknowledge that critical care professionals are first and foremost people – who have busy lives outside of work.

Relevant Research

A number of studies, including systematic reviews and meta-analyses have been conducted on burnout in critical care physicians and nurses. One systematic review evaluated 25 studies that measured burnout using the Maslach Burnout Inventory (MBI), a frequently used tool to estimate the prevalence of high-level burnout among physicians and nurses. The studies had a combined sample size of 20,723, including 8187 physicians and 12,536 nurses (Papazian et al. 2023). Of 8187 ICU physicians, 3660 reported high-level burnout (Papazian et al. 2023). The overall weighted prevalence of high-level burnout in physicians across 18 studies was 0.41, ranging from 0.15 to 0.71. Of the total of 12,536 ICU nurses included, 6232 reported high-level burnout. The overall weighted prevalence of high-level burnout in nurses across 20 primary studies was 0.44, with a range from 0.14 to 0.74 (Papazian et al. 2023). Additionally, when subscale results were evaluated, the proportion of high-level exhaustion was higher among nurses (Papazian et al. 2023).

A multicentre mixed-methods cohort study conducted in critical care units at three diverse hospitals recruited physicians, nurses, respiratory therapists, and other staff members who completed the MBI and a qualitative focus group or interview using a phenomenological approach (Mehta et al. 2022). Fifty-eight providers (26 physicians, 22 nurses, six respiratory therapists, three pharmacists, and one case manager) participated. Participants scored moderate or high levels across the three MBI subscales (emotional exhaustion, 71.4%; depersonalisation, 53.6%; and lack of personal achievement, 53.6%). Drivers of burnout aligned with three core themes: patient factors, team dynamics, and hospital culture. Individual drivers included medically futile cases, difficult families, contagiousness of burnout, lack of respect between team members, the increasing burden of administrative or regulatory requirements at the cost of time with patients, lack of recognition from hospital leadership, and technology challenges (Mehta et al. 2022).

Strategies for Addressing Burnout in Critical Care and Promoting Wellness

As clinician burnout is a complex and multifaceted problem, there is no single solution to achieve the needed changes (NAM 2019). Healthcare organisations should focus on the development, implementation, and evaluation of organisation-wide initiatives to reduce the risk of burnout, foster professional well-being, and enhance patient care by improving the work environment (NAM 2019).

Promoting a Healthy Work Environment

Establishing and sustaining a healthy work environment that fosters respect may be one key strategy to combat stress and burnout in the acute and critical care work environment. The importance of maintaining a healthy work environment underlies many organisational initiatives to mitigate burnout and enhance wellness. In 2001, the American Association of Critical-Care Nurses (AACN) established a strategic priority to improve the health of the healthcare work environment. In 2005, the AACN Standards for Establishing and Sustaining Healthy Work Environments were published in response to increasing evidence that unhealthy work environments contribute to medical errors, ineffective delivery of care, and conflict and stress among healthcare professionals (AACN 2024). The standards provide an evidence-based framework for organisations to create work environments for healthcare professionals to practice to their full potential, ensuring optimal patient outcomes and professional fulfilment (AACN 2024).

The standards for establishing and sustaining healthy work environments are outlined in **Figure 1.**

Figure 1: Healthy Work Environment Standards, AACN, 2024 (Reprinted with permission)

Stress Management

A systematic review of 12 studies with 592 participants explored specific interventions to reduce burnout in ICU nurses and found that cognitive behavioural skills training and mindfulness-based programmes were more effective in reducing occupational related stress (Alkhawaldeh et al. 2020). Six studies used cognitive-behavioural skills training (emotional regulation training, neuro-linguistic programming, resilience training, emotional intelligence, assertiveness training, and time management); three studies used mindfulness-based training; and one study used massage, yoga, and aromatherapy. The length of the intervention period ranged from 4 to 24 weeks; however, most studies delivered interventions for 6 weeks or less (Alkhawaldeh et al. 2020). The authors identify six studies supporting cognitive-behavioural skills to increase ICU nurses' ability to cope with stress. However, the studies used different types of cognitive-behavioural interventions and different assessment instruments to measure effectiveness, limiting the generalisability of the results (Aklhawaldeh et al. 2020).

Creative Arts Therapy

The use of a 12-week creative arts therapy programme was examined in a clinical trial with 144 healthcare worker participants who attended weekly 90-minute group sessions led by a trained therapist (Mantelli et al. 2023; Moss et al. 2022). Participants included nurses, physicians and behavioural health specialists randomised to 1 of 4 creative arts therapy groups or to a control group. Intervention groups included creative writing, dance and movement, music, and visual arts. All participants completed surveys assessing psychological distress at baseline at 12 weeks, and at 4, 8 and 12 months. The creative arts therapy group demonstrated sustained improvement in distress scores for anxiety, depression and affect at 4 and 8 months postintervention (Mantelli et al. 2023; Moss et al. 2022). During the 12-month period, the creative arts group demonstrated sustained improvement in anxiety, depression and affect compared with the control group (Mantelli et al. 2023; Moss et al. 2022). The authors conclude that creative arts therapy has lasting benefits for healthcare professionals and represents another intervention that can be used to address burnout.

Fostering Professional Well-Being

A number of measures can be helpful to critical care clinicians to promote professional well-being. These include taking rest and meal breaks when at work; scheduling time off and limiting the number of shifts per week; and self-care measures such as ensuring adequate rest, healthy eating habits, and exercise. Participating in team huddles and debriefings, use of ethics consultations, palliative care consultations and family care conferences can also be useful for balancing the demands of critical care (Moss et al. 2016; Kleinpell et al. 2020). Other measures include providing adequate staffing levels to manage patient workload, implementing stress management programmes, and fostering a supportive team culture that prioritises well-being (**Table 1**).

ICU/Environment Related	Clinician Related
Team based communication training	Scheduling time off; limiting number of shifts per week
Communication huddles	Self-care measures: adequate rest, healthy eating, exercise
Ethics consultations	Proponent of team-based care
Palliative care consultations	Wellness-based mindset
Family care conferences to discuss patient goals of care	Stress management/resilience training
Adequate staffing	Other wellness focused activities: meditation/mindfulness, creative arts therapy
Reduced administrative burdens	
Promotion of a healthy work environment	
Inclusive decision making	

Table 1: Measures for Promoting Well-Being in Critical Care Clinicians

Recognising the importance of fostering the well-being of healthcare professionals, many health systems include health and wellness resources for clinicians, including exercise facilities, counselling services, and mental health resources.

A recent study examined the effectiveness of a multifaceted intervention for improving well-being of critical care staff over a 2-year period. Interventions included social activities, fitness, nutrition, and emotional support (Lovell et al. 2023). Well-being of critical care staff was assessed with a convenience sample before (n = 96) and after (n = 137) the intervention. Focus groups were also held to explore participants' perceptions of the intervention's effectiveness. Well-being scores after the intervention (mean = 6.95, standard deviation = 1.28) were not statistically different (p = 0.68) from baseline scores (mean = 7.02, standard deviation = 1.29) (Lovell et al. 2023). Analysis of focus groups data revealed three key categories: boosting morale and fostering togetherness, supporting staff, and barriers to well-being (Lovell et al. 2023). The authors highlight that an organisational focus on well-being that promotes critical care staff to flourish through positive affect, social connections, and building of resilience can potentially reduce the risk of psychological pathology and increase staff members' capacity to provide compassionate, patient-centred care (Lovell et al. 2023).

A cross-sectional survey study among 193 critical professionals examined opinions related to the work environment (van Mol et al. 2018). Work engagement was negatively related both to cognitive demands among intensivists and to emotional demands among critical nurses. No significant relationship was found between work engagement and empathic ability; however, agreeableness, conscientiousness, and emotional stability were highly correlated with work engagement. Only the number of hours worked per week remained a confounding factor, with a negative effect of workload on work engagement after controlling for the effect of weekly working hours (van Mol et al. 2018). The authors conclude that work engagement counterbalances work-related stress reactions.

Other factors that promote well-being in critical care include daily rounds to acknowledge team-based efforts, authentic leadership, including family and friends as part of the critical care team, and focus on care that integrates clinical practice, teaching and research (Vincent 2018).

Conclusions

Providing a healthy work environment is essential in the mitigation and prevention of burnout and in promoting clinician well-being. Awareness of the causes, consequences, and strategies to manage and prevent burnout and promote well-being in the critical care setting is essential.

Conflict of Interest

None.

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Anaesthesia Workforce Shortage: Reasons and Potential Solutions

The shortage of anaesthetists poses significant challenges in healthcare. Potential short- and long-term solutions, oriented to ensure adequate patient care and safety are the topic of this article.

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It is becoming increasingly challenging for the directors of anaesthesia services and Intensive Care Units (ICUs) to complete work shifts by assigning workloads in accordance with contracts or principles of work-life balance. Simultaneously, ensuring timely patient care is becoming more difficult, allowing surgeries to be performed within optimal timeframes.

This situation resembles a struggle to meet the metabolic demand of the healthcare system while operating just before the oxygen consumption/oxygen delivery (VO2/DO2) dependency area, known as the critical DO2. In this precarious zone, only compensatory mechanisms—such as an increased oxygen extraction ratio and additional shifts to cover operating theatres and ICUs—can prevent cellular energy failure, manifesting as anaerobic glycolysis and hyperlactataemia. This leads to increased surgery waiting lists and time, reducing the quality of care and contributing to clinician burnout. It is akin to working without safety margins (**Figure 1**).

This article will mainly focus on the anaesthesia (and critical care) workforce. Still, the imbalance between the supply and demand in the healthcare workforce is not limited to anaesthesia. Noteworthy, workforce issues ranked the primary concern in the American College of Healthcare Executives 2023 annual survey regarding challenges hospitals face. While 71% of respondents expressed concern about the shortage of physicians, shortages among nurses and technicians were reported at 86% and 87%, respectively (American College of Healthcare Executives: Top issues confronting hospitals). Consequently, the shortage of anaesthesia personnel should be considered within the broader context, affecting support and technical staff, nursing personnel, and other physicians. Moreover, although primary care is identified as the most pressing need, a 2016 report from the U.S. Department of Health and Human Services predicted a shortage of 24,340 surgeons in the near future (Menezes and Zahalka 2024).

Despite the evident imbalance between workforce supply and demand, there is currently no widely accepted method to quantify this disparity (Abouleish et al. 2024). The World Federation of Societies of Anaesthesiologists (WFSA) (Law et al. 2024), the American Society of Anaesthesiologists (ASA) (American Society of Anesthesiologists: ASA Center for Anesthesia Workforce Studies), and the European Society of Anaesthesia and Intensive Care (ESAIC) (Pinelli et al. 2024) have conducted investigations, studies, and surveys to explore the workforce supply-demand balance and the potential consequences for healthcare delivery. More than 20 years ago, an ASA commission found that nearly half of hospital administrators surveyed reported a reduction in surgical activity due to a shortage of anaesthesiologists, and two-thirds of hospitals reported an increase in surgical wait times (Schubert et al. 2012). A common message emerges from the WFSA, ASA, and ESAIC: there is a significant global deficit of anaesthesia providers, which is expected to worsen. Even if, in many countries, the total number of anaesthesia providers (including anaesthesia physicians, technicians, and nurses) has increased, the workforce supply/demand shows an imbalance persists due to a surge in demand for anaesthesia that outpaces the growth in anaesthesia providers.

The COVID-19 pandemic has exacerbated this imbalance, but additional factors must be considered, particularly when seeking solutions. The pandemic accelerated the progression of fundamental supply and demand issues, resulting in a perilous cycle of heightened labour intensity and stress, unsustainable workloads, and exits from clinical practice. Interventions are needed to break this vicious cycle, reverse the trend, and restore workforce supply and demand balance. This article aims to provide a current overview of the situation and explore the short-term and long-term solutions (potential) solutions (**Table 1**).

Reasons for Workforce Supply/Demand Imbalance

The causes of physician and anaesthesiology shortages over the past decade are complex and multifactorial, summarised as follows:

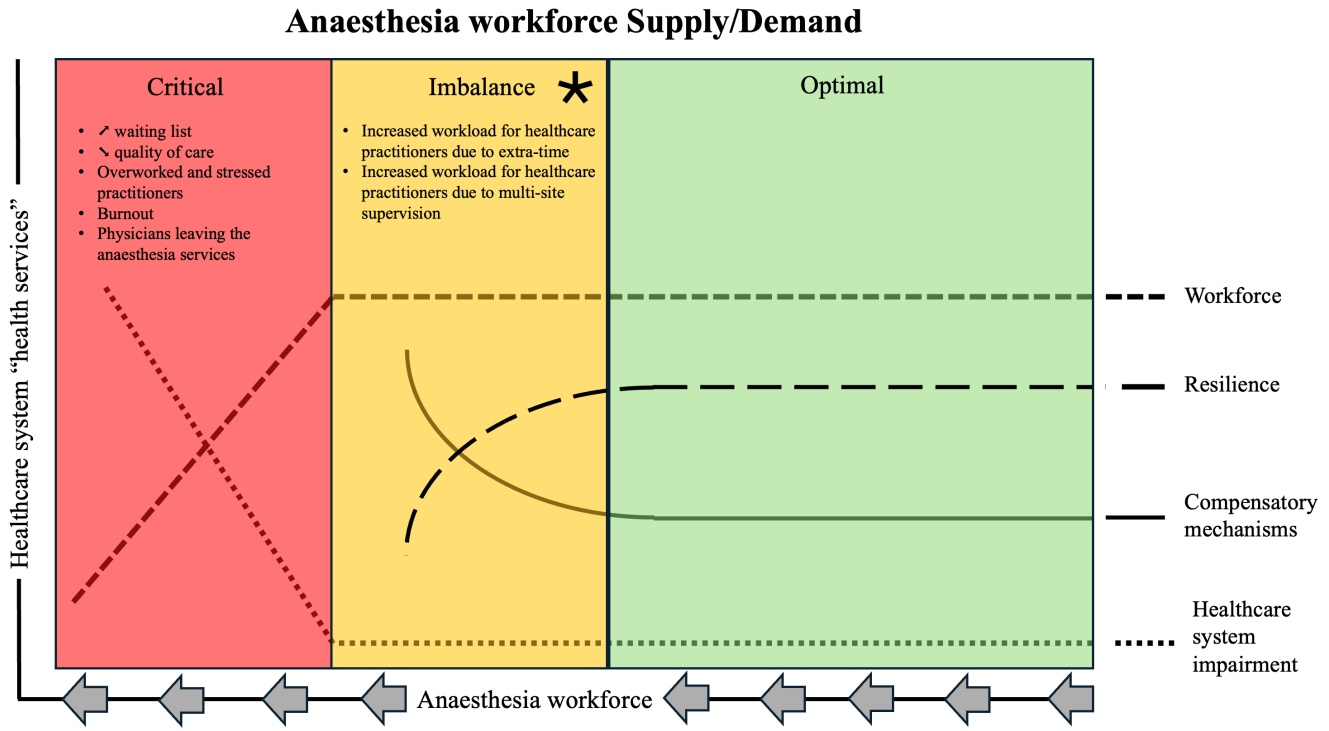

Figure 1: Anaesthesia workforce supply/demand represented as the DO2/VO2 relationship

• **Ageing population and workforce:** The patient population is progressively ageing. These increasingly frail individuals will need surgical and interventional procedures that necessitate monitored sedation and anaesthesia (Abouleish et al. 2024). They will also need medical care in intensive care units due to more medical comorbidities and are more vulnerable to complications. By 2030, the number of U.S. residents aged 75 and older is projected to grow by 73% (Menezes and Zahlka 2024). By 2050, over 35% of Italians will be over 65 years old (The Lancet Regional Health – Europe 2024). These factors indicate that the demand for anaesthesia care will increase, and these patients will also require greater labour intensity and higher-level skills. Additionally, the ageing workforce and the impending retirement of a substantial proportion of anaesthesiologists contribute to a staffing gap. Many senior physicians are opting for part-time. The physician workforce is ageing, with 57% of anaesthesiologists in the U.S. aged 55 years or older (Abouleish et al. 2024). Anaesthetists work in high-pressure environments characterised by long hours and high-stakes procedures. Burnout is increasingly recognised as a significant concern, leading some professionals to reduce their hours, exit clinical practice, or retire earlier than planned (Afonso et al. 2021).

• **Advancements in procedures and procedural domains:** There is an ongoing shift from invasive surgery to minimally invasive techniques or interventional procedures, resulting in more patients previously deemed too high-risk for surgery being directed toward less complex options. Consequently, all procedures conducted in Non-Operating Room Anaesthesia (NORA) environments are gradually increasing, including digestive endoscopy, interventional cardiology, and interventional radiology. NORA is projected to account for over 50% of all anaesthesia cases, leading to scheduling challenges and inefficiencies (Wong et al. 2020; Herman et al. 2021). According to the Centre for Anaesthesia Workforce Studies, American Society of Anaesthesiologists, the anaesthesia workforce increased by approximately 18% from 2018 to 2023. In contrast, the number of surgical specialists rose by only 3.0%, and the ranks of specialists involved in non-operating room procedures expanded by 26%.

• **SARS-CoV-2/COVID-19:** The SARS-CoV-2/COVID-19 pandemic resulted in an unprecedented departure from the healthcare workforce. Before the pandemic, 35% of facilities indicated they were facing a shortage of anaesthesiology staff (Afonso et al.2021). Two years post-pandemic, this percentage surged to a staggering 78% (Afonso et al. 2024). The pandemic hastened the development of existing supply and demand issues, leading to a concerning cycle of increased labour intensity and stress, unsustainable workloads, and retirements from clinical practice.

• **New generations and new values regarding work-life balance:** The new Y generation (millennials, born between 1982 and 1994) and Z generation (centennials, born after 1995) are entering the workforce with a different interpretation of work-life balance compared to the X generation (born between 1965 and 1981) and the Baby Boomers (born between 1946 and 1964) they are replacing (Goldman et al. 2023). A recent study documented a progressive reduction in physician work hours over the past two

decades and a trend toward unionisation (Goldman et al. 2023; Bowling et al. 2022). This study revealed that physician work hours have consistently declined over the past 20 years (Goldman et al. 2023). Consequently, even if the overall number of physicians remains unchanged, the total clinical capacity will decline due to decreased working hours per physician. Furthermore, a recent article reviewing several academic-affiliated healthcare systems identified anaesthesiology as the speciality with the highest "intention to leave" the field within the next two years (46.8%), with intensive care physicians (39.8%) ranking fifth (Ligibel et al. 2023).

• Training pathway to anaesthesia practice: The extensive and demanding training required to become an anaesthetist involves medical school, residency, and sometimes fellowships. This prolonged training can deter some medical graduates from choosing this speciality, particularly when other fields of medicine offer a quicker route to practice (Willis-Shattuck et al. 2008; Pinelli et al. 2024). Additionally, other specialities provide more appealing financial incentives and less demanding on-call schedules, making them more attractive to medical students and recent graduates. This situation contributes to a decline in applicants for anaesthesia residency programmes (Sarikhani et al. 2021).

Potential Current and Future Solutions

At the heart of a successful health ecosystem lies a skilled workforce capable of addressing access and quality requirements. Therefore, addressing the current healthcare crisis necessitates interventions aimed at safeguarding the quality of clinical care while enhancing efficiency, effectiveness, and safety. The causes of physician and anaesthesiology shortages over the past decade are complex and multifactorial, so the interventions to reverse this trend should also be multifactorial. These interventions can be divided into short- and long-term strategies.

Short-term interventions

• ***Financial issues:*** Economic considerations are central to any discussion of solutions regarding the workforce. For instance, the average annual salary for anaesthesiologists significantly increased in 2021 in the U.S. (Menezes and Zahalka 2024). In the short term, one strategy employed by facility administrators is to extend working hours with additional compensation to enhance anaesthesia coverage. Contract anaesthesiologists (e.g., anaesthesia services) have emerged as a potential buffer solution to address workforce shortages and lengthening surgical waiting lists in healthcare facilities. This model allows hospitals and surgical centres to hire anaesthesiologists flexibly, optimising resource allocation based on patient volume and specific procedural requirements. While using these professionals can lead to greater operational efficiency, such as reduced delays in surgical procedures, it also raises questions and concerns regarding quality and continuity of care. Consequently, although on-demand anaesthesiologists can help mitigate service gaps, ongoing evaluation of their impact on patient outcomes and team dynamics remains essential.

• ***Improvement of technological support:*** Technology has significantly transformed anaesthesia and critical care, enhancing safety and efficiency over the past 50 years. Various technological improvements might be part of redefining daily working activities toward optimisation:

• Electronic medical records, telemedicine, clinical decision support systems (King et al. 2023), and command centres that allow clinicians to supervise multiple locations safely in operating theatres and the ICU (Feinstein et al. 2024) can contribute to optimising the physician workforce.

• Repetitive low-value tasks (e.g., reconciling charts and collecting and transcribing medical information) contribute to burnout (Li et al. 2022) and have been linked to patient safety risks. Technology can alleviate physicians of these burdens.

• Protocols, alerts, and any electronic advancements (including those based on artificial intelligence) can help enhance safety, reduce the risk of errors, decrease

Causes	Consequences	Short-term solutions	Long-term solutions
Ageing patients' population	Prolonged in surgery waiting list and timing before consultations and surgery	Increase in salaries	Increase in training positions
Population disease burden	Lower quality care	Improvement in technological support	Certified Nurse Anaesthetists
Ageing workforce	Time constraints on doctor-patient interactions	Development of policies with supportive professional figures (e.g. nurses, anaesthesia residents)	Programmes of moderate sedation and deep sedation in NORA/NORAS settings
SARS-CoV-2/COVID-19 pandemic	Increased workload for healthcare practitioners	Supervision of a higher number of sites	
Increase in procedures requiring sedation, anaesthesia, and ICU care	Overworked and stressed practitioners	Progressive autonomy of anaesthesia residents in the university teaching hospitals	

Table 1: Summary of the anaesthesia workforce imbalance
Abbreviations: COVID-19, coronavirus disease-19; NORA/NORAS, Non-Operating Room Anaesthesia; Non-Operating Room Analgo-Sedation; SARS-CoV-2, Severe Acute Respiratory Syndrome-Coronavirus-2

variability, and improve clinician satisfaction (Nair et al. 2017).

• Automation and remote monitoring hold significant potential to address workforce challenges. The general objective is to optimise anaesthesia activities while minimising wasted time (remote surveillance allows for the monitoring of multiple locations simultaneously) and enhancing the capacity to safely and efficiently oversee contemporary operating theatres (Bridges et al. 2020; Abouleish et al. 2024). In the ICU, remote monitoring has become standard and has proven successful.

• Technological improvement in challenging areas (i.e. NORA) is becoming mandatory in many hospitals with neuromonitoring (the so-called processed electroencephalography), capnography, neuromuscular blocking agents monitoring, temperature monitoring, high flow nasal oxygen technology as standard in daily practice (Romagnoli et al. 2020; Evans et al. 2023).

• Finally, telemedicine solutions, along with wearable technologies and mobile health applications, can assist anaesthetists in enhancing the care of perioperative surgical patients by increasing the monitoring time and continuity and reducing the wasting time (Michard et al. 2022).

Long-term interventions

Short-term solutions can help buffer emergencies, but more robust structural interventions are needed to provide greater efficiency in the long term:

• ***Number of training positions:*** To address the shortage of anaesthesia providers, the government needs to invest in training sufficient anaesthesiologists. Graduate medical education funds should increase to add more training positions annually. Theoretically, this could help increase the number of anaesthesia staff within a 4- to 5-year investment. However, the growth in the number of graduates is slow and may not adequately address the workforce imbalance in the short term. Nevertheless, in many countries, including Italy, many positions remain unfilled, and recent graduates prefer different specialities over anaesthesia, critical care, or emergency medicine (e.g., dermatology, plastic surgery, and ophthalmology). Additionally, this strategy carries the inherent risk of leading to an oversupply of anaesthesiologists in the long run (Abouleish et al. 2024).

• ***Certified Nurse Anaesthetists (CRNAs):*** In many countries, particularly in the U.S., the CRNAs significantly contribute to addressing the anaesthesiology shortage. In recent years, the number of procedures performed by anaesthesiologists has decreased while the activities carried out by CRNAs have gradually increased. In this context, anaesthesiologists primarily assume a supervisory role. A policy including a supervisory role requires careful organisation aimed at minimising risks to all involved: the patient, the operators (e.g., endoscopists, cardiologists, radiologists, bronchoscopists), the staff performing sedation (or anaesthesia), and the supervising anaesthesiologist. In other words, it is essential to establish limits and deliver procedures that allow sedation to be performed safely: patient selection, technological equipment of NORA suites, training of personnel involved, and re-training programmes. The CRNA: anaesthetist ratio is reported to be up to 4:1 (Menezes and Zahalka 2024). In Europe, according to a recent survey, 16 (44%) of the 39 investigated countries reported having nurse anaesthetists (defined as personnel with a nursing degree and additional training in anaesthesia practice who may administer anaesthesia under the supervision of a physician anaesthetist for surgical or diagnostic procedures) (Pinelli et al. 2024). In some European countries, nurse anaesthetists (or even anaesthesia physician assistants) do not exist (e.g., Germany, Greece, Italy, and Poland) (Pinelli et al. 2024). On the contrary, in 44% of the investigated countries (Lithuania, Norway, Russia, Sweden, and Switzerland), nurse anaesthetists compensate for the lower number of anaesthetists (Pinelli et al. 2024).

• ***Sedation teams - moderate vs. deep sedation:*** A training programme for moderate sedation in NORA settings, aimed at non-anaesthetist personnel and ensuring a high level of patient safety, is a widely applied and described process (Abouleish et al. 2024; Abdelmalak et al. 2022). Sedationists (non-anaesthetist personnel providing sedation, i.e., trained nurses) should only provide moderate sedation (where the patient is still responding to verbal stimuli) and only after rigorous education, training, and an oversight and quality programme. In this context, it is important to distinguish between NORA (Non-Operating Room Anaesthesia) and NORAS (Non-Operating Room Analgo-Sedation): the latter is a new term potentially well-suited to new organisations. In parallel with the moderate sedation service, a deep sedation service must exist under the oversight of the anaesthesiologists. A deep sedation service is similar to a moderate sedation service but is limited to trained physicians not performing the procedure. It excludes moderate sedation nurses. These innovative policies must be managed by experts in the field of anaesthesia (e.g., departments of anaesthesia) and rely on anaesthesiologists working collaboratively in teams, with their success closely tied to effective training, education, consistent execution, and the maintenance of a stable workforce (Sauter et al. 2016; Pardo et al. 2024).

• ***Enhancing retention strategies:*** Another approach is strengthening retention policies by improving job conditions, offering long-term financial incentives, and enhancing the overall work environment, making anaesthesia more appealing to new generations.

• ***Supervising a higher number of sites:*** Enhancing anaesthetists' ability to oversee a larger number of sites safely may be achievable through the development of new organisational systems involving certified/trained nurses, residents, and the implementation of clinical decision support systems that improve situational awareness and the quality of pre-anaesthesia assessments (Abouleish et al. 2024). A recent European survey, based on a questionnaire sent to the Delegates of the National Anaesthesiologists Societies Committee (NASC) of the ESAIC, showed that in 33 out of 39 investigated countries (85%), one anaesthetist typically follows one anaesthesia maintenance at a time. In comparison, in 7 countries (18%), one anaesthetist has

supervised two patients simultaneously. This may occur sporadically in 20 (51%) countries. The anaesthetist/patient ratio rarely reaches 1:3 or more (Pinelli et al. 2024). In teaching hospitals, residents who acquire progressively larger autonomy can contribute to optimising anaesthesia staff. Those residents who have achieved complete autonomy, albeit under indirect supervision by a tutor (an anaesthesia physician available to intervene when needed), can play a role in optimising multi-site anaesthesia supervision. In line with the potential role of anaesthesia residents, the European survey indicated that more non-university hospitals reported a shortage of anaesthetists (67%) than respondents from university hospitals (46%), with a global 72% of respondents believing there is a shortage (Pinelli et al. 2024). Increasing overlapping coverage by raising staffing ratios—where anaesthetists supervise more sites—could offer short-term relief. However, this must be approached with caution, as it may lead to decreased safety and an increase in surgical patient morbidity and mortality (Burns et al. 2022). The acceptable or optimal staffing ratio is influenced by various factors, including the geographic location of sites (logistics), patients' medical comorbidities and frailty, the complexity and duration of procedures, and the standardisation of care, such as pre-anaesthesia evaluations and anaesthesia care protocols (Sessler 2020; Sanghvi 2024).

Focus on the European situation – results of a recent survey (Pinelli et al. 2024). In Europe, the organisation of anaesthesia services and the composition of anaesthesia teams, including consultant anaesthesiologists, anaesthesia residents, and non-medical anaesthesia staff (NPA), differs from country to country. Moreover, the training pathways, roles, responsibilities, and duties of anaesthesia team members are highly heterogeneous. A workforce shortage, albeit with variable trends, is reported in most European countries (28 out of 39, or 72%) in university and non-university hospitals. A one-to-one anaesthetist-to-patient ratio during general and loco-regional anaesthesia or peripheral block is the most common; however, this ratio sometimes changes to one-to-two or even less supervision (Pinelli et al. 2024).

Conclusion

The shortage of anaesthetists and other healthcare professionals is an escalating concern for healthcare systems worldwide. Anaesthetists play a vital role in patient care by safely administering anaesthesia and sedation during surgeries and procedures. Factors contributing to this growing shortage include an increasing demand for surgical services, an ageing population (patients and healthcare professionals), and limited resources for training new anaesthetists. Potential interventions to address this issue must be multifaceted and involve enhancing funding for anaesthesia programmes from governments and healthcare institutions to expand training opportunities. Additionally, leveraging advanced technologies and remote monitoring tools can assist anaesthesiologists in effectively delivering patient care. Fostering interprofessional collaboration among anaesthesiologists, residents, nurse anaesthetists, and other healthcare providers will be essential for ensuring efficient patient care and optimising available resources.

Conflict of Interest

SR is the Director of the Department of Anaesthesia and Critical Care, the Director of an Anaesthesia and Critical Care Unit of a large University Hospital, and the Director of a School of Anaesthesia and Critical Care that accounts for over 200 residents. EB and DM are the Hospital Health Director and Hospital General Manager, respectively.

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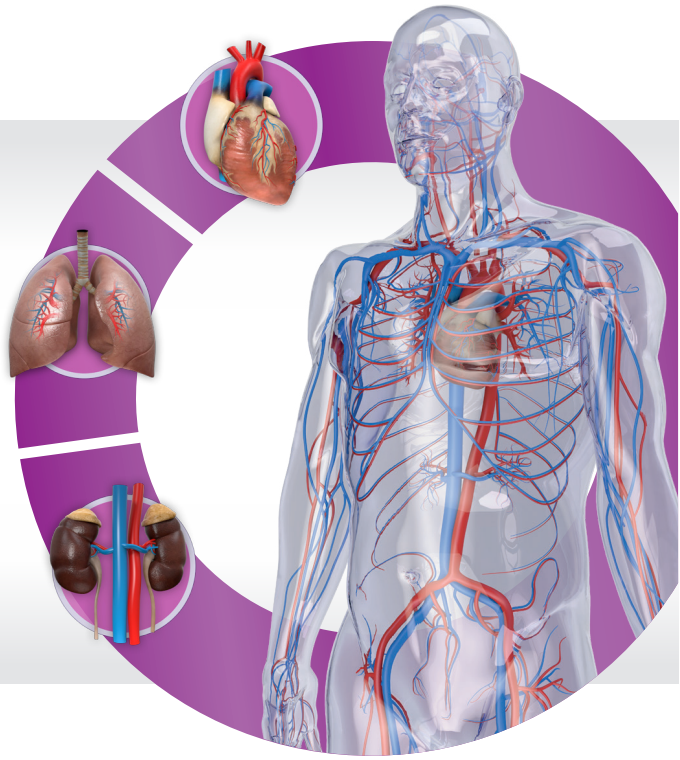

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Causes and Consequences of Physician Burnout and the Importance of Well-Being

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Physician burnout has emerged as a critical issue in healthcare over the past few years, with significant implications for the entire system. This multifaceted problem stems from a combination of individual factors and systemic concerns. By addressing this issue comprehensively, healthcare systems can work towards creating a more sustainable and supportive environment for physicians. .

Introduction

The concept of burnout was conceived in the 1970s by the observations and experiences of two psychologists, Herbert Freudenberger and Christina Maslach. They observed the development of a triad of symptoms among professionals in human service sectors who worked with underprivileged populations. These symptoms included emotional exhaustion, detachment, and negative feelings, likely a response to the challenging work environments and high-stress interpersonal interactions inherent in these professions (Freudenberger 1974). The concept of burnout quickly gained mainstream popularity. Over the past 15 years, burnout has been used to characterise the poor well-being of physicians, helping to raise awareness of the multifaceted challenges to physicians' wellness and systemic issues within the healthcare industry. Burnout affects physicians across all career stages and affects many specialties. Poor well-being among physicians can lead to negative career and family consequences, ill health, substance abuse, and an increased risk of suicide (Hamidi et al. 2018). A physician's distress can also affect the healthcare system through diminished quality of care, medical errors, high physician turnover, and attrition from the medical field (Shanafelt et al. 2017). In recent years, there has been a growing recognition of job-related stress among doctors, coupled with increased efforts to promote overall well-being. The COVID-19 pandemic further highlighted this issue, underscoring how crucial physician wellness is for providing quality patient care and enabling healthcare organisations to fulfil their objectives. This heightened awareness has brought the importance of physician well-being to the forefront of healthcare discussions and initiatives.

The objective of this comprehensive review is to examine the prevalence of burnout in physicians across various career stages, investigate the reasons contributing to burnout, and review the evidence-based strategies and interventions that can effectively mitigate burnout's impact. The authors aim to provide a holistic understanding of the burnout epidemic affecting the medical profession and offer actionable insights to support physicians' mental health, job satisfaction, and overall well-being throughout their careers.

Background

The World Health Organization (WHO) defines burnout as a syndrome resulting from chronic workplace stress that has not been successfully managed (WHO 2019). The risk of burnout is higher amongst physicians because of unique occupational challenges, including demanding workload, emotional intensity, administrative burdens, and high-stakes decision-making. Furthermore, data from cross-sectional studies showed an independent relationship between burnout and work hours: every additional hour worked increased the odds of burnout by 3%, night shift by 3%, and weekend shifts by 9% (Shanafelt et al. 2009a).

The leadership, organisational environment, and ethics of the workplace also influence burnout rates. Understanding and respect among leadership and colleagues decreases burnout rates, lowers reported stress, and increases workplace satisfaction (Salvagioni et al. 2018). Individual factors related to burnout include age, gender, sleep deprivation, and home support and stress (partner, spouse, children). Contrary to prior understanding, burnout is not a phenomenon of older late-career physicians; it is now thought to start as early as residency and medical school (Salvagioni et al. 2018).

A nationwide survey conducted by West et al. (2018) showed that 54.4% of US physicians reported at least one symptom of burnout, and satisfaction with work-life

balance had declined from 48.5% in 2011 to 40.9% in 2014. While burnout is prevalent across various professions, physicians exhibit a markedly higher susceptibility, with studies indicating approximately double the risk compared to the general population. A Medscape physician lifestyle report from 2015 indicated that critical care physicians have the highest prevalence of burnout compared to other medical specialties (Peckham 2015). Again, in 2021, critical care burnout rates continued to be the highest compared to other specialties. In a recent Medscape survey in 2024, multiple medical specialties were investigated for rate of burnout. **Table 1** summarises the findings from the survey (Kane 2024).

The emergence of the global health crisis brought by the COVID-19 pandemic thrust the pre-existing challenges faced by physicians to the forefront, bringing long-standing issues of burnout and professional dissatisfaction into sharp focus. John Hopkins University documented nearly 100,000,000 COVID cases with 1 million deaths in the United States. Healthcare workers were expected to work during the pandemic with an extraordinary level of stress. Since the start of the pandemic, healthcare workers have battled with the fear of being at risk of daily exposure to COVID-19 whilst working with limited resources, PPE shortage, and helping severely sick patients with high mortality rates, leading to increased rates of burnout (Burrowes et al. 2023). In a survey regarding the effect of the pandemic on mental health in general, 55% of healthcare workers reported worsening mental health after the COVID-19 pandemic, and 43.6% reported insufficient mental health support at work (Burrowes et al. 2023).

Discussion

The prevalence and impact of burnout prompted the development of multiple assessment tools to quantify burnout. The Journal of Occupational Behavior published an article in 1981 where the authors introduced The Maslach Burnout Inventory (MBI) (Maslach and Jackson 1981), which was later adapted as a gold standard assessment tool for burnout (Rotenstein et al. 2018). The MBI is a three-dimensional test which evaluates three major endpoints of burnout: emotional exhaustion, personal accomplishment, and depersonalisation (Rotenstein et al. 2018). Other burnout scales, such as the Copenhagen Burnout Inventory (CBI) and the Oldenburg Burnout Inventory (OLBI), focus on a two-dimensional assessment of burnout, including exhaustion and disengagement (Restauri and Sheridan 2020). Although most published works on burnout have used MBI as a burnout assessment tool, the MBI originated as a multi-dimensional research instrument. It includes separate subscales for each dimension, and it was not structured to be an individual assessment tool, which prompted the need for more specific assessment tools. The Burnout Assessment Tool (BAT) has been designed, utilising a multi-dimensional structure and increased scoring complexity. BAT includes four core dimensions (BAT-C): exhaustion, mental distance, and cognitive and emotional impairment, and two secondary burnout dimensions (BAT-S), including distress symptoms and depression symptoms. BAT is considered a valuable alternative when it comes to studying burnout, and it is advised that further research uses it to assess burnout between individuals (Kristensen et al. 2005).

In general, high-stress professions, including firefighters, police officers, and healthcare professionals, have higher burnout syndrome (BOS) rates compared to less stressful professions, with emergency medicine and critical care medicine having the highest rates of BOS in healthcare (Moss et al. 2016a). Multiple factors contribute to higher rates of burnout among healthcare workers, including but not limited to continued stress, exhaustion, lack of appropriate sleep hours, depression, anxiety, high workload with understaffed conditions, and relative lack of community support (Peckham 2015). Comparing severe burnout rates among ICU nurses and physicians, 25-30% of ICU nurses reported severe BOS and about 45% of ICU physicians reported severe BOS. Furthermore, comparing paediatric ICU to adult ICU, working with sick children increased burnout rates to 71% in paediatric ICU physicians (Moss et al. 2016b).

Further investigation of BOS epidemiology reveals significant differences by gender, with female versus male physicians having different BOS rates. The higher prevalence reported by female physicians reached 56%, while male physicians reported a burnout rate of 41%. Multiple reasons contribute to this difference. On average, female physicians spend 10% more time with new patients; they tend to provide more psychological support to patients and spend more time reviewing medical records than male physicians. Female physicians report a lack of control of autonomy as a contributor to burnout (Lyubarova et al. 2023). Although gender disparities have improved over the years, it persists in medicine. For example, in leadership roles, male physicians have a higher likelihood of promotion opportunities than female physicians, contributing to feeling rewarded, appreciated, and valued at work (Li et al. 2021). A cross-sectional study published by the Journal of the American Medical Association in July 2017 focused on discrimination experienced by female physicians with children and highlighted both gender and maternal-related discrimination resulting in higher burnout rates. It also promoted a further focus on gender equality, providing longer maternity leaves, lactation support, and backup childcare (Patel et al. 2018).

Burnout syndrome in the healthcare system negatively affects patient care. While most research focuses on patient safety, limited literature focuses on healthcare workers' wellness and the root cause of burnout. In the United States, there are more than 10,000 critical care physicians and 500,000 critical care nurses providing patient care, and it stands to reason that improved provider wellness will reflect positively on patient care (Moss et al. 2016b). BOS can impair physicians' cognitive function, critical thinking, and performance, and it leads to less compliance with treatment guidelines. As a consequence,

more medical errors are reported, which further leads to more medical malpractice suits. This not only affects patients but also directly impacts entire healthcare system outcomes. Further ramifications of BOS demonstrated earlier rates of retirement among physicians. BOS increases musculoskeletal disorders, obesity, insomnia, and a higher risk of alcohol and drug abuse (Shanafelt et al. 2009b). A call for action was developed by the Critical Care Societies Collaborative (CCSC) and sought to significantly reduce the prevalence of BOS by shifting focus to recognising burnout, encouraging ICU health workers to be more vocal about critical issues, while striving to create a healthy work environment in the ICU (Moss et al. 2016b).

The substantial impact of physician burnout on the healthcare system reinforces the importance of quantifying, managing and preventing it. After a comprehensive review of the literature, we summarised the two perspectives with significant impact on reducing physicians' burnout: physician-directed strategy and organisation-directed strategy (Adriaenssens et al. 2015). Physician-directed intervention emphasises the importance of positive physician coping mechanisms, which can be applied by increasing mindfulness and cognitive behavioural techniques, ideally increasing coping and improving communication between physicians, nurses, and healthcare workers. Though this intervention can have a positive impact on reducing BOS, BOS is mainly considered a system-level defect, and putting resources and efforts into making changes at the systemic level is expected to be favourable over individual physicians' intervention. On an organisation-directed strategy, a systematic review identified 50 studies evaluating the effect of organisation-directed workplace interventions on physician burnout. Out of the 50 studies, 38 studies focused on factors that reduce and alleviate burnout or improve associated indicators, such as emotional exhaustion, stress, job satisfaction, or fatigue. The interventions were classified into four categories: teamwork, technology, transitions, and time (Panagioti et al. 2017).

Teamwork interventions focused on increasing, encouraging, and supporting communication between physicians, having scribes, who aided by entering electronic health records (EHR) data and expanding medical assistants' roles to include between-visit care and EHR documentation. In the technology category, EHR was found to play a key role in burnout rates. It is reported by male sex, older age (>55 years), surgical specialties, and clinic physicians the dissatisfaction with EHR and its negative effect on patient-centred communication. Ambient artificial intelligence (AI) scribes use smartphone microphones to transcribe encounters and is already showing promising results as it is expected to reduce the documentation burden and, most importantly, enhance physician-patient interaction (Shanafelt and Noseworthy 2017). Time-based interventions have a different approach depending on the physicians' career level. Residents working

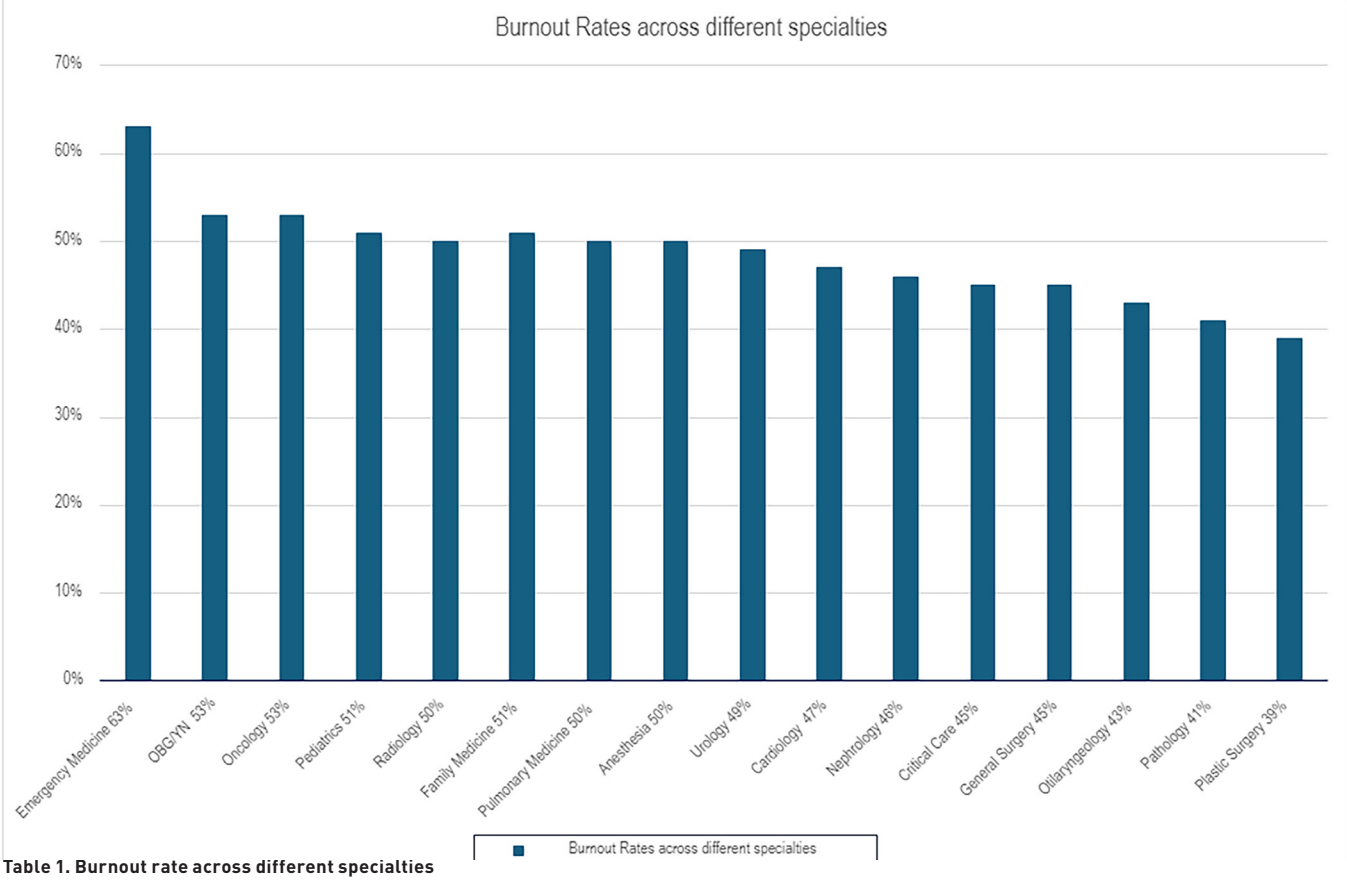

Table 1. Burnout rate across different specialties

hours have already improved significantly since the work hours limitation; however, attending physicians do not have work hours. On an organisational level, monitoring work schedules and working hours per week may be beneficial (Shanafelt et al. 2023). While attending shift work is difficult to control, having a fully staffed ICU with proper support and safe sign-outs between shifts also contributes positively to decreasing burnout. Lastly, transition impacted burnout through quality improvement QI projects that pivot on the most time-consuming, burdensome tasks for physicians, like medication reconciliation (Morrow et al. 2014).

Well-being is the experience of positive perceptions and the presence of constructive conditions at work that enable workers to thrive and achieve their full potential. Well-being can be further explained from professional, objective, and subjective perspectives. Professional well-being includes job satisfaction, high-quality work experience, a feeling of fulfilment and engagement at work (National Academies of Sciences, Engineering and Medicine Report 2019). Objective well-being covers physical needs satisfaction, shelter, food, and clothing. Lastly, subjective well-being includes psychological and emotional support (Chari et al. 2018). A systematic review summarised the effects of a positive psychology intervention (PPI) on the well-being of healthcare workers (Watanabe et al. 2023). The two most evaluated PPIs in this systematic review were gratitude-based and mindfulness-based interventions. Gratitude-based intervention is simply applied by expressing gratitude to self and to others, which is thought to positively improve well-being and decrease both anxiety and depression, which could lead to decreased burnout (Komase et al. 2021). Mindfulness-based interventions include mindfulness meditation, body scans with awareness focused on different areas of the body, and slow breathing practices. The latter increased the connection between the central nervous system and the parasympathetic system, which improves cognitive control (Kabat-Zinn 2003). As stress is known to cause the upregulation of inflammatory markers, mindfulness interventions were demonstrated to counteract this inflammatory process by downregulating inflammatory proteins. It was proven on structural MRIs that mindfulness practices diminished the amygdala response activity to stress. In other words, people who practice mindfulness have less arousable fear and emotion centres in their brains (Tang et al. 2015).

Conclusion

Physician burnout has reached epidemic proportions, with prevalence rates exceeding 50% among medical students, physicians-in-training and practicing physicians. This alarming trend poses a significant threat to healthcare quality, patient safety, and the longevity of the physician workforce.

The consequences of burnout are far-reaching, impacting not only physicians' personal well-being but also patient care outcomes. Addressing physician burnout requires a multifaceted approach that targets both individual and systemic factors. Healthcare organisations must prioritise physician wellness, investing in evidence-based interventions to improve working conditions, reduce administrative burdens, and foster a supportive organisational culture. Simultaneously, individual physicians should be empowered with tools and resources to enhance their resilience and maintain work-life balance. As the healthcare landscape continues to evolve, it is crucial to recognise that physician well-being is inextricably linked to the quality and efficiency of patient care. By prioritising physician wellness and implementing comprehensive strategies to combat burnout, we can create a healthier, more sustainable healthcare system that benefits providers and patients.

Conflict of Interest

None.

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Critical Care Burnout: A Look at Global Burnout Initiatives

An overview of literature surrounding the effectiveness of burnout initiatives and implementation of successful programmes from Emory Critical Care Center.

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Burnout, a chronic condition of emotional exhaustion, depersonalisation and reduced professional accomplishment, has plagued the global health system for years (Alahmari et al. 2022; De Hert 2020; Moll et al. 2022). Research describing the pervasiveness of burnout in healthcare professionals notes a high prevalence in critical care (Kleinpell et al. 2020; Moss et al. 2016), which is likely due to a confluence of factors that are unique to critical care such as end-of-life care (Burghi et al. 2014), communication between multiple teams involved in complex patients (Johnson-Coyle et al. 2016), and high acuity. One study by Mehta et al. (2022) found that patient factors, team dynamics, and hospital culture all played an interconnected role in burnout for critical care nurses and physicians. The toll on the human experience is well documented, and concern for the well-being of the healthcare workforce has grown exponentially over the last few years. Understanding that burnout impacts both the healthcare professional and, subsequently, patient outcomes, most critical care organisations have implemented burnout and wellness initiatives targeting the multi-professional team (Aiken et al. 2012; De Simone et al. 2021; DeChant et al. 2019; Lilly et al. 2020; Wei et al. 2020; West et al. 2016). This article will discuss the literature surrounding the effectiveness of burnout initiatives and will introduce successful programmes from our local institution.

The COVID-19 pandemic brought widespread attention to burnout in the healthcare workforce. However, the problem continues to grow with no documented reduction in symptoms, suggesting that the COVID-19 pandemic was not the root cause of burnout but rather, the issue was well ingrained in healthcare for many years prior. The World Health Organization reports that between 2020 and 2022, almost 25% of all healthcare workers experienced either anxiety, depression or burnout (World Health Organization 2024). A more recent study by the Qatar Foundation and the World Innovation Summit for Health found that 50% of all healthcare workers describe burnout symptoms, with almost 66% of global nurses and physicians suffering from burnout (World Economic Forum 2023).

Burnout is pervasive in the entire critical care team, with 28-42% of nurses, 25-51% of physicians (Pastores et al. 2019) and half of pharmacists (Smith et al. 2021) suffering from burnout syndrome. Many healthcare professionals feel hopeless, and unfortunately, some cases end in suicide (Dr Lorna Breen Heroes' Foundation n.d.). The impact is immense and sometimes unrecoverable. To counter this tragic reality, many organisations have implemented burnout and well-being initiatives. Programmes combatting burnout can include staff recognition awards, team-building exercises and streamlining electronic documentation. Programmes promoting well-being include stress reduction training, meditation and healthy eating initiatives (Panagioti et al. 2017; West et al. 2016). Some programmes are organisational focused while others are unit based or individualised.

In addition to the human cost, burnout produces a substantial financial burden. In the U.S. alone, physician burnout costs the healthcare system over 4.6 billion USD annually. This cost results from turnover and reduced work hours only and does not account for poor patient outcomes, which can result from burnout (Garcia et al. 2019; American Medical Association 2024). Nursing burnout is equally devastating, whereas a health system can estimate a cost of between $11,000 and $16,000 USD per nurse who leaves the workplace due to burnout (Muir et al. 2022). Advanced practice provider (APP) turnover can cost between $85,832-114,919 per provider (SullivanCotter 2020). This financial burden is not sustainable, which has led to the development of programmes to reduce burnout. Collectively, the global cost of burnout and wellness programmes is estimated to reach 94.6 billion USD by 2026, per a recent report released by MarketsandMarkets (n.d.). This cost has risen by 33 billion in five years alone. As organisations continue to spend money on efforts to combat burnout, the question arises: "Do these programmes work? Do they reduce burnout?"

A systematic review and meta-analysis conducted by West et al. (2016) found that both individualised burnout initiatives and those directed by organisational sponsored initiatives led to a clinically significant reduction in burnout for physicians. Furthermore, a systematic review conducted by DeChant et al. (2019)

described four major themes contributing to physician burnout: Teamwork, Time, Transitions and Technology. This review found that interventions targeting team-based approaches to work and improved processes with electronic medical records, such as the use of scribes, reduced physician burnout significantly. A systematic review and meta-analysis conducted by De Simone et al. (2021) found similar reductions in burnout of physicians, with organisational-directed interventions having a moderate reduction in physician burnout compared to individualised physician interventions which produced only a small reduction in burnout. Work-life balance can also reduce burnout. A study by Mikkelson et al. (2019) found that intensivists who worked seven consecutive days on service in the ICU versus 14 days experienced significantly less burnout. Regarding nursing burnout, a systematic review conducted by Wei et al. (2020) found that leadership styles significantly impact nurse burnout. Leaders who empower and promote their nurses through engagement can substantially reduce nurse burnout. Transformational and authentic leadership styles may improve feelings of burnout in nurses, and creating a healthy work environment may also significantly reduce burnout. Much like nursing, supportive leadership and opportunities for advancement can reduce burnout in APPs (Kapu et al. 2021).

Emory Healthcare is a health system located in Atlanta, Georgia, United States. Our system includes seven hospitals and many primary care practices. The Emory Critical Care Center operates 12 intensive care units (275 beds), with nearly 100 physician intensivists and 200 advanced practice providers. In 2022, Emory Healthcare, as a part of Woodruff Health Sciences Center, established an Office of Well-being (EmWELL) with the goal of creating system-wide change to promote and ensure staff well-being. In collaboration with this effort, the Emory Critical Care Center added its first Director of Well-being position to work in conjunction with EmWELL to support the unique needs of critical care APPs and physicians.

The first initiative was to distribute a survey on critical care well-being and create a group of "Well-being Advocates". The informal survey was completed by 68 APPs and 16 physicians and asked participants what supports or hinders their work well-being. Many themes were extracted from the survey, including leadership, recognition, compensation, and communication and the feedback was used to create programme initiatives. A team of APPs and physicians called “Well-being Advocates” now meet quarterly to discuss well-being successes and opportunities for improvement in real time and also provide guidance on well-being initiatives. This group is diverse and has a representative from each hospital, including both dayshift and nightshift providers, and a range of years of experience.

Additionally, we looked at improving leadership and staff relations and promoting positive co-worker relationships. To do so, we created a Reverse Mentorship programme in which senior leadership from Emory's Critical Care team were paired with junior faculty who served as mentors. The goal of this programme was to flip the traditional role of mentorship with the focus on well-being. At the conclusion of the Reverse Mentorship programme, multiple ideas for well-being initiatives were generated and are now in the process of being researched for the next steps. Secondly, co-workers were identified as an area of strength and support for one's well-being, and we chose to support this further by offering social events outside of work. One of our more successful activities is our "Alyssa Majesko 5K" run/walk event. During this event, we invite all critical care employees, previous patients and family members for a run/walk event and celebration. Building on the success of this event, we held an employee kickball tournament, which has proven to be both fun and successful in reducing levels of burnout among our colleagues.

Research on burnout strongly suggests that the problem continues to grow (World Economic Forum 2023). However, both organisational and individualised programmes targeting burnout and wellness do have a significant impact (De Simone et al. 2021; DeChant et al. 2019; Wei et al. 2020). To our knowledge, there have been no multicentre, multi-professional studies targeting and improving burnout specific to critical care staff. Due to the unique stressors on the critical care team, it should be a priority to conduct research on the effectiveness of burnout interventions on our teams. To control this growing crisis, it is imperative for healthcare organisations and government entities to create programmes targeting burnout and wellness. Such government-sponsored programmes already exist in the United Kingdom through their National Health System Suicide Prevention Programs. Addressing the cause of burnout, implementing organisational-led programs and supporting individualised programmes can become the triad to overcoming this tragic crisis.

Conflict of Interest

None.

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Burnout Among Mexican Doctors: Perspective of Data from a Population Cohort

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Our line of research is based on the problem of burnout syndrome in a hospital in Southeastern Mexico, analysing the impact of competence assessment and mistreatment in the workplace.

Introduction

Burnout syndrome, first described by Maslach in 1982, is characterised by emotional exhaustion, depersonalisation, and diminished personal achievement. Burnout syndrome was first described in 1974, addressing three fundamental spectra: emotional exhaustion, depersonalisation, and diminished personal achievement. Burnout syndrome is associated with two processes, the first being extreme work demands and distancing behaviours (Maslach et al. 1982).

The hospital environment is particularly vulnerable to the development of burnout syndrome due to high work demands, constant contact with human suffering and, in some cases, the presence of hostile work environments (Bodenheimer et al. 2014). In a hospital centre in Southeastern Mexico, the relationship between competency assessment practices, work mistreatment and the development of burnout in healthcare workers was evaluated. This article seeks to delve into the causes, manifestations and possible intervention strategies related to this phenomenon (Willcock et al. 2004).

Competence Assessment: Promotion or Pressure?

Competency assessments are tools used to measure job performance, but in some cases, they can become a source of stress. The main purpose of competence assessments is to identify areas for improvement and to promote professional development. However, when they focus exclusively on quantitative results, they can be perceived as a source of pressure (Dyrbye et al. 2016).

Data from a line of survey research revealed that 60% of employees perceive appraisals as unfair or disproportionate, contributing to feelings of frustration and demotivation. The imposition of unrealistic goals and lack of adequate feedback leads to high levels of anxiety and, eventually, burnout in employees (Dyrbye et al. 2014).

Workplace Abuse: A Determining Factor

Workplace abuse, defined as physical, verbal or emotional abuse in the work environment, is a significant factor in the development of burnout. There is a need for strategies as teachers of trainee doctors to identify forms of abuse and mitigation strategies (Lachiner et al. 2015).

In the hospital, abuse manifests itself mainly through shouting, public disqualifications and excessive workloads assigned in a punitive manner. Abuse creates a toxic work environment, characterised by mistrust, fear and low collaboration among colleagues. This affects not only the well-being of employees but also the quality of care provided to patients. The implementation of clear codes of conduct and mechanisms for reporting incidents of abuse are essential steps to address this problem (Maslach et al. 1996).

Variables	p-value	odds ratio	95% CI Lower Limit	Long-term solutions
Anaesthesiology	0,975	0,304	0,290	0,381
Cardiology	**0,026**	0,181	0,142	0,504
Gynaecology	0,936	0,212	0,201	0,305
Traumatology	0,860	0,221	0,217	0,259
Paediatrics	0,861	0,331	0,321	0,384
Surgery	**0,024**	0,141	0,097	0,379
Ophthalmology	0,688	0,076	0,448	0,296
Critical care	**0,045**	0,215	0,187	0,416
Emergencies	0,895	0,019	0,298	0,260
Epidemiology	**0,036**	0,245	0,167	0,457

Table 1. Logistic regression; variables of interest (specialties) and depersonalisation (Lopez et al. in prep)

Variables	p-value	odds ratio	95% CI Lower Limit	Upper Limit
Grade I	0,001	0,453	0,341	0,565
Grade II	0,001	0,439	0,331	0,548
Grade III	0,626	0,025	0,017	0,128

Table 2. Logistic regression; variables of interest (grades) and depersonalisation (Lopez et al. in prep)

Clinical trials worldwide describe the likelihood of a high degree of emotional exhaustion ranging from 35-45%. A depersonalisation rate of 26-38% and 45-56% with symptoms suggestive of burnout (Low et al. 2019).

Main Features

1. Emotional exhaustion
2. Depersonalisation
3. Decrease in personal performance

MBI (Maslach Burnout Inventory), for its diagnosis with 22 items, is considered the gold standard that addresses three aspects of the syndrome (Maslach et al. 1981):

1. The exhaustion domain with 9 items.
2. Depersonalisation domain with 5 items.
3. Self-realisation with 8 items.

In this context, a score of 27 for emotional exhaustion, 10 points for depersonalisation and 33 or less for self-fulfilment are considered indicative of burnout. Multivariate analysis in cross-sectional studies has reported an independent relationship between burnout for each additional

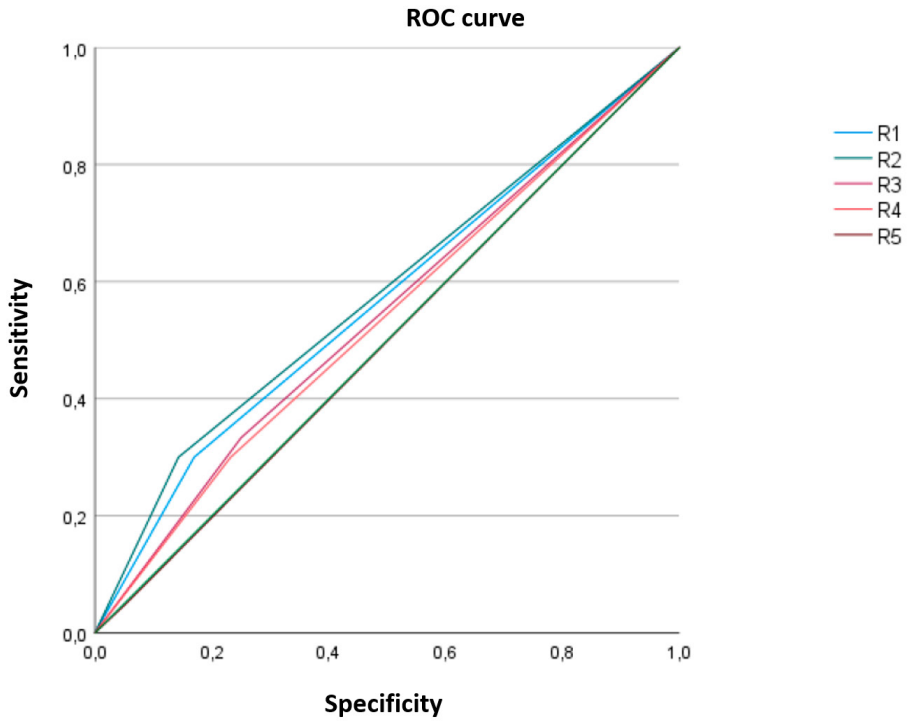

Figure 1. Area graph under the curve of variables of interest and depersonalisation (Lopez et al. in prep)

Variables	AUR	p-value	95% CI Lower Limit	Upper Limit
R1	0,565	0,159	0,473	0,657
R2	0,579	0,090	0,487	0,671
R3	0,542	0,368	0,450	0,633
R4	0,534	0,464	0,442	0,625
R5	0,498	0,969	0,408	0,589

Table 3. Analysis of area under the curve of variables of interest and depersonalisation (Lopez et al. in prep.)

hour per week at 3% and 3 to 9% for each additional evening or weekend per week, with a more than two-fold increase when work-home conflicts are present (Maslach et al. 1996).

"The medical specialty trainee is NOT trained on the ward... he/she is trained in a classroom! A trainee doctor with a learning method based on experience and not on a scientific basis could be a danger at the stage where the decision-making is his/her own".

Manifestations of Burnout in Hospital Staff

Burnout in health professionals has serious consequences at both the individual and organisational levels. Hospital workers reported physical exhaustion, depersonalisation and a decreased sense of personal achievement. These symptoms are characteristic of burnout and affect their daily performance (Shanafelt et al. 2009).

Burnout decreases the quality of care, increasing the risk of medical errors and reducing patient satisfaction. It also increases staff turnover rates, which generates additional costs for the institution. Factors such as work overload, lack of resources and long working hours also contribute significantly to the development of this syndrome (Ungur et al. 2024).

"A disturbing fact... In Mexico, the working hours of a medical student in a speciality exceed 36 hours in the hospital. This behaviour is normalised by academic and administrative staff or even by students with higher academic degrees".

Data from Hospital Centre in South-Eastern Mexico

In the Mexican population, from a social point of view, during medical training, expressions such as 'you never stop studying' and 'you have to prepare yourself a lot' are common from the family nucleus. Everyone expresses the satisfaction of having a doctor, but the question is what happens in the life of an adolescent who reaches adulthood with condoned responsibilities by expressing his or her desire to be a 'doctor' from a very young age (Lopez et al. in prep).

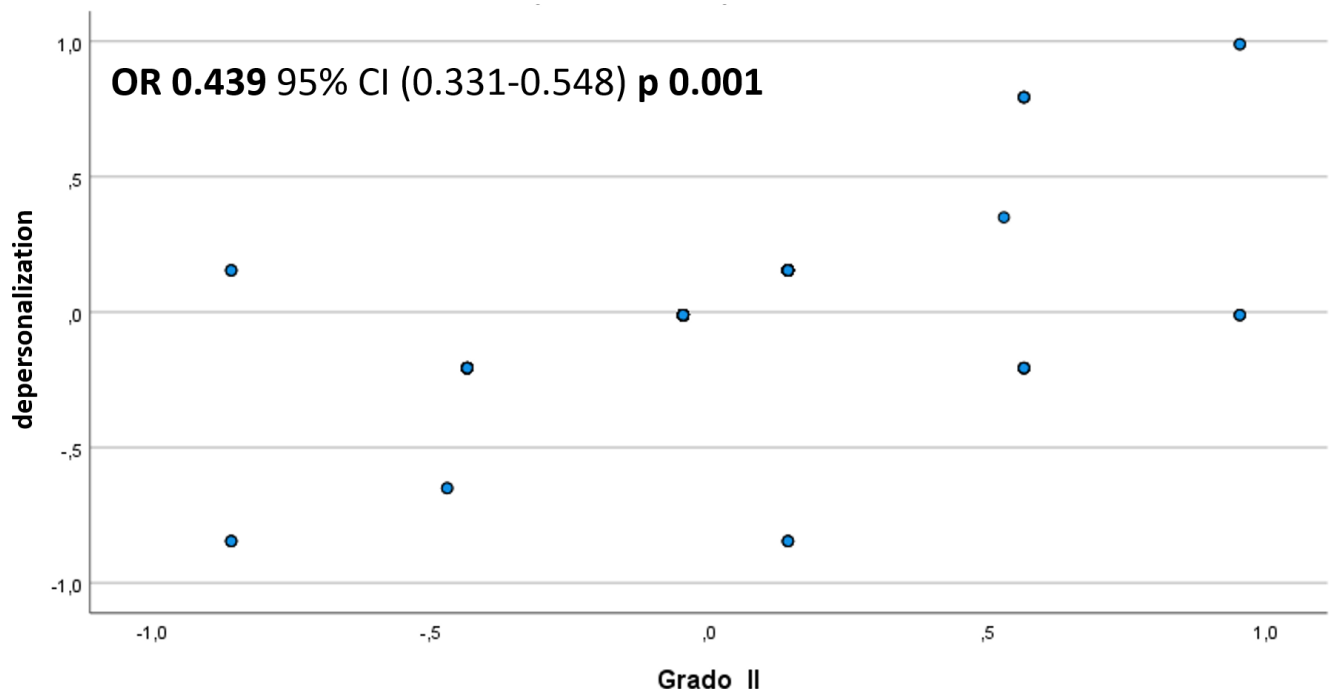

Figure 2. Partial regression grade II and depersonalisation (Lopez et al. in prep)

Figure 3. Violence meter of scientific evidence based on data

A population-based cohort study was conducted to obtain the population characteristics of the variables of interest, where 58% were male and 40.7% female; a survey was conducted among residents of medical specialties, where the highest percentage was in the area of internal medicine, with 18.6%, followed by general surgery and traumatology and orthopaedics with 14.5%, and the lowest percentage by the ophthalmology service with 4.1%. The collection instrument used obtained scores in relation to the characteristics of burnout syndrome; for burnout, a total of 68 residents out of 172 respondents, representing 39.5% of the hospital's resident population; personal accomplishment, a total of 60 residents out of 172 respondents, representing 34.9%; depersonalisation 46 residents out of 172 respondents, representing 26.7%. The characteristics of burnout syndrome in different degrees of severity were explored, and the following data were obtained: degree I 48 residents (27.2%), degree II 55 residents (32%), degree III 69 residents (40.1%) (Lopez et al. in prep).

Discussion

The study conducted in this hospital in Southeastern Mexico reveals a close relationship between competency assessment practices, job mistreatment and burnout. Although appraisals serve a valuable purpose, their inadequate implementation can have adverse effects on employees' mental health. Moreover, workplace mistreatment intensifies these effects, perpetuating a cycle of stress and emotional burnout. It is crucial that healthcare institutions adopt a holistic approach that considers both individual well-being and the creation of a healthy work environment (Shanafelt et al. 2016).

Low et al. (2019), in a systematic review and meta-analysis with a total of 22,778 physicians in training, demonstrated a high prevalence of burnout syndrome in medical and surgical residents, with a prevalence of 51% (95% CI, 45-57%, I2 =97%) in 22778 residents, as measured by the Maslach tool. Among the specialties with the highest prevalence, radiology (l77.16%, 95% CI: 5.99-99.45), neurology (71.93%, 95% CI: 33.09-15.58), and general surgery (58.39%, 95% CI: 32.69-44.37) were the most affected specialties, while psychiatry, oncology and family medicine were the least affected.

Vargas et al. (2023) conducted a systematic review, according to the PRISMA criteria, identifying how work overload, assigned work shift, and the hospital area are relevant factors for the development of burnout syndrome, including 1506 patients with nursing occupations, and correlating burnout syndrome with low work commitment, showing a correlation of 0.46 (95% CI 0.58-0.31).

Ishak et al. (2013) document in a systematic review with meta-analysis with trials described from 1974 to 2011 where burnout syndrome was found to be related to a negative major experience OR 2.594, students rotating on hospital wards and those on night duty were also found to have an increased risk of burnout OR 1.69

and OR 1.48 respectively, no significant frequency was observed with number of duty shifts, number of patients or hospital admissions. A strong relationship was observed between the severity of burnout syndrome and suicidal ideation OR 3.46.

It is important to promote support networks, seek professional support to create and develop a personal strategy to find or maintain meaning in work and training, engage in recreational activities, hobbies, sports and exercise to avoid a delayed gratification mentality (survival mindset), ensure adequate sleep, and maintain personal health and positive reframing (Van der Heijden et al. 2008).

Strategies of Approach

1. Personal adaptation process
2. Balance in vital areas: family, friends, hobbies, rest, work
3. A good working atmosphere with team vision
4. Limiting work schedule
5. Continuous training within the working day

Medical training programmes today need to introduce the concept and curriculum of self-care, well-being and resilience, as well as mindfulness, work-life balance, dealing with suffering and medical errors, debt management, and positive reframing strategies are useful in primary prevention. It goes without saying that there is a need for a curriculum that includes as a priority the strategies of study, understanding and accompaniment of colleagues in difficulty in order to be empathetic and to project the physician as a health professional, avoiding the accusatory attitude of 'that's your problem' as well as bullying and discrimination as social stigmas that would limit training opportunities (West et al. 2006).

Conclusion

Competence assessment and job abuse are key factors in the development of burnout in hospital settings. Combating this problem requires a coordinated effort that includes improvements in assessment practices, the eradication of mistreatment and the establishment of support programmes for staff. This is the only way to ensure a healthier work environment and higher-quality care for patients.

Conflict of Interest

None.

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The Way to Wellness - Lessons Learned From Illness

Exploring the hard lessons of ICU burnout and wellness through an ICU physician's personal health journey, lessons that can help all who work within ICU, those who struggle with the spectre of future burnout, who are nearing this state for any reasons or who are trapped in feelings of depression, anxiety, stress and despair.

The way up and the way down are the same way – Heraclitus Fragment 103 (D60)

Out of suffering have emerged the strongest souls, the most massive characters are seared with scars – Khalil Gibran

I still have flashbacks. *"Laura, of course you know there are red flags"*, from my brilliant and kind family physician, followed by his attempt to reassure *"Try not to worry, I have never diagnosed one yet"*. Transforming from a staff intensivist at the end of morning rounds, to a woman downing glass after glass of water, to a patient (though in hospital scrubs) walking very lonely, long, busy hallways filled with people to our imaging department, being stared at as I waited for the incredibly invasive transvaginal ultrasound, the face of the ultrasound technologist as she paused when imaging my right ovary, to her *"I'll be right back, please hold the probe right here"*, waiting -invaded- in the quiet darkness of the exam room, followed by *"The radiologist will be right here to speak with you"*..... and my own thought as I laid on the stretcher *"Funny, I never thought my story would end like this…"*

There are other moments, too, perhaps even more surreal. Those that arose from being on call in the ICU and yet are navigating a new reality. I remember forcing myself to stay awake to make my midnight MRI appointment after being awake 36 hrs straight trying to save a life. I remember trying to provide some comfort during the desolation of another woman dying of metastatic breast cancer, crying at the news of its return, at the knowledge that she would only be a name to her infant grandchildren, a name without a persona, left me raw and cut sharp as a knife.

The first opinion was that the MRI suggested a benign lesion and not to worry… followed by the call 24 hours later: *"Laura……on review …there are significant atypical features"*.

These are some of the moments I still can't leave behind. The memories that flash into my mind, unbidden and unexpected. Of course, as an ICU physician, I know how fast a serious and life-threatening illness can arise. I know all too well how lives can be forever altered or even come to a very abrupt and unexpected end. I know such illnesses play no favourites. I just never thought my story would include such an illness. Having a strong family history of cognitive decline and dementia, when I thought of my own eventual demise, I have always been worried about a long chronic illness that robs me of those I love and of who I am. The start of 2024 brought me face to face with the possibility that my life would be irrevocably changed and very abruptly shortened by ovarian cancer.

My goal is not to talk about all my experiences as a patient- some aspects of care went very well, others really not. Perhaps I will share more at some other time. What I want to focus on sharing now lies elsewhere. In the ICU, we live with the risk of burnout every day and the concept of wellness - as both prevention and cure. Burnout rates of over 40-50% have been reported after the COVID-19 pandemic among intensivists and ICU nurses (Macaron et al. 2023; Papazian et al. 2023) and 79% among respiratory therapists (Miller et al. 2022). A lot of research and literature (Klick et al. 2023; Kok et al. 2023; Leclercq and Hansez 2024; Miller et al. 2022) exists detailing root causes of burnout (exhaustion, workload, end-of-life care, moral distress, administrative burdens, ineffective leadership etc.) and describes wellness interventions that may or may not be helpful, or even achievable (Klick et al. 2023; Leclercq and Hansez 2024; Sterckx et al. 2021). The wellness industry talks a lot about how it can help us, reframe us, recover us, and have us attain its seeming holy grail of resilience. Like many, in some studies up to 75% of us (Klick et al.2023), I have never found a lot of this useful – most of it being common sense yet often difficult to consistently achieve in the ICU setting. The risk of too many wellness programmes is giving rise to feelings that its participants, unable to find time for them, faced with their impersonalised recommendations that they don't find helpful, and/or unable to use the tools they propose, are now left feeling they are failing at wellness too.

My goal here is to explore what my own 2024 journey taught me about wellness and, perhaps, how these lessons can help all who work within ICU, who struggle with the spectre of future burnout, who are nearing this state for any reasons or, who are trapped in its feelings of depression, anxiety, stress and despair. Here are my thoughts on the fundamentals of being well.

Understand and accept that not everything is within your control

Those of us who work in ICU are or should be well aware of our control issues. From the moment we begin to care for someone with a life-threatening illness, we assume control over every aspect of their body

and often their mind. This control, as we all know, is achieved through sedation, ventilation, vasopressors, monitoring and frequent lab work. It is only when a person is fully under our control and responding to our attempts to stabilise their illness that we feel some degree of comfort, some degree of release from anxiety/stress, some ability to relax. Our control extends to insisting on and being assured of high-priority status for imaging, for OR or IR access if indicated. We are masters of calling every five minutes to see why the ICU bed is not available, why results, blood products and the like are not here, right now, and of managing any uncertainty with plans A through Z. Yet real life is not like this. Most people do not stand at their microwave and wonder why it takes so long for 30 seconds to count down. Sometimes, plans A, B, and C don't/can't exist.

As a person struggling with a potential life-altering, life-ending illness, I learned what it meant not to have control over when tests, appointments or surgery would be performed or when results would become available. I learned that I would have to adjust my own clinical practice and my personal life on short notice, that I would be required to take time off, time mandated by my surgeon, the extent of the operation, and the anticipated recovery. I would be required to make significant adjustments in my personal life responsibilities on short notice. This loss of control, frankly at a moment when I wanted to have such control more than anything, forced me to understand the real extent that control is a coping mechanism- for you can take the intensivist out of the ICU, it's a lot harder to take the ICU out of the intensivist. These were not easy lessons.

In the ICU, it is impossible to deny that there are moments when control and timeframes, plans and alternatives are of utmost importance. Yet, these moments are not as prevalent as some of us perceive. To work as though they are, creates some of our excessive workload, stress, and anxiety and is frankly exhausting. Moreover, even in the ICU, there are many things and events that we can't control. There are uncertainties and periods of waiting that can seem interminable. We develop plans and contingency plans while waiting for results to become clearer. Devising plans to clarify uncertainties is another way of trying to control them. Yet, if we reach the point of trying to control the uncontrollable, it does not change its nature; it only adds to the stress, anxiety, and feelings of being overwhelmed. Understanding the difference between issues that do require control and those that don't, understanding that you may not be able to control issues that should or would ideally be controllable, understanding that though we do not like it, uncertainties are part of life, understanding when and how to let go, are among some of the crucial steps to preventing burnout and staying well.

While trust is earned, to be well is to be reasonable

In clinical practice, the ICU team often plays the role of rescuer - from life-threatening illnesses, terrible adverse events, and iatrogenic harms. Seeing what can and what does go wrong may make it hard to trust anyone except oneself. Excessive work in the ICU comes from constantly checking everyone else's work, their assessments and their follow-up on clinical states, responses to treatment or success of resuscitation, no matter the hour of day or night. Again, this hypervigilance can contribute to excessive workload, exhaustion, stress, anxiety and then to burnout.

There is no denying trust is earned. That trust can be bruised and lost. One of the poorly handled events in my journey was when I was informed in the preadmit clinic that my surgery was booked for five hours and that I may require admission when I had been given the impression that it would take only a couple of hours and it would be day surgery. It is hard for me to describe the impact of this statement from the anaesthetist even now. Raw fear – and perhaps an irrational sense that I had been lied to, that the likelihood of malignancy, downplayed in my surgical consult, had been misrepresented. You see, the plan to operate was at my request. I was told I could, as an alternative, proceed with quarterly imaging follow-up. My surgeon thought this was a reasonable option as their thought was that it was still most likely benign, atypical features or not. I considered it. Yet, an intensivist to the core, I knew myself well enough to know I could not function with the ongoing anxiety and fear of only knowing every three months whether the mass, already sizable, was growing. I could not cope with the what-ifs. Surgical resection and getting it out was really the only way forward. When I called the surgeon's office to ask about this scheduled five hour OR, I was told by their administrator, "Well, it *is* surgery. *Anything* can happen".

As an intensivist and a poet, I don't have the words, metaphors, or allegories to describe the emotional state this plummeted me into. Know that this was not the first major surgery I had undergone in my life either. I could have walked away from the OR plan. I didn't, though. Was my trust bruised? Yes, it was. Had I set an unreasonable standard for my trust to be earned? Perhaps I had. After all, it was not the surgeon who said those words. Even if it had been, people make mistakes in what they communicate and how they communicate. Such mistakes are generally fixable through open and sometimes mediated communication, which is ultimately what happened. An intensivist who only trusts when nothing goes wrong, when miscommunications/misinformation events are non-existent, who has some distorted sense of professional self that means only you are infallible or only you have the superhero/superhuman powers to catch every single mistake is unreasonable and frankly egotistical.

To be well, ask yourself instead: What do I need to be able to trust in others? Am I being reasonable? Am I struggling with Obsessive Compulsive ICU Disorder (OCID)? When my trust is bruised and broken, because it will be, what do we need to move forward? To be well? To not burnout because of a false sense of need for

hypervigilance? Answers will vary - this is certain. But the understanding should not. To be able to live in wellness is to have the ability to trust.

Never let people, challenges or circumstances rob you of who you are

Those of you who know me well know that I have never outwardly let others define me. What you don't see, unless you are very close to me indeed, is the second-guessing, the self-doubt of whether what I have been projected to be has any merit. All of us have probably experienced this to some degree in either our personal or professional lives or both. And, if it's not others that risk defining us, as healthcare workers, we have also witnessed how some people cope with illnesses by letting their illnesses define them and how some conversely refuse to accept any limits unless they have defined these themselves through trial and error.

What my journey taught me, though, was how incredibly easy it is for your sense of self to come under threat at a time when you need it to help you cope—which is really what the concept of wellness is fundamentally all about. From the moment I engaged with the healthcare system, I was called Ms. I have not been Ms since I was 22 years old. Astonishingly, two inoffensive little letters were all it took in my state of vulnerability to make me feel robbed of my self-identity. Silly, isn't it? Perhaps, in some fairness, it was also the assumptions that went along with the Ms when information was being disclosed, risks and processes discussed. Perhaps it was the echoes of past assumptions that I was a nurse and not a physician because of my gender. And even though I corrected the Ms and explained I was a physician, part of me felt quite profoundly that if they saw me as a person, I shouldn't have had to do so, because they would have gotten it right from the beginning, if only out of a common shared understanding of how much being a healthcare worker - physician or otherwise - comes to define who we are. Through my previous major surgeries, I can share that knowing who you are through life's challenges is a very real shield against the depths of vulnerability. And being called Ms kept happening, over and over and over with every encounter, though many of these people *knew* who I was professionally.

Being a healthcare worker is not unique in terms of how a career, a role, or responsibilities have become integral to one's self-identity. Nor do I believe it is tenable to claim the loss of the understanding of self-identity in the face of illness is felt more deeply by healthcare workers. As we all know, identity can also be tied to performance, workload, how crises are handled and addressed, self-perception of coping abilities, research outputs and publications, relationships, our perceived resilience, etc. Some of these anchors may be appropriate; others may not. Adjustments may be required to be, stay, and regain wellness. The point is to take a moment to consider and understand your self-identity, what matters and why and what it means with respect to your wellness:

- Who are you? How do you define yourself and why?
- What events/issues/moments lived do you find difficult, rough, or challenging?
- What and when might you anticipate needing help?
- What kind of help (how would help) would be meaningful for you?
- Who would you be able to ask and accept help from?
- What characteristics of people would make asking for help easier for you?

Understand that "sometimes people leave you halfway through the woods, yet no one is alone"

It has been said that not everyone who enters your life comes to stay. Some people play their part then exit; stage left. Sometimes, this happens when you need them the most. Sometimes, it's the who that surprises. Sometimes, it's in the "others [who] will deceive you" (Sondheim 1986) in their offers of help/support, followed by their ghostly transformations when you are lost in the woods. Yet, Sondheim (1986) is also right in his lyrics: "Someone is on your side, no one is alone". In my case, this happened when I shared with some what I was facing, what I needed to arrange with respect to my practice, what accommodations I needed professionally, and what I needed to get through. Some didn't help even though they knew I needed urgent surgery if nothing else. Some offered care packages. I was asked to give my address so these could be sent. But I was not asked if any of these were what I needed, and there was a distinct sense that once the package was sent, they had fulfilled their duty in our relationship. Very few people asked what would help; very few people consistently reached out to ask how I was doing; most simply wanted to buy me stuff they wanted to send me. It became very clear, very quickly, that in a world in which the number of "likes" and "friends" matter, quality over quantity is important.

I needed to have someone to listen to my fears, anxieties, and stressors; in other words, someone to help me breathe, live one moment at a time and walk with me through the woods. Someone who understood that I didn't want/could not handle every single topic of conversation being about me and how I was coping. I didn't need help with food, didn't need chocolates, wine or meaningless platitudes of *"it will be OK"*. I didn't need people to *do*. I needed people to *be*. For many of you, this will not be surprising: a lot of criticism of physicians has centred on the tension between our actions and our presence. Actions are often easier than bearing witness, and, in fairness, we are taught to show we care by what we do, not by our simple presence. Yet I can attest to the fundamental truth that being present for someone who is struggling conveys a much deeper level of empathy and caring than doing, especially if the actions are done simply by rote.

The question is how do you, as the one in need of succour, handle these moments of action over presence when they reveal

themselves as unhelpful? What if you feel you are struggling with any illness, with sadness, stress, flat-out burnout, and people turn away? Or seem to judge you as being weak or unfit to work in the ICU? It is so very easy to be bitter and resentful, to feel they are right in their assessments, that you are no good, useless to anyone. Yet such reactions are simply not true and only contribute to being unwell. It is better to accept people for who they show themselves to be and to understand what such responses tell you about how they are able to cope with such life events than see it as a reflection of how much they care about you or than see it as they don't want to be there for you. While some people may not, most will simply be processing what is happening in their own way and in their own time. Many may even be wrestling with the anxiety that something similar could happen to them. In other words, their reaction may not be about you at all. To dwell on their reactions/responses and/or to misunderstand them is to add to being unwell.

My frozen section revealed it was consistent with a rare tumour. It took thirty days for me to be told whether it was benign or malignant- of course, I researched what malignant would mean, and the results of my quest were frankly terrifying. The disequilibrium, sheer stress and anxiety of not knowing if I would live or die, of being unaware of what was my reality, were psychologically hell to navigate through. When I later found out this period could have been avoided and that the results had been available, though invisible to me through my patient portal, I can't deny there *was* anger. There was *anger*. In time, I came to understand the importance of letting go and, in the words of the poet Derek Mahon's "Everything is Going to be All Right" : *"There is no need to go into all that. The lines flow from the hand unbidden and the hidden source is the watchful heart…. I lie in a riot of sunlight watching the day break and the clouds flying"* (Mahon 2016).

In the end, my tumour was rare and benign, with another found on the contralateral ovary. For many in my life, including many on my healthcare team, the reaction was, *"Well, that's great news- thank God that's over!"* Then they moved on as though nothing had happened. Yet, it was far from over for me. I had a wound infection to deal with for many more months. Even worse, and what I came to understand, due to my unpredictable and, at the time, incomprehensible floods of tears when telling others of my experience, was that psychologically, I was far from OK. I am forever grateful for those who didn't leave even though they had their own challenges to get through and to those who entered when it was hard to see the light and with whom together, we all made "no one is alone" a living truth.

The lesson here is that wellness is not achieved by wishing it so. It is not something that returns after a traumatic experience, repetitive challenging moments lived, or tragedies survived, with the speed of the acute event itself. Achieving wellness takes time. It takes overcoming unpredictable, startling and bewildering symptoms of post-traumatic stress that arise uninvited and unwelcome, often just when you think you are fine. Getting and being well is a personal experience, a reflection, a journey and hard work that no one can do for you. Any approach to wellness, similar to that of any treatment, of healthcare itself, must be personalised. It takes grace, empathy, and honesty with yourself and others to understand what helps, what relaxes and renews, what doesn't, and where you are at. Though they can add to the exhaustion, stress and burnout, others can't make you well- ultimately, wellness comes from inside, not out.

Wellness can be regained and maintained despite, and perhaps because, of the scars left behind

Many proponents of healthcare worker wellness suggest useful strategies such as reducing stress and workload, journaling, getting sleep, eating regularly, paying attention to work-life balance, telling people what you need, and urging organisations, e.g. hospitals, to take responsibility for their staff's well-being (Klick et al. 2023; Leclercq and Hansez 2024; Sterckx et al.2021). Some, including I, have referenced Maslow's hierarchy of needs to build organisational understanding (Hawryluck and Styra 2021). While various combinations of these suggestions are potentially helpful, after being through this past year, I think the first step is understanding the way down, in other words, what is causing your stress, anxiety, depression, and unwellness. Make as fulsome, honest, and comprehensive a list as you can with whatever insights you have of what is contributing to and driving you to feel mentally and physically unwell and burnt out.

To start the way back up, be clear that any plan starts with you. While it may include telling people what you need, people often do not really hear, nor do they really listen. Again, there may be empty promises; they may deceive or, worse, judge you (one would hope not, and yet…), or they may leave you partway through the woods. Instead, focus initially on understanding what you can do and what makes you feel happy and fulfilled. Start and grow from there. The most important lesson I have learned through all of this is to take time to think through where I want to go from here, what I want to accomplish in my life, who I want in it, why I need to let go of the rest and how to take the first steps to make these core goals a reality.

Medicine is described as both an art and a science. Many ascribe the art to being only the application of science, but I have always believed it's a whole lot more. Art derives from the Latin word *Ars* which means skill or craft and is grounded in concepts of human creativity. As intensivists, we are humans, and as such, we all begin as artists in our own right, who have been transformed into professionals by the science we have and continue to study, learn and apply. Research into burnout has revealed that some of the ways in which we live in our science end with us wrestling with distress, the *"burnt out ends of smoky days, the grimy scraps of withered leaves about [our] feet"* (Eliot

1911). To me, the fundamental issue is that we have lost our own personal art, *"the music that is felt so deeply that it is not heard at all but [we] are the music"* (Eliot 1941)— in other words, we have lost *the music of being human* and the understanding of how much this matters. The way forward is, therefore, very much the way back.

We all have scars, ones that are perhaps now fading fast yet still visible, the ones that can only be seen by a few. As I trace my own and carefully probe how they are healing (now without the floods of tears), the immortal words of T.S. Eliot (1942) come to mind:

What we call the beginning is often the end

And to make an end is to make a beginning

…..

Every phrase and every sentence is an end and a beginning,

Every poem is an epitaph.

Conflict of Interest

None.

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Through the Lens: Three Physicians Find Balance and Friendship Through Photography

In the demanding field of medicine, where precision and quick thinking are crucial, photography provides a creative outlet to slow down and appreciate the world from a different perspective. This article explores photography as a hobby for physicians and researchers through a Q&A with three co-authors, highlighting its benefits and personal experiences.

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In the fast-paced world of medicine, where precision and problem-solving rule, finding a creative escape isn't just refreshing—it's essential. Photography offers a rare chance to slow down, see the world differently, and capture moments that might otherwise slip by. Whether it's the glow of a sunset, the fleeting motion of a bird, or the quiet beauty of everyday life, photography fuels mindfulness, creativity, and curiosity. As physicians who share this passion, we explore how this art form not only balances our demanding careers but also enriches our lives. One of the first documented physician photographers is Dr John Murray. He excelled as a photographer and was trained as a physician in the mid-nineteenth century. He developed an interest in that technology while in the Medical Service of the Army of the East India Company. Another modern example is Dr Jeff Gusky, a National Geographic Photographer, ER doctor at the University of Wisconsin, Explorer, and professional speaker (https://jeffgusky.com).

In this article, we cover some of our thoughts on discussing photography as a hobby for physicians and researchers in the format of Q&A for three co-authors.

Why did photography appeal to you?

Vitaly Herasevich: Photography is unique because, while the tools might be the same, the results are always different. Let me explain. Many hobbies focus on mastery as the ultimate goal. You are an avid glider pilot. You are an excellent racing driver. It repeats again and again. Photography is different. You have to master your technical skills; the real challenge lies in capturing subjects and moments that are never the same. Every photograph presents a fresh, new experience, making it an endlessly creative pursuit. It is always new.

Daniel Diedrich: Physicians have spent their career reading, memorising facts, interpreting data, and being tested on their knowledge both in school and in practice. Photography allows for this technical side to continue through understanding how light affects an image and the post-process process, which continues to evolve rapidly. Photography also allows for the expression of the creative side, which can be a natural talent or something that takes work – another hill to climb! This blending of the creative and technical side of photography is what is attractive to me and other physicians and is likely why I see at least one physician on nearly every photography tour/workshop that I attend.

Brian Pickering: I grew up around art. My parents are both very creative and I spent a lot of time around artists and their art. Unsurprisingly, some of that has stuck with me. I am not a very good painter, but I am drawn to colour, light and movement. The camera was a good outlet for me in that sphere of life. In college, a friend of mine studying photography loaned me an old beat-up camera, which I took on a trip around Indonesia with my then-girlfriend and now wife of over 25 years. What I loved about that experience was the way in which the camera forced us to slow down, pay attention, and be in the moment. I will always treasure those grainy black-and-white photos taken with poor lenses for both the introduction they gave me to photography as an art form and for the way they put me in the moment.

When did you develop an interest in photography?

VH: I can say that before I started thinking about a medical career. At that time, my father introduced me to photography (darkroom/film). It was the 1980s, and by any means, photography was not a mass product. Another bump was in the 1990s with the mass market of one-use colour cameras and minilabs that dropped the darkroom experience. But at that time, I was preoccupied with medical school classes and did not have much time for hobbies.

DD: In high school in the 1980s, we had no one to take pictures of the sporting events for our high school yearbook. So,

Image 1. Ojibwe Forests Rally. Sony7III, Sony 70-200F4, 70mm, F4, 1/2000s, ISO 500

in 8th grade, I dug out the school camera. It was quite old and manually driven at that time. Since there was no one to guide me, it took quite a bit of effort to learn how to operate; this didn't include the film processing and printing that also had to be learned! This interest and effort in something so different likely provided a foundation for the work needed to get into medical school.

BP: I was first exposed (excuse the pun) to photography as a child through instant Kodak film and later through my father, who was a keen amateur photographer. I didn't take my first photos until I was in college. Initially, I used a camera borrowed from a friend, and later, I bought one with money earned during my internship. It was around this time that I started travelling. Photography and travel went hand in hand for me for a number of years. Then, in 2000, the first of our children was born. Like many, this time in life was……busy! A hiatus in photography was looming!

Image 2: Grand Marais Harbor in Minnesota. Canon 5DS R, EF 100-400mm f4.5-5.6, 176mm, F22, 1.6s, ISO 100

Many of us have witnessed the switch from film to digital, what memory do you have of this?

VH: I clearly remember that in 2002 in Belarus, I got a call from my friend who owned a computer parts company. They had received a couple of Hewlett-Packard digital cameras that were pretty much affordable. In 10 minutes, I was on my way to his office. It was a beautiful-as-a-brick HP Photosmart C215 1.3 Megapixel camera. That was my introduction to personal digital photography. It was clearly the future of photography, as you can see the result immediately, not waiting to develop film.

DD: After learning the basics in high school, I went on to be a photographer for the Dakota Student at the University of North Dakota. I reached out to the photographers at the Grand Forks Herald, which was owned by a news conglomerate, Knight Ridder, at that time. I frequently stood next to them at events, asking many questions about the technical and creative aspects of photography. Eventually, I became a known entity, which landed me some freelancing work and eventually on staff in the gap year between college and medical school. At this time, Knight Ridder had selected the Grand Forks Herald to test the Canon DCS-1. It was a HUGE device and combined a Canon EOS 1-N camera and a modified Kodak DCS 460 digital back. It had a resolution of 6.2 megapixels and, with its 1:3 crop factor, required some taping off the mirror. Also, with the new camera bodies came a fleet of long white fast primes, and overall, it was an exciting time to be a news and sports photographer!

BP: Film cameras in the 2000's were fantastic pieces of technology. It is fair to say that digital cameras were not in the same class for "serious" photography. They were low resolution, expensive and didn't feel nice in the hand! The magic of digital lay in the control it gave you over the whole process of photography –capture, printing, sharing.

Image 3: Sunset, Goa, India. Minolta Film Camera (model, lens and settings a distant memory). Fuji film Velvia transparency, converted to digital, Nikon Z8, Z MC 105, f11, 1/25 sec, ISO 450

Image 4. Upper Antelope Canyon, Arizona. Sony7IV, Sony 14mm f1.8, 14mm, F6.3, 1/80s, ISO 320

During my anaesthesiology residency, I had a temporary darkroom set up in our house. Developing film and printing was an event with that setup. Getting an image into a slide show was an ordeal. Sharing a photo with someone meant giving up one of the few copies you had. Almost every photo I took before digital I have seen in a size no greater than 5X7. In contrast, my first digital cameras allowed me to take, process and share images without limits! Digital cameras opened up new creative and technical possibilities. Since then, every process step in the photographic process has been transformed (mostly for the better) by technology. The technology allowed me to practice photography at a level I couldn't possibly achieve when I first started. This experience has impacted my clinical informatics work and research. When you look at the three of us, you will see that we each bring something unique to the table. The brand of the camera does not determine how we view the world. We are at a much earlier stage of revolution in medicine, but I have no doubt that we will quickly come to the same realisation that technology can enable us to practice medicine at the top of our game, but it becomes expensive junk if not wielded thoughtfully by the user.

What type of photography do you do?

VH: Unlike professional photographers who specialise in specifics like weddings, food, real estate, and, for example, portraits, I do everything except commercial-type photography. I'm trying to do nature, birds, landscapes, astrophotography, street photography, car and snowmobile races, airplanes and many more in between. Everything that keeps me outside. Yes, that is a very wide spectrum, but the more you master, the better.

DD: I enjoy a wide variety of the various genres that photography can offer. I started out doing sports photography and added news photography. I continue to do sports photography for a local high school that my kids happen to attend. I also like to photograph animals, including birds, and take landscape photographs. As my ability and interest to scramble over rocks and

Image 5: Whitewater State Park in Minnesota. Canon 5DS R, EF 100-400mm f4.5-5.6, 142mm, F11, 1/500s, ISO 100

hills becomes more difficult, I suspect I will take up macro and astrophotography. At some point, I will age to the point where I will be reliving my photography adventures again by re-processing my photos. I think this is the beauty of photography as a hobby, as it can age with you!

BP: I don't restrict myself to one type of photography. There are no boring subjects. Having said that, those are my favourites! While it isn't easy to take a great image of a beautiful subject – I've come away from plenty of beautiful subjects with very mundane images, it is a rare thing to take a great image of something ordinary. The good news is that ordinary subjects are more abundant than beautiful ones, leaving me plenty of opportunities to practice and learn.

Image 6. Swim, Miami; Nikon Z9, Z 24-70mm f2.8, 25mm, F10, 1/400s, ISO 140

Just as medicine encompasses a broad range of specialties, photography involves far more than simply pressing the shutter. What other aspects of the hobby do you enjoy doing?

VH: For me, working with photography is not only about taking photos but also dealing with all processes related to getting the "end product". Pretty much like in the past when we used a darkroom to develop prints, currently, we use a "digital darkroom." The learning process of developing raw images is part of the fun. Also, learning different techniques from "best practices" publications and YouTube videos is part of my hobby. Pretty much like medicine and research when you are learning something new. But obviously, my first choice is to go out and take as many pictures as I can.

DD: I really enjoy researching and planning the photography workshops and tours I go on each year. Lately, I've also been choosing a specific photography focus and then coordinating a tour with friends around that theme. There's something very rewarding about starting with a simple idea, bringing everyone together for the planning and travel, capturing the shots, processing them, and ultimately ending up with an image that's worthy of hanging on the wall.

BP: I love printing images – it tests commitment to the image.

What brand of camera do you use?

VH: I stick with Sony cameras. They are innovators who did the first mirrorless cameras. That all led to more compact equipment, including lenses. However, there is no compromise in quality.

DD: I started out with Canon and continue with this brand as I am quite comfortable with their products and navigating their menus. That said, all digital cameras on

Image 7. Mississippi River headwaters, Minnesota. Sony7III, Sony FE35mm F2.8 ZA, 35mm, F9.5, 1/125s, ISO 100

the market are excellent. One professional photographer that I had an opportunity to shoot with said, "…all of us have more cameras than we will ever need".

BP: Nikon

What is your most memorable photo, and why?

VH: Difficult question. Obviously, there are many stories behind a lot of photos. But it was probably one of the pictures when I photographed a rally. That was the first stage of the day, and Travis Pastrana was leading. His car was so fast that it approached a corner in an unusual silence. Everyone expected a car, so I started shooting a rapid sequence of photos. It is a very dynamic photo, and it was a close call for the photographers on the side of the road.

DD: I was on a family trip to Grand Marais on the North Shore in NE Minnesota. I had brought my landscape kit with me, hoping to get at least one photograph that I would be happy with. I had also brought my tripod, and unfortunately, it had gotten some sand in it, and thus, one of the legs was frozen; in my attempt to free it, I had split the leg nut, rendering it nearly useless. Thankfully, I had some gaffer tape with me and quickly did a field repair. Clearly off to a good start! The next morning, I walked down to the Grand Marais harbour with a promising but not seemingly spectacular sky. I got set up to shoot the morning sunrise with the rocky shore in the foreground and the lighthouse in the background. I got those shots and was contemplating leaving. Then suddenly, the sky lit up to something I had never witnessed before. I quickly recomposed and framed the lighthouse and coast guard house and made the sky the focal point of the picture. While the overall composition isn't great, this provides a great wallpaper.

Image 8: The tombolo on the North Shore Minnesota. Canon 5DS R, EF 16-35mm f 2.8, 18mm, F13, 30s, ISO 100

BP: I took this photo on a beach at sunset. My wife and I were travelling through India and Nepal after working for a year in rural Australia as physicians. At this point in time, we had evolved from a single beat-up borrowed camera to our own cameras, plural! During our travelling phase, before children, a camera was never far from our hands. I look back on this image and remember exactly what I was trying to achieve – sun low on the horizon, I wanted to expose for the highlights and let everything else fall into shadow. I had to wait nearly 3 months as we made our way back to Ireland before I developed the image and had a chance to see if it was successful!! This image reminds me of those early travel photography days. As a tool for capturing and sharing memories, a still camera is hard to beat.

What is one photo that you are most proud of?

VH: Another difficult question. Probably a photo from Antelope Canyon. This is one of the best natural wonders. I visited there a couple of times, and different times of the day make it different. True wonder of the American West. Any picture taken there is worth showing up.

DD: The hardest place to find photography subjects is locally. I was driving around the

Image 9. Beautiful Lamp post. Nikon Z8, Voigtlander 40mm, f1.2. 40mm, F1.2, 1/400s, ISO 5600

local countryside one fall morning, which had nicely provided some fog to set the mood. Unfortunately, I had not anticipated this the night before and thus had found nothing worthy to shoot. I elected to go into a valley ringed by hills, which would at least provide another chance of a "sunrise" as the sun peaked over the hills. I pulled into a small parking area, and the fog was moving in the valley, which provided some nice layering, but the distance was marred by a road, signage, and other manmade distractions. Suddenly, the sun peaked over the hill, and the scene suddenly came together, and the natural grass provided a complementary subject. I continue to remember this event as it pulled together all the technical and creative skills and, with some luck, took a decent photo.

BP: As I mentioned, I love printing my images when I can. My favourite images are those that tell a story and that I can visualise printed ahead of time. We were on spring break in a hotel that had this wonderful view overhead of the swimming pool. The pool transformed the light into a swirling planet of turquoise when the water was disturbed. I was determined to capture this effect. I went down to the lobby with my camera while some of my family went bobbing around over the opening. The effect was as I hoped. By exposing the highlights, I was able to capture this somewhat abstract image. It prints beautifully and can tell different stories depending on the viewer's perspective.

Minnesota is called the land of 10000 lakes. Are there a lot of opportunities to take pictures?

VH: Definitely! People tend to take more travel photos. But ultimately, photography is a way to slow down and enjoy the environment. Stop and preserve the moment. One of the interesting places to visit is the Mississippi River headwaters – the place where the river started. It is Lake Itasca, Minnesota State Park. Seeing that place is memorable. A small stream that you can cross going 4000km down becomes one of the biggest rivers in the world.

DD: As I mentioned above, the hardest place to find subjects is locally. That said, I am fortunate to live in a state that is diverse in ecosystems and provides countless opportunities. I think the north shore in the NE part of the state is what most people think of Minnesota, with its fall colours and breathtaking views of Lake Superior in the fall and winter. There are other areas in the state that can offer opportunities, including the driftless area and Mississippi River corridor in SE Minnesota; the plains of the NW corner of the state offer unique opportunities. Minnesota has diverse wildlife, including some world-renowned bird photography in the Sax Zim Bog.

BP: Minnesota is a beautiful state. In my opinion, the best seasons for landscape photography are fall and winter. There are some amazing opportunities for unique photos. I agree with my fellow photographers' comments that the hardest photos to "see" are those right in front of you every day. My choice of image is not a classic "land of 1000 lakes" image but one I took as I was putting out the garbage for collection the next day. The snow was coming down pretty fast, and the streetlamp across from me stoically illuminated a little patch of ground. I had just taken ownership of a new lens (one of the perils of this hobby is the temptation of gear acquisition syndrome or GAS), but conditions had not been good the previous few days since the lens had arrived, and I had very limited opportunities to test its characteristics. As the garage door opened, inspiration hit, and I quickly grabbed my camera and captured this image – garbage can and all.

What advice do you have for physicians who would like to start photography as a hobby?

VH: Today, it is so easy to snap photos. We have powerful cameras in smartphones. But photography is not about technology; it is about capturing moments. Be in the right place at the right time. I stop here as the video is another story.

DD: Photography is a great pastime for physicians. It offers an opportunity to exercise the creative part of one's mind, blend it with technology and, depending on the genre, provide a huge variety of subjects to choose from. This allows the physician to escape the mundane and pressure of work. As physicians, we are incredibly bright and have the drive and means to support what can be an expensive hobby. I would pick one type of photography (sports, landscape, bird, etc.) and then go all in! Take classes to upskill, purchase professional gear to support it, and take workshops/tours to go to places

that intrigue you. Sometimes, having the gear and knowledge- knowing you can take some amazing pictures when you set your mind to it- is just as satisfying.

BP: Slow down. Take lots of photos, but only share a few!

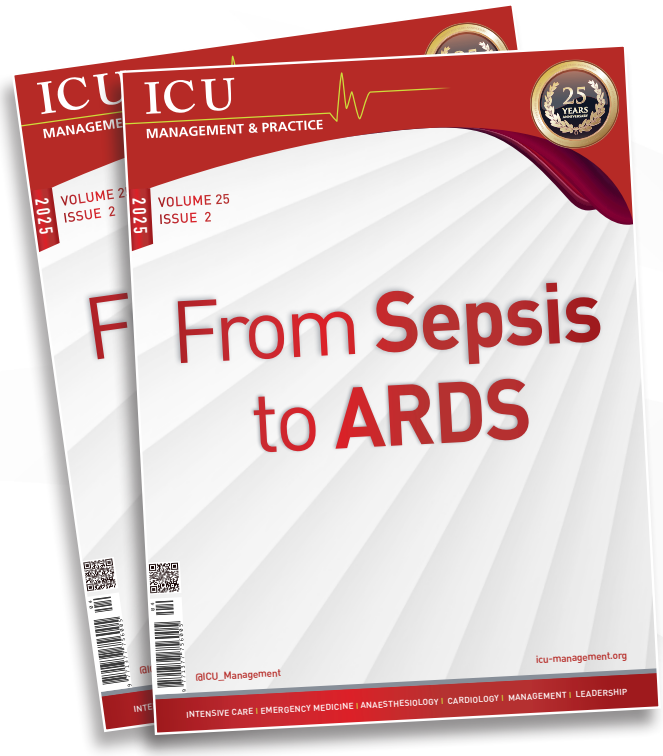
Conclusion

Just like medicine, photography is about observation, timing, and perspective. It's more than a hobby—it's a way to pause, appreciate the moment, and tell a story beyond the clinic walls. Photography offers an outlet for creativity and reflection. It is to be heartily recommended. For any physician looking to start, our advice is simple: be curious, experiment, enjoy the process and make new friends along the way.

Conflict of Interest

None.

WHAT'S NEXT?



COVER STORY: From Sepsis to ARDS

This issue will focus on two of the most life-threatening conditions encountered in the ICU. Sepsis and Acute Respiratory Distress Syndrome (ARDS) oft en present together and pose signifi cant challenges to critical care teams. Our contributors will explore pathophysiology, diagnosis, and management strategies and provide a comprehensive understanding of how these conditions are linked and their impact on patient outcomes.

FOR SUBMISSIONS CONTACT

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ICU
MANAGEMENT & PRACTICE

AGENDA

For a full listing of events visit https://iii.hm/icuevents2025

MARCH

18-21 44th ISICEM
Brussels, Belgium
https://iii.hm/1u82

APRIL

13-15 24th European Congress of Trauma and Emergency Surgery
Aachen, Germany
https://iii.hm/1u83

14-15 ESCMID Global 2025
Vienna, Austria
https://iii.hm/1u84

23-26 13th EuroELSO 2025
Milan, Italy
https://iii.hm/1u85

24-25 21st Annual Critical Care Symposium
Manchester, United Kingdom
https://iii.hm/1u86

24-25 14th Ultrasound in Acute Care
Manchester, United Kingdom
https://iii.hm/1u87

MAY

7-9 36° SMART – Smart Meeting Anesthesia Resuscitation inTensive Care
Milan, Italy
https://iii.hm/1u88

9-11 21st Emirates Critical Care Conference
Dubai, UAE
https://iii.hm/1u89

18-21 ATS 2025:American Thoracic SocietySan Francisco, California
https://iii.hm/1u8a

23-28 ICEM 2025
Montreal, Canada
https://iii.hm/1u8b

25-27 Euroanaesthesia 2025
Lisbon, Portugal
https://iii.hm/1u8c

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