

Pediatric Neurosurgery: Coming Into Its Own

In Every 'Metric' that Matters, the Field Has Made Significant Strides

By Bonnie Darves

Neurosurgeons who specialize in pediatrics have always understood the important position that the field holds within the larger realm of neurosurgery and the significance of their work, but until relatively recently, pediatric neurosurgery was somewhat relegated to the sidelines. Things are changing, steadily if not rapidly, according to Karin Muraszko, MD, the pediatric neurosurgeon who chairs the department of neurosurgery at the University of Michigan.

"We used to be viewed as an offshoot of adult neurosurgery, not a separate entity—as the people who 'go over there and take care of the kids,'" she said. "There was also this sense of pediatric neurosurgery being almost apologetic, even though we believed in the absolute value of the work we did. That's not the case anymore. The field is moving along quite nicely."

That progress is demonstrated by the numbers. Pediatric neurosurgery fellowships

practice advances—namely intraoperative imaging and instrumentation, in addition to the advances in endoscopy that radically changed hydrocephalus treatment. Those technology-propelled developments have significantly expanded the number of procedures that can be performed in the pediatric population, in epilepsy, tumors and spine deformity, for instance, and the avenues for subspecialization have increased in tandem. In addition, U.S. News & World Report now ranks 50 centers that provide dedicated pediatric neurosurgery/neurology services.

Subspecialization avenues boost appeal

These advances have been welcome ones, and have contributed to the increasing attraction of the field, observes Mark Proctor, MD, neurosurgeon-in-chief and director of the brain injury center at Boston Children's Hospital. "In the past, if you were a pediatric

"We used to be viewed as an offshoot of adult neurosurgery, not a separate entity—as the people who 'go over there and take care of the kids.' That's not the case anymore."

— Karin Muraszko, MD, University of Michigan



were in the single digits less than a decade ago. Today, more than 25 accredited fellowships are available. Neurosurgeons are also moving toward pediatrics-dedicated practice in growing numbers, and there are now 211 board-certified pediatric neurosurgeons.

The field's growth is due in part to technology developments that have conferred

neurosurgeon, you were probably the only one in your center. But now that we have subspecialists in spine, tumor, trauma, epilepsy—and even functional neurosurgery—more people are choosing the field and services are expanding," Dr. Proctor said.

Five years ago, Dr. Proctor recalled, pediatric neurosurgery leaders were holding numerous

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Pediatric Neurosurgery: Coming Into Its Own

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meetings about how to interest people in pediatric neurosurgery. “And now they’re here, which is great,” Dr. Proctor said. “The downstream effect is that we’re now able to set up more robust pediatrics services because we have more people to hire.” He noted that a recent pediatric neurosurgery meeting drew a record 145 attendees.

The growth has led to more regionalization of services, enabling hospitals and areas without pediatrics-focused neurosurgeons to transfer cases to specialty centers and dedicated neurosurgery services. “I think that we’re seeing the quality of care going up because of this trend,” he said.

Dr. Proctor points to spine as an area that’s benefited from the greater subspecialization within pediatric neurosurgery, and the attendant development of dedicated instruments for the pediatric setting. “Pediatric spine is a burgeoning area now because we have more people trained in modern surgical techniques and more instrumentation that’s appropriate for kids,” he said. “As we gain experience, we’re seeing that we can do some of the same procedures in kids that we do in adults—such as complex repair of spine deformities and cervical spine procedures.”

In the big picture of medicine, pediatric neurosurgery is still relatively young. Although some neurosurgeons began self-selecting into the field as early as the 1950s, and a handful of forerunning hospitals began hiring neurosurgeons because they were pediatrics-focused, Dr. Muraszko explained, “instead of just borrowing adult neurosurgeons to do pediatrics cases,” pediatric neurosurgeons were few and far between until recently. The American Board of Pediatric Neurologic Surgery is a mere two decades old (it was established in 1996), and accredited fellowships predated the ABPNS by only a few years.

Mapping Early Career Path in Pediatric Neurosurgery

The market for practice opportunities in pediatric neurosurgery goes through cycles, but generally speaking, most pediatric neurosurgeons find suitable positions on leaving training, according to the veteran pediatric neurosurgeons who shared their views for this article. The best way to ensure that the job search ultimately goes as well as possible is to start making connections early in training, or whenever the neurosurgeon decides on pediatrics.

Sources offered the following additional tips and guidance for planning an early career path:

Begin exploring the possibilities in year four or five. Dr. Muraszko says that by that point in their training, neurosurgery residents “should be having a pretty good conversation [with faculty or mentors] about what they want to do in pediatric neurosurgery, and by year six, that should be pretty well established in their heads,” she said, so that they can start identifying fellowship opportunities before their chief year. She added that the mentorship network—particularly the American Association of Neurological Surgeons Mentoring Program—has become more robust in recent years.

Look for opportunities to experience other programs and specialty focus areas. Dr. Wellons observed that trainees who seek to vary their experiences or wish to explore an area of pediatric neurosurgery that’s not well represented where they’re training should seek out “traveling training” opportunities. As the field has grown, such opportunities—a short-term elective or targeted training at a program that’s strong in tumor or endovascular, for example—are becoming more plentiful.

“This is a good way to explore something you might be interested in, that isn’t available at your program,” he said. It might take some legwork to get such experiences set up, he acknowledged, but many organizations that have the requisite resources will welcome neurosurgeons from other programs.

Don’t focus solely on the “perfect match.” Often, residents who develop a specific interest in a procedure or specialty area of pediatric neurosurgery have the notion they should set their sights on a particular position or place. That might be too narrow an approach, Dr. Guillaume points out.

“Many residents try to look for a job that fits them and what they want to do. What they don’t realize is that you can go to a place and make the job,” he said. “If there’s something you’re passionate about, you can possibly create opportunities where you go—potentially becoming the busiest person in the community doing that particular procedure.”

“What we’re seeing is a major widening of the silos—beyond just working with pediatric oncology and child neurology, our pediatric neurosurgeons interact with eight other surgical specialties and 11 other divisions.”

– John “Jay” Wellons III, MD, MSPH, Vanderbilt University



Gaining pediatric neurosurgery the special standing the field warranted entailed navigating a challenging political environment, Dr. Muraszko recalled. However, despite its relatively recent on the specialty scene, pediatric neurosurgery has claimed some important firsts, namely the development of neuroendoscopy and the earliest treatment of spasticity—as well as its forerunning role in fetal surgery.

Technology expands procedure possibilities

The advances in technology and the movement toward specialty centers are expanding the career-path and practice opportunities for pediatric neurosurgeons, and enhancing subspecialists’ ability to increase their case numbers. Daniel Guillaume, MD, MS, director of pediatric neurosurgery at the University of Minnesota Masonic Children’s Hospital, views this

growing centralization of services as a boon for young pediatric neurosurgeons coming into the field.

“Technology advances are leading many pediatric neurosurgeons to subspecialize, which enables the larger practices and centers with special expertise to develop more robust services to treat patients regionally. Ultimately, this is leading to better outcomes,” said Dr. Guillaume, who specializes in neuroendoscopy. “It’s a great time to be a pediatric neurosurgeon.”

Rabia Qaiser, MD, exemplifies the trend toward subspecialization and young neurosurgeons’ interest in developing their niche. After completing her pediatric neurosurgery fellowship at Riley Hospital for Children in Indianapolis in 2015, she headed to Stanford University to complete cerebrovascular training—with the objective of providing improved treatment of Moyamoya disease.

“My whole goal was to get comfortable enough with the procedure so that I didn’t have to transfer those patients,” said Dr. Qaiser, who is an assistant professor of pediatric neurosurgery at West Virginia University in Morgantown. “I’m at the point now that I can think about pursuing a subspecialty that was unheard of a few years ago.”

Based on her own experience in training, Dr. Qaiser thinks that the trend toward subspecialization in pediatric neurosurgery is becoming more pronounced. “More and more people I know in the pediatric neurosurgery field are subspecializing now—in spine, or tumor or craniofacial. It’s a positive trend, I think, because we need people to push the boundaries,” she said.

For Jennifer Strahle, MD, director of the Pediatric Neuro Spine Program at St. Louis Children’s Hospital in Missouri, the path to pediatric neurosurgery was set early. She was drawn to pediatric cases and patients generally during medical school, and in the middle of her training at the University of Michigan, she developed a keen interest in pediatric spine deformities. “I saw this as an emerging subspecialty, an area where a lot of exciting developments were occurring,” she said, noting that she pursued dedicated training in the spinal deformity treatment at Niklaus Children’s Hospital in Miami, Fla.

“I’m at the point now that I can think about pursuing a subspecialty that was unheard of a few years ago.”

– Rabia Qaiser, MD, West Virginia University



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Cover Letters: Don't Underestimate Their Importance

By Katie Cole



Only a small percentage of the candidates I work with provide a cover letter along with their CV when they submit their application for a practice opportunity. That's unfortunate, because a cover letter is a first impression that can be extremely valuable in making a good introduction to a prospective employer. Even if a candidate has outstanding experience and first-rate training showcased in his or her CV, a cover letter is really the only way to articulate who you are and what you are looking for, outside of providing your training and experience.

To elicit the most offers and possibly also the best employment options, a cover letter is essential because it gives prospective

the types of cases you have experience in, either in your current job or during training, as well as the case mix you are seeking in your ideal opportunity. You can also expand on any community or international work or volunteer experience you have had during training or medical school, as well as any locums or military experience.

The cover letter is essentially your initial first-impression opportunity to demonstrate who you are as a person to a prospective employer. It's an ideal vehicle for providing any relevant details about your family, the types of amenities you seek in a job opportunity location, or information about anything in your life that shaped your decision to go into neurosurgery.

In other words, it's an excellent opportunity to provide a big-picture idea to who you are

Introductory paragraph. Introduce yourself and be specific about why you're reaching out—to be considered for a specific practice opportunity, or essentially to let the recipient know that you're interested in pursuing a potential position with the practice or organization. (In the latter case, indicate right up front why the organization appeals to you.) If you are writing at the suggestion of a mentor or colleague, indicate that up front.

Second paragraph. Provide brief details about your key qualifications and professional interests (don't repeat what's in the CV, but do let the recipient know if you're highly interested in teaching or research, for instance). You might also mention any strong suits that an organization might value—such as excellent communication or leadership skills, or a proficiency in information technology (IT) on the organizational level.

Then, tell the recipient a little about yourself, as a person (see guidance above). Also mention why the location appeals to you, and if you have personal or professional ties to the area, mention those briefly.

Final paragraph. First, thank the recipient for welcoming your application and reviewing your qualifications and experience, and then indicate that you hope to meet the individual soon during an onsite interview.

On a small but important note, if there are any chronological gaps in your CV that do not involve sensitive matters, point out and explain those briefly in the second paragraph. For some organizations, an unexplained gap might be perceived as a possible red flag and therefore prevent the candidate from being considered for the opportunity.

Ms. Cole is a Denver resident and publisher of Neurosurgery Market Watch.

“The cover letter is essentially your initial first-impression opportunity to demonstrate who you are as a person to a prospective employer. ”

employers a personal counterpart to your CV. The letter can provide insight into the type of job opportunity that would be the best mutual fit, based on technical experience as well as personality. It's also an opportunity to mention the candidate's work-life-balance “wish list” outside of the job requirements. However, it's very important to ensure that there's no suggestion of job demands or inflexibility, or any hint that you're unwilling to work hard and share call equitably with colleagues.

Your cover letter can be brief, usually no longer than one page; in most cases, a few paragraphs will suffice. You can elaborate on

as a potential candidate, and in a highly desirable or competitive market, the cover letter can be an important differentiator in terms of which candidates are called in for the earliest interviews.

The letter's tone, it goes without saying, should be highly professional but also friendly; and the document should be absolutely error free. (If English is not your first language, or writing in general is not your strong suit, consider hiring an editor to assist with crafting the letter and polishing it. In structuring the cover letter, the following basic template works well:

LEGAL CORNER



Neurosurgeon Industry Affiliation: Due Diligence Is First Step

By Bruce Armon, Esquire

In this series, Neurosurgery Market Watch speaks with health law specialists about a range of matters affecting neurosurgeons, from contractual issues related to neurosurgery employment, compensation and performance, to business-related matters.

For this article, we spoke with Bruce D. Armon, Esquire, a Philadelphia-based partner in the national law firm Saul Ewing LLP and chair of its healthcare practice, about issues that young neurosurgeons should consider before they get involved in joint ventures or other contractual arrangements with device or technology companies.

Q: As neurosurgeons leave training and head into their practice lives, it's not uncommon for them to encounter opportunities with the device, instrument or medical technology sectors in which their expertise is sought in either a business co-venture or consulting arrangement. For neurosurgeons who have not had exposure to such arrangements, what are the key considerations they should address to ensure they protect their professional reputation?

A: The first thing to think about, as a general premise, is who neurosurgeons would be aligning with if their name was associated with the potential sale or promotion of a product. And in that regard, the first consideration is to follow the money. The neurosurgeon needs to understand who the manufacturer is and what the company's reputation is in both the neurosurgery and general surgery communities.

The next consideration is to determine whether the company has been subject to any legal actions, with respect to the product in question or a different product. The

neurosurgeon should also conduct due diligence to assess the company's financial position. Finally, it's important for the neurosurgeon to have a good comfort level with the company's management team members with whom he or she has interacted.

Q: Let's say that the company is solid and well regarded, and that the product or technology under development appears to be sound, or at least worth pursuing. What should the neurosurgeon ask—or know—before proceeding to an affiliation of any sort?

A: First, it's important to understand exactly how—if at all—the neurosurgeon's name will be affiliated with the use of that product. If the neurosurgeon is looking at an equity

set of considerations. The neurosurgeon must determine how the affiliation would affect his or her employment relationship, for instance. Many academic medical centers have implemented policies governing how physicians' names or endorsements can be referenced or related to specific companies or products. There might also be concerns regarding departmental purchases of products with which a neurosurgeon who has purchasing influence has a financial relationship.

If the prospective affiliation involves a consulting agreement, neurosurgeons need to know three key things: how they will get paid for their time, the payment rate and when payments will be made, and whether there's a maximum amount the neurosurgeon can be paid for his or her services.

“Many academic medical centers have implemented policies governing how physicians' names or endorsements can be referenced or related to specific companies or products.”

investment, there is one set of considerations having to do with the various agreements and the expected return on investment. These are the potential financial issues that should be reviewed with help from an accountant or a financial advisor. If it is a new device or product, understanding where it is with regard to FDA review is important.

If the neurosurgeon's name and title will be directly affiliated with the product, or referenced in the context of product-associated documents, there's a different

In addition to those issues, the neurosurgeon needs to know what Physician Payments Sunshine Act disclosures will be made public. The act was put in place in 2010 to increase transparency regarding financial relationships among physicians, teaching hospitals and manufacturers. Neurosurgeons need to consider how it would affect them professionally to see their name published in such disclosures.

UPCOMING U.S. NEUROSURGERY EVENTS/CMES

Advanced Cervical Bio-Skills:
Techniques for Cervicogenic
Headache Diagnosis & Management

☐ August 18-20
Aurora, Colorado

From Cranial to Spine: An Overview of
Neurosurgical Topics for the Advanced
Practice Provider

☐ August 30-September 2
Chicago, Illinois

Scoliosis Research Society 52nd Annual
Meeting and Course 2017

☐ September 6-9
Philadelphia, Pennsylvania

Mayo Clinic 9th Annual Stroke and
Cerebrovascular Disease Review 2017

☐ September 14-16
Amelia Island, Florida

SMISS: Society for Minimally Invasive
Spine Surgery Annual Forum 2017

☐ September 14-16
Las Vegas, Nevada

6th Annual Meeting of the Walter E.
Dandy Neurosurgical Society

☐ October 2-6
St. Louis, Missouri

Congress of Neurological Surgeons
Annual Meeting

☐ October 7-11
Boston, Massachusetts
Meet us there! Booth #948

NASS

☐ October 25-28
Orlando, Florida

AO Spine North America

☐ November 3-4
Las Vegas, Nevada

UPCOMING INTERNATIONAL CMES

ESMINT: European Society of Minimally
Invasive Neurological Therapy Annual
Meeting

☐ September 7-9
Nice, France

EANS 2017: Controversies and Solutions
in Neurosurgery

☐ October 1-5
Venice, Italy

SLICE: Stroke Live Course

☐ October 2-4
Nice, France

EUROSPINE 2017

☐ October 11-13
Dublin, Ireland

Comprehensive Clinical Neurosurgery
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☐ November 27- December 1
Krakow, Poland

► For more information regarding any of these events, or to post your upcoming CME or neurosurgery event, please contact info@harlequinna.com.



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IN BRIEF

QOD Registries Effort Expanding

The Quality Outcomes Database (formerly the National Neurosurgery Quality and Outcomes Database, or N2QOD) continues to attract new participants and now counts nearly 100 institutions' neurosurgery programs—up from 78 three years ago.

QOD, which was launched in 2012 and serves as a continuous national clinical registry for neurosurgical procedures and practice patterns, encourages additional programs to join in the national effort. The QOD tracks care quality for the most common neurosurgical procedures, and also provides participating practices and hospitals with an immediate infrastructure for analyzing and reporting neurosurgical care quality.

The QOD's registries include lumbar, cervical spine, cerebrovascular and spinal deformity, and the program's structure enables participants to track their quality in near real-time. The QOD has begun welcoming other specialties such as orthopedics to participate, and plans to include other specialties as appropriate. The entity also serves as a vehicle for facilitating multi-center trials and other cooperative clinical studies.

Last year, the QOD initiative began reaping the benefits of continuous data aggregation with the introduction of the Predictive Spine Calculator, based on outcomes for lumbar surgery for degenerative disease. The tool is now available to all participating registry centers.

To inquire about participation, visit <http://www.neuropoint.org/> or call (847) 378-0656.

AANS Offers Input on CMS Tracking Effort

The American Association of Neurological Surgeons (AANS) in July joined with other members of the Specialty Medicine to provide input to the U.S. Congress on the Centers for Medicare and Medicaid Services (CMS) program to identify and combat waste, fraud, and abuse in the Medicare program.

The Alliance, a coalition of medical specialty societies representing more than 100,000 physicians and surgeons, cited concerns about CMS program's operation, which often places numerous burdensome requirements on physician practices. These requirements are often duplicative and disruptive, and frequently lead to penalties based on technicalities or inconsistent application.

In its statement, the Alliance also cited the program's lack of transparency regarding the scope and authority of the initiatives, which creates additional uncertainty for the physicians and limits accountability for CMS and its contractors.

To address these concerns, the Alliance asked Congress to consider the following recommendations:

- Streamline Medicare program efforts, to minimize burden and duplication
- Increase transparency in medical review and audit initiatives
- Enforce transparency in development of local coverage and payment policies
- Implement safeguards to ensure proper Medicare denials and overpayment recoupments

For more details, go to: www.aans.org/Advocacy/Advocacy-News.

CONTRIBUTORS WANTED!

Neurosurgery Market Watch welcomes submissions of articles of potential interest to practicing neurosurgeons. We are particularly interested in opinion articles about how trends occurring in the neurosurgery marketplace or in the health policy arena might affect the practice environment.

To discuss a potential idea, please contact Bonnie Darves at **425-822-7409** or **bonnie@darves.net**

Pediatric Neurosurgery: Coming Into Its Own

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In her relatively new position—Dr. Strahle completed her fellowship in 2016—she will help grow St. Louis Children’s nascent program, which will leverage the expertise of a diverse clinical and research team including neurosurgeons, orthopedic surgeons, physiatrists and neurologists. The rapidly growing program is focusing on developing specific expertise in neuromuscular scoliosis and is engaged in extensive outreach.

Dr. Strahle cites three areas in pediatric spine deformity where she expects advances in the next decade. On a procedure-planning level, the use of 3D technology to print models of patients’ deformities is enhancing neurosurgeons’ ability to more precisely anticipate intraoperative needs and streamline surgery. In addition, the coming years will see tremendous progress in the use of robotic-assisted surgery, she predicts. Finally, she anticipates a novel classification scheme for scoliosis centered around its underlying etiology, and a more sophisticated understanding of how neurological conditions lead to scoliosis.

Collaboration among specialties propels QI

Besides technology, in Dr. Murazsko’s view, the other quality improvement drivers are two attributes that pediatric neurosurgeons

appear to share: They’re inherently collaborative rather than competitive, and they’re generally congenial. “People tend to work well together in our field, and pediatric neurosurgeons collaborate well with other specialties,” she said, noting that inter-institutional research and collaboration in areas such as pediatric neuro-oncology has resulted in approximately 90% of patients being on multi-institution protocols. “The data that’s being collected and shared now

In both large academic institutions and standalone specialty centers, pediatric neurosurgeons are working in increasingly close collaboration with several other subspecialties. The neurosurgery program at Vanderbilt University in Nashville, Tenn., exhibits this trend toward multidisciplinary collaboration, observes John “Jay” Wellons III, MD, MSPH, chief of pediatric neurosurgery in the university’s Department of Neurological Surgery.

“The downstream effect is that we’re now able to set up more robust pediatrics services because we have more people to hire.”

— Mark Proctor, MD, Boston Children’s Hospital



will benefit the next child—and our field as a whole,” she said.

The Hydrocephalus Clinical Research Network, which now includes 14 North American centers, the Park-Reeves Syringomyelia Research Consortium and the Gliomatosis Cerebri Registry are other examples of the growing trend toward inter-institutional data sharing.

“What we’re seeing is a major widening of the silos—beyond just working with pediatric oncology and child neurology, pediatric neurosurgeons at our institution now interact with eight other surgical specialties and 11 other divisions,” said Dr. Wellons, who specializes in neuroendoscopy in traumatic brain tumors, hydrocephalus, Chiari-related disorders, and brachial plexus and peripheral nerve treatment. “That kind of collaboration is the inherent lifeblood of a robust children’s hospital now, so it mandates that it be done very well.”

Dr. Wellons cites as an example the trend toward creating nimble surgical specialty teams that can adjust as the situation—and patient case—dictates. “You have to be able to construct and deconstruct teams, and move on to the next patient,” he said.

“I saw pediatric spine deformity as an emerging subspecialty, an area where a lot of exciting developments were occurring.”

— Jennifer Strahle, MD, St. Louis Children’s Hospital





In that manner, Dr. Wellons explains, the pediatric neurosurgeon might be working with an ENT colleague on an endonasal case, and later that day handle a complex epilepsy case or consult with ophthalmology on a patient in the emergency department. And at Vanderbilt, pediatric neurosurgeons also work very closely with orthopedic surgeons, which entails taking 50% of spine call. "That has a lot to do with the collaborative nature of our pediatric orthopedic surgeons as well," he said.

Pediatric neurosurgery conceived Vanderbilt's model Surgical Outcomes Center for Kids (SOCKS) program as a neurosurgery-only endeavor initially, but its success prompted such intense interest from other pediatrics surgery specialties that the program, which Dr. Wellons directs, was expanded to include cardiac surgery, general and thoracic surgery, ENT and urologic surgery. "It's been a real win, not just for pediatric neurosurgery but for all of the pediatric specialties here," he said.

What draws neurosurgeons to pediatrics?

The factors and life experiences that lead residents to choose pediatric neurosurgery are likely as varied as the individuals themselves, but there are common threads. For many, it's the opportunity to work with very young patients and possibly improve the quality of their future lives—or an early experience in their own lives that piqued their interest in pediatric medicine generally. For others, it's the deep satisfaction of working with children, said Dr. Muraszko, despite the inherent challenges and emotionally difficult situations that pediatric neurosurgeons encounter.

"Pediatric neurosurgeons are also viewed as being more friendly, perhaps because kids just keep you honest. I do think that is part of it—the humanity factor, because there's

something about taking care of a child that brings out the gentleness in us," said Dr. Muraszko. She adds that the advances in pediatric neurosurgery over the past two decades have greatly increased the life expectancy for many patients, which brings

rehabilitation post-op. "They're ready to play as soon as they're able."

Because Boston Children's Hospital operates a longstanding and very large training program, Dr. Proctor has had the satisfaction of experiencing firsthand the

"There's this wonderful ripple effect, in seeing someone you took care of 15 years ago heading into medical school, or getting married and starting their adult lives. We're not incidental."

— Karin Muraszko, MD

its own kind of satisfaction. Today, up to 85% of children with medulloblastoma survive, she pointed out, which is a far different picture than when she completed her training.

"There's this wonderful ripple effect, in seeing someone you took care of 15 years ago heading into medical school, or getting married and starting their adult lives," Dr. Muraszko said. "So we're not incidental."

For Dr. Qaiser, the attraction of pediatric neurosurgery is primarily the patients themselves, particularly their remarkable attitudes. "I find that pediatric patients are a very enthusiastic population. They truly want to get better, so I don't have to encourage them to move," she said, or participate in

many reasons that physicians choose pediatric neurosurgery. What impresses him these days is a trait many young residents exhibit: a strong service ethic fueled by personal interest. "I find that the millennials are a little more service oriented than some of the earlier generations. They know that pediatrics isn't reimbursed as well as adult neurosurgery, but they aren't concerned about money," he said. "They want to do what makes them happy. This is just a theory, but it's what I've seen."

Ms. Darves, a Seattle-area independent healthcare writer and communications consultant, is editor of Neurosurgery Market Watch.

Is there a topic or story you would like to see covered in Neurosurgery Market Watch?

Please let us know by sending a message to **bonnie@darves.net**.

NEUROSURGERY POSITIONS

HOSPITAL EMPLOYED

Kingsport, TN
Trenton, NJ (*Endovascular*)
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Tampa, FL (*Pediatric*)
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Tampa, FL (*Endovascular*)
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Lake Havasu, AZ
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Billings, MT
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Dayton, OH (*Spine*)

Erie, PA (*Endovascular*)
Reading, PA (*Endovascular*)

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Macon, GA (*Neuro-Oncology*)
Macon, GA (*Pediatric*)
Los Angeles, CA (*Endovascular*)
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Macon, Georgia: *Private Practice, General Neurosurgery PA or NP*
Trenton, New Jersey: *Hospital Employed, Neuro-Critical Care PA*

Stuart, Florida: *Hospital Employed, Neurosurgery PA*
Glenwood Springs, Colorado: *Hospital Employed, Neurosurgery/ Spine PA*
El Paso, Texas: *Hospital Employed/ Academic, Neurosurgery PA*
San Antonio, Texas: *Academic, Neurosurgery PA AND Neuro-ICU PA*
Pinehurst, North Carolina: *Hospital Employed, Neurosurgery PA*
Elmira, New York: *Academic, Neurosurgery PA*

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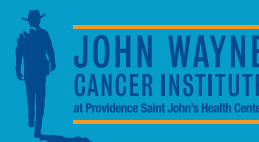
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FELLOWSHIP IN MINIMALLY INVASIVE NEUROSURGERY

The Pacific Neuroscience InstituteSM (PNI) located at Providence Saint John's Health Center in Santa Monica, offers a 1-year fellowship in minimally invasive surgery for brain, pituitary and skull base tumors. This clinical training program is focused on endonasal and keyhole surgical approaches, neuro-endoscopy, pituitary tumor management and multimodality neuro-oncology treatments. The fellowship emphasizes operative and peri-operative patient management as well as translational clinical research. It is integrated with the John Wayne Cancer Institute Surgical Oncology Fellowship.

Qualified applicants must have completed training in an ACGME-accredited neurosurgical residency program and be eligible for a California medical license.

We are currently interviewing for the July 2019 and July 2020 fellowship positions.

For fellowship inquiries, please contact:

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FEATURED OPPORTUNITY

Health System-Employed Opportunity in Tennessee

A hospital in northeast Tennessee, in conjunction with a well-established private practice, is seeking a BE/BC neurosurgeon to join an existing neurosurgery group. The incoming neurosurgeon will be employed by the health system as a hospital employee.

Call will be 1:3 for the incoming neurosurgeon, and the case mix will be general neurosurgery with the following approximate breakdown: 80% spine, 15% cranial and 5% peripheral nerve. The practice's neurosurgeons take call out of only one facility, which is a Level 1 trauma center that houses 14 ORs and includes three rooms that are dedicated solely to neurosurgical procedures.

The facility has an O-arm surgical imaging system inhouse, as well as a Stryker Navigation system. The facility will provide an attractive compensation package that includes a competitive salary, a signing incentive, a relocation/moving allowance and a generous allowance for CME.

The opportunity features a comprehensive benefits package that includes full health, dental and vision insurance, and a 403b retirement plan.

The practice location is in a tri-city region that draws population from two other nearby cities, and has easy access to a good regional airport. This region of Tennessee enjoys a mild

climate and is known for its many year-round recreational and entertainment opportunities. Sport and recreational activities include lakes, animal habitats, ziplines, aquariums, fishing, hiking and golf, and a large local sports complex.

The city's downtown area offers numerous big-city amenities yet has an appealing small-town feel. These amenities include access to sophisticated restaurants, an attractive antiques district and bustling local arts scene, and lofts, cafés and live music. The city center also is known for its architecture and beautiful old buildings.