Is this an adventure?

Marc R. Moon, MD

June 30, 1998, my last day at Stanford University as a resident before moving to St Louis to join the faculty at Washington University School of Medicine. It was a busy 24 hours. My final case was a 4-way bypass with Phil Oyer, and for those of you who don't know Dr Oyer, he was a commanding presence in the operating room and fastidious when it came to the subtle maneuvers that comprise an elegant technical performance. My residents would probably say the same about me, but now more than ever, it has to be that way. Gone are the days when we could let a resident fumble through a case on their own to learn by trial and error. Educators today have to practice "Continually supervised, corrected perfection."[1] We constantly monitor and modify needle angles, graft orientation, bite technique, and spacing on every anastomosis.

So, there we were. Dr Oyer with a keen eye on my performance as I sutured my final distal. "That bite was too big," he grumbled. I hesitated for a fraction of a second, made a slight adjustment and continued on. "That bite was too small," again with a grumble. His voice rivaled that of George C. Scott's Patton in its capacity to command action from those within earshot. We carried on. "Too big," another bite. "Too small," another bite. "Too big," another bite. "Too small," another bite. Finally, I had to stop. "Dr Oyer, tomorrow I am going to be an attending, doing cases on my own. Without your continually supervised, corrected perfection, what am I going to do?" He looked me straight in the eye. "You're going to put your bites too big and too small." He was right, but I recognized it. It is essential that we as educators build into our trainees' mindset the capacity for self-assessment, the ability to understand how even what we may consider the most minor of actions, both in and out of the operating room, can have a profound impact on those around us. Both positive and negative.

Dr Moon with resident Tim Lancaster doing what he does best, teaching the next generation.

CENTRAL MESSAGE

Let's not be ordinary. Let's commit to take action and make a long-term positive change. Let's do something to make ourselves feel proud.

Later that night, I finished packing up the house. It was pretty hectic, but my sons Tyler and Justin did their best to not get in the way. We woke up very early the next morning. I settled the boys into my Chevy Cavalier just before dawn. We were all a little nervous. Our life was going to change, forever. I remember, like it was yesterday, watching Tyler look out the backseat window at the dark morning sky. Before we drove off, with a thoughtful gaze, he stopped me as I sparked the ignition, "Dad, is this an adventure?"

According to *Webster's Dictionary*, an adventure is an exciting and dangerous undertaking usually involving unknown risk. Adventures are typically bold with the potential for significant loss and are undertaken to create psychological arousal or to achieve a greater good such as the pursuit of knowledge. Adventures generally involve narrow escapes with bravery dependent on acts of great courage, founded on intelligence, skill, and good fortune. Does that sound familiar? Is cardiothoracic surgery an adventure? It is without a doubt a challenging quest. The journey into our specialty is protracted and arduous, more so than many, many others, and full of obstacles to overcome, which makes future generations question whether it is worth the expended effort and sacrifice. Cardiothoracic surgery is replete with challenges and consequences, sometimes good, sometimes bad.

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I was appointed Chief of Cardiac Surgery at Washington University in 2014. I considered it an honor that carried great responsibility for my junior faculty, not only for their development as academic surgeons but also for their protection from external forces that could impede their progress. Early on, one of my junior faculty was receiving what I perceived as unfounded pressure from administration. At first it seemed like they were just picking on him, but it continued to build, at least in my mind. Complaints and criticisms became more and more common and less and less relevant, with responses that appeared out of proportion to the event in question. It was obvious. They didn't like him, and they didn't like me. Ultimately, my confabulated assessment of his role as a scapegoat for condemnation reached the breaking point. After a long day in the operating room, there it was again—another Safety and Environmental Management System Report with an allegation I thought was not true. As midnight approached, I penned an email to the Hospital President and Chief Medical Officer.

My narrow view of the situation exaggerated my response. I did not realize it at the time, but my toxic email included every anger distortion that can reframe innocent events into powerfully negative trigger thoughts (Table 1).[2]

- *Blaming:* People are doing bad things to you on purpose. The reality is that people in general are not intentionally trying to hurt or defy you. They are just doing what they can to take care of those for whom they are responsible.
- *Catastrophizing:* Extrapolating a bad situation to its worst possible outcome. Make a realistic assessment. How bad is it really? Was our practice truly going to close?
- *Inflammatory Global Labeling:* This includes sweeping, negative epithets. Be specific. Describe the situation with precision, and don't call people names.
- *Misattribution:* Assuming you know another's true motives. Develop alternative explanations. Could there have been another reason?
- *Overgeneralization:* Never, Always, Nobody, Everyone. Look for exceptions. Everything is not necessarily black or white. Consider dialectical thinking, "I am right, but you are right too."
- *Demanding:* A moral dictate for action. Reframe it as a request, and a reasonable one at that. Try "would you consider…" rather than "you should" or "you must."

TABLE 1. The 6 anger distortions

- **Blaming:** "They have made it impossible for us to get any work done."
- **Catastrophizing:** "Our practice will have to close as a consequence."
- **Inflammatory Global Labeling:** "McCarthyism is ruling our unit."
- **Misattribution:** "They did it to ruin our practice."
- **Overgeneralization:** "Nobody here cares about the patient."
- **Demanding:** "You must get rid of them."

Who writes and says such stupid stuff like that? We all do. Check your own emails. I'm sure you will find examples of all these distortions when you purge your inbox tonight.

Now, this wasn't the first time I let anger get the best of me, but it was the straw that broke the camel's back. How can a seemingly minor action cause an unpredictably large and sudden reaction? Because of its cumulative effect. Ignoring protocols, bucking policies and procedures, and generally acting like an ass in every interpersonal interaction. The reality was, I had become a disruptive physician. The next day I found myself in the chairman's office, and shortly thereafter, I was in a cold, dark room in Lawrence, Kansas, with 10 other physicians trying to figure out what went wrong.

It turns out, I am not alone.[3] A recent study published from Stanford evaluated patterns of disrespectful physician behavior with a focus on career stage and specialty.[4] Behavioral indiscretions were 4-fold higher for proceduralists compared with nonproceduralists, and when they plotted the event rate by specialty with faculty on the y-axis and residents on the x-axis, it is no surprise who was at the top. The 2 specialties that demonstrated, shall we say, the most room for improvement, were orthopedics and cardiothoracic surgery.

Anger is one of the 7 deadly sins, not necessarily in the biblical sense, but a sin as falling short of the mark, failing to live up to one's obligation to themselves and to society. Where does it originate? Nobody intentionally rolls out of bed planning to be disruptive. Anger is a 2-step process.[2] Anger equals pain plus trigger thoughts. Pain can be physical or emotional. Trigger thoughts are your interpretations and assumptions of an interaction that make you feel victimized, and often deliberately so, by others. Each component of the formula is harmless without the other. Pain alone does not ignite rage without a trigger.

The limbic system is a series of interconnected structures deep within the brain and is responsible for our behavioral and emotional response to environmental triggers. Our amygdala and hypothalamus collect data for what Daniel Kahneman calls our *Thinking, Fast and Slow.*[5] The ventromedial prefrontal cortex processes the event through analysis of stored memories, thought, and judgment. In fight or flight mode, limbic transfer is so efficient that it can hijack our thoughts and cause us to react before the prefrontal cortex has had the opportunity to proportion our response. Slow thinking reverts to learned behaviors, and during high-intensity, high-acuity situations, trigger amplifiers such as hunger, anxiety, loneliness, or exhaustion can stoke the fire.

At Washington University a few years ago, we polled the faculty, and although less than 30% reported they had ever been disruptive, more than 85% reported that one of their colleagues had been disruptive. A bit of a disconnect? It's a matter of awareness. We need to educate surgeons on

how to be aware they are in a potentially stressful situation so they can take measures to mitigate stress response.

Deconstructing anger's root cause can effect change. The University of Alabama at Birmingham group identified that maladaptive behavioral events were most often the consequence of unclear expectations (71%), work overload and competing responsibilities (47%), ineffective help (41%), unclear policies (30%), and personality conflicts (28%).[6] The Alpha Omega Alpha Honors Medical Society Think Tank concluded that a combination of personal responsibility for behavioral response and a systems-based change to facilitate diminution of environmental triggers is most effective.[7] From the institutional side, providing appropriate levels of support, such as experienced help and adequate hospital capacity, can lower clinician stress and make adherence to behavioral standards easier to accomplish. As individuals though, the first thing we learn when going through the process of professionalism reeducation is that you alone cannot change the environment, and you cannot change others. The only thing you can control is yourself and how you deal with and react to a situation.

Systems-based practice, interpersonal and communication skills, and professionalism account for one-half of the Accreditation Council for Graduate Medical Education core competencies, but they were not a standard part of the medical school, residency, or continuing medical education curriculum for many of us; at least they were not when I was going through it. When I was a resident, our mantra was "get the job done" regardless of the collateral damage we left in our wake. I have come to realize that this approach was wrong and has to change. The 3 nonpatient care competencies are so much more an important part of the future and an integral component of building our specialty moving forward.

The Ohio State University group evaluated personality traits of surgeons and nonsurgeons using the Big Five Inventory.[8] Openness and neuroticism were similar, but surgeons were significantly more goal driven and accepting of delayed gratification and conscientiousness, and had a more energetic approach toward social interactions, extraversion. Agreeableness, however, was not our strong suit and may represent a maladaptive, learned response during training. Agreeableness among surgical trainees scored similar to nonsurgical faculty and house staff. It was not until surgeons completed training that their mistrust and antagonism manifest, and this metamorphosis occurred regardless of the sex of the resident. The surgical mindset that evolves during residency supersedes underlying personality differences between genders. Although confidence is important, it cannot come at the expense of humanity and our capacity to compromise. Our trainees look to our leaders to model behaviors, and it is time to break the cycle.

At Johns Hopkins, Bae and colleagues[9] used an evidence-based approach to examine the triggers most often responsible for disruptive behavior in nurses and physicians. Interpersonal conflict between 2 or more individuals accounted for a 2-fold increase in disruptive behavior compared with intrapersonal triggers and a 4-fold increase compared with organizational triggers. As such, team training in interpersonal communication and conflict management should be our first target to promote mutual respect and collegiality.

At Washington University, we implemented a Culture of Safety project in our high-stress, high-risk cardiothoracic service line.[10] We identified the operating room environment as the most vulnerable and therefore decided to begin there. It was diabolical. We charged 2 individuals who had been at odds to champion the effort, together. The 4-week Team Strategies and Tools to Enhance Performance and Patient Safety curriculum focused on communication, leadership, situation monitoring, and mutual support. All operating room personnel involved in the care of cardiothoracic surgical patients underwent training, including surgeons, anesthesiologists, trainees, nursing staff, and technicians. We were all in the same classroom, sitting next to each other discussing issues. Leadership then held periodic town hall meetings to review findings and encourage continued efforts to improve. During the following 12 months, team members completed surveys after all operations including 2 specific questions scored on a 5-point Likert scale:

- Were you satisfied with the level of teamwork during the case?
- Did you feel comfortable speaking up with questions and concerns?

We collected 12,000 data points. Over the ensuing 4 quarters, there was a progressive, statistically significant increase in the number of individuals who strongly agreed with each of these statements. In regard to teamwork, positive teamwork increased from 82% to 91%. In regard to psychological safety, freedom of communication increased from 87% to 95%. During this same time period, there was a 40% decline in medical errors and a 60% decline in medical errors thought to be injurious to the patient. Was the enriched culture of safety a direct consequence of the Team Strategies and Tools to Enhance Performance and Patient Safety program? Probably not, but it started the conversation. More likely, it was the collaborative effort of surgery, anesthesia, and nursing leadership to reinforce the importance of this initiative that led to the improvement in teamwork and communication.

The medical field is like no other. In the corporate world, a disruptive employee is simply let go to find work elsewhere. In the medical field, such an approach can have long-term ramifications for both the medical professional and the organization. We should not have as our goal to identify the deviant clinician and throw them off the bus. Our ultimate goal should be to get the individual back to

focusing on the mission through an enhanced focus on well-being. We need to intervene when necessary, but should stress preventative more so than punitive interventions. We must take a proactive approach to educate the entire team to improve bidirectional communication and build respectful responses to common triggers so that all members of the team have the opportunity to experience professional fulfillment.

While these concepts may seem intuitive or come natural to some, the data clearly show it does not for the majority, and anyone who does not feel there is room for improvement is fooling themselves. We all need to change.[11] In the middle of Dante's road of life, there is a dark woods where all can get lost. Professionalism must be treated like any other acquired skill. We have to learn it. It takes a committed effort to develop self-sustaining alternatives to unprofessional behavior, and it is difficult, if not impossible, to do it alone.

Everything that has happened to me, every good fortune, is the result of a mentor's support through my journey, and I venture that everyone here is here only because a mentor saw something and was willing to help mold a career. I owe my career to a great number of individuals whose honesty, friendship, and commitment were responsible for my presence on the presidential podium this year. Thank you to all for this great honor. I am humbled by the experience.

IS ANGER EVER JUSTIFIED?

My first American Association for Thoracic Surgery (AATS) meeting was in 1992. That year it was held at the Century Plaza Hotel in Los Angeles. I was working in the Miller lab at Stanford at the time (Figure 1). When I asked Dr Miller if I could attend, he hesitated at first but then agreed. "But we can't afford to let you fly, and the congress hotels are all too expensive." Lucky for me, I had a Geo Metro that got 52 miles to the gallon and found a cheap motel on Venice Beach that suited me just fine. It was a remarkable meeting. John Waldhausen was the president, and the program book was a virtual who's who of leaders in our specialty[12]: Cosgrove, Orringer, Svensson with Coselli, Naunheim, Lytle, Allen, Castaneda, Jonas, Sabik, Carpentier, Rusch, Kirklin, and so many others. The final day of the meeting was Wednesday, April 29. I had the good fortune to meet John Kern and Bob Higgins that day, who were presenting their first AATS papers at the research forum. The meeting adjourned at 12:10 PM after Tirone David's report on exploring the arch during acute dissections. It was an amazing introduction to our specialty, but unfortunately it was not the most memorable or socially relevant event that day. After lunch with some friends, I went to the parking lot to start my drive home a little after 3 PM. I turned on my radio, and this is what I heard:

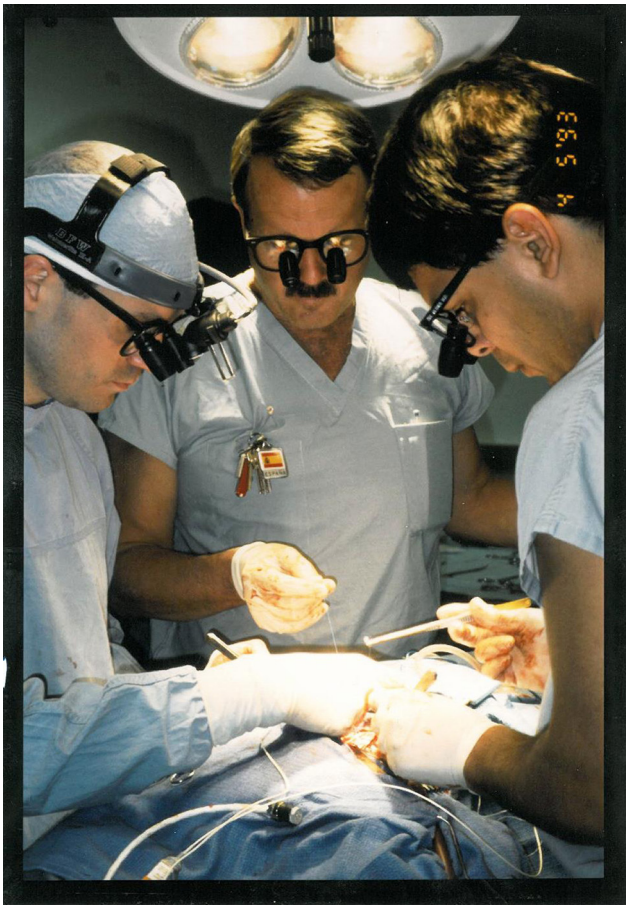

FIGURE 1. Dr Craig Miller with Abe DeAnda and me in the cardiac physiology laboratory at Stanford University School of Medicine in 1992.

> "We the jury, in the above entitled action, find the defendant Laurence M. Powell not guilty, find the defendant Timothy E. Wind not guilty, find the defendant Theodore J. Briseno not guilty, find the defendant Stacey C. Koon not guilty…"

Four police officers who had savagely beaten Rodney King were found not guilty by a jury in Simi Valley that did not include a single African-American. Forty-two minutes later, Los Angeles was ablaze.

It was not the first time I had a personal encounter with social unrest, nor would it be the last. The 12th Street Riot, better known to most of you as the Detroit Riot of 1967, started in the wee hours Sunday morning July 23, following my fifth birthday, just a few blocks from our family church on Woodward Avenue in Downtown Detroit. As we drove off that afternoon, I could see and smell the city burn. Then, 47 years later, nearly to the day, Ferguson, Missouri, a half dozen miles from my home, became ground zero. I had hoped these 2 events would serve as the bookends of social injustice for my generation and lead to enduring change for the future. Unfortunately, I was wrong.

On a societal level, anger has been used as an equalization tool for those with lesser power, when a decision-maker places insufficient weight on the welfare of the angry individual, relative to their own welfare, when making decisions that affect both. The Recalibration Theory explains how natural selection evolved anger to bargain for better treatment and recalibrate decision-makers.[13] Anger is the mechanism through which the underprivileged struggle to achieve equity when all other attempts have fallen short.

In the wake of 12th Street, Carmichael and Hamilton wrote in *The Politics of Liberation*, "We are faced with a situation where powerless conscience meets conscienceless power."[14] Rereading this quotation early in my term as AATS president led me to take a fresh look at the AATS, to assess our capacity to address needs equitably, and to question where and how to invest resources to foster more just outcomes. In cardiothoracic surgery, we keep hearing *Awareness is the first step to bring about positive change*. That's all well and good, but awareness is yesterday's headline. Let's not be ordinary. What we need now are solutions and actions to overcome the obstacles those underrepresented in our specialty face during their journey to become cardiothoracic surgeons. Our goal must be to "transform dark yesterdays into bright tomorrows."[15]

In the April 2021 issue of the *Journal*, I summarized our barriers to diversity in an opinion piece titled, "Equal Means Equal."[16] The comments from peer reviewer number 2 started with, "I admit I had some trepidation about a diversity article written by a white male…" I found that remark particularly compelling and substantial. In reviewing the literature, it's true. Nearly every paper written on the topic has been written by a woman or underrepresented minority (URM). I admit I have never been on the receiving end of gender or racial bias, but as AATS president, I thought it was my duty to bring to light these issues and support the movement to increase the number of women and URMs into our specialty. After all, if white men don't start talking about it, then how are we ever going to change?

Diversity in cardiothoracic surgery will not occur passively. It requires a concerted effort. The QR Code in Figure 2 will take you to the first ever official AATS Position Statement on Diversity, Inclusion, and Equity, which made its public debut on our Association's website, May 1, 2021. Dr Ani Anyanwu and the recently founded AATS Membership Recruitment, Engagement, and Diversity Committee developed this communiqué as their first charge to summarize the AATS position on bias and diversity. One particularly important sentence reads, "Recruitment and engagement of surgeons from diverse and emerging groups is imperative for improving the inequalities in the cardiothoracic health of society," ending with, "Committed to action. Committed to long-term change." So, what are we going to do?

FIGURE 2. QR Code for AATS Position Statement on Diversity, Inclusion, and Equity Statement. Accessed May 1, 2021.

For women, the loss to other specialties is not a pipeline issue (Figure 3).[17] Rather, it occurs most substantially at the decision point between medical school and residency. Here is where mentorship is key, but we have to do it right.[18] A recent survey in *The American Surgeon* reported recommendations from faculty mentors to female trainees.[19] The specialty that ranked at the bottom, which was recommended the least to women mentees, was cardiothoracic surgery, less than even neurosurgery and orthopedics. Let's take a deeper dive. How about urology? Some 40% of general surgeons advised only men to pursue urology compared with 36% of vascular surgeons, 40% of orthopedic surgeons, and only 20% of urologists. How does this compare with cardiothoracic surgery? Some 33% of general surgeons advised only men to pursue cardiothoracic surgery, compared with 36% of vascular surgeons, 47% of orthopods, 53% of urologists, and, wait for it, 57% of cardiothoracic surgeons! What are we doing? Shame on you, and shame on me. "We have met the enemy, and the enemy is us."[20]

Can we realistically expect to see a gender distribution in cardiothoracic surgery similar to obstetrics and gynecology? Unlikely, but there are glimmers of hope that the gender gap is narrowing. Take my program for example.[21] I became the program director at Washington University in 2003. During the preceding 74 years, only one woman completed training in thoracic surgery and zero URMs. When Dr Joel Cooper handed over the reins, he said, "I just want you to do one thing. Change the face of our residency program." In the next 17 years, we graduated 50 residents and 32% were women or URM, and currently, 55% of our residents are underrepresented in cardiothoracic surgery (Figure 4). In this public forum, I would like to thank these outstanding individuals. I may have taught them how to operate, but they have taught me everything else. I am deeply proud of each and every one of them.

So, we should keep hope alive, but to expect a 50-50 gender distribution in the cardiothoracic workforce anytime soon is unrealistic and should not be our immediate goal. Instead of striving for equality in numbers, we need to push for equity in status, rights, and opportunities to both enter and lead the field with an equal voice at the table.

Critical mass theory suggests that a tipping point exists at which a committed minority can modify groupthink to influence and overturn established behaviors.[22] It does not

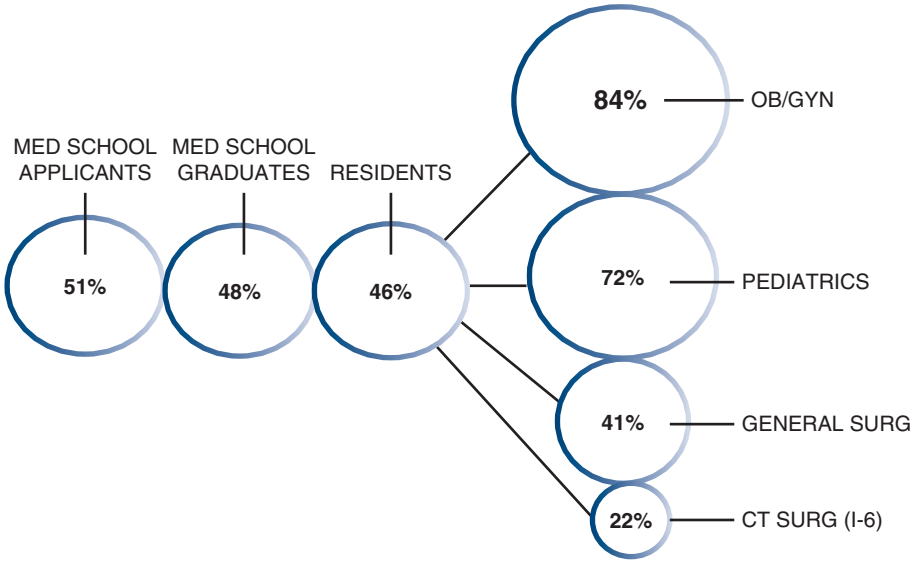

FIGURE 3. Women in cardiothoracic surgery is not a pipeline issue. Based on data from the Association of American Medical Colleges 2018 State of Women in Academic Medicine.[17]

take a majority to disrupt the equilibrium. When the committed minority is smaller than 25% of the population, only 6% of the noncommitted population ultimately adopt the alternative behavior. In contrast, when the committed minority exceeds 25%, the committed minority is able to achieve full convergence with universal acceptance of the alternative strategy.

Think about it. The Association's Executive Committee includes the President (Marc Moon), President-Elect (Shaf Keshavjee), Vice President (Yolonda Colson), Secretary (David Jones), Treasurer (Emile Bacha), and Past President (Vaughn Starnes). I'm going to let you do the math, but we are within striking distance. Last year, Pedro del Nido and the AATS Nominating Committee took the first step to achieving a relevant committed minority. One thing is for sure, there is no way to reach the tipping point, until you start with one.*

The AATS has a commitment to maintain its high standards for membership. AATS members consistently express the importance that the AATS remains a meritocracy, and it will. But there is a problem. Ceppa and colleagues[23] published an update on the status of women in thoracic surgery last month in *The Annals of Thoracic Surgery*. Their data show that although the number of women continues to increase in our specialty, there is an age discrepancy between men and women in our field. The overwhelming majority of cardiothoracic surgeons are aged more than 50 years, 72% versus 28% in the younger group. In contrast, the overwhelming majority of female cardiothoracic surgeons are aged less than 50 years, 61% versus 39% in the older group. Drs Jennifer Lawton and Rosemary Kelly chaired the AATS Membership Committee for the last 6 years, during which time the average age for new members was 52.5 years. The majority of women are far below the average age of those accepted for AATS membership, but I don't think we can wait another 10 years to get more women involved. That is why I asked Dr Anyanwu's Committee, as their second charge, to develop a novel mechanism through which we can involve younger surgeons, who may not yet be ready for AATS membership, to contribute to the AATS Mission at an earlier point in their career. Such an approach would allow us to capitalize on the diversity that already exists in the base of our specialty.

I am excited to introduce a new category for participation in the operations of the AATS, the AATS Fellowship Program. The AATS Fellowship Program will be available to early-career, board-certified, or equivalent surgeons during their first 5 years in practice. Fellows of the AATS will not hold this position in perpetuity, but for a defined 2- or 3-year period, during which they will have the opportunity to serve on AATS committees, review abstracts for the Annual Meeting, review papers for AATS journals, attend programs tailored to their specific needs that are organized through Todd Rosengart's education committees, and be matched with an AATS volunteer mentor of the Fellow's choosing, outside their own institution, who is dedicated to advancing their career. At the end of the fellowship, the AATS Core Mentorship Committee will meet with each Fellow to review their progress, offer concrete advice for career

* On May 2, 2021, at the AATS Annual Business Meeting, Dr Joseph Coselli and the Nominating Committee appointed Dr Rosemary Kelly as Secretary-Elect, consequently exceeding the tipping point for a gender-based committed minority on the Executive Committee.

FIGURE 4. Cardiothoracic surgery residents at Washington University School of Medicine, 2003-2021.

advancement, and develop a specific, individualized path to AATS membership in the future. My intention is that this program will open the "Black Box" that has historically surrounded the AATS membership process and clarify expectations. I hope all AATS members will support this initiative and strongly consider volunteering to serve as a mentor through the self-nomination process this summer.

Two other new projects, focused on supporting women in cardiothoracic surgery, include the AATS Foundation Equity Award and the AATS Foundation partnership with Women in Thoracic Surgery to launch the Mid-Career Investigator Award. These awards support education and research for mid-career women and faculty underrepresented in medicine and those whose professional growth has been delayed as a consequence of external constraints. In addition, the AATS is proud to announce the first female Editor-in-Chief of an association-based cardiothoracic journal in the world. Dr Blair Marshall is now Editor-in-Chief of *Operative Techniques in Thoracic and Cardiovascular Surgery*. Congratulations Dr Marshall, it has been a long day coming, but now it is here.

In contrast to gender diversity, different targets exist to promote racial and ethnic diversity in cardiothoracic surgery (Figure 5).[24] Underrepresented in medicine (UIM) is definied by the Association of American Medical Colleges as racial and ethnic populations that are underrepreseneted in the medical profession relative to their percentage of the general population. UIM individuals select cardiothoracic surgery as often as most other specialties. The loss of UIM individuals from the potential cardiothoracic surgical workforce occurs much earlier in the educational process. UIM individuals account for approximately 33% of undergraduate students but only 14% of medical school applicants, a leak of 8634 from college. Of those admitted to medical school, only 13% are UIM, a loss of 276 during the admissions process. Probably the most disturbing loss of UIM individauls in the educational pipeline occurs during medical school itself. Of those graduating from medical school, only 11% are UIM, a loss of 364 during medical school: 364! Have you heard or read anything, anywhere about medicine in the last week that is remotely as important as that number? This is where an AATS and AATS Foundation intervention to address the unique individual needs of underrepresented in medicine medical students may play its most important role.

Decreased retention rates for UIM medical students exist, with a 3-fold higher number experiencing academic or financial hardships that delay or prevent graduation.[25] Modeling studies predict as many as 39% of UIM students fall behind and do not graduate with their original classmates. This is compared with only 14% of nonminority students. Dr William McDade, who leads the Accreditation Council for Graduate Medical Education Diversity Office, notes that a substantially higher percentage of UIM students come from economically disadvantaged backgrounds and cannot afford the high cost of tuition and living expenses without assistance (personal communication, March 5, 2021).[26] These students often have to take part-time jobs while in medical school, working up to 20 to 30 hours a

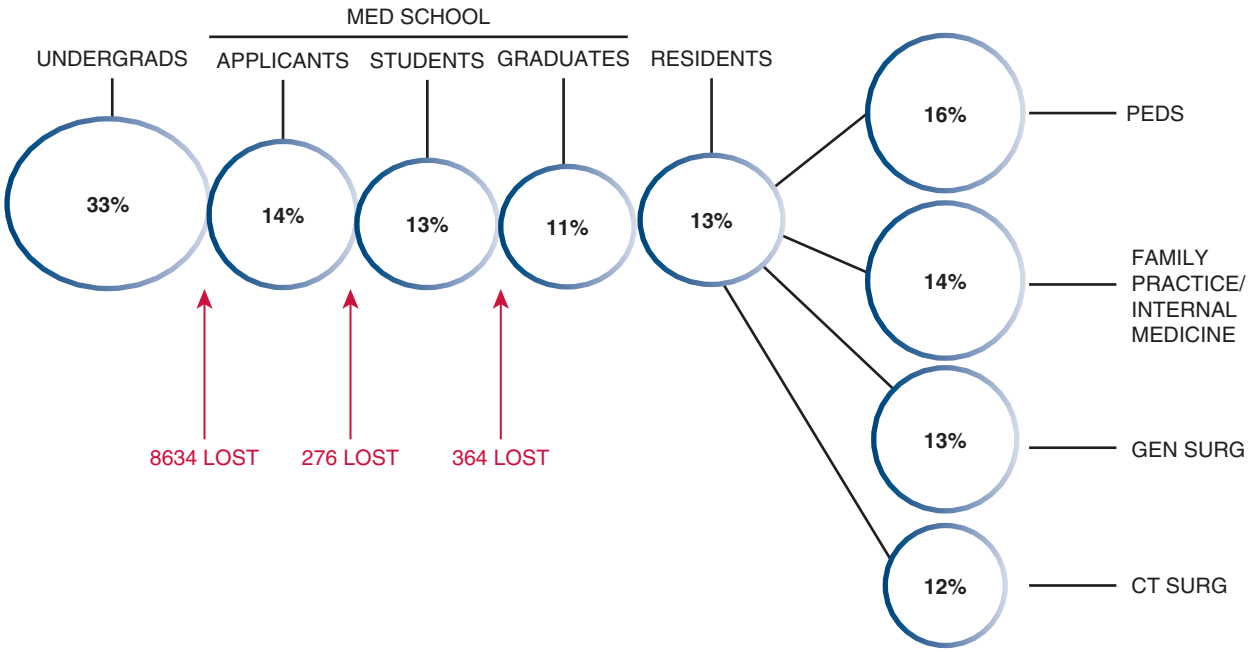

FIGURE 5. Underrepresented in medicine populations in the educational pipeline. Based on data from the Association of American Medical Colleges 2019 Report on Enrollment, Graduate, and MD-PhD Data.[24]

week. Internet blogs are rife with trainees lamenting their decision to pursue noneducational jobs, which affects class attendance, study efforts, board scores, research opportunities, and work–life balance for both students and their families. In addition, those who amass large debt loads after graduation are less inclined to pursue specialties with long training paradigms.

The AATS and AATS Foundation have limited influence on the medical school admissions process, but we do have the capacity to support UIM students by lessening financial burdens that can affect ultimate career decisions. I am super excited to announce that the AATS and AATS Foundation just approved a $1.2 million 5-year program to offer UIM students, who are interested in cardiothoracic surgery, the opportunity to apply during the M2 or M3 year for a 1- or 2-year scholarship to pay living expenses to support the remainder of their medical school career.

If you did not get out your phone the last time I shared a QR code, you better do it now (Figure 6). This link will take you directly to the program announcement for the AATS Foundation Medical Student Diversity Scholarship. The AATS Foundation will fund 10 scholarships each year based on the estimated moderate budget living level for a medical student of $18.5 thousand, including a stipend to attend the AATS Annual Meeting. Students will need to demonstrate a keen interest in cardiothoracic surgery through a personal statement and letters of support. Currently, of 441 cardiothoracic residents in the United States, there are only 42 UIM.[27] During its initial 5 years, this program will impact more than 30 medical students and has the potential to increase the number of UIM cardiothoracic trainees in the year 2026 by 83%.

FIGURE 6. QR Code for AATS Foundation Medical Student Diversity Scholarship. Accessed May 1, 2021.

Motivation and self-efficacy transform knowledge acquisition into the intent to implement an actionable behavioral change.[28] Do we want to succeed? Can we succeed? The duality of a positive response drives our commitment forward to do better and to be better. The AATS has both the motivation and the resources to reform our specialty. We have to lead the change we want to see in the world. To forever impact the future and transfigure destiny, we can no longer count on "them" to fix our problems, it must begin with "us." The AATS is committed to and is implementing actionable long-term change to accomplish our collective ambitions. For that, I am very proud.

Now pride, like anger, has been categorized as one of the 7 deadly sins since the fourth century. But unlike the others, pride is the only sin with a virtuous side as long as you take pride in what you do, not who you are. Having pride is a way to repay the kindness and dedication of mentors who took us under their wing.

So, is this an adventure? Without question, cardiothoracic surgery, and life for that matter, is an adventure with

FIGURE 7. Moon family with St Louis Blues Hall of Fame ice hockey legend Brett Hull.

challenges, an adventure with consequences, an adventure with rewards. Let's not be ordinary. Let's commit to take action and make a long-term positive change. Let's do something to make ourselves feel proud.

I will tell you what else I am proud of. It is impossible to achieve balance without support from those who surround you. For me, that is my family (Figure 7). Cindy and I have watched this amazing group mature into compassionate contributors to the growth of society as a whole. Brent, Brittany, Valerio, Ashely, Laine, Tyler, and Justin, my existence would be bare without each and every one of you. Your counsel has been directive and stern when appropriate, but fair, which I appreciate. I am proud of how your combined intellectual and compassioned genius now shines before the world. And to my wife Cindy, I humbly thank you for your unconditional friendship and unfettered support, not only when I fell off the deep end, but in so many wonderful times over the years, filled with mutual respect and my deepest adoration. I owe you my soul, a debt it will take a lifetime to repay.

References

1. Moon MR. Technical skills assessment in thoracic surgery education: we won't get fooled again. *J Thorac Cardiovasc Surg*. 2014;148:2497-8.
2. McKay M, Rogers PD. *The Anger Control Workbook*. Oakland: New Harbinger Publications, Inc.; 2000:57-62.
3. Williams BW, Williams MV. Understanding and remediating lapses in professionalism: lessons from the island of last resort. *Ann Thorac Surg*. 2020;109:317-24.
4. Hopkins J, Hedlin H, Weinacker A, Desai M. Patterns of disrespectful physician behavior at an academic medical center: implications for training, prevention, and remediation. *Acad Med*. 2018;93:1679-85.
5. Kahneman D. *Thinking, Fast and Slow*. New York: Farrar, Straus and Giroux; 2011.
6. Heslin MJ, Singletary BA, Benos KC, Lee LR, Fry C, Lindeman B. Is disruptive behavior inherent to the surgeon or the environment? Analysis of 314 events at a single academic medical center. *Ann Surg*. 2019;270:463-72.
7. Papadakis MA, Paauw DS, Hafferty FW, Shapiro J, Byyny RL. The perspective: the education community must develop best practices informed by evidence-based research to remediate lapses of professionalism. *Acad Med*. 2012;87:1694-8.
8. Drosdeck JM, Osayi SN, Peterson LA, Yu L, Ellison EC, Muscarella P. Surgeon and nonsurgeon personalities at different career points. *J Surg Res*. 2015;196:60-6.
9. Bae SH, Dang D, Karlowicz KA, Kim MT. Triggers contributing to health care clinicians' disruptive behaviors. *J Patient Saf*. 2020;16:e148-55.
10. Ridley CH, Al-Hammadi N, Maniar HS, Ben Abdallah A, Steinberg A, Bollini ML, et al. Building a collaborative culture: focus on psychological safety and error reporting. *Ann Thorac Surg*. 2021;111:683-9.
11. Moon MR. #WeAllNeedToChange. *Ann Thorac Surg*. 2020;109:996-8.
12. The American Association for Thoracic Surgery. Seventy-second annual meeting. *J Thorac Cardiovasc Surg*. 1992;103:604-12.
13. Sell A, Tooby J, Cosmides L. Formidability and the logic of human anger. *PNAS*. 2009;106:15073-8.
14. Carmichael S, Hamilton CV. *Black Power: The Politics of Liberation*. New York: Random House; 1967:48.
15. King ML Jr. Address to the Southern Christian Leadership Conference on August 16, 1967. Available at: http://www.hartford-hwp.com/archives/45a/628.html. Accessed April 26, 2021.
16. Moon MR. Equal means equal: cardiothoracic surgery in its second century. *J Thorac Cardiovasc Surg*. 2021;161:1381-9.
17. AAMC. The state of women in academic medicine. Residents by gender, 2018 (Figure 4). Available at: https://www.aamc.org/data-reports. Accessed October 20, 2020.
18. Luc JG, Preventza O, Moon MR, Antonoff MB. Keep the pipeline for women applying to cardiothoracic surgery. *Am Surg*. 2020;86:e119-21.
19. Altieri MS, Price KL, Yang J, Jones DB, Pryor AD. What are women being advised by mentors when applying to surgery? *Am Surg*. 2020;86:266-72.
20. Stephens EH, Fiedler AG. We have met the enemy; the enemy is us. *J Thorac Cardiovasc Surg*. 2019;157:e395-6.
21. Randhawa SK, Moon MR. Gender parity in cardiothoracic surgery training: significant strides but miles to go. *Ann Surg*. November 17, 2020 [Epub ahead of print].
22. Centola D, Becker J, Brackbill D, Baronchelli A. Experimental evidence for tipping points in social convention. *Science*. 2018;360:1116-9.
23. Ceppa DP, Antonoff MB, Tong BC, Timsina L, Ikonomidis JS, Worrell SG, et al. 2020 Women in Thoracic Surgery update on the status of women in cardiothoracic surgery. *Ann Thorac Surg*. April 12, 2021 [Epub ahead of print].
24. AAMC. 2019 FACTS: enrollment, graduates, and MD-PhD data (Tables B-3 and B-4). Available at: https://www.aamc.org/data-reports. Accessed October 20, 2020.

25. Rainey ML. How do we retain minority health professions students? In: Smedley BD, Stith AY, Colburn L, Evans CH, eds. *The Right Thing To Do, The Smart Thing To Do: Enhancing Diversity in the Health Professions*. Washington DC: National Academics Press; 2001:328-59.
26. McDade WA. Increasing graduate medical education diversity and inclusion. *J Grad Med Educ*. 2019;11:736-8.
27. AAMC. 2020 report on residents. Number of active MD residents, by race/ethnicity and GME specialty (Table B5). Available at: https://www.aamc.org/data-reports. Accessed April 26, 2021.
28. Williams BW, Kessler HA, Williams MV. Relationship among knowledge acquisition, motivation to change, and self-efficacy in CME participants. *J Contin Educ Health Prof*. 2015;35(Suppl 1):S13-21.