Each year, without exception, young residents in neurosurgery and recent graduates of neurosurgical training programs wait and worry for what many perceive as their “day of reckoning”—written or oral Neurosurgery Board examinations. Since I am often asked about this memorable experience by residents and younger associates, I would like to use this forum to summarize a few points (and perhaps dispel a few myths) that may be useful during preparation for the Board exams by candidates.

71 Percent Pass Written Exam

First of all, the straight facts: To be certified by the American Board of Neurological Surgery (ABNS), candidates must be graduates of accredited U.S. neurological surgery residency programs and must pass both a written and oral exam. About 500 individuals take the written primary exam each year, but typically less than half of these take it for credit toward certification. The exam consists of 520 questions, covering neuroanatomy, neurobiology, neurology, neuroradiology, neuropathology, clinical neurosurgery, basic clinical skills and critical care. The exam pass rate is approximately 71 percent.

The oral exam is administered in May and November. The ABNS certification process requires submission of collected practice data (typically a year) for approval before a candidate may take the oral examination. Software to collect and format data in the board-acceptable manner will be available through the board soon. The exam fee is $1,625. The pass rate typically hovers near 82 percent.

The oral exam consists of three one-hour sessions. One hour is devoted to intracranial pathology and one hour is slated for spine/peripheral nerve problems. After the examiners meet to discuss the results of the first two hours of testing, the third and final hour is specifically designed to complete a comprehensive exam of the candidate.

Neurology is no longer tested separately, and the neurology cases are mixed in throughout the exam. During each one-hour session, two examiners (one ABNS Director and a guest examiner) quiz the candidate with a total of six to eight clinical presentations.

Recertification Exam Slated for 2006

The ABNS is quite aware of the possible implications of delayed certification after residency, and the issue of timing of certification has been carefully considered by the board. Since there is at least the potential that Young Neurosurgeons who have completed residency but are not yet board-certified may have difficulty obtaining managed care contracts and hospital privileges, a survey of Young Neurosurgeons was carried out by David Jimenez, MD, to address this problem. Forty-five percent of those surveyed responded, and 8 percent of these had been denied contracts due to lack of certification.

The ABNS submitted this issue for consideration before the American Board of Medical Specialties to ascertain other specialty board responses. The ABNS concluded that “certification should entail what is best for the specialty, and not what was deemed most expedient by outside constituencies.” The ABNS emphasizes that the well-organized neurosurgical candidate can become certified in under two years.

In 1999, after finding itself as the only remaining specialty without a recertification requirement, the ABNS began to issue 10-year time-limited certificates. The exact format of the recertification examination has yet to be developed, but the first opportunity to take the recertification examination is slated for 2006, hopefully by computer. Eugene S. Flamm, MD, past Chairman of the Recertification Committee, has indicated that the recertification...
Learning Opportunities at the CNS Annual Meeting

The Congress of Neurological Surgeons (CNS) Annual Meeting Sept. 23-28 in San Antonio, Texas, will offer an array of valuable clinical and scientific presentations. Here are the sessions of particular interest to residents:

Saturday, Sept. 23
8 AM–NOON
PC05 Spinal Biomechanics and Clinical Management Decision Making
This practical course is an in-depth, didactic session presenting the physical principles and biomechanical foundation of spine surgery and spine stabilization.

PC11 CPT Coding, Medicare Documentation and Audits
This course provides a concentrated summary of the principles and applications of CPT coding in describing office, consultation and surgical work performed by the neurosurgeon.

PC12 Computer Skills—Basic Database Design
This course is geared toward those interested in developing basic skills in database design. The basic elements of database design will be presented using FileMaker Pro.

Sunday, Sept. 24
8 AM–NOON
PC26 Managing and Building a Neurosurgical Practice Using Marketing, Media and the Internet
This interactive course will help participants understand how to survive and prosper in the present healthcare environment.

1–5 PM
PC41 Grants: Getting Started, Applications and Funding
This course is dedicated to the development and promotion of basic science and clinical science research grant proposals among practicing neurosurgeons.

Monday, Sept. 25
12:30–2 PM
M025/M025R Publishing Scientific Articles in Neurosurgery
This seminar will discuss the process for publication of a scientific article in the neurosurgical literature.

Tuesday, Sept. 26
12:30–2 PM
T27/T27R Resident/Honored Guest Luncheon
Residents will be able to review and discuss with Edward R. Laws Jr., MD, his thoughts on neurosurgery. (See story on page 3.)

Wednesday, Sept. 27
12:30–2 PM
W56/W57R Career Options and Tracks in Neurosurgery
The seminar will describe the various careers and practice types available to neurosurgeons today. Participants will be able to review the various career options, including solo and group private practice, salaried employment and academic practice.

12:30–2 PM
W66/W67R Neuroanatomy Topics for Cranial Base Surgery
This seminar will discuss the neuroanatomical knowledge necessary for the successful practice of skull base surgery.

2–5:30 PM
Special Course III General Neurosurgical Practice after 2000
Participants will be able to review surgical and technical issues relevant to current and future neurosurgical practice.
One of the most essential parts of each managed care agreement is the mode of compensation for the neurosurgeon. Payment terms are often set forth in an exhibit appended to the contract and are cross-referenced in the body of the agreement. The most complex aspects of provider contracts are financial risk sharing arrangements. Risk can be shared with providers in varying degrees depending on the initial amount of risk transferred, the services for which the provider is at risk and whether the MCO (Managed Care Organization) provides stop-loss protection. Risk pools with complicated formulas determining distributions are often used both where services are capitated and when payments are based on a fee schedule. The primary objective of these arrangements is to create incentives to discourage unnecessary utilization.

Fee-for-Service is Most Common

The reimbursement of neurosurgeons can be thought of in the context of the relationship between the MCO and the provider. It is possible that a contracting entity, such as an IPA (Independent Practice Association), an MSO (Management Service Organization) or a PHO (Physician Hospital Organization) may accept reimbursement from a plan but compensate individual physicians in a separate manner. For example, the IPA receives a capitated payment, or a percentage of premium, but pays the neurosurgeon on a modified fee-for-service agreed to in the provider’s contract. Slightly less than 30 percent of specialists contracted with HMOs were paid through capitation as the predominant form of reimbursement in the recent past. The majority of specialists, including neurosurgeons, are paid through fee-for-service (FFS).

The simplest arrangement to understand is straight FFS. Although not highly satisfactory for the MCO, this arrangement at least allows the MCO to get the neurosurgeon to agree to a sole source of payment. Another simple deal is discounted FFS. Two variations are commonly seen: a straight discount on charges, such as 20 percent, and a discount based on volume or a sliding scale. In the latter arrangement, the degree of discount is based upon an agreed set of figures.

The most common form of FFS is based on a relative value scale, such as the resource-based relative value scale (RBRVS). The RBRVS fee schedule, originally adopted by HCFA, is now employed by many private payers and by physician groups. The difference between a relative value scale and a fee allowance schedule is that, in the former, each procedure is assigned a relative value, usually on the basis of current procedural terminology revision 4 (CPT-4). The value is multiplied by another figure, the conversion factor (specified in dollars), to arrive at a payment. The contract should specify the amount of the conversion factor and version of the CPT-4 that is being used. Rather than negotiate separate fees one negotiates the conversion factor. The majority of MCOs that use FFS use RBRVS, and the majority of those set the conversion factor somewhat higher than Medicare. However, in competitive markets, conversion factors are used that are somewhat less than Medicare.

One common risk adjustment is the withhold. A withhold is simply a percentage, usually 5 to 20 percent, of the fee that is withheld every month and used to pay for cost overruns in utilization. Neurosurgeons should be concerned that the agreement specifies if the withholds are the limit of each physician’s risk or if the physician can be held financially responsible for losses in excess of his or her withhold.

Variations on the FFS

Variations on FFS are the global rate, flat rate or case rate. These all represent single fees that are paid for a procedure, and the fee is the same regardless of how much time and effort are expended. Related to the flat rate is the global fee. A global fee is a flat rate that encompasses more than a single type of service. For example, a global fee for neurosurgery might include all preoperative and postoperative care as well as follow-up office visits. Global fees must be carefully defined in the provider contract as to what they include and what may be billed outside them.

Capitation refers to a fixed payment for services on a per-member, per-month (pmpm) basis. This is the monthly fee physicians will be paid prospectively for each eligible member assigned to the practice. The expected volume of services must be calculated along with the average cost of providing those services. The provider’s ability to control utilization must be factored in, and the negotiating strength of the provider(s) also plays a major role in arriving at adequate capitation fees. The numbers involved in neurosurgery capitation are much smaller than those for primary care. PCP capitation may average $14 pmpm while the capitation rate for neurosurgery may range from 7 cents to $1.20 pmpm. Because the capitation fees are smaller, a neurosurgeon requires a much larger number of members for capitation to have any meaning. Where a PCP may achieve stability in capitation at a plan membership level of 1000 to 1500, a neurosurgeon may require 50,000 or more enrollees to avoid the problem of random chance having more effect than medical management on utilization.

John A. Kuske, MD, is Vice President of the AANS Board of Directors and former chair of the AANS Managed Care Advisory Committee.

Laws to Speak in San Antonio

Edward R. Laws Jr., MD, the honored guest of the 2000 CNS Annual Meeting, will share his thoughts on neurosurgery with residents at a luncheon on Tuesday, Sept. 26.

Dr. Laws is the W. Gayle Crutchfield Professor of Neurosurgery and Professor of Medicine at the University of Virginia in Charlottesville. He is past president of the AANS and the CNS and has authored more than 400 scientific papers and eight books.

During his surgical career he has operated upon more than 5,000 brain tumors, of which 3,400 have been pituitary lesions. He has been at the University of Virginia since 1992. He developed his interest and experience in pituitary surgery and epilepsy surgery during his 15 years at the Mayo Clinic in Rochester, Minn.
Neurosurgical residency programs superbly prepare residents for the practice of medicine, but residents often must rely on their own resources to find a job. This is the second in a three-part series on career opportunities.

**Word of Mouth**
This still remains one of the best means for residents to find job opportunities. Department chairmen often hear about academic opportunities and pass this information along to the chief resident. If a resident has a desire to stay in the community in which he trained, it is imperative to try to begin networking early in one’s career. This may be done effectively at the level of the local state neurosurgical society meeting. Unfortunately, many residents are not afforded the time to attend these meetings. Opportunities can also be investigated at the national meetings for nationwide opportunities.

**Journal Ads**
As most residents are aware, job opportunities regularly appear in the *Journal of Neurosurgery*, the AANS Bulletin, and Neurosurgery News. Unfortunately, these are often fairly vague as to the exact community in which these opportunities exist. Not uncommonly, one can look back in the literature and see that a given ad may have been present for greater than a year or often longer. In such circumstances, one should be somewhat suspicious about why this opportunity has gone unfilled for so long. Certainly, there may be unusual circumstances, but this should be a red flag, indicating that this type of opportunity should be investigated thoroughly. Obviously, it is important to remember that “you can’t judge a book by its cover” when it comes to judging the tenor of journal ads.

**CNS Web Site**
The Congress of Neurosurgical Surgeons maintains a job placement service on [NEUROSURGERY://ON-CALL](#). For our increasingly connected society, this is becoming a very important resource for residents. One particular benefit is that one can find out exactly which practices are offering job opportunities. Many of these provide e-mail addresses that can help facilitate communication. This author found his current job via this Web site when changing jobs in early 1998. This job placement Web page may be accessed at www.neurosurgery.org. A link may be found on the front page of the professional section. Residents should pay close attention to this increasingly important resource.

**Recruiters**
Often called “headhunters,” residents first become aware of recruiters when they begin to become deluged by correspondence touting various practice opportunities. Recruiters often work in conjunction with practices to assist with their recruiting. The practice pays the recruiter a fee if one of the recruiter’s clients ends up being hired. This fee ranges from $10,000 to $20,000 and is paid by the practice.

Many job seekers find recruiters to be rather annoying because they will often not divulge any specific information about the job opportunity that they are promoting. Recruiters may be evasive about the particulars of a given job opportunity because they fear that a job seeker may go directly to the group and potentially deprive the recruiter of their commission.

There is certainly no disadvantage to a candidate to go through a recruiter to find out about a particular job, and graduating residents should not be hesitant to do so since the financial contract is between the practice and the recruiter. Many recruiters maintain their own Web sites. Some even specialize in neurosurgery. As a result, recruiters can be a valuable resource to the young neurosurgeon, who should not hesitate to interact with them when looking for a job.

As you can see, there are a great variety of ways of finding out about various job opportunities. These resources can help residents assess the pluses and minuses among jobs in terms of location, practice type and other variables. You need to know, of course, as much as possible about available positions so you can make the best choice.

**Craig H. Rabb, MD**

Dr. Rabb practices at the Rocky Mountain Neurosurgical Alliance in Englewood, Colo.
While all neurosurgeons are familiar with the pioneering contributions of Harvey Cushing to the field of neurosurgery, far fewer are aware of the extraordinary accomplishments of a woman who began her career as one of his secretaries: Louise Eisenhardt. Cushing hired Eisenhardt as an editorial assistant in 1915, when she was in her 20s. This early position marked the beginning of a remarkable collaboration that lasted until Cushing’s death in 1939. For the next few decades, Eisenhardt’s career continued to blossom, enhancing the science and practice of neurosurgery.

After Eisenhardt assisted Cushing on several manuscripts, including his book on acoustic tumors, she decided to pursue a career in medicine herself. She entered Tufts Medical School and earned the distinction of achieving the best academic record in the history of the institution. She then became the first female neuropathologist, the first female president of the Harvey Cushing Society (now the American Association of Neurological Surgeons), and the first editor of the Journal of Neurosurgery (a position she held for 21 years). She taught neuropathology at Harvard, Yale and Tufts.

Since her death in 1967, several commemorative articles have been written about Eisenhardt and her relationship with Cushing, largely by senior neurosurgeons with some personal knowledge of her. Although, as a neurosurgical resident of a younger generation, I cannot claim to have known Eisenhardt myself—she died before I was born—I have had the opportunity to catch a glimpse of her professional relationship with Cushing via a collection of personal correspondence between the two. I came across an organized jumble of letters on microfilm while exploring the archives of the Yale University Medical Historical Library, located within the parent library named after Cushing himself. Cushing’s letters to and from Eisenhardt, in particular, reflect a relationship of mutual respect, as well as humor and friendship.

Cushing’s earlier letters begin “Dear Miss Eisenhardt.” In later correspondence, Cushing shifts to addressing her as “My dear Louise.” Eisenhardt, however, does not stray from “Dear Dr. Cushing,” likely a reflection of the times and their difference in age.

A letter from 1926 documents Cushing’s regret regarding an illness Eisenhardt contracted:

“So sorry to learn about your diphtheria. But you have gone into a profession which has its risks and perhaps, after all, you will learn a lot more by having one of the maladies you may some day come to take care of than you ever would in any other way. ... I wish you hadn’t insisted on getting an infectious disorder, else I should have come to see you.”

In 1933, soon after Cushing left Harvard for Yale, Eisenhardt wrote from the Peter Bent Brigham Hospital (in her own handwriting, in contrast to Cushing’s typed correspondence):

“Just after you left on Thursday a troop of young house officers in fresh white uniforms came clattering down the operating room staircase to say goodbye. They were speechless to find you had gone. I told them you would have been so pleased and that I would write you—and so they departed—a crestfallen lot.”

Eisenhardt soon followed Cushing to Yale, specifically to head the famous Brain Tumor Registry. This registry catalogued information regarding all of the patients with brain tumors that Cushing had ever treated and included detailed clinical, imaging, operative and neuropathology data. Several letters documented the complicated logistics in moving the Registry and the extensive collection of specimens and equipment from Boston to New Haven. The move obviously caused some anxiety as Cushing wrote to Eisenhardt:

“I woke up in the middle of the night wondering whether you were going to bring the microscope that has been used in connection with the photomicrographic apparatus, but then, I am sure you would not have forgotten it for I cannot imagine you overlooking anything.”

A short letter from Eisenhardt, prior to her move to Yale, delivers practical information while, at the same time, revealing her admiration for the widely famous Cushing:

“Mr. Brodeur has just brought in the plaster cast of his study of you, and it is really very good. Everyone who has seen it likes it very much. The bronze plaque will be ready in about two weeks. It is interesting to catch the variations of the modelling by studying the relief from different positions and in different lights—each has its own familiarity and I think that is why we like it so.”

Eisenhardt attained a degree of fame herself, and a large portrait of her was painted by Deane Keller. I knew, based on my reading of commemorative articles, that her portrait was displayed somewhere in the Yale Medical School. Its exact location, however, remained elusive to me. I showed a photocopy of the portrait to several people around the medical school and library, but received unknowing stares. Finally, reasoning that it should be located near the pathology department, I found the portrait hanging in the front entrance of the Brady Memorial Laboratory building further down Cedar Street. Although the lighting was dim, Cushing would have undoubtedly enjoyed the familiar face.

Katrina S. Firlik, MD, is a resident in Neurosurgery at the University of Pittsburgh.
tion process likely will include the following:
1. Valid certification from the ABNS.
2. Possession of a current, full and unrestricted license in the jurisdiction in which the diplomate practices neurosurgery.
3. Letters of reference from the chief of staff of all hospitals in which the diplomate has privileges.
4. Completion of the recertification application and payment of an application fee.
5. Submission of case data for current year.
6. Verification of a still undetermined number of CME credits.

Preparing for the Boards
Finally, some editorial (and therefore subjective) comments and suggestions:
1. Start your case data preparation early for oral boards. Mary Louise Sanderson has been running the ABNS office in Houston for years and can guide you through the necessary hoops if necessary.
2. Strongly consider taking the AANS course titled Neurosurgery Review by Case Management: Oral Board Preparation. It will be held Nov. 5-7 in Houston.
3. Preparation is key. The oral exam is designed to test the practical knowledge of a general neurosurgeon. I would recommend three to four months of a comprehensive review, including neurology. A cerebrovascular specialist should not say, "I don't do complex spine."
4. Be prepared to discuss a case practically and technically—the specifics of how you would manage or operate upon the patient. When drawing an incision on a model, verbally describe the landmarks you would use.
5. Don't waste time. You will need to finish the six to eight cases.
6. Don't be disconcerted by a lack of positive feedback to your responses. The examiners are instructed to be dispassionate and will not provide a pat on the back.
7. Finally, for the well-prepared candidate, the greatest danger may be anxiety. With "so much riding on it," perhaps the most difficult part of the exam is to relax and see that, as the Chinese character suggests, the flip side of danger is opportunity—an opportunity to demonstrate your hard-earned expertise.

Introducing

The First Annual Cervical Spine Study Group Resident and Fellow Meeting

May 4-6, 2000 • Phoenix, Arizona

This Program is geared toward senior-level residents and fellows and is designed to provide the attendee with a strong background in patient selection and operative technique in the cervical spine. In addition, the faculty will cover new technologies and treatments that will impact your practices in the future.

Accompanying the in-depth didactic sessions, the meeting also features highly interactive hands-on labs and discussion sessions reviewing the clinical cases of the faculty.

The Cervical Spine Study Group, composed of leading surgeons in the neurosurgical and orthopedic fields, is dedicated to advancing excellence in the clinical care of the cervical spine through research and educational programs in the biomechanical, biological, and clinical aspects of the cervical spine.

To find out more about this course please call Medical Education at 877-690-5343
The renowned Research Update in Neurobiology for Neurosurgeons (RUNN) Course will be held Oct. 15-22 in Woods Hole, Mass. It is sponsored by the Society of Neurological Surgeons.

RUNN provides an introduction to and update of the latest concepts, hypotheses and methods of neurobiology and neuroscience relevant to neurological surgery. Accomplished neuroscientists present lectures in an atmosphere that emphasizes scientific rigor, highlights models of career development for neurosurgeon-scientists and illustrates potential future neurosurgical applications. A milieu of total immersion in scientific discourse fosters creative discussions among neurosurgical trainees and faculty.

This year’s program highlights are developmental neurobiology, synapses, chaos, apoptosis, molecular genetics, stem cells, glial barriers, neoplasia and free radicals signaling.

The 26 faculty members represent a virtual who’s who of American neuroscience. The seminar is held at the Marine Biological Laboratory. On the grounds are 230,000 square feet of research space and a library with an extraordinary repository of books and journals and incredible electronic connectivity to everything biological. There are superb microscopy facilities, numerous amphitheaters and teaching facilities.

Issam Awad, MD, of the Yale University School of Medicine is the course director. Co-directors are Charles Hodge, Ed Oldfield, Allan Friedman and Robert Dempsey.

For information or to register, call Catherine Awad, course coordinator, at (203) 421-5886, e-mail her at caawad@hotmail.com, or visit the RUNN Web site at www.societyns.org.

The Third Annual Silent Auction will be held April 23-25 during the American Association of Neurological Surgeons (AANS) Annual Meeting in Toronto, Canada. The auction, sponsored by the Young Neurosurgeons Committee and chaired by Larry Chin, MD, benefits the Neurosurgery Research and Education Foundation, the research division of the AANS.

This year’s silent auction promises to be bigger and better with greater variety of items available for bidding. A strong emphasis will be placed on having items with a leisure-related theme.

The Silent Auction items will be available for viewing on April 21–22 within the Registration Area of the Metro Toronto Convention Center. The items then will be moved to the AANS Member Resource Center for the duration of the show. Bids may be placed between April 21–25 by all registered attendees of the meeting. A preliminary list of items will be available on the NEUROSURGERY://ON-CALL® Web site in March of 2001.

The Young Neurosurgeons Committee members are being asked to participate with the auction. Volunteers are needed to staff the Silent Auction Booth and solicit items for auction. To volunteer or for more information, contact Dr. Chin at (410) 328-3113 or at lchin@smail.umd.edu.

This program, conducted by the AANS Department of Education and Practice Management, is designed for neurosurgeons in private, academic or subspecialty practice who plan to take the oral boards in November of 2000 or May of 2001, or within the next few years.

This highly interactive course will review basic science principles, clinical diagnosis strategies and operative techniques, and familiarize you with the oral board method of examination. Each day, experienced neurosurgeons will critique your skills in neurosurgical management and in organizing responses to oral board type questions. Faculty members for this course are not currently involved in giving the neurosurgical boards and the AANS has made no attempt to obtain questions from previous examinations.

To find out more about this course, or to register, call the AANS Department of Education and Practice Management at (888) 566-AANS.

The American Board of Neurological Surgery does not require this course before taking the Boards.
The officers of the Young Neurosurgeons Committee are:

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**Newsletter Mission Statement**

This newsletter is distributed to all young neurosurgeons of the AANS. The purpose of this newsletter is to promote communication among the neurosurgeons of the AANS, to inform the membership of new developments within the field, and to inform the membership of research, educational, and international opportunities. The newsletter also provides a forum to discuss neurosurgical topics that will impact young neurosurgeons.