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The Business of You.

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Congress of Neurological Surgeons

EDITOR'S NOTE

Martina Stippler, MD
2018 Editor,
Congress Quarterly

The ideas for this issue came to me when I read two books recently: *Thank You for Being Late* by Thomas L. Friedman, and *Attending: Medicine, Mindfulness, and Humanity* by Ronald Epstein. (An interview with Dr. Epstein about his book is part of this issue.)

In his book, Thomas Friedman mentions this quote from Dov Seidman: "When you press the pause button on a machine, it stops. But when you press the pause button on human beings they start." This issue is an invitation for you to pause, reflect, and challenge your assumptions about what it means to be you and reconnect with your core beliefs.

I challenge you to invest in the Business of You. We neurosurgeons stop at no obstacle or difficulty to care for our patients. We care and provide for our families, our coworkers, and the community. But what do we do for ourselves? Do we dedicate time to keeping ourselves healthy and content? Taking the time to care for yourself is one of the most important things you can do. Neglecting self care will eventually negatively impact your interactions with colleagues, patients, family, and friends.

Dr. Reid Thompson talks about burnout recognition and prevention, and in my interview with Dr. Epstein, he lays out how mindfulness can make us better physicians and improve job satisfaction. He also makes a very good argument for how mindfulness can prevent medical errors.

Dr. Elad Levy shares nine simple strategies he uses to lead strategic departmental growth while simultaneously encouraging his faculty to flourish professionally and personally. Dr. Daniel Ho follows with an insightful article on what it takes for a neurosurgeon to develop their own brand. Although it is very common in many other professions, the concept of branding has not been fully embraced by the medical neurosurgery community.

While athletes at the top of their game/field have a coach who tells them all day, every day, what they could do better, who does this for the attending neurosurgeon? How can we grow and improve without feedback? And may I state here loud and clear that patient care conferences in their current format are not living up to this goal. Dr. Harry Van Loveren shares with us his experience of inviting a coach to observe the residents and faculty in his department and the changes that resulted. I am also thankful to Dr. Daniel Resnick for reintroducing Osler's concept of Aequanimitas, and would recommend you read Dr. Steven Kalkanis' plea to be home for dinner.

We've also introduced a new feature in this issue called "Neurosurgeons Talk." We want to give a voice to our membership on various topics. Please look for upcoming questions for future issues on our social media platforms! In line with our overarching theme of "The Business of You," our CNS resident ambassadors asked Dr. Dade Lunsford, director of one of the most influential neurosurgery residencies, if neurosurgery training could be shorter.

This issue is an invitation to pause, reflect, and invest time in yourself to become your best at work, in your community, and at home. I hope you enjoy reading these articles as much as I did.

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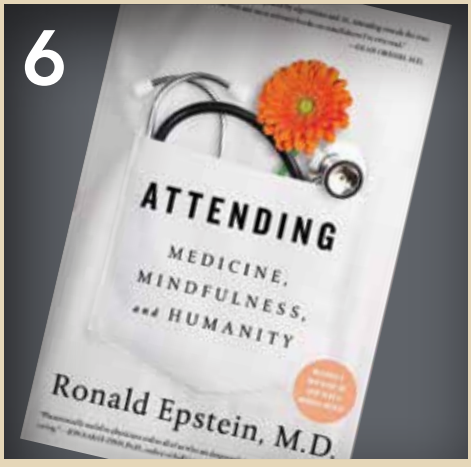

PRESIDENT'S MESSAGE

Connecting with Others

Ashwini D. Sharan, MD
President, Congress of Neurological Surgeons

It is a great privilege to serve as the president of the Congress of Neurological Surgeons. As I work toward constructing my Presidential Address in October, I have had to take a step back and reflect on my life and my role in the universe. In doing so, I find I always come back to a few certain truths: people, people, and people.

I, like you, get to perform amazing surgery, in the most and least invasive manners, for the betterment of the brain and spinal cord. As neurosurgeons, we have the unique ability to make people better. Each of us has spent more than 20,000 hours training between the ages of 25–35 to acquire this skill set, and we have developed significant emotional intelligence along the way. We possess real drive and resilience. But in this "yatra" (the word for "journey" in Hindi), how have we managed our own inner light and wellness? I will share my own small quirks with you.

During the course of our career, we have patients with many fixed neurological deficits, problems that have real impact on their quality of life. When I see patients and families who maintain positivity in the light of such adversity, I am personally enriched. If the patient is in the same age range as my wife, my parents, my kids, or myself, I often think, would I have that same inner strength? This simple reflection has made me realize how critically important it is to be connected to others, to find happiness in sharing, to cultivate gratitude for what you have, and to find every opportunity to give back.

As I grow older, I have changed in many ways, including the way I think and how I prioritize my life. I am not talking about my practice, but about how I interact with the people around me—my family, my relatives, my friends, my colleagues in the office and OR, my patients, and even my board.

The common themes I aim to impart to my "peeps" are energy, inspiration, and knowledge. I feel that these themes have a great universality to them. I truly enjoy hearing what my friends and colleagues do in their free time (as I feel that I rarely have that), and I love how people are such people! I enjoy sharing "old father" jokes every day, like "Why is Peter Pan always flying around? Because he can never, never land…." And I like to share thoughts on happiness, like "If people had wagging tails, perhaps we would know who's happy or not." I also enjoy engaging with people on topics of hope and creativity, or future thoughts and innovations. If you look up any of these words on YouTube, you will find lectures by experts who study these concepts. The world is absolutely full of knowledgeable people, and the internet has democratized access to it.

I ask my children to read the economists. It's very difficult reading, but it builds their vocabulary and awareness about the socio-politics of the world. I try to put inspirational quotes from Google Images on their bathroom mirror. I like to wake them up in the morning with their favorite songs from YouTube, or take them out with their friends for sushi and attempt to stimulate conversations regarding their peers (hoping to be a "fly on the wall"). Finally, I treasure the time when I have the opportunity to drive them back and forth to their after-school activities as it places us in the car together and fosters conversations.

With my wife, I share movies. I suspect we watch 50–70 movies per year together. We both share a passion for cinematic detail and appreciate that producers spend millions of dollars on our entertainment. Additionally, we both enjoy traveling to interesting and beautiful places, and good food and drink. These are obviously universal, but there aren't many places or restaurants we have visited that we have absolutely hated. Every year, we make at least one private couple's trip together without the children.

I try to make a weekly call to my mom, dad, and brother just to hear their voices and stay a part of their lives. In fact, my parents live geographically between my brother and I. I suspect the proximity makes us feel closer. I do wish, as our parents age, that I could spend more free time with them without distractions (i.e., the cell phone).

The Sharan family

Ashwini Sharan, MD, with neuroscientist and author David Eagleman

The OR Team from Thomas Jefferson University Hospital having fun

The OR team at Thomas Jefferson University Hospital gets down to business

This year in particular, I have had the opportunity to work and develop special relationships with my CNS Board. I am surrounded by philanthropic individuals who volunteer their time above any RVU gain. It is a privilege learning about their goals, ambitions, ideas, and inventions, and trying to place them within the boundaries of organized neurosurgery. There is tremendous satisfaction and strength from being around like-minded individuals.

The most recent "business of me" has developed in the last few years. After I turned 40, I (like so many others), have watched with dismay as our bodies change. There comes a time where you must think critically about what you eat and drink. Understanding the body and taking care of it becomes a job—one more thing that must be done every day, week after week. Now, I cycle on my Peloton, working out to build muscle mass. I avoid sugar and carbohydrates, and watch my nutrition. This all makes good sense, but in some ways, it is a painful transition acquired with aging.

I often think the better question to ask myself is, what is the "mission" of me? Thinking about improving the mission of healthcare—teaching, treating, researching, innovating—can sometimes lead to an over-intense focus on neurosurgery, and that, in turn, can contribute to a feeling of disconnection from the world. I have come to the understanding that a mission is always evolving. Right now, I choose to stay connected to people, to enjoy, care for, and share experiences with my "circle." We all have the immeasurable opportunity to enrich the company of those around us. And, of course, I continue to grow intellectually and emotionally. I look forward to meeting you and continuing this dialogue about "The Business of You!" Please share your own thoughts via email at info@cns.org, (I will receive it), or on twitter @AshSharan.

Reid C. Thompson, MD

Empowerment and Well-being of Physicians: How to Assess and Prevent Burnout

Defining the problem of physician burnout

Something is changing in medicine. Increasingly, physicians are losing their sense of meaning and purpose. The risk factors for this problem are multifactorial and yet the diagnosis is clear: over 50 percent of physicians report symptoms of burnout and disengagement.[1] Burnout is a syndrome characterized by a sense of emotional exhaustion, depersonalization, cynicism, a reduced sense of personal accomplishment, and loss of meaning in one's work. Burnout in US physicians has increased during the past decade to epidemic proportions and is dramatically higher than that of US workers in other fields. The rate of burnout among physicians varies by clinical discipline, with many of the specialties at the front line of access to care (emergency medicine, family medicine, and OB-GYN) at highest risk. Neurosurgeons are not immune. There are many dimensions to physician burnout. Work-related stress fuels burnout, which in turn, leads to a loss of meaning in one's work. Physicians cite an ever-increasing excessive clinical and clerical workload, loss of autonomy and flexibility with regard to scheduling, lack of efficiency and resources (do more with less), and an erosion of work-life balance as important drivers of burnout. Important variables that play a role in determining burnout include age, stage of career, gender, and family make up. Women generally report higher rates than men. Younger and mid-career physicians appear particularly vulnerable, with those who are younger than 55 years old demonstrating a 200 percent increased risk of burnout compared with those older than 55. Having a child younger than 21 increases the odds of burnout by 54 percent, and having a spouse/partner who works as a non-physician increases the odds by 23 percent.[2]

What is the cost of physician burnout?

There is a tremendous cost to the epidemic of physician burnout. Surgeons in particular show a troubling drop in quality of care and patient safety along with an increase in medical errors when burnout is reported. Shanafelt and co-authors studied the relationship between burnout and medical errors among American surgeons and found that for each one-point increase in a surgeon's self-reported emotional exhaustion, there was a 5 percent increase in reported major medical errors. Each one-point increase in a surgeon's depersonalization score was associated with an 11 percent increase in the likelihood of reporting an error.[3] In cross-sectional studies of more than 7,100 US surgeons, burnout was an independent predictor of being involved in a medical malpractice lawsuit.[4]

Burnout also leads to loss of productivity and turnover.[5] This loss of productivity amortized to a national level is estimated to be the equivalent of eliminating the graduating classes of seven medical schools. The cost of replacing a physician who leaves a practice has been estimated to range from $500,000 to $1 million. For a neurosurgeon this is likely an underestimate. Estimates of the cost of physician burnout are difficult to quantify, but a recent publication from the Blue Ridge Group put the cost at a staggering $150 billion per year when taking into account medical errors, medical malpractice costs, loss of productivity, and physician turnover.[6]

Of course, there are other costs. On a personal and societal level, alcohol and substance abuse, depression, and suicide can stem from burnout. Physicians show an increased risk of suicide compared to the general US population, with rates 40 and 120 percent higher for male and female physicians respectively.[7]

What can be done about the problem of physician burnout?

Over the past several years, emerging literature on the problem of physician burnout emphasize the importance of identifying organizational and health care system factors that threaten the well-being of physicians. What is becoming clear is that in order for academic medical centers to address physician burnout, strategies must be developed that focus specifically on physician well-being. Such strategies must take into account both organizational (institutional) and individual (personal) variables to enact change. Structural organizational change is of paramount importance. Indeed, it is imperative for organizations to address the problem. The institutions that adapt and change their cultures will be successful in recruiting and retaining the best—and happiest—physicians. The corollary is true, as well. Shanafelt and Noseworthy have defined a series of organizational strategies to promote engagement and reduce burnout.[8] Important highlights include:

- Acknowledging and assessing the problem.
- Integrating discussions of well-being into career counseling.
- Developing and harnessing the power of leadership. It is evident that institutional leaders—department chairs and practice leaders—should model well-being in addition to promoting an overall culture of well-being.
- Creating and cultivating a community at work—including spaces to congregate, such as a physicians lounge.
- Promoting flexibility and work-life integration.
- Providing resources to promote resilience and self-care: access to a gym in the hospital, access to healthy food, access and ease of scheduling dental and medical appointments for physicians.

Well-being and neurosurgery

Well-being is the opposite of burnout, and is characterized by resilience, vigor, and engagement. Interestingly and importantly, physicians who report less burnout are able to identify at least 20 percent of their time is spent doing something they love. Recently, I was asked to co-lead the Task Force on Physician Well-being and Empowerment at Vanderbilt Medical Center. I have learned that a culture of wellness can best start at a department level. Department leaders have a unique opportunity to set the tone regarding expectations for being well. Promoting faculty well-being as an organizational value gives physicians permission to focus on strategies to promote individual well-being. The high-level demands of neurosurgery are almost unique in medicine. Given the prevalence of burnout in physicians, it is important for leaders in neurosurgery to begin a conversation about well-being. How can we instill it into our residents, faculty, and colleagues? There are role models in our field for building resilience into a career—and we can learn from them. There is robust literature emerging that we should familiarize ourselves with.

My impression of neurosurgeons is that we love what we do. We find joy in our work. The act of doing surgery is, in and of itself, an act of mindfulness. This state of pure focus resembles a state of "flow," and I believe it is one of the reasons we love operating! There are literally no distractions when we are purely focused in the operating room. Most people aspire to achieve a state of mindfulness, and work to develop this practice, but the practice of neurosurgery *is* mindfulness.

We need to be mindful of the power of well-being as a driver for excellence in caring for our patients, and for ourselves. A career in neurosurgery is a marathon, and "building in" resilience is critically important. How do we do this? We can start by having a national conversation.

Resources

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4 Balch CM, Osreskovich MR, Dyrbye, LN, et al. Personal consequences of malpractice lawsuits on American surgeons. *J Am Coll Surg*. 2011; 213:657-67.

5 Dewa CS, Loong D, Bonato S, Thanh NX, Jacobs P. How does burnout affect physician productivity? A systematic literature review. *BMC Health Serv Res*. 2014; 14:325.

6. *The Blue Ridge Academic Health Group*. The hidden epidemic: the moral imperative for academic health centers to address professionals' well-being. Published: Winter 2017-2018, Report 22. http://whsc.emory.edu/blueridge/publications/reports.html.

7 Center C, Davis M, Detre T, et al. Confronting de¬pression and suicide in physicians: a consensus statement. *JAMA*. 2003; 289:3161-6.

8 Shanafelt TD, Noseworthy JH. Executive leadership and physician well-being: nine organizational strat¬egies to promote engagement and reduce burnout. *Mayo Clinic Proc*. 2017; 92:129-146.

Martina Stippler, MD

Mindfulness in Medicine: Healing the Healer

Our lives have become faster. You feel it in your workplace. You feel it when you talk to others. You can't miss it when you read the newspapers or watch the news. In this fast-paced world, it is more difficult than ever to find time to think, reflect, and be mindful. How does this impact us as physicians and surgeons?

Ronald M. Epstein, MD, a practicing family physician and professor of family medicine, psychiatry and oncology at the University of Rochester School of Medical and Dentistry, wrote a timely book titled *Attending: Medicine, Mindfulness, and Humanity* (Scribner, 2018). It explores how mindfulness, or lack thereof, can diminish our effectiveness as doctors and our own wellbeing. I had a conversation with Dr. Epstein to explore this notion further.

Dr. Ronald M. Epstein

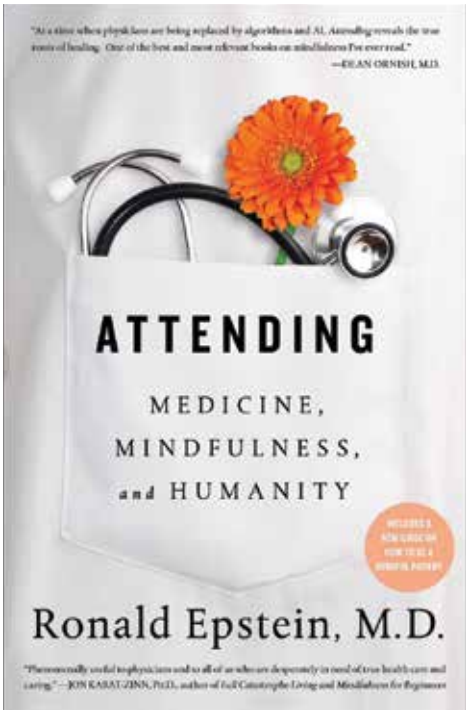
Dr. Martina Stippler: Your book touches on so many things we neurosurgeons are dealing with: patient care, outcomes, burnout, and personal well-being. How would you describe mindfulness to someone who hasn't read your book?

Dr. Ronald Epstein: Mindfulness refers to a quality of attention and presence, in which you are monitoring and directing your attention and focus, and are being present in the moment. There are other definitions but all definitions of mindfulness have to do with it being purposeful and nonjudgmental, and with being present.

MS: I love the quotes you include in your book, such as one from William Osler that says, "We miss more by not seeing than by not knowing." From your perspective, how can mindfulness prevent us from making medical mistakes?

RE: We often see those things we are expecting and are prepared to see. Mindfulness is a way of freeing the mind from those expectations so that we have a wider set of choices in what we perceive and see. The book begins with an example from an operating room in which a highly competent surgeon doesn't see something that is plainly obvious to a third-year medical student. The power of the surgeon's expectations is such that even when it is pointed out to him, he doesn't see the impending disaster in the operation room.

I think we all can see things we expect to see while things we don't expect to see fly by us. But in medicine, and surgery in particular, not seeing something could be fatal. Mindfulness allows you to modulate and moderate your attention so you better see what is in front of you without prejudging the sensory input before you register its meaning.



MS: I think you also included an example of a surgeon who was mindful. Can you remark on that?

RE: It is remarkable that among surgeons, the good ones who have learned to regulate their attention often can't tell you how and why they did it. I'm fascinated by that. A surgical colleague of mine, Dr. Carol Ann Moulton in Toronto, has described how expert surgeons can slow down in the operating room when they should, even though they can't necessarily describe why they slowed down. The surgeon I describe in the book recognized intuitively that something was not quite right, and followed that intuition with some degree of curiosity. In the process, the surgeon slowed down and recognized something that for a less experienced surgeon might lead to an error.

In retrospect, it became apparent that his focused attention allowed him to be aware of something maybe a split second before

other people noticed. That's an indicator of the quality of attention he was bringing to his work.

MS: Let's move now from the OR to a clinic visit. My institution allows me 15 minutes for follow-up patients, and 30 minutes with new patients. I want to be present, compassionate, and empathic—addressing the patient as a whole. How can I do that in 15 minutes?

RE: This might sound a bit mysterious, but perceived time is not the same as elapsed time. Although the clock says it's been 15 minutes, those 15 minutes could be filled with superficiality and lack of focus, or those 15 minutes could involve really honing in on the heart of the matter. By establishing clear communication and attentive focus, good physicians can use those 15 minutes more effectively. For example, we've known in psychology for hundreds of years that patients who are emotionally upset are unable to take in information very well.

In my research on communication I listen to audio recordings of visits between doctors and patients. When patients bring up something emotional, physicians usually pass right by it. I think a mindful physician can pick up on a patient's fear, worry, or mistrust and address that briefly. This lowers the patient's level of anxiety so the patient is more receptive to what the physician has to say. And vice versa. Osler also said that if you only listen well enough, the patient tells you the diagnosis. Physicians sometimes come in with a preconceived idea and don't really listen. The capacity for deep listening and presence allows you to use each moment to the best degree possible.

Of course, there are limitations. I'm a primary care physician and I also do palliative care. In my primary care office, I have 15 to 20 minutes per patient. Most are older and have a long list of concerns. It's not ideal, but given the constraints we have, there are ways we can maximize the effectiveness of the time we have.

> Mindfulness allows you to modulate and moderate your attention so you better see what is in front of you without prejudging the sensory input before you register its meaning. <

MS: I found your description of the difference between empathy and compassion interesting. Can you talk about how we should train the new generation of doctors differently?

RE: I think it's a major step forward that medical practice has addressed empathy, because it wasn't really part of the formula during my medical education. Largely medicine was about "patient presents you with symptoms, you diagnose them and prescribe a treatment." We know now that patients often come to doctors seeking explanations, seeking to feel understood. The medical encounter involves many skills in addition to assigning a diagnosis.

In my view, empathy and compassion exist along a spectrum. Having a cognitive understanding of another person's distress can deepen the relationship in a certain way, but resonating with another person's pain can make you feel paralyzed and distressed yourself. In the past ten years, we've learned that doing compassionate things, and expressing compassion is more effective.

What I found teaching medical students is they would feel (empathize with) the patient's pain—and then feel helpless. Compassion is defined as resonating with another person's emotion and then being moved to act to relieve their suffering. It's the acting to relieve suffering that gives us this sense of fulfillment and satisfaction. Neurobiologically, we get a greater dose of dopamine in the brain and therefore feel empowered and better about the work we're doing.

MS: I see a lot of back pain patients. Sometimes, it is not possible for me to relieve suffering. You used the term "othering." I remember this as I see horrible stories unfolding—people losing their jobs and going on disability while having little kids at home. Most of them want narcotics. How can we deal with that distress, be more compassionate and not "other" patients.

RE: That's a really good question, and you bring up a serious yet common issue. Clearly, narcotics are useful medications, but sometimes have substituted for conversations that can help the patient feel healed and whole. Prescribing a pill often backfires because patients temporarily feel better, but then their lives begin to fall apart.

This is one place in which it helps to be mindful and try to understand why the patient is really there. Is it because his or her job is intolerable? Is it because a patient can't function and do certain things they otherwise might do? Is it 100 percent due to physical pain, or are there other components to work on that might attenuate the effect pain is having on a person's life? Often, you can't get rid of the pain, but you can restore functioning and quality of life.

MS: As a neurosurgeon, you are often confronted with bad outcomes. They could be secondary to the nature of the disease or the risk of surgery. When communicating bad outcomes to the patient and family, you said, "It's a fine line to walk between falling short and falling apart." How can mindfulness help us deal with this?

RE: First, physicians can recognize when something doesn't turn out the way we want it to, or whenever there's a tragic end, we have feelings that are perfectly natural, human feelings. However, we often don't have a convenient outlet. You can't ask a patient or a patient's family to take care of your emotional distress. On the other hand, if you simply ignore the feelings and try to suppress them, you will become less effective, unhappy, and perhaps see an increase in your blood pressure.

If you can recognize your distress, you can do something about it. Mindfulness is not only as an individual quality, but a quality of a community. It helps to find a community of people who have had the courage to look inside themselves and share the range of emotions they have internally with others.

However, I don't think those opportunities are frequent enough in medicine. During our Mindful Practice Workshops here in Rochester, we're finding physicians who have been carrying stories of errors or bad outcomes with them for decades. They've never told anyone, and it's been eating away at them. Part of what we try to do is say, "here's a way of dealing with things that are hard to talk about. Not by pushing those things away, but by exploring them and developing an attitude of self-forgiveness, self-compassion, and acceptance."

MS: René Leriche put it so eloquently. Every surgeon carries with himself (or herself) a small cemetery where he goes from time to time to pray. The longer I'm a surgeon and talk to other surgeons, I realize it is a quite lonely place.

RE: I think there is kind of a lone ranger myth about physicians, and maybe more so among surgeons. You're kind of a John Wayne figure who comes in, and either saves the day or doesn't, and then you ride off into the sunset by yourself. I don't think medicine benefits from that. The work and stakes are too high, and by not living with shortcomings in a kind and self-forgiving way, you're depriving your patients of the best you can offer them.

MS: Do you think understanding and recognizing one's feelings helps when having tough discussions with family?

RE: I do, because it allows you to separate what happened to the patient from your identity as a worthwhile human being. When I have a patient who dies or doesn't do well, I can sit with the family and explain calmly, in a way they can understand, the sequence of events while also feeling emotionally present with them.

I think families don't want only facts. They want a person. That's a cultivated skill. I've seen technically-skilled surgeons with this ability and I've seen surgeons equally skilled technically who fall short. You can bet that surgeons who are more adept at recognizing and displaying their emotions are the ones patients trust more.

MS: I love your definition of work/life balance.You say that those who see life as everything outside work implicitly assume when you're at work, you're not fully alive. Why do you say this is a trap?

RE: Studies of physicians show we seek a sense of meaning and purpose. By extracting what is deeply important to you from your work life, you deprive yourself of a tremendous degree of richness. The kind of human sensibilities one might have in private life will enrich your work as a clinician. Building too much of a wall between work and home is a mistake in terms of how we feel about our profession and the sustainability of the health care work force.

MS: When we don't have "work/life balance," when outcomes are out of our control, when health care systems are determining care, how can mindfulness help prevent burnout?

RE: Mindfulness is about awareness and training your mind so you can look at all sides of yourself without shrinking, turning away, and, in fact, turning toward things that might be difficult. In doing so, you empower yourself to take action that's in your own best interest. It's the ability to be present.

All physicians, at least in the US, work in a health care environment that is somewhat hostile. Mindfulness will not cure a broken electronic health record or a lot of the ills in medicine right now. But it allows us, in my view, to retain our sense of purpose, dignity, meaning, and effectiveness given the constraints that the system places on us. And when you're able to be more mindful, you can recognize your role as a leader in changing aspects of the system that really need to be changed.

The Congress of Neurological Surgeons and I thank you, Dr. Epstein, for have taken your time for this interview.

Dr. Epstein directs the Center for Communication and Disparities Research and codirects Mindful Practice programs. He is an internationally recognized educator, writer and researcher whose landmark article, "Mindful Practice" has revolutionized physicians' views of their work.

Elad I. Levy, MD, MBA

Scott Friedman, JD

Don't Drop the Baton: 9 Rules to Cultivating Strategic Growth and Personal Fulfillment

At the Beijing Olympics in 2008, the American 400-meter relay team was a favorite to win a medal—until the unthinkable happened. Darvis Patton failed to pass the baton cleanly to his teammate Tyson Gay, and the baton fell onto the track, eliminating any chance of a medal. Eight years later in Rio, the men's 400-meter relay team lost another medal after a disqualification regarding an improper baton hand-off. The failure to complete a smooth transition during these important milliseconds culminated in negating the promise of success, despite years of training, dreaming, and sacrificing.

It has now been four years since Dr. Nick Hopkins passed the baton and entrusted his successor (this author) to competently "run the next leg" as chairman of University of Buffalo Neurosurgery. While appreciating the trust—and the responsibility—that came with this appointment, I quickly found myself acutely aware of the new, different, and changing demands within academic medicine as a result of increasing regulations on hospitals, payers, and the physicians—all while clinical, teaching, research, and the traditional multitude of other responsibilities required attention. And, to further complicate matters, the culture of neurosurgery has continued to change as the importance of finding a thoughtful "work-life balance" has become increasingly, and appropriately, recognized. The challenges I faced as a new chairman were obvious: How could I help lead strategic departmental growth while simultaneously encouraging everyone to focus not only on optimizing our patients' experiences, but their own experiences, in order to flourish professionally and personally?

While the complexities around academic neurosurgery continue to become increasingly daunting, we have deployed nine simple strategies that allowed us to reach—and exceed—our professional and personal goals developed four years ago. These strategies help us continue to improve, but require unrelenting commitment and on-boarding by the entire organization. I am pleased to share these guiding principles, all of which are based on a culmination of conscious (and subconscious) influences of our predecessors and mentors, and hope that you and your teams might find some value in them as well.

Rule #1: The needs of the organization supersede the needs of any individual.

There are times that the direction of the organization is in direct conflict of personal needs. It is at these times that the opportunity to demonstrate leadership, regardless of title or position, is most pronounced. At no time can one supplant the mission of the organization to favor an individual. Common examples include discord around physician reimbursement strategies juxtaposed with departmental investments. While leaders of departments often set the pay scales for the physicians (based on academic rank, productivity, or combinations of these and other metrics), one approach we used was to involve the ALL the faculty in the creation of a multi-faceted strategy that is equitable and agreed upon by the majority of the department.

Rule #2: Attend to the right P/E ratio.

While most in the business world focus on the financial ratio of a stock's price to its earnings (P/E), we have come to appreciate the importance of a different P/E ratio: that of "principled actions" to "expedient actions." While short term wins and gains may feel good, it is the long view that will ultimately shape organizational success. As a result, we attempt to make principle-based decisions upon

The UB neurosurgery team sweats it out at a Sunday spin class.

The UBNS department soccer team—residents , attendings, and their families.

clearly articulated values, vision, mission, and policies, designed to uphold the ethics and culture that is the foundation of everything we do at University of Buffalo Neurosurgery. Some of these decisions have been costly and difficult—in the short term. But these decisions have paid greater financial and emotional dividends over time. By nurturing and prioritizing our ethics, we provide our colleagues with a safe and supportive place to work.

Rule #3: Remember that we have two ears and one mouth.

Human anatomy is such that most of us were born with two ears and one mouth. We encourage department team members to listen twice as much as they talk. Listening—not just "hearing"— is a skill that can be difficult to learn. It requires attentiveness, understanding, and analysis, as one is digesting another's words. But autocratic or hierarchical governance is counterproductive to good work-place culture, and the importance of ensuring that every colleague has a voice is critical for promoting both fulfillment as an individual and for maintaining a productive workplace culture.

Rule #4: Seek wisdom from all sources.

Several years back, a Wall Street fable was shared with me, and its wisdom still resonates. As it was told, a new hire in an investment firm, wanting to make a good impression, would have his shoes shined daily in the lobby of the building. The young hire was usually the first in, and made friendly conversation with the man shining his shoes. After several days, the "shoeshine guy," who acquired a daily wealth of information simply by listening to all the sensitive conversations of the analysts and fund managers from his customers, gave the new hire some stock advice in passing conversation. The advice turned out to be incredibly fruitful and, hence forth, the new hire's "market research" included listening to the shoeshine guy every day. We cannot understand the nuanced complexities of our world without seeking to learn from everyone, even unconventional sources. For example, to better understand delays in operating room turnover, we should seek to learn not only from the surgeons and nurses but from the custodians and transport personnel as well.

Rule #5: Seek to build consensus and promote passion.

Margaret Thatcher defined consensus building as "the process of abandoning all beliefs, principles, values, and policies in search of something in which no one believes, but to which no one objects." For neurosurgeons and departments to flourish, leadership is necessary to find common ground despite dissenting viewpoints. Consensus sometimes requires compromise for the greater good,

> How could I help lead strategic departmental growth while simultaneously encouraging everyone to focus not only on optimizing our patients' experiences, but their own experiences, in order to flourish professionally and personally? <

even embracing strategic initiatives contrary to one's personal convictions. But finding effective common ground has perhaps been more important to our department's continuing success than any other factor. As I reflect upon and draw from my MBA education, I continue to more exquisitely appreciate the importance of building consensus through clear and principled communication. That, in turn, is what promotes collegiality and renewed energy.

Rule #6: Find ways to have fun.

While lecturing at another institution, I had the opportunity to join in an annual attending-resident soccer match. On the playing field, the traditional hierarchies of neurosurgery were abandoned and, for ninety minutes, we were all gladiators competing for victory. The camaraderie engendered was so palpable that upon my return, our department began a tradition of quarterly soccer matches. On the field, the residents united under the singular focus of defeating their attendings. Though our hamstrings screamed for days following each match, the faculty and trainees appreciated each other in novel ways, which are indescribable and intangible. The competition brought the department closer, and by injecting team fun into grueling pace of residency training, we became reinvigorated. Sunday team spin classes and soccer matches are now staples of the program, as these activities lead to enhanced interpersonal dynamics between the faculty and the trainees.

Rule #7: Never stop moving your feet behind the net.

For those who may be less familiar with hockey, this phrase refers to working hard behind the net to gain control of the puck, so that one can pass the puck in front of the net to create a scoring chance. No goals are scored from behind the net, yet puck possession is critical in this area. As we reflect on this sentiment, the salient message is that success requires unrelenting work, even in the unnoticeable and unglamorous spots. Additionally, recognition for those who do this work is critical for continued success. We all know that there is no shortage of people eager to take credit. But who are the unsung heroes who tirelessly perform their responsibilities and never make the proverbial "highlight reel?" How often do we praise our surgery schedulers, transporters, or coders? All of these people are central to the success of any neurosurgery department. Simple greetings of "hello" or a well-deserved "kudos", greatly enhance work-place culture.

Rule #8: Balance "balance."

Personal fulfillment can never be attained when we are in a state of total lack of balance. Dr. Joseph Maroon, former president of the CNS, has devoted his newest book, *Square One*, to the concept of finding balance. On a personal note, I struggle with the question of whether or not great accomplishments can be achieved if we are seeking balance. We all are aware that neurosurgery training requires great effort and sacrifice, with "free time" dedicated to continuing reading and research. Perhaps it is not balance we should be seeking during training, or early in our careers, but rather the avoidance of significant imbalance. By carving out precious moments for activities we find personally fulfilling such as exercise, friends, family, or entertainment, young neurosurgeons may mitigate the degree of imbalance that is an inherent part of our specialty. As Dr. Maroon suggests in his book and lectures, personal connection and fulfillment is critical to nourish one's soul, which in turn will provide the fuel for longevity of success.

Rule #9: Foster a positive workplace.

Sean Achor, author of *The Happiness Advantage: The Seven Principles of Positive Psychology that Fuel Success and Performance at Work*, describes the research confirming that happy workers are more "energetic" than unhappy workers, and so, in turn, are more productive. Such energy and productivity further enhances an organization's "bottom-line" success. Creating a culture that promotes employee happiness and satisfaction does not need to be complicated, but it does require a top-down commitment that includes such steps as insisting on politeness, discouraging gossip, giving accolades to others, and taking personal responsibility for failures. Also important is promoting face-to-face encounters (versus texts), which is not always easy given our many commitments. But doing so can help build deep personal connections and unite colleagues. Such steps can build or nurture a "culture of trust and respect," allowing colleagues to take chances without fearing retribution. While promoting a positive workplace culture may be antithetical to "traditional" neurosurgical workplace cultures, doing so is critical to our specialty's continuing development and success. Our success depends on our dedication to cultivating a positive workplace culture and our diligence in acculturating all new team members as part of their on-boarding experience.

Conclusion.

It has been an honor and privilege to be a part of the neurosurgery community—locally and nationally. Like everyone else, I find myself learning something new every day and believe that what works today won't necessarily work as well tomorrow. Our field is complex and challenging, as is the world we operate in. Our field, however, is comprised of brilliant and talented surgeons who synergistically depend on many other professionals. My hope is that by sharing our challenges and strategies for one academic environment, some of you might benefit with your own personal and team development goals.

Daniel J. Hoh, MD

You as a Brand

In our consumer driven society, customers want to be able to make the best choices. Consequently, name brands and personal branding have become ubiquitous in the business place. Traditionally, branding meant simply to mark an individual service or good by making it distinguishable from another. Today, branding means putting forth a unique marketable vision with which consumers can readily identify. In essence, the brand projects a desired experience in hopes of attracting new customers. A high-end hotel may be less focused on marketing their rooms and beds, and more on conveying qualities of luxury, service, and leisure in order to target their potential consumer base. Branding thereby succeeds by enhancing consumer engagement, recognition, word of mouth, and loyalty. Nike went from simply being a type of athletic shoe to a diverse product line that conjures images of heroics and winning. Michael Jordan and the "Be Like Mike" slogan came to define the Nike experience, and was so strong he subsequently was able to launch his own personal brand.

Health care is no exception to the rule of brands and personal branding. For neurosurgeons, this may be as basic as marketing your expertise with a specific procedure or an area of research (endoscopic brain tumor surgery, a novel immunotherapy trial, etc.). More developed personal branding, however, communicates your best and most unique qualities, creates the marketplace you want to inhabit, and sets your vision for the ideal consumer experience.

Developing a personal brand starts with defining your destination, i.e., determining how you want people to perceive you. Be clear about your individual strengths (education, training, expertise, etc.), what you have accomplished (position, peer reputation, etc.), and the assets of your enterprise (staff, organization, facilities, amenities, research, etc.). Communicate your vision of the ideal experience for your intended audience. A brand message built around a shared purpose often leads to greater engagement, differentiation, and loyalty.[1] Your brand image should not only communicate what you perceive to be your strengths, but also speak to the sensibilities of your intended client base. This means having a clear understanding of what they value most. For example, patients may prioritize availability and ease of access over individual credentials. Your brand should then set an expectation of delivering this quality consistently in your practice.

Consider how your brand provides value and relevance. Know the interest and demands of your community and hospital, and how your brand may be a differentiator in that space. This approach is often best fulfilled by identifying uncontested areas, and enhancing your position by leveraging points of difference. For example, having the only intraoperative MRI may be a practical starting point for marketing to a segment of consumers not served by existing providers. A mature strategy, however, is able to adapt and sustain interest as others eventually imitate and follow suit (as other hospitals subsequently acquire an intraoperative MRI). In business, brand innovators are less interested in trends that everyone is adopting, and tend to concentrate on creating new kinds of relationships.[2] The contrasting trajectories of Amazon and Borders bookstores are an example of this. Forecasting changes in neurosurgical practice and the health care environment while also mapping your strengths and how they apply to this evolving environment are critical to maintaining the viability of your brand.

In order to communicate your brand effectively, you must first obtain visibility. With many physicians participating in online advertising and social media, rising above the noise is becoming increasingly difficult. Introduce yourself with exposure through multiple formats: Take on leadership roles, serve on committees, seek speaking engagements, publish clinical outcomes, and present your research.[3] Build an actionable audience and a forum to engage with them (patient and family support groups). Once your brand is recognized, create consistent and meaningful content online. Find a

format that works best for you such as videos, news updates, editorial columns, or social media posts. Maintaining a level of professional quality and consistency is critical for establishing your identity and credibility. Continually refresh your online content. The rate of change in online media is fast, and failure to unveil new material sends a message of inactivity. Conversely, online content does not disappear, and traces of your messaging can always be uncovered. Ensure that your online material is honest and factual, and remains appropriate for your intended audience. The effort necessary to create and maintain visibility of your brand can be overwhelming. The endeavor should always be in service of your objectives, and not distract from or compromise the integrity of your work or your team.

Personal branding is a delicate balance in the health care domain. It is much different than it is in the commercial sector where it is commonplace for competing businesses to tout their superiority and even denigrate the competition. A neurosurgeon, however, walks a fine line by projecting expertise and confidence. If overdone, they risk appearing arrogant and unprofessional. While marketing to differentiate oneself is expected and fair game, personal branding that is perceived as self-aggrandizing may offend patients and other health care professionals in addition to harming existing or future relationships.

As neurosurgeons, we have an amazing opportunity to care for patients, contribute to the community, and contribute to advancements in our field. All of these things are rewarding. Developing a personal brand that communicates one's unique vision can be additionally rewarding, as it establishes a clear and memorable experience for those we provide service. This can lead to better patient engagement and compliance, inspire advocates and benefactors, and increase professional referral and collaboration. Personal branding is an opportunity to continually re-invent while looking ahead to create the place you want your career to go next.

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The Benefits of Coaching in the Ultimate Contact Sport: Neurosurgery

Introduction

The term "team", as an adjective for any collective working toward a common goal, is pervasive in our vernacular.[1] We refer to teams in athletics, business, classrooms and medicine. It is especially salient in the operating theater where surgical teams engage in what is perhaps the ultimate contact sport: neurosurgical residency training. The similarities between athlete and surgeon are striking; whether on a field or in a hospital, both require trust in colleagues, technical proficiencies, positive interaction styles, the ability to be productive under pressure, and ease with competition. However, one major difference separates them strategically: In athletics, coaches are integral to develop team chemistry, player attitudes, and the overall culture.[2,3] In academic medicine, such personnel are scarce.

In the fall of 2015, our office of Graduate Medical Education (GME) surmised that a mental conditioning coach could impact the performance of residents in a surgical training program. Subsequently, the vice-dean of Academic Affairs invited a consultant with specialized training in sports psychology (MEd) and leadership (PhD) to design and implement a pilot program that explored how coaching might benefit residents within the Department of Neurosurgery. In this paradigm, residents were considered athletes and their new coach was tasked with improving non-technical skills (professionalism, teamwork, communication, etc.). The following perspective piece describes the evolution of our coaching program from pilot to an in-demand, full-time, faculty position.

Overview

Based on ACGME surveys and anecdotal evidence, the general perception of the Department of Neurosurgery (pre-coaching) was overwhelmingly positive in terms of leadership, competency, service, collegiality, and financial performance. It had the highest ranking in the university's survey of faculty satisfaction and confidence in departmental leadership. They were a hard-working, smart cohort within the hospital and medical school, and therefore were perceived to have more to teach a performance coach than the other way around. This department was chosen for the pilot study based upon its reputation, the willingness of the department chair and faculty to be critically observed, and its reasonable size. There was initial skepticism that a delta in performance could be achieved or measured. After discussion with the chair, an initial embedding process was undertaken for three months to establish credibility for the coach amongst the resident and faculty members of the team. This required full participation in the 80-hour work week, with complete immersion into the program, including rounds with residents, night call, clinics, observation in the operating theater, as well as attendance at all conferences, business meetings, and educational forums. This full "walk in my shoes before telling me what to do" approach turned out to be an essential ingredient to the success of the project.

During the first few weeks of immersion, every member of the team was aware their behavior, performance, and interpersonal interactions were being observed. Their performances were exceptional—a natural Hawthorne effect.[4] Over time, however, they became numb to and nearly unaware of the continuous presence of the coach, who was generally in scrubs and often as fatigued as other team members. Thus, they reverted to more normal behaviors and interactions. To triangulate the coach's observations, individual interviews with hospital administrators, nurses, department staff, faculty, and residents at all levels were also conducted.

At the 30-day mark, the coach and chairman convened for an initial assessment. While individual efforts were impressive, it was the conclusion of the coach that the general culture of the department was not consistent with that described by faculty at the onset of the project, that the collegiality and collaboration were less than initially described, and that previous formal surveys of the program overestimated overall program happiness, satisfaction, and performance. Specifically, there was evolving unhealthy competition between some attendings that resulted in inappropriate personal interactions and created a toxic workplace environment that was spreading beyond those involved. Additionally, there was a general consensus among the residents that some faculty had solely focused upon their own career development or notoriety to the detriment of resident education. More poignant was the toxic relationship between some residents and hospital-based nursing staff. The lack of mutual appreciation was alarming because of potential adverse effects on nurse retention, quality patient care, and even the threat of restricted resident privileges.[5]

The embedding period continued for two more months, producing consistent findings. When presented the assessment, faculty were clearly disappointed but refreshingly committed to an improvement process. To create a high-performance team, the coach recommended that interventions focus on department culture, beginning with

attending expectations and behaviors. In other words, if the leadership and faculty were not demonstrating elite habits, the residents had no model to follow.

Changing Culture

Successfully changing the culture within an organization depends on multiple factors: leadership autonomy, size (number of people), existing mentality/willingness, systems in place, processes needed, external rules, and obstacles (known or unknown).[6] In professional sports, there are often massive personnel changes when leadership determines a rebuild is necessary. Entire coaching staffs are fired and large roster makeovers are common. In these instances, culture change is implanted, not transformed. In academia, such overhauls are difficult because rules protecting employees are respected and financial resources are more stringent. Furthermore, hiring high-caliber surgeons is a time-consuming exercise that can take months, or years, to fulfill.

Within our neurosurgery program, we wanted existing faculty and staff to conform to a new cultural paradigm that would define all interpersonal interactions between faculty, faculty and residents, and all providers and patients. The coach leveled the challenge that if we could not agree to and record in writing our mission statement, our shared values, and our definitions of acceptable behaviors, then we would likely fail to achieve a specific culture. The coach also insisted that our values had to align with our departmental structure and be reflected in our compensation/incentive formula. In essence, if it's not part of your reward system, it's not really a part of your culture.

Implementation came in three phases. First, after a series of facilitated group sessions and subsequent refinement process, the coach transcribed all aspects of our revised culture into a document that we now refer to as "The Playbook." Having a playbook meant that designated cultural ideas were tangible, observable, and measurable. A similar playbook was developed for the resident team detailing performance expectations and commitments. In our scientific tradition, all nuances of leadership expectations had to be clearly defined so that reliable data could verify assumptions. Second, the coach was empowered to implement new systems and hold participants accountable, whether it required participation, access, or funding. We agreed ahead of time this was the path we would take as a group in order to achieve the collective goals, and non-participation or obstruction would be taken as a desire to leave the department. Albeit a harsh position to take, it was felt the status quo, once elucidated, was no longer acceptable. Finally, the entire process was given time to assimilate.[7] Short-term failures were acceptable as long as everyone gave a sincere effort. We were focused on long-term success, and therefore understood that measured improvements may not come for months, or even years.

Engagements

Department mission and values preceded everything else in the playbook. The mission established priorities, while the values determined the manner in which we would achieve those goals. Our consensus mission statement reflected the core activity that brought the faculty together and informed all other decisions and initiatives.

Our mission statement: "We make neurosurgeons by modeling the very best practices in patient care, surgery, innovation, and research."

Our guiding values: "Commitment, humility, altruism, integrity, and respect." These values were specifically defined in application to the department of neurosurgery (Table 1).

Next, we wanted to address the major complaints or deficiencies within the program. In our context, we identified five key opportunities:

1. High rate of negative "incidents" between residents and nursing staff
2. Animosities between attending physicians
3. Lack of structure in the resident education program
4. General climate of individualism over cooperation
5. Unfair compensation models

Our coach then linked each of these issues with recommendations for improvement. Key recommendations included the following:

- Chiefs' Leadership Dinner (hosted by chairman and coach)
- Conference participation (measured)
- Citizenship expectations (intra/inter departmental behaviors)
- Academic contributions (assigned non-clinical RVUs)
- Joint Journal Club (included all nursing + OR support staff)
- Nursing awards (determined by residents)
- Resident coaching (non-technical skills)
- Resident mentoring program (individual assignments with defined action plan)
- Revamped call schedule (night float system)
- Individual and focus group coaching (accountability and attitude)

The residents were fully engaged in all discussions regarding programmatic changes. They were encouraged to take ownership of their educational experience within the "guardrails" established by the ACGME and the RRC. This began with the mundane such as purchasing monogramed team jackets or providing snacks and exercise equipment in the call quarters. It expanded significantly in the form of conversion to a night-float call system, occasional "outings" with and without faculty, and the establishment of a series of new educational conferences. Examples of weekly teaching initiatives included: "Board Review" hosted by different faculty that tested residents' critical thinking; "Letters to Atticus," in which residents take 10 minutes to review the essential facts on a highly

Table 1: VALUES

Values drive our daily decisions and actions. These pillars are not up for debate or arbitrary application; rather, they embody how we treat others and what we hope others will recognize as our character. Faculty are expected to exemplify these values in all settings and enforce them amongst our residents.

Commitment: The need for care doesn't follow a set schedule or adjust to our convenience. People require our help at all hours of the day/night and even on holidays. While it may not be ideal, we embrace our responsibility by delivering the same quality care and service (to patients and colleagues) whenever or wherever it is demanded.

Humility: Many consider neurosurgery among the most demanding specialties in the world, and therefore, you are automatically considered to be the smartest, most hardworking, and talented doctors in the hospital. This level of respect can be intoxicating and potentially lead to behaviors that are perceived as arrogant. Consequently, on this service, we will go out of our way to always demonstrate a higher-than-expected level of inclusion, empathy, patience, and good manners.

Altruism: Going into medicine is an act of sacrifice, in itself requiring dedicated years of study and mountains of capital to pursue a vocation dedicated to the healing of others. Residents and attendings both work demanding hours under incredible stress; the only way to thrive under such circumstances is by looking out for one another and extending the protection to others beyond our inner circle.

Integrity: In medical science there is little room for creative interpretations. Time will always reveal the truth, whether it is a patient's condition or the readiness of team members. With consistent honesty, complications are minimized, and more trusting units are formed. Own up to mistakes and let team success drive your actions.

Respect: In matters of life and death, we cannot control how others will behave towards us. However, we will always remain professional, compassionate, patent, kind, and polite in our interactions with those seeking our help. Patients, their families, nurses, and colleagues throughout the hospital are deserving of our reverence, regardless of the place or time.

specific subject; and "Head's Up," where a member of the cranial team presents a detailed analysis of their plans and decision-making for upcoming cases.

Prior to the pilot project, faculty insisted they were excellent mentors to the residents, but the coach failed to find documentation of an actual formal mentoring program, so one was established. Assignments are rotated every six months with explicit expectations. We mandated a formal evening dinner including spouses or significant others that focused on the resident's social adjustment to a new city and regimen. Informal follow-up meetings enabled continued dialogues that reinforced our commitment to each resident's personal well-being. And, perhaps most importantly, no academic production was expected from this specific mentoring relationship. By rotating through most of our faculty, residents should find a true mentor by their senior years. Consequently, chiefs are not assigned anyone, but do enjoy a private dinner at the chair's home every six months to discuss career plans, leadership, and opportunities to improve the resident experience.

An important responsibility thrust upon the chiefs is maintaining excellent relationships with our nursing teams through multiple programs the coach established. The quarterly nursing/faculty/resident joint Journal Club requires a nurse and resident to co-present selected papers. These articles are germane to neuro-ICU or ward duties, with discussions focusing on best practices for improved patient care. The joint Journal Club is intentionally scheduled over a sit-down dinner (mixed, assigned seating) to encourage the social bonding that seems to have led to better interpersonal relationships, better interactions between residents and nursing staff at the hospital, and enhanced patient services. A monthly recognition program was instituted, with residents selecting members of the nursing team they believe represent the best in nursing care by going above duty to help residents succeed in providing excellent patient care. These nursing centric programs were funded by the hospital, including the gifts associated with nurse-of-the-month recognition.

The chair, prior to the project, claimed to develop leadership within the faculty but the faculty felt that all power and decision making was closely held. Therefore, the hierarchical structure of the department was revised, and division directors were appointed in five specific areas (cranial, spine, functional, pediatrics and research) with responsibilities and accountability in management, compensation, incentives, recruitment, and retention. Each division director receives specific structured leadership training that varies across a spectrum, from in-house courses to leadership programs

provided at other universities, or a formal MBA program.

Pre-pilot, the chair and faculty reported a strong commitment to academics, but the coach challenged the department to demonstrate alignment between compensation/incentives and academic obligations. Resolving this dilemma entailed a two-step process. First, we had to assign faculty into one of three categories. Gold faculty are in the core teaching program and held to higher standards of academic performance, green faculty are on a more clinically focused track and held to steeper expectations of clinical performance, and blue faculty are non-neurosurgical faculty within the department, critical to maintaining the mission, but again, held to adjusted academic and clinical performance metrics. With these differences in focus, faculty were measured based on their respective career tracks.

To align performance assessments with monetary incentives, we developed a new compensation formula that converts academic activities into non-clinical RVU's. An example of one of multiple tables utilized to quantify ncRVU's is presented (**Table 2**). An ncRVU's value is tagged to the value of a normal clinical RVU. When added to a faculty member's clinical RVU generation, the chair and directors have a quantifiable metric to determine overall productivity, compensation, bonuses, and incentives in accordance with individual goals and within the constraints imposed by our practice plan. This tool also allows faculty to compare their compensation to colleagues in a more transparent and transferable manner.

With respect to the didactic coaching sessions, the immersion phase was integral to building a trusting relationship because it provided the credibility that the coach was one of them. Consequently, we found people were willing to share details on a multitude of personally important topics. If something exceeded the coach's expertise, a more appropriate resource was found.

It should be noted that existing strengths were also highlighted in the playbook. The residents were a cohesive group that worked incredibly hard. Many faculty members were recognized as thought leaders in neurosurgery. And, our staff demonstrated tremendous loyalty despite comparatively lower pay than they might earn in the private sector.

Reactions

There were some who embraced our coaching process while others remained aloof or skeptical. Those who saw the value gravitated towards our coach and gave all the initiatives an honest chance to succeed, while providing insight for improvements. One very influential member of the faculty who was initially dubious became a convert after an encounter with Peyton Manning, a keynote speaker at a meeting who highlighted the need for coaching even at his level of performance as an elite NFL quarterback. Manning stated that coaching was essential due to the inability to honestly assess one's own performance—regardless of level. Subsequently, that faculty member and others within the department were far more open to one-on-one performance coaching. In cases where coaching was not requested but leadership deemed it advisable, the coach was assigned to address specific performance or behavior concerns. Department members in the ambivalent category continued to function as normal but followed the new expectations or guidelines while remaining collegial citizens. For example, they made a more concerted effort to attend grand rounds and other educational forums.

Table 2: ncRVU Allocation

Category	RVU	Notes
PubMed Publication		
First/Crspnd. Author	20	Book Author/Editor
Senior Author	15	Book Chapter
Other Author	10	
Society Presentations		
National/International	25	
Visiting/Professor	25	
Abstract/Poster	10	
Grand Rounds		
Attendance	05	Prof. Hrs; QA; etc.
Presentation	15	
USF/TGH Education		
Group Conferences	05	Board Reviews
Journal Clubs	10	(+10 if hosting)
Class-lecturer	20	Summer Courses, etc.
Course Coordinator	50	Summer Courses, etc.
Citizenship		
Admin. Docs	100	CV's; Evaluations, etc.
Charity events	10-15	Time, Talent, Treasure
Collegiality	0-250	
Awards	100-500	National Committees, Grants, Honors, etc.

To protect the process and culture, the coach insisted that faculty specify the thresholds and corresponding consequences for disruptive behavior. Resistors who were simply unable or unwilling to adapt to new expectations and new cultural norms were heard, counseled, and treated respectfully throughout the implementation phase. Meanwhile, in constantly "taking the pulse" of the residents and faculty, the coach encouraged the chair to have any necessary "difficult conversations" in a timely fashion. Unfortunately, but not unexpectedly, there were casualties. Two faculty members were no longer considered a good fit for the new organizational culture; one resigned and another was issued a non-renewal. Losing talented surgeons was difficult, but it reinforced our seriousness for the changing culture and sent a profound message to remaining personnel. Using a sports metaphor, the team sometimes performs at a higher level without a star player who is disruptive to the team's culture than with that player on the roster.

Impact

Internal surveys demonstrated a marked improvement in nursing perceptions of our physician engagement and professionalism. Our hospital partners were incredibly impressed with the turn around of attitudes and collegiality, recognizing our unit among the model intensive care units. Feedback from the residents was also markedly improved as demonstrated via the ACGME Resident Survey. Additionally, residents recognized the concerted effort of attending faculty who needed to change. From our standpoint, we appreciated how well our residents adapted to new expectations. Among the biggest shifts was the night float call system that imposed a different type of rigor than the Q4 schedule. The junior residents rose to the occasion and truly helped heal relations with the nursing staff. Formal metrics for improvement in faculty satisfaction with the program were more subdued because they ranked satisfaction high prior to the pilot program, and yet anecdotally, felt that remarkable improvements had occurred. Those who were in favor of the coaching program from the onset continued to be enthusiastic, resulting in some unforeseen consequences. One of our faculty members adapted so well to coaching that his professional reputation improved exponentially. He was promoted within the leadership ranks of multiple societies and then recruited to a position of national prominence with a leadership role. In his exit interview and farewell address, coaching and our culture were credited as key factors to his success.

A second major indicator of the pilot program's success was adoption of the program in various forms by the hospital, another surgical department, and a university institute. The coach was subsequently offered a joint faculty appointment with the Department of Neurosurgery under the title "Chief Cultural Officer," where he maintains regular coaching services to the chair, faculty, residents, and staff, both by assignment and upon request. He also participates in departmental leadership and program development.

Moving Forward

We have established the benefit of professional "in-house" coaching to neurosurgical residency training and to the department that undertakes such training responsibilities. Although we do not contest the value of intermittent outside consultants for specific issues that might arise, we determined a unique value to the embedding of a coach within the program. As a faculty member, the coach better understands the subtle nuances of the program and activities at all levels, is familiar with all stakeholders (history, context, etc.), builds enhanced credibility over time, provides more immediate availability with a lower threshold for utilization, and reinforces a continuous improvement mentality.

We are developing methods to better quantify the impact of coaching, which we contend is one of consistent rather than episodic improvement. With the current expansion of our coaching program beyond residency training to improvement in overall departmental performance, we are also planning a transition from GME to Clinical Affairs. While coaching will remain an integral aspect of resident training, we believe that departmental coaching, beginning with all chairpersons, will help us establish the high-performance, collegial culture to which we aspire.

This pilot project has demonstrated the unique ability to benefit the training of our future surgeons, both at the individual level and collectively, with regard to patient care, academics, and quality of life. We thoroughly enjoy coming to work, interacting with colleagues, and struggling with daily battles to get better. We cherish our culture and believe that departmental culture should be intentional rather than accidental. It should be defined, implemented, and maintained in a continuous improvement model. In-house performance coaching is one investment that can facilitate this process. This paradigm has been adopted by other industries and we recommend it to all university resident training programs.

Disclaimer

We have intentionally left out discussion of funding sources. Originally, the coaching program was sponsored by GME in full. We are now partially subsidized by GME with additional revenues generated from charges to those departments that utilize coaching services. Clinical Affairs believes that regardless of ability to pay, coaching must be available to all chairs and their respective resident programs and thus, intends to invest in this highly beneficial and in-demand resource.

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Daniel K. Resnick, MD

Exercise and the Pursuit of Balance

Neurosurgery is a physically and emotionally demanding career all by itself. Our patients are often very sick and in great pain. Our best therapies may be effective most of the time, but all are associated with the occasional occurrence of devastating complications. Operations can be lengthy, and even with optimal ergonomics, can result in discomfort and fatigue. Sleep is frequently disrupted and a balanced diet is often subjugated to convenience or inattention. When one adds in the psychosocial stressors of workplace dissatisfaction due to increasing administrative hassles and the disruption of family life, it would seem that only a lunatic would pursue such a career.

About thirty years ago, Joe Maroon, in his CNS presidential address reintroduced and expanded upon Osler's concept of Aequanimitas. During his presentation, he reminded us of the importance of making time for physical and spiritual growth to improve our ability to become better surgeons and better people. We revisited this theme in 2014, when Joe and I both spoke about the importance of achieving a balance in life to avoid early career burnout, and to optimize our ability to take care of the people we truly care about—our family, friends, and patients.

While the benefits of achieving balance sound great, is there any real evidence to support what Joe and I believe? As a natural cynic, I am forced to acknowledge that a lot of the "mindfulness" training I am subjected to seems like well-intentioned pablum. I have exercised most of my life (largely as a weight control exercise) and personally believe that it makes a huge difference in my ability to be a productive academic surgeon and to remain (mostly) sane. This belief is not exactly high-quality scientific evidence. Therefore, I'd like to spend a few paragraphs examining what evidence exists to support the hypothesis that regular exercise can actually make a difference in a physician's career.

The short answer is that there is no short answer. In a systematic review of health care worker well-being, Brand and colleagues[1] identified 11 studies that described whole-system approaches to improving healthcare worker well-being. Of the 11 studies, three were RCT's and the remainder "before/after" studies, in which workers were surveyed about various aspects of their well-being before and after some sort of intervention. The studies were all graded as providing relatively low-quality evidence due to methodological concerns (study design flaws, high loss to follow up, low participation rates, non-validated outcomes measures, etc.). All of the reviewed studies reported some sort of improvement in a particular measure, but the measures used and interventions used varied between studies. Therefore, drawing a meaningful conclusion is difficult. Furthermore, the interventions were not necessarily inclusive of, or limited to, exercise programs.

When looking at individual studies, several themes emerge. First of all, getting employees to buy into meaningful exercise-based programs is difficult. While exercise-based interventions do provide benefit for those who participate, many workers choose not to participate. For example, Atlantis et al[2] performed a randomized trial looking at the effects of nutritional counseling and exercise intervention with casino workers. Only 6.4 percent of the workers expressed interest in the program and of those participating, only 60 percent completed the program. Of the study participants, those in the exercise group did improve their waist circumference and aerobic fitness compared to controls, however substantial barriers to participation exist in this worker population.[2] In a small, randomized study in Scandinavian, de Vreis and colleagues found that a six-week exercise intervention significantly reduced self-reported work-related fatigue.[3] Several other studies have found that workplace interventions to promote exercise and nutritional awareness can result in health improvements, lower absenteeism, and higher workplace satisfaction among hospital workers who participate in the programs.[4,5]

Daniel Resnick, MD, with composer Philip Glass, and Arun Amar, MD, at the 2014 CNS Annual Meeting.

> ... Workplace interventions to promote exercise can result in health improvements, lower absenteeism, and higher workplace satisfaction among hospital workers who participate in the program. <

Further evidence for the role of exercise as a means to improve workplace satisfaction and performance comes from employee surveys querying non-prescribed health behaviors. In a study of school workers, LeCheminant found that those who reported a greater degree of recreational physical activity, more fruit and vegetable consumption, and restful sleep reported higher job satisfaction, lower absenteeism, and better work performance.[6]

Further examples of the benefit of regular exercise exist much closer to home. Joe Maroon is the poster child for exercise as a means to prolong neurosurgical productivity, competing in the Iron Man championship on multiple occasions and still going strong thirty years after his presidential address. Multiple other prominent examples exist of physically active neurosurgeons maintaining peak intellectual performance well beyond traditional retirement age—think of Volker K. H. Sonntag and Robert Spetzler at Barrow Neurological Institute, Albert Rhoton with his legendary push-ups, and Edward Benzel with his cross country runs (amongst many others). Other Iron Men among us include Elad Levy and Richard Byrne— both energetic chairs of excellent programs. Personally, exercise is a healthful and intellectually productive escape. I apparently do my best thinking when borderline hypoxic. Problems that stumped me in the afternoon all of a sudden become less complex during a run or ride. I remember things better and feel better after exercise. I am a nicer person when I get a good run in. I also feel less guilty about enjoying a good meal in the evening!

Regular exercise requires a commitment of time and effort. Such a commitment can be difficult to make, given the uncertainty of our schedules and the other demands on our time. Carving the time out to exercise is in some ways selfish—should we not be using that time to spend with our families, or write that paper sitting on the desk, or see another add-on patient? I have decided that it is OK to be a little bit selfish and take the time to sweat. I am smarter, nicer, and more efficient after exercise. To summarize: no pain, no gain. It is worth the pain as the gain is substantial. <

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Steven N. Kalkanis, MD

Laurel Kalkanis, MEd, MPA

Home For Dinner

When my wife Laurel and I were asked to contribute an article about how we maintain work-life balance for this issue of *Congress Quarterly*, we had a good laugh. There is no such thing as a balanced life in neurosurgery. We seem to be always on, at full throttle, all the time. But when we really thought about the moments and traditions that we remember and cherish most as a family, a few common themes emerged.

First, communication is key—constant communication is necessary to maintain schedules and calendars, and to keep the family abreast of last minute changes, which are inevitable in our profession. I feel incredibly privileged to lead a department and our cancer institute while still also taking calls, managing a practice and a lab, and contributing to organized neurosurgery through the Section on Tumors, as well as the CNS. As a chair, I have both incredible support and some flexibility to control my schedule, but at the same time, I am essentially on call 24 hours every day for any issue that might arise for any of our faculty at our five sites.

I am immensely fortunate to have a true life partner in Laurel, who many years ago made the decision, with two masters degrees, to put her teaching career on hold to help raise our children. She now volunteers extensively at our kids' schools and the hospital, and runs many fundraisers and other events for our brain tumor center. She is constantly "on call" for multiple activities with our three children, Nicholas (13), Connor (11), and Grace (7). So, communicating a change in plans and being able to roll with a sort-of-certain-uncertainty still allows for many win-win scenarios, like driving separately and making the last hour of my son's baseball game, or arriving just in time for my other son's Boy Scouts' cross-over ceremony, but leaving early to go back to work, or drive my daughter to her championship soccer game.

Second, while all neurosurgeons likely hope beyond hope that the "quality trumps quantity" adage is actually true when it comes to building relationships with our children and families, quantity is important too. However, the sheer mathematics of the hours in each day complicated by the demands of neurosurgery negates the possibility of regular "quantity" time at home.

Over the last several years we have made a successful effort to block out at least four weeks per year for true family vacation time. I take the week off between Christmas and New Year's to be at home with the kids, relax, and recharge for the year ahead. In the winter, we pick a warm location to escape the cold Michigan air. In the summer, we take a two-week adventure as a family. I am not a fan, however, of the "no email" and "no phone" rules on vacation because it actually creates more stress for me knowing that a mountain of messages is building. I find half an hour in the early morning or late evening to review email, which in turn helps me enjoy the rest of the vacation without obsessing over what is happening at work.

Third—and by far the most important—is that we consistently make time together to have dinner as a family as many nights a week as we possibly can. Although meetings and other work-related events can make having dinner together difficult on many nights, elevating this time is a priority for our family. I try to leave the hospital by 6:00 pm to arrive home by 6:30 pm. During this time I can help drop off or pick up our kids at, or even attend, any one of the extracurricular activities happening on a given day. And, I get to hear about all the little crazy stories and triumphs and tribulations of the day from the perspective of my children. Over time, the ability to be present during this critical window of the day creates connectivity and important reference points that help me understand more deeply the goals, fears, joys, stresses, and idiosyncrasies of our children. These events typically wind down by 9:00 pm, at which time I either go back to work or retreat to my home-office/man cave to catch up on email, write papers, review grants, and return calls.

The Kalkanis Family

It's a blessing to practice the art of neurosurgery and to engender the trust of patients whose quality of life—and often life itself—rests in our hands. It's not a job or "work," but actually a calling, a way of life, an inextricable part of who we are. We shower our children with unconditional love every single day (although the pre-teen and teenage years make that a unique and separate challenge). In the end, even if I am not as visible during the daily routines, I hope that our children observe and appreciate this example of service to others, and are inspired to seize the opportunities they have been given to pursue their dreams and make a difference in this world.

Neurosurgeons Talk:
How I Manage Competing Demands

The questions we asked the neurosurgeons:

1. **What's the best advice you have for managing the mix of personal and professional obligations?**
2. **How do you best cope with the stress of the specialty while at home?**
3. **Where is the line between work and private life as a neurosurgeon?**

Ron L. Alterman, MD

Professor of Neurosurgery at Harvard Medical School, Chief of Neurosurgery at Beth Israel Deaconess Medical Center, Harvard Medical School

I have found that having interests outside of neurosurgery is essential to dealing with the stresses of leading a neurosurgery division. Time with friends and family is revitalizing, particularly if one is engaged in activities that distract from the daily rigors of our profession. For me, those pursuits include aerobic exercise, yoga (which has completely eliminated past flare ups of back pain), biking, skiing, SCUBA diving, books, movies, and cooking for friends. And, as a life-long New Yorker and Yankee fan now living in Boston, long debates about baseball are always enjoyable.

Andrew R. Conger, MD

Geisinger Medical Center, Danville, PA

As a new attending, I am still learning how to balance professional and personal obligations. This is a demanding career, one that can easily consume me if I allow it. I was fortunate enough to become busy clinically very soon after starting, but this created some workload problems because I was trying to get too much done in a day. I had to learn reasonable expectations for getting cases done at my institution, remembering that I'm not yet as efficient as my mentors, and the system at every institution has its own idiosyncrasies to navigate. Communication is key to establishing expectations—both professionally and for my family. I am learning how to prioritize my workload so I can set limits on professional obligations and get home at a reasonable time most days.

Daniel W. Fults, MD

Professor of Neurosurgery,University of Utah Health Care

I am convinced that the field of neurosurgery attracts people who feel energized by stressful situations. Nevertheless, there are limits. One source of stress is our patients themselves and the life-altering neurological diseases they struggle to overcome. I believe it is essential for neurosurgeons to detach themselves sufficiently from their patients to avoid internalizing their suffering, and this practice does not come naturally to a caring physician. I do not think that we should rigidly separate our minds into work and leisure compartments. That approach leads to a shift-work mentality that erodes the profession. I do advocate for interweaving professional life with leisure and recreation continuously. For example, making time to do something fun every week. I have devoted my entire career to academic neurosurgery and can extol the balanced strategy of combining clinical practice with research and academic helps to create a stress-neutral workweek.

Randy L. Jensen, MD, PhD

Professor of Neurosurgery, University of Utah Health Care

My best coping strategy for dealing with stress is getting involved in various projects. My family and I enjoy canyoneering in Southern Utah and the necessary planning to make these trips happen brings our family closer and allows me to forget some of the stressful aspects of a neurosurgical practice. I also enjoy building hot rods or restoring old cars. There is nothing more therapeutic than using an acetylene torch, plasma cutter, or TIG welder. The mental exercise of planning the project, finding and ordering new parts, and then implementing it can be extremely satisfying.

Over time I have become less concerned with separating my personal and professional life. Early on I found it to be stressful to compartmentalize these two worlds. The line between work and

private life becomes more blurred for me as time goes on. I enjoy the interaction with our resident and medical student trainees and taking part in their education. I enjoy the research, both basic and clinical, of neurosurgical practice. I enjoy working with individuals who are not only respected colleagues, but also a second family. I enjoy serving my community, church, and my family. All of these thing are inseparable. I often take care of personal business during the work day to allow for a brief diversion from stressful situations. And, on the other hand, it would not be unusual for me reflect upon a particularly difficult patient problem or a perplexing research question while participating in an activity with my family or while pounding a stubborn bolt off of a 1959 Rambler station wagon.

Craig R. Kelman, MD

Department of Neurosurgery, Virginia Commonwealth University Health System, Medical College of Virginia

My best advice for managing the mix of personal and professional obligations is to dedicate your full attention to whatever you are doing. When at work, be at work. When at home, be at home. I have children ages five, three, and one who greet me at the door and want to spend time with me. The first thing I do is put my phone on the charger in order to give them my full attention and ignore anything non-emergent. I appreciate the little moments and have realized we don't need some kind of grandiose plan to have fun. Simply being present with my children and my wife has lead to richer and more fulfilling interactions. This has, in turn, allowed me to recharge and be happier and more productive at work.

Alfredo Quiñones-Hinojosa, MD, FACS

William J. and Charles H. Mayo Professor; Chair, Neurologic Surgery; Mayo Clinic, Jacksonville, FL

The best advice I have for managing the mix of personal and professional obligations is that personal and family obligations come first. Professional obligations are important, but you cannot be successful professionally without taking care of yourself and your family. With our limited time, the ideal situation is when we can merge them both. Mike Lawton, Mitch Berger, George Jallo and I go on what we call "Mission Brain" trips, and, we bring our families. Being able to share our experience with our loved ones and having them understand, first hand, what we are trying to do is really quite special.

When I come home, I try to spend time with the children. Whether that means watching a movie, hearing about what they learned in school, or going to church together. I also find that working out is a good way for me to relax. In our profession, we deal with a lot of people who are very ill and looking for hope. I think it is important to be strong in spirit so that we are better able to provide hope. Right now, I am sitting outside enjoying the tranquility of nature, with my dogs running around playing with the kids. I think family pets are important as they can bring much joy to you and your family.

We deal with complex patients in our profession. I think we need to embrace our passion and dedication to our patients, and it is important to have families that understand our love of neurosurgery. This is a team effort. Your family is part of your team. My family gets involved with our patients through various social events where they get more of an understanding of what we do and why we do it.

Christopher D. Roark, MD

Assistant Professor, Department of Neurosurgery, University of Colorado

My life is more manageable because I have neurosurgical partners who I trust and like. Being a vascular neurosurgeon, I am on call one week in three. During a call week, I do not plan any significant family events. My wife is a physician and understands that during these weeks my job will take precedence over outside responsibilities. Stress is unavoidable, but there is no set pattern for stress reduction. I have found that having a "non-neurosurgery" book on my bedside table is helpful. As neurosurgeons, we see a small and very ill subset of the human population. It is crucial for me to expose myself to the writing, thinking, acting, and believing of others. Participating in the beauty of humanity reminds me why it is a privilege to be at the bedside of the sick and infirm in the middle of the night when it is my turn.

Rafael A. Vega, MD, PhD

Department of Neurosurgery, Virginia Commonwealth University Health System, Medical College of Virginia

As far as I am concerned, the line is drawn once we step foot outside of the hospital. But I believe it is impossible to truly separate ourselves from our work, especially when we are so passionate about what we do. However, in order to truly be successful in the operating room day in and day out, the ability to enjoy time outside of work goes a long way. For me, that includes going for a run along the river trails, getting away for a weekend, or enjoying an evening out with the colleagues, where work talk is typically off limits! As a group, these moments bring us closer together. Individually, it allows us to take a deep breath and enjoy the fresh air. As one of my prior chiefs said it best, "Sometimes you have to choose life over knife!"

ASK THE EXPERT:

Can Neurosurgery Residency Be Shorter Than 7 Years?

L. Dade Lunsford, MD, FACS

In the United States, neurosurgery residency training takes seven years after medical school. It is longer than any other medical or surgical specialty. To answer the question, "Can neurosurgery residency be shorter than seven years?" we must ask what is the type of product we want to create at the end of residency training.

Neurosurgeons are bright, energetic, creative, focused, and often innovative. They enjoy the complexity of both diagnosis and intervention in a wide variety of brain, spine, and peripheral nerve disorders. In more recent years, neurosurgery resident graduates have become increasingly subspecialized. During, or on occasion immediately after residency, they gain special competence in various high technology fields. Endovascular, neuro-oncology, pediatrics, radiosurgery, and complex spine are examples of such focus. Even the American Board of Neurological Surgery (ABNS) has recognized this shift and begun to examine candidates for oral board certification, in part, related to their areas of subspecialty competence.

Most neurosurgeons either are, or will be, employees of medical centers or academic institutions. They may be part of a large neuroscience center, or a larger, multidisciplinary group practice. They will be recruited based on their general knowledge of neurosurgery so they can take call and cover most urgent or emergent neurosurgical care needs, *plus* a subspecialty focus that gives them a special niche at that center. Some trainees are destined for academic life, which still requires an investigative mind, a pedagogic ability, and the willingness to do research in some form (clinical or bench) and write about it. To advance up the academic ladder, they will need to demonstrate these aspects of their career and meet the perceived requirements of their employer.

We recently completed a 50-year assessment of our trainees at the University of Pittsburgh/UPMC. One of the goals was to assess whether the current generation of trainees (loosely speaking, the millennials) are, in fact, any different than prior trainees. We compared decade to decade. It was reassuring to note that the incidence of serious performance or professionalism issues has not changed over these past fifty years. The breed remains intact. What was found was that the reporting of resident-related concerns has increased significantly over the past ten years, which we relate to the ease with which complaints can be lodged via the ubiquitous electronic medical record.

To gain a niche, generally two additional years of training beyond core neurosurgery are needed. The answer to the question of shorter versus longer training needs to be couched in the question of whether or not our communities want generalists (basic neurosurgery of spine, trauma, routine intracranial tumors such as meningiomas and gliomas, and simple peripheral nerve disorders), or want neurosurgeons who are both generalists and subspecialists. I believe that competent general neurosurgeons can be trained in five years.

It is clear that the neurosurgery RRC has responded over the last ten years to the increasing need for neurosurgeons. There are now 110 training programs, with the number of starting PGY 1 residents steadily increasing. It is less clear if this increased number of trainees is sufficient to meet a growing demand for neurosurgical services. Couple this trainee increase with the fact that older neurosurgeons are closing practices at younger ages, whether related to burnout or other factors that affect job satisfaction. In general, the survey of our trainees found recent graduates were just as satisfied as older graduates, although many reflected that our families sometimes pay a price.

Neurosurgeons who wish to subspecialize or are filling a job requiring special skills will need to train two additional years after reaching the generalist criteria. To change the current system, organized neurosurgery will need to answer many questions. If basic training is reduced to five years, who will pay for subsequent subspecialty training? Perhaps future employers will need to subsidize training with a stipend in return for a designated commitment. In a compensation system that seems to be based only on easily measured productivity (the RVU system is perhaps the worst perpetrated crime against US medical care), why would a generalist refer to the specialist?

SECTION NEWS

Joint Section on Pain: Advocacy, Education, and Resources

Jason M. Schwalb, MD, FACS

> We have signed onto a letter from the AMA to President Trump calling for increased treatment capacity for opioid use disorder treatment ... <

Advocacy

The AANS/CNS Section on Pain may be one of the smaller sections, but it has an important role in representing the interests of all neurosurgeons in this age of increased scrutiny of opioid use, prescribing, and misuse.

Working with the Washington Committee, the Pain Section has taken an active role in interactions with other advocacy groups in making sure that the value of neurosurgical procedures is recognized throughout medicine. The American College of Occupational and Environmental Medicine (ACOEM) developed a Chronic Pain Guideline that lacked any content on neuromodulation. After receiving a letter from us, information on spinal cord stimulation and dorsal root ganglion stimulation clinical trials was added to the guideline.

The Joint Section has also advocated for reasonable measures with the American Medical Association (AMA) and the Department of Health and Human Services (HHS). Senators McCain and Gillibrand proposed a bill to limit opiate prescribing to seven days. We wrote a letter in response that this was unreasonable for operations that were likely to generate longer duration pain and for patients on chronic opioids. More recent versions proposed by the House have excluded such patients.

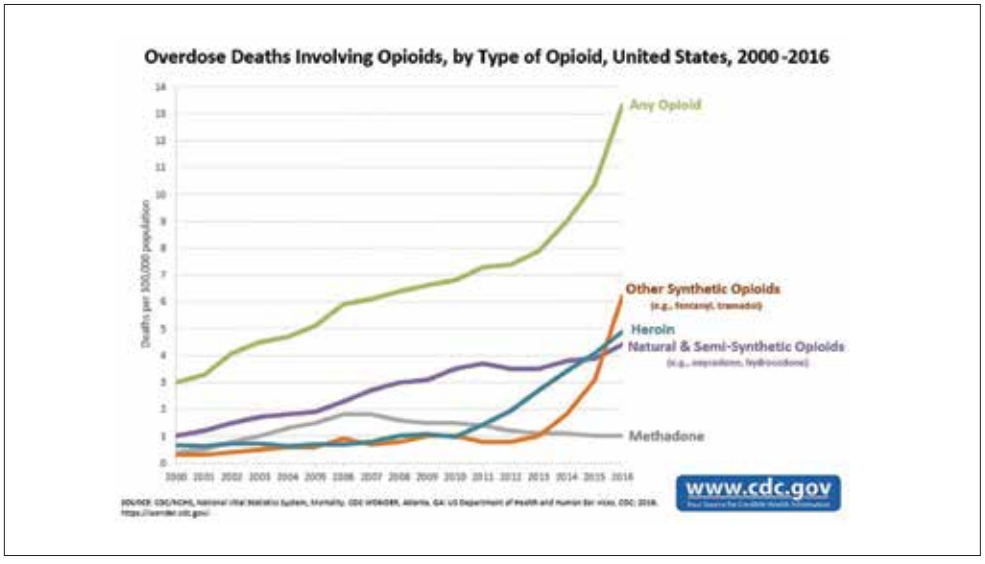
Pain Section Secretary-treasurer Jennifer Sweet has served as liaison to the AMA. We have signed onto a letter from the AMA to President Trump calling for increased treatment capacity for opioid use disorder treatment, mostly by increasing the number of Medicaid beds that are available, suspension of federal regulatory barriers to buprenorphine prescribing, and empowerment of the Attorney General to enforce the Mental Health Parity and Addiction Equity Act, which limits the insurance companies' ability to delay multimodal treatments due to excessive precertifications, fail first protocols, etc.

Through the efforts of Joshua Rosenow and others involved in the Relative Value Scale Update Committee (RUC), reimbursement for CPT codes 64553 and 64555 (peripheral nerve stimulation) was tripled by the Center for Medicare and Medicaid Services.

Education

Our biennial meeting, which was held in May 2017, introduced a new theme with great success, garnering significant interest from neurosurgeons and non-neurosurgeons. Prior meetings had always taken place on the Friday prior to the AANS Annual Meeting, and focused on a major pain management topic such as back pain, trigeminal neuralgia, or neuropathic pain. The 2017 meeting, Neuro-ablation and Neuromodulation for Pain: Expanding the Neurosurgeon's Toolbox, covered varied ground with a practical cadaver lab component, and took place at the NCase Training Lab at Northwestern University in Chicago, Illinois. Kudos to past Chair, Andre Machado and Vice Chair, Bill Rosenberg, for organizing this successful event that will serve as a model for future meetings.

Christopher Winfree, past chair of the section, has taken a major role in our educational efforts, starting with his work to integrate new training on opioid prescribing into the Boot Camp Curriculum. Dr. Winfree developed a recurring breakfast seminar



aimed at educating neurosurgeons on the pharmacology of opioids and best practices. Additional webinars on opioid management have been developed for the CNS.

Research

The Pain Section has been maintaining a fund honoring the late John Oakley for a few years. The fund has migrated to NREF as part of the Honor Your Mentor program. Our first recipient of this fellowship, Zaman Mirzadeh, has completed his clinical fellowship with Ashwin Viswanathan at Baylor University in Houston, and Bill Rosenberg at the Center for the Relief of Pain in Kansas City. He has recently started on staff at the Barrow Neurologic Institute. He writes the following:

"The Oakley fellowship was easily among the most influential periods of my neurosurgical training. This is despite the fact that it is only a short traveling fellowship (two to three months), compared to seven years of prior neurosurgical residency training. The focused nature of the training, under experts in the field highly committed to cultivating future generations of neurosurgeons passionate about treating pain, is what set the experience apart. Across the country, very few neurosurgical residency programs have one of these true experts in neurosurgical strategies for treating pain. For residents not at one of these programs, without one of these mentors, it is very difficult to obtain this specialty training and even more difficult to foster and refine an interest—and this is of course to the huge detriment of having future neurosurgeons advancing this field. For me, the Oakley fellowship provided not only exposure to neurosurgical operations that I had not seen or heard discussed in seven years of residency such as neuro-ablative strategies for cancer pain including cordotomy, myelotomy, and cingulotomy; ablative strategies for neuropathic face and head pain including nucleus caudalis DREZ; and peripheral and deep brain neuromodulation strategies for neuropathic pain syndromes. And of equal importance, it helped me to develop an understanding of clinical decision making and critical thinking about chronic pain, in addition to an opportunity to develop relationships with life-long mentors I now regularly consult with regarding my patients in independent practice, along with a sense of community within the pain field (akin to what is more widely available to those interested in vascular or tumor surgery) that is not otherwise pervasive for neurosurgery residents in training."

An NREF fund honoring Kim Burchiel was also established this past year.

Please contribute to these worthy funds to support further education and research at **nref.org**.

Resources for members of the Pain Section.

A Google group "Pain Neurosurgery" is being administered by Bill Rosenberg and Zaman Mirzadeh. This has allowed participants to post deidentified cases for advice from other members of the group. It is limited to members of the Pain Section.

I hope that you will join the Pain Section and contribute to our efforts. Information on membership can be found at **painsection.org**.

Pediatric Section Update: Advancing On All Fronts

Mark R. Proctor, MD

The purpose and objectives of AANS/CNS Joint Section on Pediatric Neurosurgery serve to enhance and assure the advancement of the subspecialty of pediatric neurological surgery.

The Section accomplishes these objectives in multiple ways, with the goal of improving the lives of children with neurological disorders, serving our Section members, and enhancing the pediatric concerns of organized neurosurgery.

Philanthropy

The Section plays an active role in philanthropic endeavors that advance pediatric neurosurgery. We annually support a pediatric-focused NREF research fellowship, which is a $40,000 grant that our research committee is actively involved in awarding along with the NREF. In addition, we support the NINDS/CNS Getch Scholar K-12 Award, and annually support endeavors in international neurosurgery such as FLANC (Latin American Federation of Neurosurgical Societies). A significant part of our annual expenditures are dedicated to advancing the care of children with neurosurgical disorders.

Research

In addition to our philanthropy, our Section awards $10,000 in competitive research grants, either as one large grant or multiple smaller grants. These are meant to be the seed money to help get projects off the ground, and are administered by our research committee.

Training

The training fellowships in pediatric neurosurgery offered by the Section are highly sought after. We offer both national and international fellowships, which allow domestic and international trainees to visit leading academic centers in the US for a period of up to three months. In any given year there are up to three $2,500 domestic awards and two $7,500 international awards. Competitive applications are submitted to training committees. The vast majority of domestic awardees end up pursuing careers in academic pediatric neurosurgery, while international awards greatly benefit underserved areas of the world.

Education

The advancement of neurosurgical education is one of the real strengths of our section. We achieve this by our own annual meeting and by actively coordinating with the section activities at the Annual Meetings of the CNS. Our education committee coordinates content across all three meetings, ensuring that each meeting offers a unique and valuable learning experience. The highlight of our educational agenda is our Annual Meeting every late November or early December. It is hosted by a local academic pediatric neurosurgical program, and attended by approximately four hundred physicians annually. This year's meeting took place November 28 – December 1, 2017, in Houston, Texas, at the Hilton Americas. Hosted by two academic centers, the theme was "Reaching New Heights", and the local organizers, Dave Sandberg and Howie Weiner, did just that.

The pre-meeting symposium was focused on SEEG and laser ablation—the state of the art in pediatric epilepsy care, and was sold-out. In addition, an advanced practitioner course was offered. The opening reception on Tuesday night was followed by three solid days of science, including a scientific session unparalleled in quality. Focus points included discussions on colloid cyst resection by open versus endoscopic techniques, the value of fixed versus programmable shunt valves, and strategies on the management of temporal lobe epilepsy.

Dr. Mark Kline delivering the AAP Section on Neurological Surgery Lecture: "Global HIV/AIDS."

Dr. Jerry Oakes receiving the Ingraham Lifetime Achievement Award in Pediatric Neurosurgery.

Highlights of the meeting were the Ingraham Lifetime Achievement Award given to Dr. Jerry Oakes, and two very special invited speakers. The Raimondi Lecture was given by Dr. Thomas Marshburn. His talk, "Life Aboard the International Space Station: A Physician's Perspective," was brilliant and captivating. The American Academy of Pediatrics Section on Neurological Surgery (SONS) talk was given by Dr. Mark Kline, chair of pediatrics at Texas Children's Hospital. Titled "Global Pediatric HIV/AIDS: Lessons from the Field," it was perhaps the most inspiring medical talk I have ever heard.

Dr. Thomas Marshburn delivering the Raimondi Lecture "Life Aboard the International Space Station: A Physician's Perspective."

Our next Annual Meeting, the 47th Annual AANS/CNS Section on Pediatric Neurological Surgery Meeting will be held in Nashville, Tennessee, December 6 to December 9, 2018. It will be sponsored by Dr. Jay Wellons of Vanderbilt University.

Leadership

The Section leaders actively participate in the functions of NREF, as well as the board and scientific planning committee of the CNS. We also interact seamlessly with the American Academy of Pediatrics and the American Society of Pediatric Neurosurgeons. Accordingly, we fulfill our important objective of keeping organized neurosurgery well connected to the world of pediatrics.

In summary, the Pediatric Section is actively pursuing its objectives of connecting pediatric neurosurgeons with each other, with organized neurosurgery and pediatrics, advocating for children, educating the next generation, and sponsoring cutting edge research that will improve the lives of children with neurological disorders.

IMAGES IN NEUROSURGERY

Trigeminal Neuralgia Associated with Moyamoya Disease and Atypical Vascular Ectasias

A 23-year-old male presented with a six-month history of right-sided, sharp, shooting facial pain, triggered by eating or light touch. He was initially treated with wisdom tooth extraction, which failed to relieve his pain. Treatment with carbamazepine initially provided relief, but became refractory. Gabapentin and baclofen were added, but his pain persisted. MRI obtained revealed prominent flow voids along the ventral pons producing mass effect (**Figure 1**). Fiesta MRI detected trigeminal nerve compression (**Figure 2**). Angiography performed revealed multiple vascular abnormalities including steno-occlusive disease consistent with moyamoya syndrome of the right internal carotid artery (ICA) (**Figure 3**). Dolichoectasia of redundant enlarged serpiginous appearance in the terminal basilar artery (**Figure 4**). The left ICA provided cross-filling into the entire right anterior circulation (**Figure 5**). Based on the complexity of the vascular anomalies, microvascular decompression was not pursued and he was instead referred for stereotactic radiosurgery.

Submitted by:
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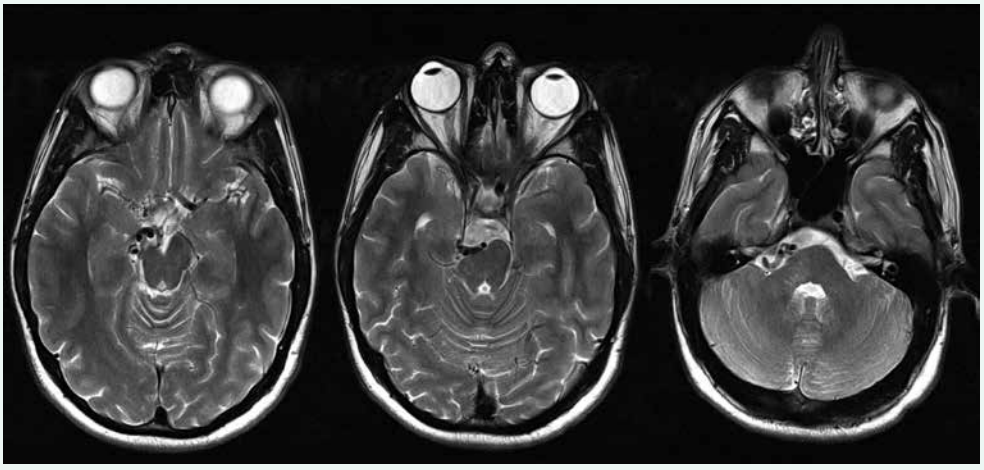

Figure 1: Axial T2-weighted MRI images, demonstrating small, right ICA flow-voids with adjacent single collateral vessels along with prominent flow voids along the ventral aspect of the pons producing mass.

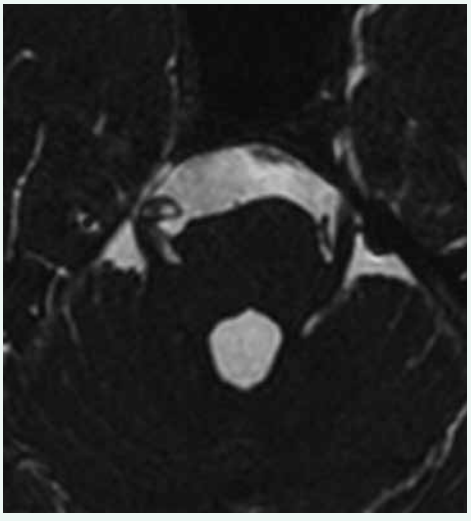

Figure 2: Axial FIESTA MRI image reveals a prominent flow void displacing the right trigeminal nerve.

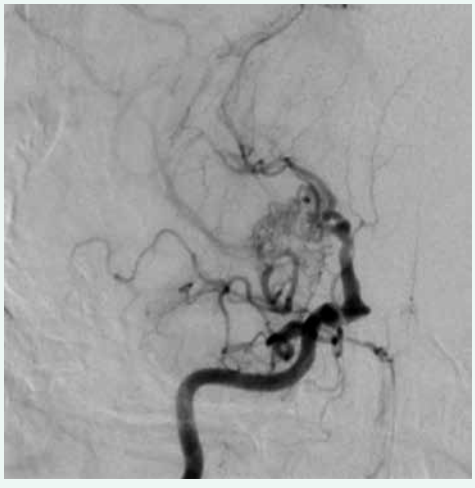

Figure 3: Digital subtraction angiogram of the right ICA, revealing steno-occlusive disease of the terminus of the right ICA intracranially.

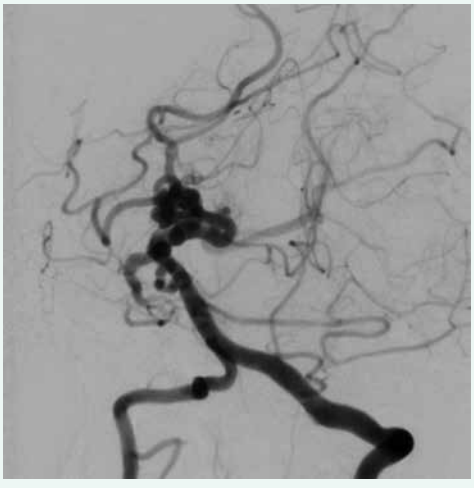

Figure 4: Digital subtraction angiogram of the left vertebral artery, demonstrating dolichoectasia at the terminal basilar artery.

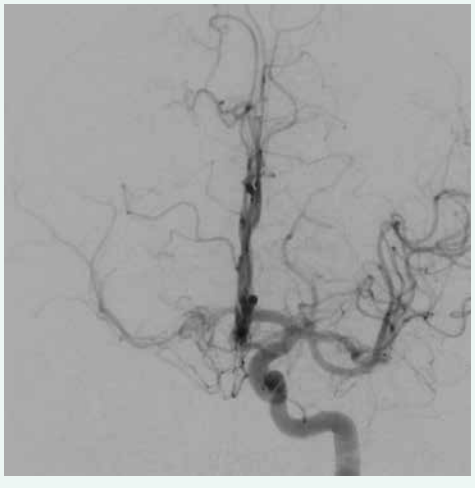

Figure 5: Digital subtraction angiogram of the left ICA, providing visualization of the left anterior circulation, as well as cross-filling into the right anterior circulation.

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