

Young Neurosurgeons NEWS



Fall 2016

Young Neurosurgeons Committee

Editor: Edjah Nduom, MD

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YNC Fall 2016 Chair's Message



It was wonderful to see everyone at the American Association of Neurological Surgeons (AANS) Young Neurosurgeons Committee meeting Monday evening in San Diego! I would like to congratulate our

new secretary-elect, Jeremiah N. Johnson, MD. In addition, I would like to congratulate our newest YNC members elected to the committee: Christopher S. Graffeo, MD; Allen Ho, MD; Benjamin C. Kennedy, MD; Robert Koffie, MD; Michael R. Levitt, MD; Brenton H. Pennicooke, MD; Hakeem J. Shakir, MD; Luke Tomycz, MD; and Jacky Yeung, MD. We had an overwhelming number of applicants, and the continued enthusiasm for applications is a testament to the great work of the committee.

As we come to the end of another calendar year, I am proud of the continued work of the YNC. Our most recent endeavor, www.neurosurgerymatch.org, a product of the AANS and Society of Neurological Surgeons (SNS),

with input from the YNC, is now live. This new resource for medical students guides them through the match process and continues to expand on the YNC's offerings to our medical student members. Edjah Kweku-Ebura Nduom, MD, reflects on this in our updated newsletter articles, reaching each stage of our membership and expanding upon articles geared towards career development.

Our committee continues to grow and thrive, and it is due to the hard work of our membership. I look forward to seeing you all at the AANS Annual Scientific Meeting in April 2017!

Sincerely,
Krystal L. Tomei, MD, MPH
Reinberger Endowed Director in Pediatric
Neurological Surgery
Rainbow Babies & Children's Hospital
University Hospitals Cleveland Medical Center
Cleveland

Secretary's Message



Greetings all, and welcome to the 2016 Fall edition of the Young Neurosurgeons' Newsletter! As always, we aim to give you the news from the most recent Young Neurosurgeons Committee (YNC) meeting while providing you with practical and interesting insights into the lives of our members.

In this issue, we are providing even more content for our medical student members and finishing up our two-part series on approaching the match; this time focusing on the interview process itself. We are also highlighting the recent launch of NeurosurgeryMatch.org, a joint project between the Society of Neurological Surgeons (SNS), the American Association of Neurological Surgeons (AANS) and the YNC. We hope that this site will serve as a credible source of information for applicants going through the match. In this newsletter, our Medical Student Taskforce Director, Michael E. Ivan, MD, MBS, delivers an update on the medical student membership of the AANS, which has exploded since its inception. For residents, we present a study guide from some of our more successful takers of the American Board of

Neurological Surgery (ABNS) primary board examination, and we expect that all young neurosurgeons will be interested in a review of how to use social media as a practicing neurosurgeon and an intriguing exploration of a neurosurgical mission trip to Ukraine. Finally, our Career Corner article: a wonderful primer on how to build a practice in a new city.

As always, we are continuing to ask you for your feedback to let us know if we are hitting the mark or if there are other subjects that you would like to see covered in future issues. Send me an email at dreknduom@gmail.com or follow us on Twitter at @youngneuros!

It has been a pleasure serving as secretary for these two years, and I look forward to continuing to serve you all in any possible way.

Sincerely,

Edjah Kweku-Ebura Nduom, MD

Staff Clinician

Surgical Neurology Branch

National Institute of Neurological Disorders and Stroke (NINDS)

National Institutes of Health (NIH)

AANS Medical Student Update

The AANS and YNC have been encouraging medical student involvement and supporting their interest in neurosurgery for many years; however, recently, with the appointment of the YNC Medical Student Task Force, this process has been formalized. For the past three years, the AANS and YNC has recognized medical students as members and have guided groups of students along with an active AANS member to form medical student chapters at their respective institution. With great enthusiasm, medical students have responded, and we now have 1753 medical students as AANS members as well as 59 medical student chapters. Several of these chapters are at universities which do not have a residency program, underlining the success of this program by improving access and spawning new interest at medical schools where students would otherwise have minimal neurosurgical exposure.

Medical student and student chapters now have access to many of the AANS resources at the website. Benefits for student chapter members now include:

- Access to AANS faculty member liaison and local AANS members
- Access to AANS educational and career guidance resources
- Ability to promote neurosurgery to medical school,

community and patients

- Access to AANS YNC newsletter and Twitter to promote their group's events
- Early involvement in AANS YNC leadership opportunities, meetings and projects
- Access to other medical student chapter programs and events
- Free registration to the AANS Annual Scientific Meeting
- Assistance in developing relationships with local AANS members
- Early involvement in the AANS mentorship program and invitation to the mentorship sessions and social events at the AANS Annual Scientific Meeting
- Access to grants for education programs and to the Neurosurgery Research & Education Foundation (NREF) medical student research fellowship
- Free access to iTunes U which includes a Q & A for medical students interested in neurosurgery
- Access to AANS Operative Grand Rounds videos, Neurosurgical Atlas videos and The Rhoton Collection® videos
- Free online access to: Journal of Neurosurgery (JNS), Journal of Neurosurgery: Spine, Journal of Neurosurgery: Pediatrics, Neurosurgical Focus

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- Member discount on AANS publication purchases
- Availability of AANS-sponsored information pertaining to neurosurgery as a career, residency training programs, research opportunities, etc.

Each medical student chapter has an AANS representative to mentor and guide the chapter. At the completion of each year, the student chapter leaders submit an annual report describing their member status and activities throughout the year. This information is then shared with other chapters to encourage frequent and

highly influential activities. Examples over the past year include: neurosurgery career night; neurosurgery match panel; journal club; lecture series for medical students by neurosurgery faculty; and neurosurgery focused dissection/suture lab. We encourage all students to continue to use our site as their first stop in learning about neurosurgery and as your portal to some of the best web resources. Visit the [NeurosurgeryMatch website here](#).

Current medical student chapters include:

Case Western Reserve University School of Medicine MSC	UCLA/David Geffen SOM MSC
Columbia University College of Physicians & Surgeons MSC	Uniformed Services University of the Health Sciences MSC
Eastern Virginia Medical School MSC	Universidad Anahuac Mexico Norte MSC
Emory University School of Medicine MSC	Universidad Nacional Autonoma de Mexico MSC
Geisel School of Medicine at Dartmouth MSC	University of Arizona COM-Tucson MSC
Georgetown University School of Medicine MSC	University of California-San Diego SOM MSC
Harvard Medical School MSC	University of California-San Francisco SOM MSC
Johns Hopkins School of Medicine MSC	University of Colorado SOM MSC
Keck School of Medicine of USC MSC	University of Florida/Gainesville MSC
Lewis Katz School of Medicine at Temple MSC	University of Illinois COM/Chicago MSC
Loma Linda University SOM MSC	University of Miami Miller School of Medicine MSC
Loyola University Chicago-Stritch School of Medicine MSC	University of Michigan Medical School MSC
LSU Health Shreveport SOM MSC	University of Nebraska Medical Center MSC
Medical University of South Carolina MSC	University of North Carolina School of Medicine MSC
National Polytechnic Institute National SOM & Homeopathy MSC	University of Pittsburgh School of Medicine MSC
New York Medical College MSC	University of Rochester School of Medicine & Dentistry MSC
Oregon Health & Science University MSC	University of Tennessee Health Science Center MSC
Penn State University College of Medicine MSC	University of Texas Health Science at Houston MSC
Rush Medical College MSC	University of Texas SOM at San Antonio MSC
Rutgers New Jersey Medical School MSC	University of Toronto MSC
Sidney Kimmel Medical College at Thomas Jefferson Univ. MSC	University of Utah MSC
South Alabama College of Medicine MSC	University of Virginia School of Medicine MSC
Stanford University SOM MSC	University of Washington SOM MSC
SUNY Upstate (Syracuse) Medical University MSC	UT Southwestern-Dallas MSC
Tecnologico de Monterrey University MSC	Vanderbilt School of Medicine MSC
Texas A&M HSC College of Medicine MSC	Wake Forest School of Medicine MSC
Texas Tech Health Science Center SOM MSC	Wayne State University School of Medicine MSC
Tufts University SOM MSC	Weill Cornell Medical College MSC
Tulane University School of Medicine MSC UC/Irvine SOM MSC	UC/Irvine SOM MSC

We are excited about the future involvement of the medical students in the AANS and YNC as a way to continue to increase the best and brightest students to enter into a neurosurgical career.

Michael E. Ivan, MD, MBS
Medical Student Task Force Chair

A Neurosurgeon's Perspective on Surviving "The Match"

Douglas Hardesty, MD

This last year, we reviewed hundreds of applications at my program to grant less than 50 interview spots. Needless to say, any iterative improvement you can make to your application makes a difference in such a competitive environment. This may come down to the smallest details, such as typographical errors in a personal statement. Proofreading, perhaps by a second set of eyes, is essential to produce a professional-sounding Electronic Residency Application Service (ERAS) application.

So It Begins

Once the application season begins, the successful neurosurgical applicant will want to gather as many interviews as he or she can possibly attend (physically and financially). The exact number of interviews undertaken seems to rise every year, but scheduling more than 15 interviews across the country between November and January is technically challenging. I encourage applicants to discuss with their own program directors and mentors exactly how many programs they should apply to as an individual to contain cost but also remain competitive.

Similarly, the exact mixture of programs to which a student applies depends upon their circumstances. All neurosurgical programs and all applicants have their own niche; that is to say, an MD-PhD applicant from a major research university who is interested in deep brain stimulation (DBS) electrophysiology may think twice about applying to dozens of smaller, private-practice-oriented programs lacking major basic science support. In comparison, an applicant from a medical school that has no home neurosurgical program would be wise to apply to more programs than he or she might do otherwise. Again, general advice is no replacement for individualized career guidance, and local mentors are the most helpful in decisions of this nature. I would, however, recommend against simply applying to every residency program in the U.S. I have seen applicants who have done this at great financial cost, and it is simply not practical or cost-effective.

At our institution, we have exclaimed countless times "They all look great on paper!" And in truth, there are an enormous number of medical students with stellar accolades, United States Medical Licensing Examination (USMLE) scores and well-written personal statements who pursue neurosurgery. The interview process itself, then, must become the deciding factor when all interviewees are extraordinary applicants.

Conquering the Interview(s)

Success at the interview stage begins prior to the interview date. Numerous otherwise excellent students have harmed their application with a carelessly worded email or phone call to a program coordinator or administrative assistant. At this stage, I cannot over-emphasize that every moment and interaction matters; treat every person who you meet like you would treat the program director. Dress conservatively; now is not the time to be remembered for

a bowtie or flashy heels. Arrive early to everything. The number of potential interview questions far exceeds the scope of this brief review, but a few key strategies will be highlighted below.

First and foremost: know your application. Any struggling replies regarding your research, personal statement or extracurricular activities will cast doubt on just how seriously you engaged with that activity, while listing things of dubious value will cast doubt upon your character. If some of your papers were written years ago, now is the time to refresh your memory.

Do not attempt to cover up or evade questions on any portion of your application that is less than stellar. You do not have to bring it up yourself, but if an interview does, you must reply candidly. If you have a mismatch between your grades and USMLE Step 1, for example, consider your explanation for this well in advance. And remember that most programs frown on blaming non-extreme external circumstances, so "my course director did not like me, so I did not get honors" is unlikely to hold much weight as an answer. If you have a serious flaw on your application such as a failed USMLE Step Exam or a criminal offense, I would sculpt and rehearse an explanation with a mentor prior to interview season that shows how you have grown, accepted its lessons and will move forward as a better neurosurgery resident.

The interview, no matter how relaxed it may seem at certain programs, is not the place to become informal. Cursing, checking your cell phone and gossiping about fellow interviewees or programs are cyanide to otherwise excellent students. You are not yet a neurosurgeon – it is not your place to criticize other training programs, even if your home program or an away rotation was less than ideal.

As the season progresses, it takes energy to maintain a positive demeanor and not to become stale – yet far less energy than it takes to actually be a neurosurgery resident. Before you go into an interview with less spark than your best, ask yourself how much energy you would have invested if you could go back after not matching. Budget time to take care of yourself with rest, exercise and whatever else it takes to recharge you. Far better to go on fewer interviews than appear at too many looking worn out.

After the interview is complete, succinct follow-up is usually appropriate. Some programs may not want any contact afterwards and will advertise this. Otherwise, brief emails and/or letters to the program director and any particularly involved residents are appropriate. We read dozens of these – make them personalized based on something you discussed during the interview and be sincere.

Choosing the Best Program for You

A whole article itself could be dedicated to the construction of a rank list after completion of your interviews. In the end, you are

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the one who will spend seven years at a program, not your local departmental chair, research mentor, college friend, mailman, aunt or whoever else might suggest to you that one program is superior to another. Truthfully, there is no one “best” training program in the country – there may very well be a best program for you, but that likely is not the same best program for co-applicants. Do you want to be near or far from family? Live in an urban environment or a rural one? Are you married to one coast, or would you prefer new scenery? How much do you value robust research infrastructure, elective time or international opportunities? These should all influence your decision-making. However, my personal opinion is that nothing should influence your decision more than your own gut feeling about a program.

No objective system of creating a rank list (I have seen some very mathematical attempts) is superior to your unconscious ability to summate thousands of micro-interactions into a verdict on an individual training program. This idea is likely unsettling to you, as a highly educated, logical and quantitative neurosurgical applicant. But the exact instincts that have gotten you this far in the process will serve you well to create your rank list. Usually, the objective facts of a program and your subjective gut feeling will correlate – but if

you left the interview with a nagging negative feeling about a place, do not discount that on account of its excellent reputation or shiny new operating rooms. Seven years is a very long time to be miserable because you and a program do not have a good fit (for both parties!).

The Match process for neurosurgery is long, expensive and stressful. But, remember that the odds are in your favor if you are an American graduate with good board scores, grades and interpersonal skills. If you have a borderline USMLE Step 1 or perhaps a less than stellar grade in a course, remember too that some of the greatest residents have not had perfect applications, and programs know this too. Pay attention to detail in your application, present yourself well on interviews, create a rank list that focuses on fit and you will find success on Match Day. And remember: the hard part begins July 1.

Douglas Hardesty, MD, is a fifth-year neurosurgical resident at the Barrow Neurological Institute (BNI) and an elected member of the AANS YNC. He may be reached at Douglas.Hardesty@barrowbrainandspine.com. He would like to acknowledge BNI Residency Program Director Peter Nakaji, MD, FAANS, for feedback on this article.

Global Neurosurgery: Ukraine

Luke D. Tomycz, MD

I was interrupted mid-clinic. “They are ready for you in the OR.” I wrapped up the conversation – answering a few more questions and recommending a follow-up MRI in four months, then walked up the three flights of stairs that led to the operating room. Unlike thousands of times before, I was not sure what to expect. And this uncertainty generated a sharp anxiety.

I scrubbed my hands, and entered a clean and well-lit albeit slightly crowded operating room. The patient had already been positioned prone, and a sub-occipital exposure had been performed. The surgeon was masked, and from his eyes alone, I could not recognize him. Wordlessly, he stepped to the side as I approached the table. I asked for a Leksell rongeur, took one last look at the MRI that was taped to the wall alongside the window and started working. Immediately, I was in familiar territory again: performing a C1 laminectomy and opening the dura. Somehow, the reality of being in Ukraine drifted into the background. The patient in front of me, myelopathic from an intramedullary cervical tumor, was my only concern.

My journey to Ukraine began in Seattle. As my pediatric fellowship was coming to an end, I had the privilege of meeting Henry Marsh FRCS, an English neurosurgeon, who attended the chief resident graduation party at Washington University. We spoke briefly, and he mentioned that he travels frequently to Ukraine to help neurosurgeons there with complicated cases.

I was born in the U.S., but all of my grandparents lived in Ukraine

and left toward the end of WWII. My parents grew up in refugee camps in Europe. Though fully American, in many respects, I was raised in a Ukrainian home: eating varenyky, painting pysanky during Easter and reading the jingoist and often somewhat melodramatic poetry of Taras Shevchenko.

Immediately, I knew I wanted to go to Ukraine to do neurosurgery. Dr. Marsh gave me the name of the senior neurosurgeon at the International Neurosurgery Institute in Kyiv, Ukraine, and in an attempt to message him via Facebook, I inadvertently contacted his son, Igor Kurilet Jr., also a neurosurgeon. Over the next year, a sort of virtual relationship blossomed. Igor sent me MRIs of brain tumors mostly, and we discussed cases and surgical strategy. Before long, he invited me to join him in Ukraine.

Patients travelled from all over the country, often from six to eight hours away, for consultations. They came with multiple MRIs in hand of brain tumors, cavernomas and arteriovenous malformations (AVMs). In the first week, we consulted nearly 100 patients and performed four craniotomies and a spinal surgery, all for benign tumors. The experience was electrifying. Learning from and teaching foreign surgeons – hungry for experience and talented, but often poorly trained – was challenging, yet profoundly rewarding. Global neurosurgery allows us, as physicians, to return to the elemental motivation that drove us into medicine. Freed from onerous paperwork and dictations, we get to enjoy what is best about this profession: ministering to the sick.

YNC Division Report

Education Division Report

Shakeel A. Chowdhry, MD

The Maintenance of Certification (MOC)/Continuing Medical Education (CME) committee as well as the Scientific Planning Committee met during the CNS annual meeting. Highlights include anticipated changes to MOC. The traditional 10-year cycle has been discontinued and current plans include annual online general neurosurgery assessments that are anticipated to go live in Summer of 2017. Additionally, expansion of CME through quizzes after reading articles was discussed. A central repository for all neurosurgeons to log cases was again considered, but there are no immediate plans for implementation.

Communications Division Report

Brian M. Howard, MD

Neurosurgical Research & Education Foundation (NREF)

1. Over 100 donors now comprise the Cushing Circle of Giving (contribution, >\$25,000).
2. The NREF is committed to resident education through their supported courses. The Development Committee is looking to establish a fund specifically to support resident courses so they are less reliant on annual corporate fundraising.
3. Rules for the NREF-supported, post-residency clinical fellowships currently stipulate that, in exchange for fellowship support, fellows must not be allowed to provide billable services/income to the host department. The NREF fellowship support ranges from \$50,000-75,000 per fellow annually, which does not cover all costs necessary for a department to support a fellow. The NREF is discussing liberalizing this stipulation to broaden the number of institutions willing to apply for NREF funding.
4. The NREF will hold a Bean Bag Tournament to raise funds at AANS in April at the AANS Annual Scientific Meeting taking place in Los Angeles. Departments and private groups are encouraged to sponsor a team in this new initiative.

IT

The IT committee is working on several initiatives. The E-blast opt-in process will eventually allow members to tailor the content of updates from AANS by opting in or out of particular types of data. Soon, a single login will work for all AANS online material. Finally, the AANS is currently revamping the website, which when updated, will be simpler to navigate. The AANS hopes to complete the upgrade in the coming months.

AANS Neurosurgeon Editorial Board

The most recent issue of *AANS Neurosurgeon*, just published online, focused on Neurotrauma. The December issue will focus on Neurosurgical Subspecialization. The Editorial Board is actively

discussing starting a new section of the magazine focused on medical students.

Public Education

The primary efforts of the Public Education Committee this year have been to update the patient information pages on the AANS website. The patient education pages are among the most viewed pages on the site and are a widely used source of information about neurosurgical conditions for the public.

For 2016, August was Neurosurgery Awareness Month, and the focus of the committee was on stroke, given the dramatic advances in endovascular therapy and the increased role of neurosurgeons in the treatment of stroke. Trigeminal neuralgia will be the topic of interest for Neurosurgery Awareness Month for August 2017.

Affiliated Organizations Division Report

Andrew P. Carlson, MD, MS

Council of State Neurosurgical Societies (CSNS)

There was a push to ensure that residents are aware of the socioeconomic fellowship program as an early road to involvement in grassroots efforts in neurosurgery. As a previous fellow myself, I can attest to the importance of this organization. This fellowship opportunity allows residents to see a critical pathway that resolutions from the state level can very quickly be brought to the attention of the wider neurosurgical community. Even if a resident is not selected as a fellow, there are opportunities for involvement, so please contact your representative if interested.

AANS/CNS Joint Guidelines Committee

This meeting covered several new issues in reviews, including making specific disclosures relevant to a review more transparent as well as the use of the GRADE criteria for scoring. Training in clinical research methodology is becoming more standardized for members as well. Notably, the guidelines for the management of traumatic brain injury (TBI) were just extensively revised, and there are new guidelines for nonfunctioning pituitary adenomas. Others in the works include vestibular schwannoma, thoracolumbar trauma and a nearly complete ulnar nerve guideline.

NeurosurgeryPAC

The neurosurgery political action committee (PAC) encourages a \$25 donation even at the resident level to encourage habits of giving which strengthen the organization. This is very relevant with upcoming coding changes. There will be a permanent resident member on the PAC board as well.

ThinkFirst

ThinkFirst is also focused on expansion and outreach as well as a more dedicated research program. They encouraged young

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neurosurgeons to determine if their region has a chapter and to contact them to assist in starting one if not. There is an interest in studying the efficacy of ThinkFirst programs in terms of prevention and efforts to expand such research are underway. There will also be a new resident research award of \$1,000 to assist in a project regarding prevention of TBI, so please contact ThinkFirst if you are interested.

Operations Division Report

Luis E. Savastano, MD

Only the Membership Committee met at the CNS annual meeting. The committee has an ongoing effort to design a new online interface to streamline the application process for AANS membership. In addition, the committee is exploring options to recruit more members to the AANS, such as osteopathic medicine students, neurosurgery residents in DO programs and osteopathic neurosurgeons.

Sections Division Report

Walavan Sivakumar, MD

Cerebrovascular (CV)

In addition to finalizing the institutional CAST approval process for open and endovascular fellowship programs, the CV Section is discussing the initiation of 1-2 week traveling fellowships for practicing neurosurgeons at high-volume U.S. centers. Details regarding funding for various resident, fellow and young attending clinical and basic research grants supported by the section can be found on the joint section website. The next CV Section Annual Meeting will take place Feb. 20-21, 2017, in Houston.

History

The History Section is welcoming young neurosurgeons to get involved in the section by sending new ideas, helping with the annual history video and planning of the next meeting.

Pain

The Pain Section will host their Biennial Meeting in Chicago, in May 2017. It will focus on new advances in neuromodulation for pain as well as reviving the art of neuroablative techniques that only a few centers in the U.S. currently offer. Funding will be available for a limited number of residents to attend. The Oakley Fellowship will be open soon for the next cycle of applications. This is a traveling fellowship for young neurosurgeons (PGY 4 and above) to have the opportunity to spend up to three months away from their home program to learn specialized pain techniques.

Pediatrics

The Joint Section on Pediatric Neurosurgery will host their annual meeting Dec. 5-8, 2016, in Orlando, Fla.

Spine and Peripheral Nerve

The Spine Section will host their annual meeting March 8-11, 2017, in Las Vegas. The fast abstract concept will be utilized, allowing medical students and residents to give two-minute talks on approved abstracts.

Stereotactic and Functional

The American Society for Stereotactic and Functional Neurosurgery (ASSFN) hosted a successful resident social hour at the last CNS annual meeting in San Diego. There was a leadership panel discussing how to secure a functional neurosurgery fellowship and how to achieve early career success. The ASSFN is continuing to formulate guidelines on functional neurosurgery fellowships in conjunction with the SANS initiative.

Neurotrauma

The Neurotrauma and Critical Care Section recently released the 4th Edition Guidelines for the Management of Severe Traumatic Brain Injury in Neurosurgery. The section is also working with the National Neurotrauma Society on National Institutes of Health (NIH) grants aimed at preventing pediatric head trauma. They will also co-host a joint meeting with the International Neurotrauma Society and National Neurotrauma Society in August 2018.

Tumor

The Tumor Section will release applications for the Parsa Fund in December 2016. This will be used to sponsor mentored research in neuro-oncology for young neurosurgeons. The Young Neurosurgeon Reception at the 2016 CNS annual meeting went well, with honored guest and former AANS and CNS president, Edward R. Laws, Jr., MD, FAANS, who spoke about his career in neurosurgery and neuro-oncology and gave advice for the young neurosurgeons in attendance. The Tumor Section hosted a successful tumor symposium in conjunction with the CNS annual meeting, with a record number of abstract submissions.

Women in Neurosurgery (WINS)

WINS is continuing to sponsor the Louise Eisenhardt and Sherry Apple traveling scholarships for outstanding resident abstracts at the AANS Annual Scientific Meeting and the CNS annual meeting. On the horizon are plans for a WINS-sponsored international scientific forum of female neurosurgeons at the 2017 AANS Annual Scientific Meeting in Los Angeles, and the first ever WINS retreat in Snowbird, Utah, July 7-9, 2017, in conjunction with National Neurotrauma Society Annual Symposium.

Preparing for the ABNS Primary Exam: Tips for Success

Brian M. Howard, MD

The ABNS Primary Examination is cause for anxiety for many neurosurgery residents for two main reasons. First, the scope of material is much broader than that used in clinical practice on a daily basis. Second, finding adequate time to study is difficult among all the demands of training. While different study techniques are met with varying results, some common practices emerged when I polled several high-scoring residents (all in the 97th percentile or greater) regarding their individual methods. Below, I will describe an example study routine that was typical for one of these high-scoring residents. Some, all or none of these methods may work for you. Most importantly, the YNC does not endorse any of the resources listed as being superior to any of the many others that are available.

Studying commenced Jan. 1 of the year of the exam, providing approximately 2.5 months to study. All of the residents surveyed took the exam while on a rotation that began a little later and got out a little earlier than most rotations.

Study schedule:

Six days per week

Monday-Friday: Two-to-three uninterrupted hours of studying each morning before going to the hospital and two-to-three hours per evening after leaving to study.

Saturdays: Approximately six hours of studying with a few breaks.

In general, the morning session was used to read and take notes and the evening session was used to do practice questions and review the answers (those that were correct and incorrect).

In my own case, I took notes exclusively in Evernote™ so that my notes were available on multiple devices via the cloud. The advantage of using a multiplatform, note-taking app was that I was able to skim a few notes here and there between OR cases. Perhaps most importantly, I studied with a co-resident who was also taking the exam for credit. I spent approximately two-thirds of my time studying alone and about one-third with my co-resident. For me, studying with someone for part of the time was valuable to keep me motivated and to discuss points that were confusing.

My primary source materials, which I read cover to cover, were:

“Carpenters Neuroanatomy, Ninth Edition” by André Parent, which is a complete resource for micro- and gross neuroanatomy and physiology. Although this book is out of print, it can be readily found for purchase on the internet or is available at most medical school libraries.

“Comprehensive Neurosurgery Board Review, Second Edition” by Citow, MacDonald and Refai, which is commonly used for board studying. Concepts are presented in outline format, which is helpful for quick review and helps to identify weak areas that require more focus.

“Definitive Neurological Surgery Board Review” by Moore and Psarros is another popular board-review text. The material is similar in scope to “Comprehensive Neurosurgery Board Review,” but is in paragraph form and reads more like a traditional textbook.

Lastly, I used several radiology and pathology atlases easily searchable online.

I used the following question and answer books:

“Neurosurgery Board Review: Questions and Answers for Self-Assessment” by Alleyne, Woodall and Citow.

“Intensive Neurosurgery Board Review: Neurological Surgery Q&A” by Psarros and Moore.

“Neurosurgery Practice Questions and Answers” by Shaya, Nader and Nanda.

No magic formula exists to master the material required to not only pass but to ace the ABNS Primary Exam. But, I am confident that with a well thought out, individualized study plan, any resident can knock it out of the park. And with that, I bid you all good luck!

Career Corner: Building a New Practice in a New City: How to Get Busy Fast

Khoi D. Than, MD

The transition from training to practice is an exciting one. Nearly 30 years of hard work is over, and you finally get to take charge in taking care of patients. Perhaps the biggest challenge you will face after becoming an attending neurosurgeon is building your practice. As opposed to residency or fellowship where you are spoon-fed a constant stream of the greatest cases, when you start a practice, the onus is on you to find patients. Here, I have assembled some tips for consideration that I hope you will find helpful as you start your neurosurgical careers.

1. **Connect with your practice's/department's/hospital's marketing team.**

Aside from sending out mailings announcing your arrival, a good marketing team will plug you in with a variety of opportunities to meet face-to-face with referring providers. Sometimes these are simple “meet and greets” with local providers, including physical therapists, physiatrists, etc., where you can show you are a nice and approachable person. More often, these require some demonstration of expertise by putting together talks for local symposiums or Grand Rounds for internal/family medicine clinics and community hospitals. Regardless of the opportunity and the amount of work it might require, your answer should always be “yes.” I have found these personal interactions to be invaluable in maintaining a steady referral stream.

2. **Call referring doctors to update them on their patients.**

This was advice given to me that I do not do a great job at, but it certainly makes a lot of sense. A quick phone call to a referring doctor after a patient's case or their discharge adds a substantial personal interaction that encourages the other provider to keep sending you patients. Let's face it, not many people will read the notes that you send out of clinic. But a quick call saying, “Hey, the patient you sent me is leaving the hospital today and looking great!” will guarantee that more patients will come your way.

- 3. Utilize your friends in industry.** Especially in spine surgery, many industry reps will be banging on your door to show you their products and win your business. When you are not busy early on, make time for all of these meetings. Reps are “in the know” regarding who else is in practice locally and, importantly, who is willing to send away challenging surgical cases. I have found reps to be very helpful in introducing me to other spine surgeons throughout my community and even my state, and a large part of my practice is referrals from these other surgeons. Companies also frequently organize local events, which is another great way to network with other providers. If you latch on to a certain company in particular, they may even offer to host a practice-building event for you to give a talk and meet other providers in your community.
- 4. Always have your business card handy.** I am personally terrible at this, but you will find that you get asked all the time for your business card. Have a stack on you. Similarly, do not be shy to give out your personal phone number and encourage people to use it.
- 5. Be nice to people.** So much of practice building is taking good care of patients and treating them nicely. They will tell their friends to come see you.
- 6. Always say “yes.”** If a patient has had 15 previous spine surgeries and has back pain and wants to be seen, say “yes.” If another provider wants their patient to be seen this week, squeeze them in even if you are booked out for weeks. A “will do, no problem” attitude is the reputation you want if you want to become busy fast.

Introducing NeurosurgeryMatch.org

The YNC of the AANS is proud to announce the launch of NeurosurgeryMatch.org. This is a project led by the Society of Neurological Surgeons (SNS), together with the AANS and the YNC, in a joint effort to create the official website to assist medical students in successfully navigating the process of matching into a neurosurgical residency program.

The website's goal is to inform medical students about the field of neurosurgery and to answer common questions such as: Do I need my Step 2 score before applying? What does a "strong" research portfolio actually look like? How can I get a mentor within neurosurgery if my medical school does not have a neurosurgery department? The site contains advice about the timing and number of away rotations basic academic thresholds to become a competitive applicant, how much time one should be devoting to research, how an applicant should structure their fourth year electives to allow them to hit the ground running as an intern and even how to begin formulating a Rank List once interviews are complete.

Since matching into neurosurgery is a competitive process, NeurosurgeryMatch.org lays out the high yield activities and areas of your application that you should emphasize. Whether a prospective applicant has known they wanted to be a neurosurgeon from day one of medical school or did not discover their interest until their surgery clerkship in their third year, there are activities and ways to focus the remaining time to optimize their opportunity to match into neurosurgery. There are links included to assist medical students in establishing an AANS Medical

Student Chapter at their home institution and avenues to reach out to neurosurgeons at hospitals around the country through a formalized mentorship program.

Currently, the first phase of the website has been published, but many more features are yet to come. When fully complete, this website will be an all-inclusive location to learn about what the specialty of neurosurgery entails and to determine how best to match into neurosurgery. In future iterations of NeurosurgeryMatch.org, there will be an annually updated list of all neurosurgery residency programs with pertinent details about each program, interview dates and the number of positions available. In addition, a general message board will be instituted in order to help answer your personalized questions about neurosurgery in general or about specific residency programs.

With the creation of NeurosurgeryMatch.org, the SNS, AANS and YNC provide a unique new resource to help guide students interested in matching in neurosurgery through this complex, pitfall-laden process. This is a sign of the continued commitment of organized neurosurgery to attracting the best and brightest women and men to the field of neurosurgery.

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Book Reviews

“Temporal Bone Dissection Guide”

Howard W. Francis, MD; John K. Niparko, MD

This is the second edition of a wonderful reference for those who are learning how to explore the temporal bone in a cadaver lab. While most anatomy texts will show normal anatomy and surgical anatomy so that the trainee has to translate this information to the cadaver lab, this text actually specifically prepares the trainee to make the most of a temporal bone dissection of a given cadaver head. The text itself is a slim, spiral-bound volume, which makes it easy to actually bring to the cadaver lab for reference. There are also videos online that one can review in preparation for the dissection, along with more than 160 illustrated drawings of progressive dissections that one can check during a dissection session. This would make an excellent tool for any resident or young faculty member interested in improving their understanding of temporal bone anatomy.

“The Comprehensive Neurosurgery Board Preparation Book: Illustrated Questions and Answers”

Paul V. Birinyi, MD; Najib El Teclé, MD; Eric Marvin, DO; Carlos Zamora; Richard Prayson; Samer K. Elbabaa, MD, FAANS; Matt Pierson, MD; Katie P. Huynh, MD

As highlighted in our article in this edition of the newsletter, answering questions is one of the best ways to quickly review information and get used to the American Board of Neurological Surgery (ABNS) primary examination. This new addition to the question-and-answer manuscripts out there is a welcome one.

The authors focus on providing high-quality illustrations with their questions, with more than 1,300 questions and more than 350 illustrations, many in color to match the detail provided on the new online exam. The questions are separated in sections that cover the various topics on the written board examination, and each question comes with detailed answers that enable the trainee to explore an item in-depth once an answer has been provided. They even provide a practice test which mimics the ABNS exam in content and pace. I am sure that this text would be a welcome addition to the library of any resident preparing for the written boards.

“Neurosurgery Practice Questions and Answers”

Mark R. Shaya; Cristian Gagnaniello, MD, PhD; Remi Nader, MD, FAANS

Preparing for the boards is a months-long if not years-long process for many of us, and for that reason, it is important to utilize multiple different sources for board preparation. This question-and-answer text takes a slightly different approach to that above, as it provides a random assortment of questions from various different topics throughout the volume. Now in its second edition, this rapid-fire, question-and-answer test provides more than 800 questions from various topics along with quick answers for rapid review of information. While the images are not as numerous as some other texts, this format does provide for very quick sessions of answering and reviewing a few questions at a time, as time permits. In this way, it provides another welcome option for board preparation.

The Rise of Social Media in Neurosurgery

Catherine A. Miller, MD

Social media is a form of electronic communication through which users create online communities to share information, ideas, personal messages and other content. It is reported that the percentage of adults using social media in the U.S. has risen from 8 percent to over 75 percent since 2005. The expansiveness of its scope is evidenced by the sheer volume of use, with over 1 billion Facebook users, 100 million daily active Twitter users sending over 65 million tweets and more than 2 billion videos viewed on YouTube. Social media outlets can be used for social or professional networking, media sharing, content production and information aggregation. As the number of people using social media grows, more and more companies, organizations and even the health care sector are relying on social media to influence these users.

Reports show that social media has several applications in health care which include providing question and answer forums, supplying basic information about disease states, sharing patient stories, collecting data on patient experiences/opinions and facilitating dialogue between patients to patients or patients to health care professionals. While there are many benefits of social media, such as increasing interactions between patients and surgeons or patients and patients, improved availability of tailored information, increasing accessibility and widening access and providing areas for support; there are also limitations one must recognize. Some acknowledged health-related limitations include lack of reliability, quality concerns, lack of confidentiality/privacy and information overload.

With the exponential use of social media, many neurosurgeons and institutions are trying to incorporate these tools into their practices. A recent publication investigated the current use of social media in neurosurgery and found 158 social media accounts (86 Facebook, 59 Twitter and 13 YouTube) for private or academic neurosurgical departments. Some institutions are using advanced social media metrics to determine who is viewing their media, how to improve their visibility and if changes to their content is needed. Not only are individual neurosurgeons and institutions using social media to increase their visibility and engage patients, but other aspects of neurosurgery such as journals, professional organizations and foundation/support groups are reaching the public through these avenues.

With the ever-changing landscape in health care communication, social media is increasingly being used to affect practices, patient relations and the distribution of information. It is important that neurosurgeons recognize and understand the social media landscape as it has the potential to be a valuable tool for communication, engagement and marketing. However, one must remain aware of the benefits and pitfalls associated with its use. Further work and investigation is being performed to evaluate how best to apply social media in neurosurgery.

Neurosurgeons + social media – How I Do It

Andrew W. Grande, MD, FAANS

1. What social media outlets do you use professionally?

I have a professional Twitter and Facebook account, and I also have a general Facebook page, which I use socially with my friends and family. Together with Chris Morgan, our communication manager, I help manage our neurosurgery department Twitter, Facebook and Instagram accounts and YouTube Channel.



2. Why/when did you become involved with social media (professionally)?

I have found that patients enjoy reading about what you are doing. Often they will come in and are proud that they read this or that which you have been involved with. More recently, I have also found that social media is a great way to support our patients and their own advocacy.

The other reason I became involved in social media professionally is to have some control over what people find on the internet when they look up my name. And the only way you can have control over what people find on the internet is to generate your own content. Search engines then prioritize content based on how much things are mentioned on various webpages but also on different social media outlets. The more channels a topic is found on, the higher it will rank on search engines. Through generating lots of your own content, you can drive your good work to the top of these searches. This is exactly what I have found with my own content.

3. How often do you use these outlets?

Our department communications team meets every Wednesday to identify content for the week to promote through our webpage and social media channels. The content is posted on the webpage and social media through the week. There is generally daily Tweeting on the department Twitter. I try and get on Twitter a couple times a week myself. I am more active on my own account during meetings.

4. How do you use social media as a neurosurgeon – i.e. what types of things do you post/blog/etc.?

We have found that Facebook is a great way to drive traffic to our webpage. We now post all the news stories that are on our webpage on our Facebook page. We find that people go to Facebook and then click on the links, which drive them to the news stories on our webpage.

I primarily use social media and our department webpage for the following purposes:

1. Tell patient stories. While we are proud of our own work, we are most proud of our patients who are the ones with incredible courage and fortitude. Telling their story is a great way to show how proud we are of them!
2. Share the good work that is going on in the department.
3. Advocate and support our patients in the efforts they are doing related to the diseases they have.

5. Are you aware of any changes/differences in your practice because of social media? Have patients mentioned your social media to you?

Absolutely – especially with trigeminal neuralgia. It seems that there are some diseases we deal with in neurosurgery in which patients are especially savvy with social media and the internet. We know this based on some internal studies we have done with key word searches and following hits on various stories. Trigeminal neuralgia is clearly one of these, and I have many patients who have found me through the internet and social media

6. Any tips or learning points you have regarding how to use social media for your practice?

Develop a team in your practice to generate frequent and consistent content. Without continuous content, your webpage and social media outlets are useless.

When you start your practice, create professional accounts with Facebook, Twitter and Youtube. There are now hundreds of social media outlets, but you do not need to have a presence in all of them. I think a good webpage and a few social media channels are more than enough.

Use high quality (professional if possible) photographs. I have found that lower quality images (even just a few) really distract from the quality of your site.

Publish content consistently. Consistent content every few days is better than several pieces of content all at once every now and then.

Andrew W. Grande, MD, FAANS, is an assistant professor and co-director of the Earl Grande Stroke and Stem Cell Laboratory at the University of Minnesota.