Safety amid the scalpels: creating psychological safety in the operating room

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Purpose of review
We briefly review the concept of psychological safety and discuss the actions that can create it in the anesthesiologist's work environment.

Recent findings
The interest in psychological safety has grown in popularity since the publication of Amy Edmondson's book *The Fearless Organization* in 2018. While the concept and its benefits are described in the healthcare literature, the specific actions necessary to create it are often not.

Summary
To ensure patient safety, we want members of the teams we lead to be comfortable sharing emerging problems that they see before we become aware of them. As educators, we want trainees to approach us when they do not understand something and openly participate and contribute without the fear of how others will perceive them. These scenarios require an environment of psychological safety – the ability to ask for help, admit mistakes, and be respectfully forthright with unpopular beliefs without the fear of being ostracized or ignored. Methods for creating an environment of psychological safety will be discussed.

Keywords
civility, patient safety, psychological safety, teamwork

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INTRODUCTION

The term psychological safety has appeared with increasing frequency in both the medical and non-medical literature since the publication of Amy Edmondson's book, *The Fearless Organization* [1]. With the popularization of the term psychological safety has also come misconceptions about its meaning and occasional conflation with the concept of a "safe space" – which typically describes an environment free from conflict and criticism [2▪]. Psychological safety refers to a team climate in which candor is not only permitted but is expected [3▪]. It exists when team members feel able to come forth with questions, concerns, ideas, and mistakes without the fear of being embarrassed, blamed, humiliated, or ignored [1]. Indeed, high levels of psychological safety can, and probably should, invite productive disagreement and constructive criticism [1]. This can result in situations that may be uncomfortable for members of the team [2▪]. The defining characteristic of a climate of psychological safety is how these uncomfortable situations are handled – when unpopular or upsetting information is relayed, the messengers are not "shot," but rather are listened to and supported because they took the risk of speaking up [1]. The focus of this paper is to describe how psychological safety can be created in the perioperative environment.

Psychological safety: a background

The popularization of psychological safety occurred in conjunction with a hospital-based study by Edmondson predicting that medical teams with stronger measures of team effectiveness would have lower reported rates of medication errors [3▪]. Surprisingly, the study found a higher rate of reported errors among high-performing teams.

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KEY POINTS

- A culture of psychological safety does not exist by default.
- Psychological safety is created not only by the absence of behaviors that impede it, but also by specific behaviors which reinforce it.
- Creating psychological safety at the small and intermediate levels of the organization requires it to be tailored to the type of work done within these units.
- The endpoint is not the creation of a psychologically safe environment, rather it is the psychologically safe environment that allows for excellence in learning, teamwork, and innovation.
- Anesthesiologists are in an important position to create a culture of speaking up.

Upon further review, this was attributable to an interpersonal climate supportive of open discussion of errors and reporting. The higher performing teams probably didn't make more errors, but rather they discussed them more openly [3▪]. Years later, the importance of psychological safety in team functioning was replicated by Google's Project Aristotle. Google found the quality of the interactions between team members mattered more than the particular individuals on the teams, and psychological safety was the most important predictor of team success [4]. With a large body of cross-sector evidence supporting the benefit of a climate of psychological safety on improving teamwork, encouraging learning, preventing and detecting errors, and supporting innovation, the concept is especially salient to the perioperative environment [5▪▪,6].

Although the creation of a psychologically safe organization is an aspirational goal, it is important to realize that psychological safety is created at the small group and intermediate levels, with leaders at these levels exerting the largest degree of influence [1,7]. Although there is general guidance to enhance psychological safety, some techniques will be specific to the type of work done in these smaller units (Fig. 1).

Psychological safety in the learning environment

A first-year anesthesiology resident is struggling to intubate a patient after induction. The attending anesthesiologist takes over and, after intubating successfully, turns to the resident and says "That was so easy! How could you have missed that?"

Humiliation and belittlement are frequently encountered by trainees during their education, often under the pretense of teaching [8]. After the interaction described in the vignette above, the trainee probably would be unlikely to want to try an unfamiliar procedure or admit a mistake

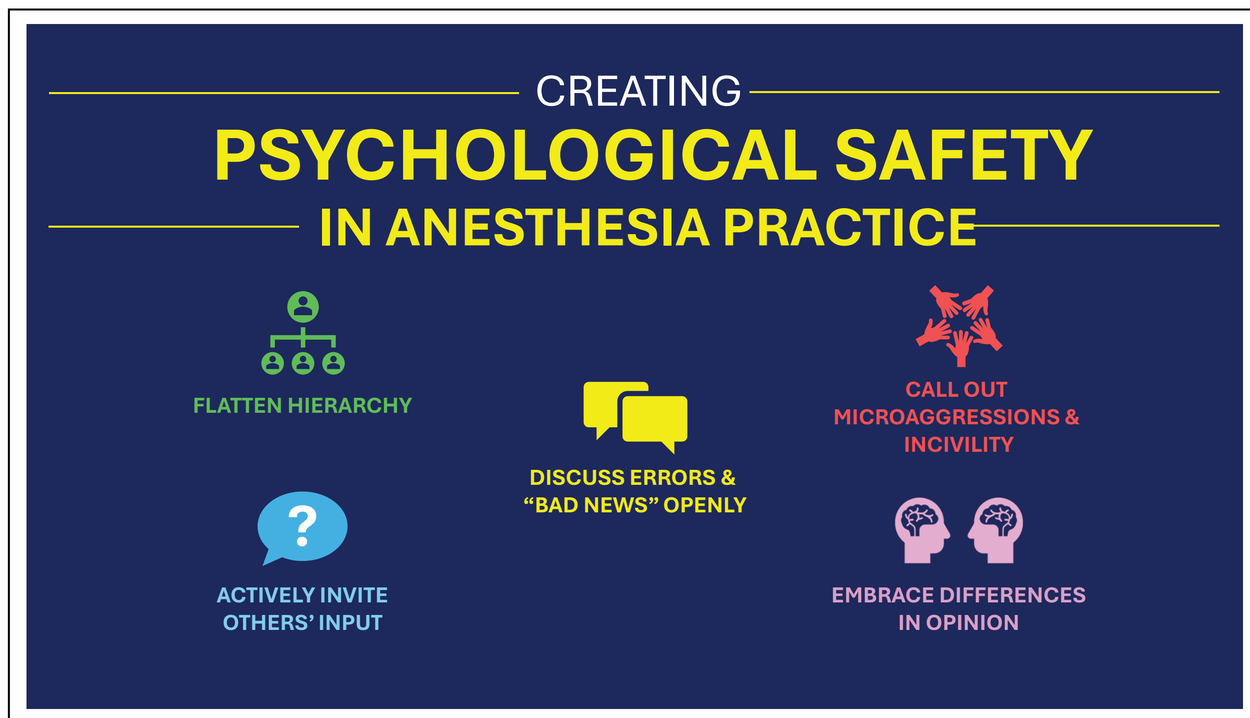

FIGURE 1. Techniques that enhance psychological safety in anesthesia practice.

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that occurred in the absence of the attending anesthesiologist. The creation of a psychologically safe learning environment can improve communication, increase trainee well being, reduce burnout, and enhance patient care [9]. Lack of psychological safety increases trainees' performance anxiety and fear of judgment and decreases their willingness to participate and take risks [10]. Factors which impair psychological safety in education originate from many sources [10,11■■]. Trainees are often high-achievers and perfectionists, and may be naturally averse to confessing mistakes, asking questions, or admitting a lack of knowledge [11■■,12■]. The perioperative environment is typically fast paced and frequently unforgiving of error. Faculty may be perceived by trainees as unapproachable, judgmental, or demeaning. It is not only the attitude of faculty that a trainee may focus on. The response of peers to a mistake or inability to answer a question can also impair the willingness to take interpersonal risks. A meta-analysis of 13 cross-sectional studies found that the prevalence of bullying among resident physicians was 51%, frequently involving verbal abuse and academic harassment [13].

Although every member on the team contributes to an environment of psychological safety, members who are topmost in the hierarchy, the faculty, play a disproportionate role. Hierarchy and psychological safety are not mutually exclusive; teams from different disciplines but similar hierarchical structures experienced varying degrees of psychological safety [1,4]. The differences in psychological safety between these teams depended on how the hierarchy was managed [14]. Trainees often follow the lead of their mentors, and exposure to a wide variety of disrespectful individuals was found to increase the overall level of perceived incivility [15].

Faculty can positively influence an environment of psychological safety in several ways. When vulnerability was modeled and feedback was invited during critical event debriefs, trainees reported a stronger sense of learning and respect [16]. Trainees who had their actions validated were more willing to ask team members to share perspectives about the case and about their performance as team leader [16]. Leaders who were nonjudgmental increased others' perceptions of safety and allowed team members to ask challenging questions and demonstrate inquisitiveness [11■■,17].

Achieving psychological safety in the training environment requires recognizing and reconciling the intergenerational differences in communication and teaching styles that can exist between faculty and trainees [18]. For example, the Socratic method of teaching, which involves faculty asking trainees a series of clinical questions, is often colloquially referred to by trainees as "pimping," because it can be demeaning and highlight power imbalances [19]. Whether this approach results in embarrassment or facilitates learning depends on the intent of the questioner [19]. The sense of risk when trainees are put on the spot can be decreased by providing assurance that a trainee's contributions are valued and emphasizing that mistakes and uncertainty are part of the learning process (see Fig. 2). In addition, training programs should prioritize diversity among faculty. This can mitigate the lack of psychological safety and mentorship that trainees from underrepresented groups may experience [12■,20]. Creating an environment of psychological safety allows trainees to free themselves from the burden of worrying about what others think of them and direct their focus on learning [21].

Psychological safety in operating room teams

In the middle of a difficult operation on a complex patient, the anesthesiologist leans over the drape to discuss the challenges she's having managing the patient's anesthetic. The surgeon responds, "Listen, is the patient still alive? Well, that's all I need you to do for me, keep them alive until I'm done."

The operating room is a unique environment in which several teams must coordinate their efforts to manage a patient's care and achieve excellence. When teams are familiar with each other, there is evidence of improved patient outcomes [22]. Familiarity alone, however, is insufficient to ensure successful teamwork. Dysfunctional relationships can exist despite familiarity with each other [23]. Incivility in the operating room may be quite frequent, affecting between 48–98% of operating room staff [24]. Episodes of incivility rarely happen in private and may result in a "ripple effect," affecting psychological safety across a team [25]. In the example posed above, after witnessing the interaction between the surgeon and the anesthesiologist, it is extremely unlikely that the circulating nurse would feel comfortable expressing a concern he has to the surgeon.

Hierarchy is essential for team function, providing role clarity and direction, but can be detrimental if it impedes candor. Preexisting hierarchies in the OR can contribute to low psychological safety and fear of voicing concerns. This can lead to increased medical error, decreased learning opportunities, and hinder patient safety [26]. The authority gradient can be reduced when leaders engage the entire team and seek out their input with humility and openness, valuing their opinion independent of background or education [27,28]. Leaders should

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	Anesthesia Department Missions		
Leadership Task [1]	Education	OR Team Leadership	Innovation
Set The Stage	• Emphasize that not knowing is OK, getting the wrong answer is OK, & difficulty with performing manual tasks is OK • Watch out for lateral / horizontal bullying	• Communicate the complexity of the situation – not all answers and observations are held by a single person & the team's input is needed • Identify and call out microaggressions and other acts of hostility	• Engage the team affected by the process change in designing it • Consider the use of visual aids which allows for collaboration
Invite Participation	• Encourage attempts at manual tasks • Ask questions to build knowledge, not to visibly call out a lack of knowledge	• Don't accept silence • Repeatedly & explicitly invite others' input by calling on them by name	• Specifically ask for the "bad news" • Invite critique of the ideas, not people • Ask complementary questions, e.g. "What are the pros? What are the cons?" [44*]
Respond Productively	• Provide actionable feedback • Recommend learning strategies and reference sources	• Appreciate the risk taken by those who speak up • If a suggestion is not applicable, share why	• Don't respond to bad news with defensiveness or indifference • Ensure others' ideas are properly attributed

FIGURE 2. Summary of leadership actions to improve psychological safety among different anesthesia department missions.

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emphasize that they do not have all the answers and may not see when something is about to go wrong. This conveys the importance of, and need for, everyone's contribution. Simply encouraging team members to speak up may not be enough. Inviting input by calling on team members by name highlights their individual importance [29▪▪,30]. Although this may be uneasy at first, engaging the team routinely in this manner and responding productively to the replies makes the practice less uncomfortable [31]. Responding productively to those that take the risk of speaking up is critical, especially if the contribution is not specifically helpful (something that is already known or not applicable to the current circumstance) or is concerning (admitting a mistake). If a suggestion is not applicable, communicating why it is not appropriate in that particular circumstance is essential. This ensures team members know their voice was heard and allows for learning to occur [32]. Seeking input can take place at any time, but both the timeout and debriefing serve as important bookends for this to occur. As anesthesiologists often conduct the first timeout in the operating room prior to induction, their modeling of this behavior can have a powerful impact on setting the tone for the case.

Leaders need to be mindful of team members who belong to underrepresented or marginalized groups, women, and trainees. Members of these groups are more likely to experience incivility, bullying, and microaggressions [24,33▪,34▪,35]. Microaggressions are damaging to the psychological and physical health of their target and inhibit speaking up [33▪,34▪]. Psychological safety is important for feeling a sense of belonging; these two concepts are deeply intertwined [3▪,36]. Leaders can model appropriate behaviors by being cognizant of microaggressions and calling out when they, and more overt acts of hostility, occur. Respect can be demonstrated by properly pronouncing the names and using the preferred pronouns of team members [37,38]. Several paradigms that are helpful for addressing microaggressions have been described (see Fig. 3) [33▪,34▪].

Psychological safety thrives in an operating room where the leaders model humility, respect, and appreciativeness while being intolerant of behaviors that inhibit team members from speaking up.

Psychological safety in innovation teams

After receiving an E-Mail notification of a change in perioperative patient care, an anesthesiologist replies and shares that he has concerns about it. He receives a response back: "Thanks. We will proceed with this.

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Techniques for Addressing Microaggressions			
Technique	**General Recommendations [33*]**	**PACE [34*]**	**4 Ds [34*]**
Used For	Every circumstance	To call attention to a situation in which an unintentional microaggression occurs	When the microaggression is felt to be intentional
Action Steps	Replacing the bystander mentality with the perspective that everyone is an ally	**P – probe** – ask the speaker what was meant by the statement / action	**Distract** – Ally takes the attention away from the microaggression through directing the conversation
	Active use of microaffirmations – small acts of kindness & goodwill that build a sense of trust & community	**A – alert** – explain how the statement / action could have been interpreted by the recipient	**Delegate** – Ally enlists the assistance of someone who can assist with the circumstances, such as a leader
	Investment in organizational development including leadership training, peer support programs, & wellness	**C – challenge** – voice that the statement / action is inappropriate	**Direct** – Ally directly confronts the speaker about the meaning of the statement / action
	Collective responsibility and accountability for monitoring the progress and outcomes of initiatives listed above	**E – ending** – bringing the discussion to an end if the speaker refuses to acknowledge the impact of the statement / action	**Delay** – Ally checks on the recipient of the microaggression after the event, and ensures that the recipient has appropriate support

FIGURE 3. Techniques for addressing microaggressions [33■,34■].

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It isn't going to be optional. This is going to happen. Get onboard."

It's been said before that change is the only constant, and the perioperative environment is no exception. Anesthesiology practices must be resilient to ensure success while confronting the numerous clinical and nonclinical challenges they face. Psychological safety allows us to do and say the things that permit us to progress in an uncertain world [3■]. It is critical to achieving the 3 dimensions of resilience: integrity, innovation, and inclusion [39]. As previously mentioned, psychological safety is experienced by people at the local level, and it will appear different for different types of teams [7]. Psychological safety will be created differently by the leader of a team developing a new process or pathway than it will for the leader of an operating room team, as the job and the stakes are quite distinct.

A successful approach to initiating new processes involves the incremental design technique commonly called "small tests of change" in which learning from both failures and successes scale in an iterative manner [40]. This process relies on the collective intelligence of the entire team and benefits from a climate of inclusion and safety. How the leader frames success and failure is critically important. Team members may not want to identify faults for fear of repercussions - being labeled a naysayer or obstructionist or being punished with a loss of future opportunities [1]. Leaders can transcend this reluctance by specifically asking for the bad news, framing it as a learning opportunity that preemptively uncovers flaws or critical gaps that would otherwise have been overlooked [41,42]. Leaders must be willing and prepared to act upon this information. If they respond with defensiveness or indifference, the loss of psychological safety will inhibit further speaking up [43■]. In the case described above, imagine if the dismissiveness to the anesthesiologist's concern was replaced with genuine curiosity [44■]. Besides making the anesthesiologist feel his concerns mattered, it is possible that information essential for the plan's success would be discovered.

Leaders create a supportive environment allowing for disagreements with respect by fostering a culture where criticisms focus on the concepts rather than the individuals presenting them [42]. It is important that all members of the team feel equally able to participate in both the suggestion and challenge of ideas [45]. While there is no definitive method that will make team members universally feel *safe* during these inherently vulnerable acts, the goal is to make them feel *safer* when they share [46]. A human-centered and participatory design approach aims to understand the unique experiences of those affected by the process change and engage them in its co-design [47]. When a

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	High Impact	Low Impact
Easy to Accomplish	IMPLEMENT (Should be acted upon)	POSSIBLE (Done if resources are available)
Difficult to Accomplish	CHALLENGE (Viable if easier to accomplish)	KILL (Dismissed unless revised)

FIGURE 4. Example of a PICK chart.

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team affected by a process is engaged in its design, there is greater acceptance, adoption, and sustainability of the intervention. Visual aids are helpful adjuncts that can direct the focus of the team to the plan rather than the presenter. A PICK chart (PICK=Possible, Implement, Challenge, Kill) is a performance improvement tool which visually organizes the merits of different ideas (see Fig. 4). The use of a PICK chart allows team members to collaborate and consider solutions from each other's perspectives [48].

Success in teams tasked with initiating change can be achieved when leaders recognize that the sooner dissenting views are heard, the better. Disagreement should be met with curiosity rather than dismissiveness. Engaging the team in a respectful open discussion of each other's ideas taps into the collective wisdom of the group and is more likely to yield a superior outcome.

CONCLUSION

Creating an environment of psychological safety is simple, but not necessarily easy. It does not exist by default and requires intentionality to create it. A single act of embarrassing someone asking a question or sarcastically dismissing a concern can enduringly set the tone for the entire team and increase the perceived risk of candor [6]. Team leaders must also recognize that the absence of attitudes and behaviors that impede a climate of psychological safety does not guarantee team members will feel safe speaking up. For the majority of us, self-restraint at work is the default [2▪,44▪]. People will often avoid behaviors that could jeopardize the impression that others, especially leaders, may have of them [6]. Newer members of a team, those with less hierarchical power, and members of underrepresented or marginalized groups are among the most vulnerable [49▪▪]. A recent study supports the notion that departments with higher levels of psychological safety allow for the mitigation of the loss in psychological safety that new members of a team experience [50▪▪]. This emphasizes the importance of both team and department leadership in creating and sustaining the culture. As physicians with a long history of leadership in patient safety and teamwork, anesthesiologists are well positioned to improve and sustain psychological safety in the perioperative environment. Doing so maximizes learning opportunities for trainees, lessens hierarchical barriers by empowering team members to voice concerns, and improves the ability of high-functioning teams to deliver high quality care.

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Conflicts of interest

There are no conflicts of interest.

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▪▪ of outstanding interest

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