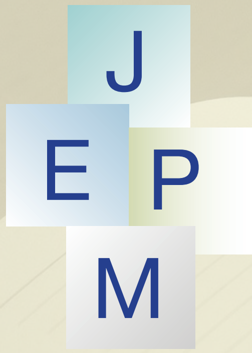

The Journal of Education in Perioperative Medicine

Original Research

Drivers of Well-Being and Burnout in Anesthesiology Residents

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Introduction

Physician burnout remains a current and well-established issue in the United States, with nearly 60% of practicing anesthesiologists and over 50% of anesthesiology residents self-reporting burnout.[1,2] The Accreditation Council for Graduate Medical Education has recognized the importance of physician well-being and revised its Common Program Requirements in 2017 to systematically address well-being.[3] Many residency programs have begun creating wellness programs to mitigate burnout and promote well-being.

To date, many residency wellness initiatives have fixated on individual well-being strategies rather than systems approaches to improve the learning environment.[4] This limited attention on the individual rather than systems improvements has limited our focus on enhancing the work and learning environment. Furthermore, interventions to increase individuals' resilience in the absence of systematic efforts to improve the work and learning environment can lead to resentment, resistance, and worsening burnout and precipitate a loss of trust in leadership and the organization.[5] Because burnout is an occupational phenomenon resulting from chronic workplace stress rather than a medical condition,[6] residency well-being efforts must address the clinical work environment to be successful.

The areas of worklife (AW) model provides a framework to expand our understanding of burnout and engagement within the organizational context.[7] This conceptual model can act as a foundation to design well-being strategies. The six components of worklife include (1) sustainable workload, (2) choice and flexibility, (3) culture of appreciation, (4) supportive work community, (5) respect and social equity and justice, and (6) meaningfulness within work. The degree of mismatch in each area between the individual and the job is predictive of burnout.[8] At our institution, we use the AW model to inform a systems approach to operationalize well-being called Quality of Life Improvement, which incorporates elements of quality improvement, human-centered design, and implementation science (Figure 1).[9] The National Academy of Medicine recommends human-centered design processes to address clinician burnout, with early stakeholder engagement being a crucial element because it can increase stakeholder buy-in and reduce harm from unintended errors and other negative consequences.[10]

The first phase of Quality of Life Improvement focuses on defining the problem and includes internal and external assessments of the well-being landscape. In our efforts to better identify the drivers and barriers to resident well-being, we have found a paucity of literature on how residents experience burnout during residency and how these may relate to factors outlined in the AW model. In this study, we describe the process used to engage anesthesiology residents, who are key stakeholders, by exploring how they perceive and define burnout and well-being to better inform well-being efforts and elicit strategies to improve the work and learning environments. We summarize drivers of anesthesiology resident well-being and burnout as well as strategies to support resident well-being.

Methods

We conducted semistructured peer interviews with second- and third-year clinical anesthesia (CA-2 and CA-3) residents at the University of California, San Francisco (UCSF), grounded in a constructivist world view with acknowledgement that multiple truths are created by individuals as interaction between people.[11] The UCSF institutional review board determined exempt status for this project.

Setting and Participants

The UCSF Anesthesiology residency program consists of 3 years of clinical anesthesiology training with a longitudinal resident well-being curriculum that consists of 2 hours of dedicated nonclinical time each month.[12] The anesthesia residency program has ~85 trainees (10 interns and ~25 residents per class during postgraduate years 2, 3, and 4). One hundred teaching faculty oversee their clinical training, and ~30 faculty participate in formal didactics. The trainees rotate through a

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quaternary care health system with ~900 total beds and affiliated tertiary care hospitals with ~400 total beds.

We used convenience sampling to recruit our participants. We invited all residents in the CA-2 and CA-3 classes to participate in the interviews via email. We then interviewed volunteers on a first-come first-served basis until sufficient conceptual depth and thematic saturation were reached. After the initial set of 4 interviews, the coding team met to review the transcripts, analytic memos, and coding to identify the emerging themes from the interviews. This process was conducted iteratively and continued throughout the data collection to ensure that we had reached thematic saturation (no new additional information was revealed). Of the 15 residents who expressed interest in participating, 10 were interviewed (4 CA-2 residents and 6 CA-3 residents, 4 male and 6 female).

Semistructured Interview Guide

An interview guide was developed based on a literature search on factors that affect the resident experience of well-being or burnout. This included an examination of topics covered in published wellness curricula at other residency programs as well as conceptual frameworks for optimizing physician and resident well-being.[13–16] The AW model also helped organize interview questions into 6 domains representing the resident learning environment.[17] Interview guide development was additionally assisted by pilot interviews as described below.

The final interview guide was composed of 30 questions (Table 1). Although questions did not deviate from the interview guide, interviewers had the option to ask additional clarifying questions at their discretion based on participant responses. Twelve questions explored residents' personal perspectives on well-being and burnout in residency, which informed themes related to residents' definitions of well-being. The other 18 questions were organized by AW and queried factors that may contribute positively or negatively to residents' experiences. The 18 questions explored the current state (eg, challenges) and suggestions for improvement within each AW. Individual interviews ranged between 30 and 60 minutes.

Data Collection Procedure

Two pilot interviews were completed to determine interview duration, improve clarity of prompts, and ensure alignment with research objectives. All interviews were conducted by the resident researchers (MT and JN) in person, over the phone, or virtually using Zoom software (Zoom Video Communications Inc, San Jose, CA) from June 2021 to March 2022. Audio recordings of the interviews were transcribed verbatim using the transcription service Rev.com (Rev.com Inc, San Francisco, CA). Interviews were conducted until sufficient conceptual depth and thematic sufficiency and saturation were achieved.[18]

Data Analysis

We analyzed interview transcripts using thematic analysis steps outlined by Braun and Clarke.[19] We chose this approach because it aligns with critical realist epistemology, which postulates that the social world is real but can be perceived subjectively and is driven by various mechanisms within specific contexts that produce outcomes and relationships. Three authors (CB, MT, and JN) used an iterative consensus-building approach to develop an initial coding template and, subsequently, a codebook with definitions. Transcripts were then coded independently by each author and reconciled. Dedoose analytic software (Socio Cultural Research Consultants LLC, Manhattan Beach, CA) was used to code transcripts. Using thematic analysis, we reviewed coded excerpts to identify cohesive themes.[19] These themes were refined through consensus, and representative quotes for each theme were chosen and compiled into Table 2.

Reflexivity

The first author (MT) was a CA-3 resident at the time of data collection and analysis and brings perspective as a male anesthesiology resident. The second author (JN) was a CA-2 resident at the time of data collection and analysis and brings a unique perspective as a female CA-2 resident. Both MT and JN received training in conducting and appraising qualitative research through a health professions education course and have had prior experiences conducting interviews in the health professions education setting. The third author (CB) is an education researcher and methodologist in qualitative and quantitative research. The fourth, fifth, and seventh authors (DC, JC, and JS) are anesthesiologists and well-being experts. Specifically, DC and JS developed and implemented the UCSF Anesthesiology residency well-being curriculum. Lastly, the sixth author (KS) is an anesthesiologist and program director for the UCSF Anesthesiology residency program. Throughout the coding process, the authors engaged in discussion to ensure that codes were supported by the data and were not imposed by authors' existing knowledge and experiences, which were then triangulated by reviewing the audio and transcripts by the coauthors (CB and JN).

Results

We interviewed 10 residents (4 CA-2 residents and 6 CA-3 residents). We organized the results into the following 3 major categories: (1) definition of well-being from a resident perspective, (2) challenges to well-being, and (3) strategies for coping with challenges and burnout.

Definition of Well-Being

Residents described their well-being around the following 3 concepts: (1) finding meaning in work, (2) working on resilience, and (3) having a sense of control over their time and schedule. These themes align with the Stanford Model of Professional Fulfillment, which identifies 3 domains that drive physician well-being: culture of wellness, personal resilience, and efficiency of practice.[20]

For many residents, well-being was often described as *finding enjoyment and meaning in work*, articulated as feeling fulfilled and excited by the work they are doing (Table 2).

Residents also mentioned *the importance of working on resilience* as part of well-being. Residents defined well-being as the ability to "deal with bad things or adverse things in a healthy way" and "[having] the mental and emotional reserve to respond to stressful situations without getting stressed" (Table 2).

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Lastly, our participants highlighted *the importance of having time for self-care and a sense of control over their schedule* as important aspects of well-being. This included having time to do other activities outside of work, feel well-rested, and connect with friends and family (Table 2).

Challenges to Well-Being

The challenges to well-being identified by our participants align with the 6 AWs.[7] We identified the following 4 challenges that directly align with the AW model: (1) work overload, (2) lack of control, (3) insufficient rewards (financial and social), and (4) breakdown of community. Furthermore, we found that the coronavirus disease 2019 (COVID-19) pandemic created additional threats in the areas of workload and community. Definitions and exemplary quotes are provided in Table 2.

Work overload. Residents noted that the combination of academic demands and service obligations can restrict their ability to perform self-care tasks. Additionally, residents shared that many work-related tasks are not accounted for by duty hours. Residents also reported having a high cognitive load when taking care of complex and high-acuity patients in high-pressure working environments, such as the operating room and the intensive care unit where anesthesia residents spend most of their time. Residents also expressed that the stress of dealing with high-stakes emergency situations and the emotional burden of witnessing negative outcomes were significant contributors to burnout.

Lack of control. Residents felt a lack of control over their clinical schedules given their status as residents.

Insufficient rewards. Residents voiced a perceived mismatch between effort put into patient care and financial or social reward (appreciation).

Breakdown of community. Residents shared that the sense of isolation during operating room cases and overall lack of social interaction and connection, especially during the COVID-19 pandemic, can lead to burnout due to a decreased sense of community and belonging.

The COVID-19 pandemic. Given that this study was conducted between 2021 and 2022, residents highlighted some of the major challenges brought on by the COVID-19 pandemic, including increased workload and limited opportunities to form interpersonal connections, representing additional threats in the areas of workload and community.

Strategies and Recommendations for Enhancing Well-Being

The following 4 themes were identified under strategies: (1) social support from peers and near-peers, (2) social support from mentors, (3) building resilience through professional identity formation, and (4) autonomy and affirmation. We have summarized these strategies with their corresponding AWs and specific examples in Table 3.

Participants iterated the importance of having a community of peers and near-peers for emotional support and a safe space to debrief and connect. Resident camaraderie and sense of belonging seem to be an important support strategy for facilitating well-being. One resident mentioned that well-being curriculum sessions where residents discussed their own difficult experiences helped build a sense of community and normalized their experiences (Table 2).

Positive relationships and mentorship from faculty also emerged as another critical component of social support. Participants mentioned the value of having mentors early on, and 1 resident elaborated on the advantages of both formalized and informal mentoring relationships (Table 2).

Our participants also recognized the importance of building resilience through professional identity formation. Residents shared that anesthesiology is a challenging profession but also acknowledged that growing and persevering through clinical challenges is an important part of their professional identity formation. Additionally, residents identified improving nontechnical skills around communication and conflict resolution as part of strategies to mitigate stress and burnout (Table 2).

Lastly, participants suggested that being entrusted to perform tasks independently and subsequently receiving positive feedback and reinforcement from faculty promoted a sense of autonomy and was an important strategy to mitigate burnout and self-doubt (Table 2).

Discussion

This study describes the first steps of a process to create systems-level changes to improve anesthesiology trainee well-being, with a focus on identifying drivers of resident well-being and burnout (ie, defining the problem). Future studies will focus on potential solutions by (1) applying the AW model to ideate a broad spectrum of solutions and (2) prioritizing solutions to determine which interventions provide the greatest benefit for the level of investment.

We found that anesthesiology residents defined well-being as a combination of individual (resilience) and systemic factors (meaning in work and sense of control over scheduling and time). Challenges to well-being aligned with the following 4 factors from the AW model:[7] workload, control, reward, and community, with the COVID-19 pandemic presenting additional threats to workload and community. Residents identified potential strategies to mitigate burnout, including social support, building resilience through professional identity formation, and positive feedback and affirmation.

Challenges described by anesthesiology residents align with existing conceptual frameworks that underscore elements of their work and learning environments as drivers of well-being.[15,16] Our findings add to these frameworks and the AW model by highlighting cognitive task load (complex patients and a high-pressure environment) as a major element of workload and by accentuating the effects of national stressors (COVID-19 pandemic) on burnout. High physician cognitive task load is correlated with higher rates of burnout, with anesthesiology being one of the specialties with the highest physician task load scores.[26] Universal threats to physician well-being, such as the COVID-19 pandemic, underscore the need for a national strategy to address widespread physician burnout.

Notably, the residents in this study did not report the absence of fairness and values conflict as major challenges to their well-

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being. According to Maslach and Leiter, each organization has its own areas of mismatch, which underscores the importance of identifying areas of mismatch (ie, defining the problem) before brainstorming and implementing potential solutions.[8] Thus, a systematic approach is needed to tailor well-being initiatives to each organization rather than a "one size fits all" approach. We believe that the Quality of Life Improvement approach provides a concrete step-by-step guide for organizational leadership to develop context-specific solutions.[9] We have included recommendations for operationalizing systems-level well-being interventions in Table 4.

Challenges and strategies identified in this study can be mapped to the Job Demands-Resources model[27] from organizational psychology. Organizational psychology explores behavior in the workplace to increase employee engagement, and organizational psychology principles have been proposed as a paradigm to design and implement evidence-based interventions for physician well-being.[28] The Job Demands-Resources model[27] illustrates how the work environment affects employee well-being. Job demands refer to work stressors, such as high workload and conflict, whereas job resources refer to factors that improve the work experience, such as social support, job autonomy, and feedback. It has been demonstrated that job resources can buffer job demands, especially when job demands are high,[29] underscoring the importance of initiatives to enhance anesthesiology resident well-being. Several programs have been proposed in the literature to build a sense of community for trainees[26,30] and foster trainee resilience.[31]

This study has several limitations. This was a single institution study, which may limit generalizability. However, we collected and analyzed the data iteratively to ensure conceptual depth and thematic saturation and provide assurance that we had sufficiency in sampling, which may support the universality of the findings. Furthermore, the primary goal of this study is to demonstrate a method of defining burnout and well-being and elicit potential strategies from residents. Additionally, although peer interviewing promotes psychological safety because the power differential is minimized compared with when an academic researcher acts as the interviewer, preexisting relationships may affect interviewees' willingness to disclose personal issues and concerns[32] that may be core to the study of well-being. However, peer interviewing as part of stakeholder engagement efforts could be beneficial if interviewers are seen more as advocates with common ground rather than outsiders with vested interests.

Because participation in the study was done on a volunteer basis, there may be selection bias where residents with extreme opinions may have volunteered, and their opinions might not be representative of the residency classes.

Another limitation was the focus on CA-2 and CA-3 residents. This was intentional because CA-1 residents experience a major transition from internship to residency with multiple challenges[33] and may require different framing to explore drivers of well-being and burnout. Lastly, this study occurred during the COVID-19 pandemic, which may have exacerbated well-being issues. However, this provided us with an additional opportunity to explore burnout in the context of a national threat to well-being.

Conclusion

Anesthesiology residents' definition of well-being includes both individual (resilience) and systemic factors (meaning in work and job autonomy and control), reaffirming that positive clinical work and learning environments are critical to professional well-being. The AW model reinforces a holistic approach to well-being by providing a structured framework to identify well-being challenges and strategies. In addition to the AW model domains, anesthesiology residents describe the COVID-19 pandemic as a challenge and propose social support, building resilience through professional identity formation, and positive feedback and affirmation as potential strategies to alleviate burnout. Challenges and strategies identified by anesthesiology residents can be explained by the Job Demands-Resources model and represent a compelling argument to address burnout using organizational psychology principles.

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Abstract

Background: With more than 50% of anesthesiology residents reporting burnout, many residency programs have begun creating wellness programs to address burnout and promote well-being. However, to date, many wellness initiatives have focused on individual strategies rather than systems approaches to improve the learning environment. Individual-focused interventions in the absence of systematic efforts can lead to resentment, resistance, and worsening burnout and precipitate a loss of trust in leadership and the organization. Here, we describe a process to engage anesthesiology residents, who are key stakeholders, by exploring their perspectives on burnout and well-being to better inform systematic interventions to improve the clinical work and learning environments.

Methods: We conducted semistructured interviews with second- and third-year clinical anesthesia residents at the University of California, San Francisco, using the areas of worklife model as sensitizing concepts. We conducted a thematic analysis on transcribed interviews grounded in constructivist orientation.

Results: We identified the following 3 major categories of themes based on interviews with 10 residents: (1) definition of well-being, (2) challenges to well-being, and (3) strategies for coping with challenges and burnout. Challenges described by anesthesiology residents align with the areas of the worklife model, with the coronavirus disease 2019 pandemic precipitating additional threats in the domains of workload and community.

Conclusions: Anesthesiology residents' definition of well-being includes both individual (resilience) and systemic (meaning in work, job autonomy, and control) factors, reaffirming that positive work and learning environments are critical to professional well-being.

Keywords: Well-being, resident education

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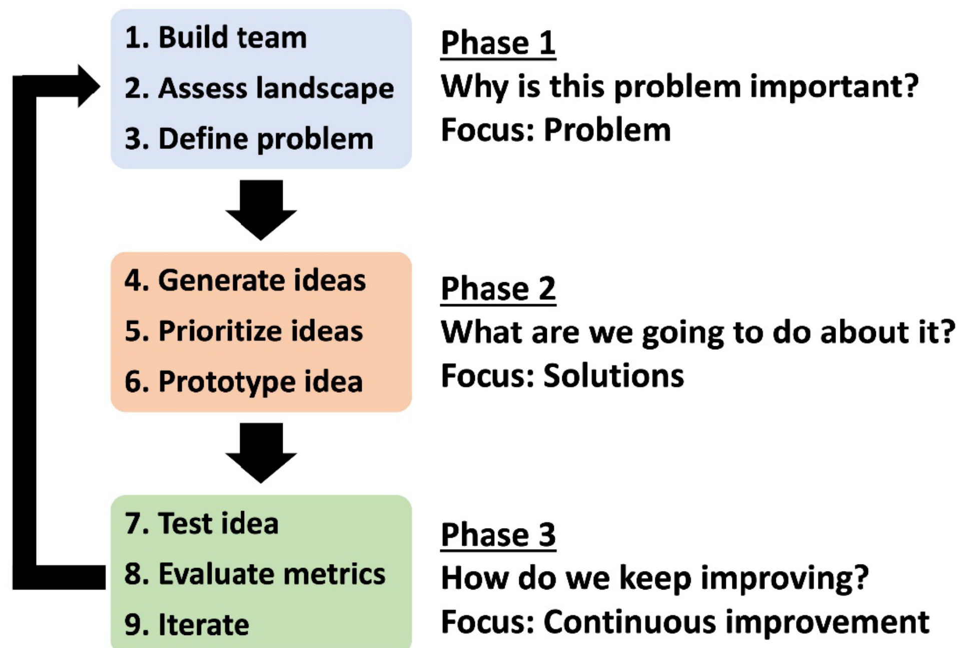
Figure

Figure 1. *The Quality of Life Improvement (QOLI) approach.*



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Tables

Table 1. *Interview Guide*

Introduction
• Tell me about yourself and how you came to be an anesthesia resident. • Tell me about who you are outside of work and your life outside the hospital.
Definition of Wellness
• How would you define wellness or well-being in your own words? • What were your expectations for wellness entering anesthesia residency at University of California, San Francisco? • What would an ideal picture of wellness look like in your life as a resident? • When you think about wellness for yourself, what components does this include?
Definition of Burnout

• What things detract most from your ability to be well as a resident?
• How would you define burnout?
• Has there been a time you have felt burnt out during residency?
  ○ Tell me more about that and what contributed to it.
  ○ What do you think contributes to burnout for other people in your residency?

Evaluation of the Wellness Curriculum
• Have you found the current wellness curriculum helpful to your well-being?   ○ What would your ideal wellness curriculum address or include?
Areas of Worklife
Workload

• What do most anesthesia residents in our program think of their current workload?
  ○ What do you think?
• Are there areas of your *workload* that you find particularly exhausting or stressful?
  ○ How about your *workflow*? (eg, before operation, during operation, and after operation).
• How would you describe your ability to adequately manage your own health? (some commonly identified areas of self-health might include nutrition, sleep, physical health, and mental health).
  ○ How important is this to you? What would make it possible?
• How easily are you able to locate learning resources to perform your clinical work and study for your exams?

Control

• How much control do you feel you have in your day-to-day work environment?
  ○ Do you feel equipped with the skills to communicate effectively or manage conflict in the operating room? If not, would teaching or training on this subject be helpful?
• How satisfied are you with your current scheduling system and your ability to request no-call, days off, or vacation time?
  ○ What would make you more satisfied?

Reward

• How appreciated or respected do you feel for the work that you do as an anesthesiology resident? What makes you feel this way?
  ○ How do you feel about your financial situation and compensation?
  ○ If this is stressful to you, would education on financial health contribute to your wellness?

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Community
• How has the pandemic affected your feeling of community at our program/institution? • What would contribute to your sense of belonging? • How important to your own wellness is having a sense of community with your program and coresidents?
Fairness

• How fairly would you say residents are treated within our program and across departments?
  o What have you felt is unfair in residency, if anything?
• Do you feel that you have seen or felt favoritism within our program/department?
  o Are you comfortable sharing more about this?
• Have you experienced inequity or injustice during residency?

Values

• Have you ever been asked to participate in patient care that you felt was distressing or perhaps unethical in some way?
  o Were you able to debrief this experience?
• What is your sense of purpose in your work and career?
  o How aligned do you feel with this purpose at your current point in residency?
  o Do you feel supported by our department in your goals as a trainee?
• How much mentorship or program support do you have to pursue your fellowship or career goals?
  o How important is having such support for your development?

Concluding Thoughts
• What final thoughts do you have on wellness or burnout in our residency?

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Table 2. *Themes and Exemplary Quotes from Interviews with Residents on Their Perceptions on Well-Being*

Themes	Exemplary Quotes
Definitions of Well-Being	
Enjoyment and finding meaning in work	"...[Wellness] in my job would be feeling well-supported by the people I work with and those that I work around, and then feeling like my education is actually being...brought to fruition...A lot of my reward and joy of being at work comes from being happy there and doing what I like. So even if I'm working hard, if I'm enjoying what I'm doing, I still feel rewarded by that." (R5) "[An] ideal picture would be something where I felt fulfilled and excited about my job; maybe not every day, but frequently." (R10)
Working on resilience	"I think wellness is being able to deal with bad things or adverse things in a healthy way. So I think people who are really well take adversity or challenges and respond to them without having like a crisis or without being really stressed out." (R3)
Time for self-care and a sense of control over their schedule	"...[Wellness is having] family time for self-reflection and time to socialize with coresidents...An ideal picture [of wellness] would be, I learned a lot at work as well as having time to unwind and having time to do the things that I enjoy...at least having some time where I could still do other activities and feel like a normal person." (R2) "And then wellness in other parts of my life, also things that make me happy. So seeing family, having time to spend with said significant other, having time to just enjoy life and do things that make me happy, whether that's working out or having a night to go out to dinner, even having one day where my significant other and I are actually free on the same day. I think for me, wellness ties into happiness and the things that are important to me. So family, community, feeling supported and those all being in each aspect of my life." (R5)

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Challenges to Well-being	
Work overload	Balancing residency, clinical duties, and self-care: "…[Burnout] becomes increasingly more prevalent when you have these exams within residency because it just brings the multitasking to a whole other level." (R8) "I knew it was going to be hard. I don't think I realized how hard it would be...and I didn't ever realize how much of medicine...would consume my overall sense of self." (R10) "...[It's] hard because you want to do a good job at work, which sometimes means things outside of work suffer, like your personal relationships...I just come home from work and I'm really tired, so I have less energy to like spend on other things and because, you know, you want to get through your training, you prioritize having the most energy for your training." (R3) "I think it was the fact that I was working and losing personal time to handle my own issues at home, that's when I'm probably the most burnt out." (R9) "...[It's] sometimes hard to be able to do other tasks. Like, if we're working 5 days a week and then 1 day over the weekend, you really only have 1 day off to do all the chores and tasks and errands that it takes to keep your life in order." (R7) "We just do this job and we do a lot of the job. So, it's just if I did this same job for 30 hours a week, it would be a vacation, even with rapid turnover, endo rooms, or difficult setup, cardiac, whatever, many of those tasks are not intrinsically difficult, it's just the volume of them can be hard." (R6) Unique challenges of the working environment and cognitive task load: "It felt very rushed all of the time...I was just trying to get my lines in as fast as possible because I felt like everyone was breathing down my neck." (R5) "It's so hard to like deal with admissions, deal with putting in orders while you have a patient who's like actively decompensating. I think that's just like incredibly stressful when there's like multiple demands on your time. And there have been literally times in ICU where I've said to people, I am only 1 resident...and I can only do like these 2 things right now. I can't do the other 6 things that you need, so you're going to have to wait or find someone else to do it. And that doesn't feel good to say, but it's like the only way to kind of triage the massive input of information and task." (R3) Emotional burden of witnessing negative outcomes: "There was also this patient death. This 1 patient that I followed very closely for the entire previous month...she coded, and it was a whole complicated goals of care or code status thing...I think that was probably one of my lowest points during residency. Because I was very sad about the whole situation." (R9) "I think like sometimes we're in kind of like scary like code situations or like very scary, like trauma situations...You're just on like this adrenaline high and like, you can't even really process. And you, you're just kind of like very task focused. And then I think like on the flip side like other distressing situations, like in the ICU, I guess, like dealing with kind of like end of life things or like perpetuating care that you feel like maybe you disagree with like that can be kind of distressing." (R1) "I think often we're in situations that are distressing to us in patient care. Particularly, my intern year, I worked with a lot of elderly patients who were going through pneumonia and ICU care and so end of life discussions became really important. And I think that people think in anesthesia that they're not a part of what we do, but I in fact find them to be quite important because we do a lot of invasive things to patients that they may or may not want." (R5)

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Lack of control	"I have very little control over my day-to-day work environment. I mean, I guess I can control when I come in to the hospital, but we don't have any control about when we get breaks, when we get lunch, when we leave for the day." (R7) "Compared to other specialties, [where] it's sometimes easier to be able to estimate what your hours are going to be or whether you're going to get off every day. I feel like with anesthesia in general it's a little bit more unpredictable. And so, it's hard to make plans in some circumstances." (R7)
Insufficient rewards	Financial: "So, money is not the answer to all problems, but I think if we had like a little bit more financial independence, I think that could potentially help with like some of the structural stressors of being a resident." (R3) Social (eg, appreciation): "There are really sick patients that come in and they expect us to just like work miracles and keep the patient stable. And at the end of the case, they like don't acknowledge like, thanks for keeping them alive." (R3) Institutional: "I wish that I didn't have to pay for parking, you know, things like that, where you feel like you're contributing so much to the hospital, you wish that they could give you this by, you know, sense of gratitude by not making you pay for it." (R2)
Breakdown of community	"Sometimes when you've been away from a site for so long, it's like you don't remember or no one knows who you are. That contributes to feeling almost isolated, like you're not part of the department because nobody knows who you are because you just haven't been there in months." (R7) "There was this whole professional change from where you were working on teams and with other people [on floor rotations]...And then you get to this point where you're like, "Oh, sh*t. I'm by myself [in the OR]," and you're not really able to communicate or work with other people. And I remember being just super, super unhappy during kind of midway through CA-1 year and I was like, I don't know if this is what I want to do." (R10) "I do think that something that could be different here would be more support for those scary moments in the operating room. I don't necessarily think we need like a big drawn-out debrief, but I think sometimes, you know, an adverse event will happen and you'll get, you'll get out of it and the patient will be fine and you'll figure it out. But there isn't a lot of like discussion that happens after I think that could maybe help with that." (R3)
Additional stress by COVID-19	Workload: "…[The] fact that they would have to fill in for multiple residents...[We're] stressed having to reformat the schedule to try and come up with a way to fill in for 2 other or a couple of other sick residents." (R7) Community: "And then I think coping with the social isolation and the setting of also being in the pandemic really compounded that because you just didn't have a social network that you could really rely on anymore." (R10) "Specifically, during COVID, we had like 2 deaths a day, and we didn't have, there was not one debrief on my last ICU rotation. There was a lot of death and there was not one conversation." (R3)

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Strategies to Mitigate Burnout	
Social support from peers and near-peers	"[Particularly] the [well-being curriculum] sessions where the residents are able to get together and have like, share and talk about difficult experiences. I think that really helps with a sense of community. Like you're not going through it alone, or you're not like isolated in what you're experiencing." (R1) Referring to a situation where a senior resident reached out to a junior resident after an intraoperative crisis situation, "...[We] can prevent each other feeling alienated and feeling like there's not really a support and community, and that I think could really help with people feeling less burnt out." (R2) "It's really just acknowledgement of you worked hard today, even though it didn't go as you expected, you still worked hard and next time, you will know what to do. And you did a great job with whatever level of skill and thing you had. You did a great job and you worked hard. And that's all you could really do. And that's what we expect of you, and you met our expectations." (R5)
Social support from mentors	"I almost transferred to a different residency program halfway through the residency because I really didn't like it here. And it's not that [my mentor] convinced me to stay, but she was very helpful, in supporting me, exploring that option, and then having me think critically about making that decision. So, I would say she has like infinite value because not only is she even helpful to me in my like personal life and my growth as an anesthesiologist, but helping me kind of see the forest through the trees situation. So, I mean, she's been a godsend." (R3)
Building resilience through professional identity formation	Technical skills: "My sense of purpose is to, to learn as much as I can about how to be a good anesthesiologist so that when I do go out into the community, I feel comfortable and confident. So that's the biggest thing for me is, is keeping in mind, like every day when I'm in the OR like, could I potentially do this by myself, or could I see myself doing this alone one day? And I know I have support now, so it's not scary." (R2) Non-technical skills: "[Communication] skills are taught and learned skills and you don't learn them the easy way; you often learn them the hard way. And having those things incorporated into our learning sessions, I think not only make you a better physician to communicate with your patients but that...the team which we're all there for the patient, but also, it's going to bleed into other aspects of your life, and I think is a helpful learning tool that we unfortunately are not prioritizing." (R5)
Positive feedback and affirmation	"I feel like I do feel respected. The higher up you go, the more autonomy and responsibility you get and that feels really rewarding to see, wow, these people recognize my skills and they trust me and they will let me handle this alone." (R5) "[It] would be nice to just hear like, hey, good job. Like you're doing everything that I would've done." (R1) "It's really just acknowledgement of you worked hard today, even though it didn't go as you expected, you still worked hard and next time, you will know what to do. And you did a great job with whatever level of skill and thing you had. You did a great job and you worked hard. And that's all you could really do. And that's what we expect of you, and you met our expectations....I think feeling like we are not meeting expectations because we don't know what the expectation is. And I think that should be set right at the beginning. Working hard, showing up, being dependable and learning. Those are really what your expectations should be and acknowledging you met those expectations today. I know this was really hard, but that could probably help a lot of people. It certainly helped me." (R5)

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Table 3. *Strategies to Enhance Well-Being Mapped to Corresponding Areas of Worklife with Specific Examples*

Well-Being Strategy	Corresponding Areas of Worklife[8]	Specific Examples
Social support from peers and near-peers	• Community: positive relationships with peers • Fairness: mutual respect (near-peers) • Values: ability to find meaningfulness within work	• Peer support Battle Buddies[21] • Group coaching for resident trainees[22] • Peer support after adverse events (eg, Caring for the Caregiver) • Protected time for residents to socialize (eg, resident lunches on protected education days)
Social support from mentors	• Control: sense of agency in planning one's own career • Reward: intrinsic reward of making progress in challenging work • Community: positive relationships with mentors • Values: ability to find meaningfulness within work	• Residency mentorship programs[23] • Faculty education around providing social support
Building resilience through professional identity formation	• Rewards: intrinsic reward of making progress in challenging work • Values: ability to find meaningfulness within work	• Well-being and professional development curriculum[12] • Coaching for resident trainees[24]
Positive feedback and affirmation	• Rewards: intrinsic reward of appreciation, intrinsic reward of making progress in challenging work • Fairness: sense of balance between effort and acknowledgement	• Feedback education for residents and faculty[25] • Tools to encourage feedback on a daily basis

Table 4. *Recommendations for Operationalizing Systems-Level Well-Being Interventions*

Recommendations
Use a framework: ensures a holistic view of the drivers of well-being and burnout.
Engage stakeholders early: potential avenues include interviews, surveys, and listening tours.
Build psychological safety: ensure confidentiality and anonymity as desired by stakeholders.
Follow up with stakeholders: prevents survey fatigue and builds trust.
Define the problem: identify areas of mismatch before brainstorming potential solutions.