

AANS Bulletin

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President's message

AANS Maintains a Vigorous Pace During 1997



Edward R. Laws, Jr., MD

I would like to take this opportunity to bring you up to date with activities of the AANS with regard to the different areas of education, activities in Washington, DC, and a review of the current initiatives of the Board of Directors of the

AANS. At the beginning of August 1997, the Executive Committees of the AANS and the Congress of Neurological Surgeons (CNS) met together with the leadership of all of the AANS/CNS Joint Sections. This "leadership" meeting was highly productive, and focused on a number of areas which should be of interest to all of our membership.

Education

Education continues to be the major role of the AANS and the most consistent way the membership interfaces with the organization as a whole. The Annual Meeting in Denver in April of 1997 was very successful and plans are well underway for the 1998 Annual Meeting in Philadelphia. Almost 750 abstract submissions were received for this Meeting, and L.N. Hopkins, MD, has taken on the role of Scientific Program Chairman.

The various AANS/CNS Sections were organized to enhance subspecialty interests, particularly in the area of education. They do this by subspecialty-specific programs within the framework of the Annual Meeting, by satellite sessions attached to the Annual Meetings of the AANS or the CNS, and in the case of the Spine, Cerebrovascular and Pediatric Sections, with free standing meetings that have been very successful. The Section leadership is committed to expanding these educational activities in the future, and the Sections have matured into powerful vehicles for progress in neurosurgical education.

Another critical educational arm of the AANS is the *Journal of Neurosurgery*. This is the premier journal in the field world wide, and has maintained its role as the major element of peer review for scientific progress in neurosurgery. The *Journal*/Editorial Board has been responsive and quite innovative; the development of the online journal *Neurosurgical Focus* has been just one of the elements related to this creative activity.

The expanding use of our Web site on the Internet, **NEUROSURGERY://ON-CALL®**, is fulfilling the original design of the program when it was founded. **N-//OC®** is extremely important as an educational and communications arm for the AANS, and under the leadership of John Oro, MD, the content and capabilities of the site continue to grow.

The Professional Development Program continues to provide our membership with focused pertinent regional courses. The response to these has been outstanding, and they offer a needed focused experience in a number of different areas. The Oral Board Preparation course was added this year to service our provisional members, and was quickly filled to capacity.

The publications produced by the AANS are the result of a great deal of work by a committee that tries to be responsive to areas within neurosurgery that are not well served by standard texts. It is also a vehicle through which the membership can obtain publications of high quality that complement other educational efforts.

The AANS and CNS have collaborated to develop the Self Assessment Examination in Neurosurgery (SANS) which will appear as a brand new updated version in time for the Congress Meeting in New Orleans. Our organizations also sponsor the RUNN course held each year in Wood's Hole, Massachusetts, designed to provide neurosurgical residents and young neurosurgical faculty an opportunity to interface with a variety of experts in neuroscience.

The pre-eminent position of neurosurgery within the surgical specialties is in no small part related to these outstanding educational activities, and the leadership of both the AANS and the CNS are pleased that such a variety of educational experiences is available for the membership.

Washington Committee

Activities in Washington have been dominated by the area of physician reimbursement, specifically the practice expense adjustments by HCFA for

Medicare patients. The AANS and CNS maintain a Washington Office with a full time legislative representative and a small staff. These individuals are extremely active and have worked vigorously on our behalf with a superb outcome, measured by the delay in implementation and reappraisal of some particularly damaging changes in HCFA regulations that impact on reimbursement in a highly negative fashion. In the course of achieving these goals, which will be communicated to the membership through other vehicles, our Washington Office has participated in coalitions related to preserving patient access to specialty medical care and the practice expense issues.

We have also worked with the American Tort Reform Association in order to ease the malpractice situation, and have worked with other groups in the hopes of maintaining legitimate animal experimentation for advances in neuroscience.

Our Washington activities include providing liaisons to the Health Care Finance Administration for purposes of coding and classification of neurosurgical procedures. We also provide representatives to the CPT editorial review process. We have liaisons to the National Institutes of Health, the National Cancer Institute, the Veteran's Administration and the Decade of the Brain Initiatives. We interact on a regular basis with the Food and Drug Administration and the Agency for Health Care Policy and Research. Through the efforts of the Washington Office we have provided testimony before a variety of Congressional Committees and individual neurosurgeons have been facilitated in their efforts to make visits to their own Members of Congress. The Washington Committee, which includes individuals from the leadership of both the AANS and the CNS, meets at least quarterly and receives constant briefings on activities in Washington that may impact upon neurosurgery.

Getting SMART Communications Program

The marketing communications program, initiated by the Joint Council of State Neurosurgical Societies (JCSNS) and carried forward by the National Office in Chicago, is maturing into a very exciting and productive plan centered on lumbar stenosis. The concern is that neurosurgeons are not adequately viewed as spine surgeons, and lumbar stenosis is a very good place to start informing the

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Washington *update*

by Katie Orrico, JD
Director AANS/CNS
Washington Office



Congress Passes Balanced Budget Act. Bill Includes \$5.3 Billion in Medicare Cuts for Physicians.

After several months of intense negotiating and with rare bipartisan cooperation, the Congress and President Clinton finalized a budget deal in early August. The Balanced Budget Act of 1997 cuts Medicare spending over the next five years by \$115 billion. The total Medicare physician payment reductions are \$5.3 billion, considerably less than in past proposals, but much of this is on the backs of surgeons. Key provisions affecting neurosurgeons include:

- **Resource-Based Practice Expenses**
– The bill extends the implementation deadline for the new practice expense methodology by one-year and phases-in the new changes over a four year period from 1999-2002. It sets out detailed requirements for the Health Care Financing Administration (HCFA) in developing the new values. HCFA is also required to develop new values for the malpractice component of the resource based relative value system (RBRVS), a provision long sought after by the AANS and CNS. (See Cover Story for more details on these provisions)
- **Establish a Single Medicare Conversion Factor** – The legislation repeals the three separate conversion factors and replaces them with a single conversion factor for all physician services. The 1998 conversion factor is estimated to be \$37.13. Current conversion factors are \$40.96 for surgery, \$35.77 for primary care, and \$33.85 for all other services. Some of the \$5.3 billion in savings achieved by the Act came from this change.

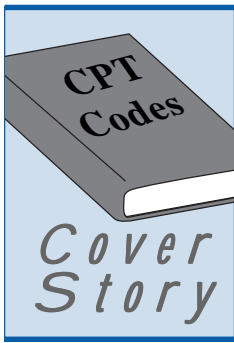
■ **Eliminate the Medicare Volume Performance Standard (MVPS)** – The bill replaces the current MVPS system with a sustainable growth rate system based on real Gross Domestic Product (GDP). The annual conversion factor update is capped at the Medicare Economic Index (MEI) + 3 percent and any annual update decrease is capped at MEI - 7 percent. The surgical community has done especially well under the MVPS system, getting generous updates by holding the volume of services down. It is not yet clear how this new system will impact the physician community, but we continue to be concerned that limiting the growth of physician services to GDP will not adequately account for the costs associated with treating Medicare beneficiaries. Some of the \$5.3 billion in savings achieved by the act also came from this change.

- **Elimination of Balance Billing Limits** – In certain *limited* circumstances, the bill eliminates the application of Medicare's current balance billing limits and allows physicians and their Medicare patients to privately contract their fee arrangements. It is doubtful that this provision will have a wide-spread effect, however, because of the many restrictions associated with it. The final version of the bill allows those physicians not providing emergency or urgent care to submit a signed affidavit to the Department of Health and Human Services (HHS) indicating that they intend not to submit any claims or receive any reimbursement through the Medicare program (i.e., be neither "participating" or "non-participating") for a two-year period. Private contracts would have to be in writing and contain specific consumer safeguards, including requirements for disclosure of fees and notice to beneficiaries that they remain eligible to receive Medicare services through other physicians. Under these circumstances, the balance billing limits would not apply.
- **Expand Choice of Medicare Options**
– The law creates the new "Medicare Choice" program, which will give seniors an expanded choice of Medicare health plans. Some of the options include: fee-for-service plans, PPO plans, point-of-service plans, PSO

plans, HMOs and MSAs. Included in this section are numerous beneficiary protections, including some guarantees for direct patient access to specialty care, an expedited appeals and grievance process, and the ability to change plans if the patient is dissatisfied. The bill also establishes the "prudent layperson" definition of emergency. This will ensure that managed care plans will pay for emergency services even if it turns out that the patient did not in fact have an emergency condition. Finally, the bill includes new anti-gag clause and anti-gag practice language, which would prohibit Medicare Choice plans from restricting medical communications with beneficiaries, although certain practices by religiously-based health plans would not be affected under conscience clause protection.

- **Medical Savings Accounts (MSAs)** – The bill includes language that allows a four-year demonstration project of up to 390,000 Medicare beneficiaries to utilize the MSA option. Beneficiaries must purchase a \$6,000 high-deductible plan to qualify for this option. Physicians participating in the fee-for-service Medicare Choice plan would not be subject to balance billing limits when treating beneficiaries with a MSA account. Government contributions to an individual's MSA account would be generally tax free so long as they are used for qualified medical expenses.
- **Graduate Medical Education (GME)**
– The new law caps the number for residents reimbursed by the government on a national *and* facility level, for both direct medical education (DME) and indirect medical education (IME) payments at current levels. The HHS Secretary is authorized to develop rules for establishing new residency programs. The agreement allows DME payments to go to entities not currently eligible for funds, including federally qualified health centers, rural health centers and new Medicare Choice organizations. The Secretary is also required to establish a demonstration project in which DME payments could go to qualifying consortia. The Secretary must study variations in the per resident payment amounts to reduce the current discrepancies.

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AANS and CNS Practice Expense Initiative a Success!

New Law Prevents Implementation of HCFA's Proposed Cuts in Neurosurgical Reimbursement

by Katie O. Orrico, JD

Director, AANS/CNS Washington Office

Changes Save Neurosurgery Over \$100 Million in Medicare Fees for 1998!

On July 30, 1997, Congress passed the Balanced Budget Act of 1997, which was subsequently signed into law by President Clinton on August 5. Included in the new law are provisions addressing the practice expense issue that will affect reimbursement for neurosurgical procedures. The reductions in reimbursement for neurosurgery are not as much as once predicted, thanks in part to the efforts of the AANS and CNS and their aggressive campaign.

Prior to the initiation of our practice expense campaign, the Health Care Financing Administration (HCFA) had proposed reductions in neurosurgical income of between 25 to 40 percent. At a minimum, this translated into a potential \$100 million reduction in Medicare income. Because the Medicare Fee Schedule (MFS) is used by so many other third party payers, however, the reductions would have far exceeded this figure. HCFA's proposed plan involved reducing practice expense relative value units (RVU's) for surgical procedures. Practice expense RVU's are part of the equation used to determine the amount of reimbursement for a certain CPT code.

The AANS and CNS leadership aggressively responded to this threat by developing a multi-faceted strategy to prevent the implementation of these onerous cuts. We contributed significant money to, and were leaders of, the Practice Expense Coalition, which represented over 40 medical organizations and carried out a \$1.5 million legislative campaign. We implemented a grassroots campaign, utilizing fax broadcast alerts and a 1-800 "Legislative Hotline," to connect individual neurosurgeons with their Members of Congress. Neurosurgeons sent letters and e-mail messages to their senators and

representatives. Neurosurgeons with excellent relationships with key Members of Congress had face-to-face meetings. Washington Office staff met with Members of Congress and their staffs. Finally, the American Neurological Surgery Political Action Committee was established and began making campaign contributions to senators and representatives who supported neurosurgery's position.

The combined affect of these activities paid off, producing a final legislative agreement that includes the following provisions:

- A one-year delay in the implementation date of new practice expense relative values from January 1998 to January 1999;
- A four year phase-in of the new values from 1999-2002;
- A General Accounting Office (GAO) review and evaluation of HCFA's proposed methodology, including an evaluation of the adequacy of the data and the potential impact of the proposal on Medicare beneficiary access to services;
- Detailed requirements for HCFA in developing new practice expense relative values, including a directive to use generally accepted cost accounting principles and data based on *actual*/physician practice expenses. HCFA is also required to work closely with physicians in developing the new values; and
- A requirement to develop new relative values for the malpractice component of the MFS.

Despite our collective opposition, however, we had to pay a price for these provisions, as Congress and the White House felt compelled to give the primary care physicians a \$390 million "down

payment" in 1998. The money will be derived by capping the practice expense relative value units (PE RVUs) at 110 percent of the work RVUs. Over 1,000 procedures, many of which are performed by neurosurgeons, have practice expense RVUs in excess of this cap. This will result in reductions in neurosurgical Medicare fees of approximately \$8 million in 1998.

The savings Medicare achieves by this will then be used to increase the practice expense RVUs of 10 office visit CPT codes. Neurosurgeons do perform some office visits, and will therefore get some of the reductions back on this side of the equation.

HCFA's reasoning behind these changes is that while a surgeon is in a hospital OR performing surgery, he does not incur any expenses related to running his practice. Other specialties hurt by this formula include ophthalmology (particularly cataract surgeons, who lose \$175 million), orthopedic surgeons, cardio-thoracic surgeons, cardiologists and gastroenterologists. Most other specialties are left untouched. We are continuing to seek changes in this formula to achieve a more equitable approach. While we won't be able to make the \$390 million go away, we are hopeful to change the formula to minimize the impact on neurosurgery.

The reductions under the "down payment" formula are not the only payment changes that will impact neurosurgeons. Congress, in the recently enacted Balanced Budget Act of 1997 (see Washington Update for details of this new law), eliminated the current three Medicare conversion factors, creating one conversion factor for all physician services. This will produce additional payment reductions beginning in 1998. The current conversion factor for surgical services has been reduced from \$40.96 to \$37.13, over a 9 percent reduction. The good news is, however, that

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the current conversion factor for neurosurgical consults and other nonsurgical procedures will increase from the current \$33.85 to \$37.13.

Further good news is that HCFA has agreed to organized surgery's proposal to increase the evaluation and management (E/M) component of all global surgical codes. This 12 percent increase in RVU's for the E/M component of global surgical codes will help to slightly offset some of the above payment reductions.

How Will These Changes Impact You?

We have calculated the impact of these changes on several common neurosurgical procedures so AANS members can analyze how these reductions will influence their own practices (*see figure 1*). The majority of the reductions are caused by the conversion factor changes.

Next Steps

Our work on this issue is far from complete. The new legislation has given HCFA more time to develop practice expense relative value units, and we must now shift gears and focus our efforts on the process of developing the new PE RVUs. Congress has given us the tools to hold

HCFA's feet to the fire, and the AANS and CNS will continue our efforts to ensure that the final product is fair and reflects neurosurgeons' *actual* practice costs.

■ **AANS and CNS Send Letters to HCFA**—Despite the new law, HCFA is pressing forward to "validate" the data and methodology from the agency's original proposal, which would reduce neurosurgical-related PE RVU's by 40 percent. We have strenuously objected to this on the basis that the new law passed in July requires HCFA to collect *new* data and develop a *new* methodology based on physicians' *actual* practice expenses. In several letters to HCFA, the AANS and CNS, the American College of Surgeons, and the Practice Expense Coalition, have urged HCFA to convene a meeting of all interested parties to resolve outstanding issues prior to moving forward. We are hopeful that such a public-private partnership will help the agency develop accurate and reliable PE RVUs that measure all neurosurgical practice expenses. The AANS and CNS want to ensure that we avoid the mistakes of the past and

will continue to press HCFA to develop a process that will produce a more reliable product.

■ **AANS and CNS Submit Comments to HCFA**—On June 18, 1997, HCFA published its final proposal in the *Federal Register*. According to this version, neurosurgical fees would be reduced by 21 percent. As with earlier versions, this proposal contains large gaps in data and uses a faulty methodology producing PE RVUs that do not adequately account for neurosurgical practice expenses. The AANS and CNS submitted detailed comments objecting to almost every aspect of HCFA's data and methodology. We also stressed that given the new statutory mandate "we expect HCFA to take a completely different approach to developing the new PE RVUs." Finally, we took issue with what we believe is HCFA's bias in favor of primary care at the expense of the surgical specialties. Throughout the process HCFA has repeatedly stated that it believes primary care services are undervalued and surgical services are overvalued, and the agency has developed a methodology in support of

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CPT CODE	DESCRIPTOR	1997 PAYMENT	1998 PAYMENT	WHAT MIGHT HAVE BEEN IF HCFA PROPOSAL WAS IMPLEMENTED
22554	Neck spine fusion	\$1,603	\$1,500	\$1,052
61154	Pierce skull, remove clot	1,364	1,244	874
61312	Open skull for drainage	1,991	1,989	1,334
61700	Inner skull vessel surgery	3,344	3,107	2,485
63030	Low back disk surgery	1,167	1,003	741
63047	Removal of spinal lamina	1,362	1,261	927
63075	Neck spine disk surgery	1,546	1,432	1,072
64721	Carpal tunnel surgery	385	352	329
99204	Office/outpatient visit, new	96	112	126
99213	Office/outpatient visit, est	37	42	47
99223	Initial hospital care	134	147	156
99232	Subsequent hospital care	49	54	49
99244	Office consultation	125	138	158
99254	Initial inpatient consult	126	139	135
99291	Critical care, first hour	176	193	192

* Note: These are based on a national rate. Local payment rates will vary when geographic adjuster is applied.

Figure 1

these assumptions. In our comments we stated that "it seems clear to us that HCFA has predetermined the end result and has developed a methodology designed to achieve this end, rather than developing a sound methodology that measures *actual* physician practice expenses. HCFA's assumption of a Congressional mandate to produce a resource-based methodology for practice expenses that includes increasing payments to primary care providers at the "budget neutral" expense of the procedural specialists goes far beyond the legislative intent of the 1994 enabling legislation. Moreover, the new practice expense provisions contained in the recently enacted Balanced Budget Act clearly demonstrates that Congress intends the new PE RVUs to be based on *actual* physician practice expenses and for HCFA to develop a methodology based on *generally accepted accounting principles*. HCFA's current proposal does neither of these two things and therefore needs considerable reworking to meet the requirements Congress has put forth." The full text of our comments is available on line at <http://www.neurosurgery.org>.

■ **AANS and CNS Send Letter to GAO Criticizing HCFA Study**—On August 19th, the AANS and CNS sent a letter to the General Accounting Office (GAO) — which is required to submit a report to Congress evaluating HCFA's proposal — criticizing the HCFA study. In our letter we noted that we have been actively involved with the development of new PE RVUs and that we "continue to have many concerns about the adequacy of HCFA's data and various methodological and policy assumptions that have produced relative values that in no way reflect the *actual* costs associated with running a neurosurgical practice. We believe HCFA's current approach is fatally flawed in that the methodology employed does not reflect generally accepted accounting principles and therefore needs significant reworking prior to implementation." We also informed the GAO about the AANS and CNS pilot study of neurosurgical practice expenses, and offered to be a resource to the Office as it conducts its review. We are hopeful that the GAO's participation will bring some rationality to this process, given its "accounting" expertise.

■ **AANS and CNS Complete Pilot Study on Neurosurgical Practice Expenses**—Last year, the AANS and CNS commissioned the Gary Siegel Organization to conduct a pilot study of neurosurgical practice expenses. The expenses of four neurosurgical practices were evaluated using an activity based cost accounting (ABC) technique. The information generated from this study clearly demonstrates that HCFA's research is flawed. Moreover, the results showed that Medicare's current practice expense reimbursement levels are fairly consistent with the costs as measured by the ABC approach. The study results have been validated by Robert Kaplan, PhD, the Harvard professor who perfected the ABC method, and at least five other major medical specialties are conducting their own studies using the ABC technique. While our data alone should help influence HCFA's ultimate outcome, the additional study results from a variety of medical specialties will increase the weight of this evidence.

Final Thoughts

The AANS and CNS leadership wish to thank all neurosurgeons who participated in this phase of our practice expense initiative. We clearly made these gains because you each took the time to contact your senators and representatives. Without this grassroots response, Congress would not have responded.

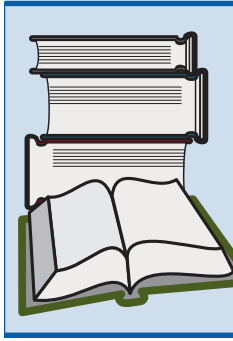
We will continue to keep you informed about the project as it proceeds and hope you will be prepared to act again if called upon. One of our goals is to keep the Congress informed about this project, as it may be necessary to get the legislature to intervene once again.

If you have any questions about the details of the legislation or HCFA project activity, please contact Katie Orrico in our Washington Office at (202) 628-2072 or e-mail KateOrrico@aol.com.



The Joint Washington Committee met in April to plan a strategy for blocking HCFA's proposed cuts in reimbursement.

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Outcomes Measurement Project Started

by Robert Florin, MD

Chairman, Committee on Assessment of Quality

The Committee on Assessment of Quality (formerly known as the Quality Assessment Committee) has announced the inauguration of an outcomes measurement project. This pilot project will focus on measures relating to the management of intracranial aneurysms. A number of pilot sites have been selected and the project should be running by October.

Robert Harbaugh, MD, chairman of the Outcomes Committee, and Megan Morgan, project director, will be managing the project. This will be a comprehensive examination of the results of various interventions currently employed in management of intracranial aneurysms, and includes both functional as well as patient satisfaction outcomes.

The Committee has also prepared a model report card for use as a preliminary

tool to monitor quality, as well as for self-assessment. Potential uses could be in dealing with health care purchasers and HMOs as well as for use with patients facing procedures already surveyed and analyzed for various performance measures. This will be available for downloading on **NEUROSURGERY:// ON-CALL®** in October. Disease/condition specific tools will be available at a later date.

President's Message

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public and referring physicians about our role in this area. Because a great deal of lumbar stenosis surgery is already done by neurosurgeons, and because this disease impacts elderly patients whose quality of life can be completely turned around by successful neurosurgical procedures, we thought it would be an ideal area in which to begin a marketing initiative. This has been formalized into a series of educational packages designed to interface with the various segments of our constituency.

Neuroendovascular Task Force

A Neuroendovascular Task Force has been developed under the leadership of Marc Mayberg, MD. This Task Force will try to combine the previous initiatives in stroke management, extracranial cerebrovascular surgery, and endovascular neurosurgery. It was strongly felt by the Board of Directors that aggressive action in these areas is necessary if neurosurgeons are to continue to play an appropriate role in cerebrovascular disease. Our hope is that this Task Force can accomplish results similar to those provided by the Spine Task Force.

Fellowship Task Force

Another initiative, under the leadership of Julian Hoff, MD, is a Fellowship Task Force. The actual concept is related to the entire scope of post residency neurosurgical

education, but the activities of the Task Force, at least initially, will focus on the area of fellowships. The fellowship experience has become more and more a routine part of a neurosurgical resident's education, and the reasons behind this and the impact that this trend may have on neurosurgical practice are under active investigation.

Other factors that impinge upon the importance of this Task Force are the move toward recertification by the American Board of Neurological Surgery and the developing accreditation program provided by the AMA, and the AMAP. These areas are under review by various members of our Board of Directors, and we will be reporting to you on them as they develop further.

The complexity of these problems has resulted in a request for periodic meetings of neurosurgical leadership to include the leaders of the AANS and the CNS, the American Board of Neurological Surgery, the Residency Review Committee, the JCSNS, and the Society of Neurological Surgeons, representing the Program Directors. It is hoped that these meetings can coordinate responses and actions that might be appropriate.

Cost Containment

It appears more and more clearly that there is a finite amount of funding available for neurosurgical care in the United States. It is important for the membership to recognize that money from this global

budget that is diverted to inappropriate and highly priced medications, devices, or consultative care is simply subtracted from the amount available for neurosurgical reimbursement. If we do face a system where reimbursement for individual procedures will be fixed, then the area of cost containment becomes more and more essential, and also becomes part of our competitive advantage.

For those reasons, and many others, a Cost Control Initiative has been developed under the leadership of John Kusske, MD, utilizing the talents of the JCSNS, other highly informed neurosurgeons, and with the vigorous support of your President and a number of other Members of the Board. We are attempting to obtain outside funding for demonstration projects that will show how neurosurgical costs to the public can be reduced overall without impacting negatively on the quality and outcome of neurosurgical care.

It is hoped that these messages will help inform our membership as to what the AANS is doing on their behalf, and once again we invite suggestions and criticisms and will try to be as responsive as possible. Plans are under way for a very exciting Annual Meeting in Philadelphia in 1998 and we look forward to seeing you there.

Edward R. Laws, Jr., MD, FACS
President



Neuroendovascular Surgery Task Force Update

by Marc R. Mayberg, MD
Chairman

The AANS/CNS Task Force on Neuroendovascular Surgery was established by the Joint Officers to develop recommendations that would address the short and long term initiatives related to the endovascular treatment of cerebrovascular disorders. In recent years, endovascular therapy treatments have increased, but the role of different medical subspecialties has not always been clearly defined, or defined in the favor of neurosurgery. It is essential that neurosurgeons, who have the most significant training in treating these cerebrovascular disorders, maintain a strong presence in neuroendovascular procedures.

The initiatives of the Endovascular Task Force could potentially impact:

- Changes in neurosurgical training programs.
- Fellowship programs for training neurosurgeons in neuroendovascular surgery.
- Programs to address retraining for neurosurgeons in practice.
- Mechanisms to integrate interventional neuroradiologists into Neurosurgical Departments on a local basis and organized neurosurgery on a national basis.
- Strategies to increase the market share of neurosurgeons in cerebrovascular disorders.

The Task Force, which includes myself, Daniel Barrow, MD, Hunt Batjer, MD, Ralph Dacey, MD, Steven Giannotta, MD, Roberto Heros, MD, L.N. Hopkins, MD, and Russell Travis, MD, focused on these initiatives when developing recommendations for organized neurosurgery.

Background

Advent of Endovascular Therapies—Endovascular therapies for cerebrovascular

disorders have been developed in recent years, including embolization of AVMs and tumors; detachable balloons and coils for the treatment of aneurysms; angioplasty and stenting of extracranial and intracranial arteries; and administration of interarterial therapies. Although the efficacy of these procedures remains unproven, they have gained increasing acceptance within the medical community because of the perceived non-invasive nature, potential cost savings and relative ease of application. Interventional neuroradiology has emerged as a subspecialty within radiology, and has enjoyed a reasonably close relationship with neurosurgery. Despite the availability of training opportunities, relatively few neurosurgeons have gained skills in neuroendovascular surgery. Other specialties competing for this market include neurology and cardiology. Cardiologists have been especially aggressive in expanding the use of intraluminal angioplasty and stenting for craniocervical circulation.

Changes in Interventional

Neuroradiology—There exists an ongoing fragmentation within Radiology Departments because of increasing subspecialization, diminishing reimbursement for simple diagnostic interpretation, and the close association between imaging and interventional procedures in several specialties (neuro, vascular, GI). Simultaneously, more non-radiologists have demanded access to angiography and radiology suites. A close relationship between neurosurgeons and interventional neuroradiologists has developed, with frequent instances of neuroradiologists holding joint appointments in Neurosurgical Departments, or infrequently, neurosurgeons who are fully trained in endovascular techniques. With only a few exceptions, however, reimbursement for neuroendovascular procedures by interventional radiologists has been retained by Radiology Departments. This situation has

created competition for patients with certain disorders. To promote an interspecialty relationship between neurosurgeons and neuroradiologists, the Cerebrovascular Section of the AANS/CNS has recruited interventional neuroradiologists as Associate Members including an appointment on its Executive Committee. In addition, the CV Section Annual Meeting is now held jointly with the American Society of Interventional and Therapeutic Radiology (ASITN).

Training Guidelines—A prior Endovascular Task Force, in conjunction with the ASITN, has established specific guidelines for interventional neuroradiology. The guidelines delineate additional training required for neurosurgeons (i.e. radiology) and neuroradiologists (i.e. neuroscience). These guidelines were submitted jointly by neurosurgery and radiology resident review committees to the ACGME for review. The World Federation of Neurological Surgery recently approved analogous training guidelines.

Increased Role for Neuroimaging in Treatment of Neurological Disorders—CT scan, angiography, MRI, MRA, SPECT scanning, CT angiography and PET scanning have become important components of neurosurgical practice. In addition, the advent of both frame-based and frameless stereotactic neurosurgery and functional MRI have further integrated neuroimaging into daily neurosurgical care.

Stereotactic Radiosurgery—Neurosurgeons have successfully developed independent or partnered programs in stereotactic radiosurgery for the treatment of cerebrovascular disorders. These partnerships often involve agreements for distribution of reimbursement. Formal instruction in radiosurgery in neurosurgical training programs is sporadic.

Carotid Endarterectomy—The AANS/CNS Carotid Endarterectomy Task Force was created to develop initiatives to increase neurosurgery's market share of endarterectomy (currently 5-6 percent of all endarterectomies performed in the U.S.). The Task Force concluded that increased numbers of endarterectomies by neurosurgeons would more likely come about by strategies to increase neurosurgical access to stroke patients, and a stronger emphasis on endarterectomy training in residency programs.

New Medical Therapies for Stroke—The advent of recombinant tPA as an effective treatment for acute ischemic stroke heightened awareness and increased neurosurgical involvement in cerebrovascular disease. The development of Stroke Teams with neurosurgical leadership in several centers has enabled neurosurgeons access to a spectrum of patients with cerebrovascular disorders and has established neurosurgery as a specialty integral to the care of these patients.

Multi-Disciplinary Programs in Stroke—Neurosurgeons are currently active in several programs, including the Brain Attack Coalition and the American

Heart Association Stroke Council. These programs all focus on professional and public stroke treatment education.

Recommendations

The Neuroendovascular Task Force proposed and the Joint Officers approved the following recommendations:

- 1) Neurosurgery program directors and large practice groups should be encouraged to make the following changes:
 - Insure that all individuals performing neuroendovascular procedures have appointments in Neurosurgery, and are willing to train neurosurgeons
 - Increase exposure of all residents to neuroradiology, including experience in angiography
 - Enable interested residents to pursue periods of 1-2 years in endovascular training
 - Negotiate redistribution of income from neuroendovascular procedures
- 2) Finalize acceptance and implementation of training guidelines in neuroendovascular surgery:
 - Apply for ACGME recognition of neuroendovascular surgery fellowships

- Distribute to hospital accreditation committees
- 3) Promote the term "neuroendovascular surgery."
- 4) Develop institution-based mini-fellowships in basic neuroendovascular surgical techniques.
- 5) Offer Associate Membership in the AANS/CNS to all ASTIN members.
- 6) Promote a Stroke Center Development package through educational materials, workshops and practical courses; monitor the establishment of Stroke Teams.
- 7) Develop a SMART marketing program for cerebrovascular disease.
- 8) Initiate prospective randomized trials and/or national registries for neuroendovascular procedures.
- 9) Develop multi-specialty guidelines for treatment of cerebrovascular disorders.

The Neuroendovascular Surgery Task Force will be meeting over the next few months to discuss the implementation of these recommendations. If you have any questions about this Task Force, please call me at (206) 543-3570 or e-mail lssmrm@u.washington.edu

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Finally, the bill "carves-out" GME payments from the current Medicare HMO capitation formula. Under current law, HMOs receive additional funds to account for the increased expenses associated with sending Medicare patients to teaching hospitals. However, in the past this money has not been passed-through to the teaching hospitals, either directly or in the form of increased patients. The money will be used to increase the GME payment formula.

The bill is important both for what it did include and for what it did **not** include. Three key provisions that did **not** make it into the final bill, but that would have impacted neurosurgeons are:

- **Eliminate Payments for Assistants at Surgery**—President Clinton originally included a provision in his budget proposal that would have eliminated the additional payment for physician

assistants at surgery. The surgical community strenuously objected to this provision, and, as a result, it was not included in the final package.

- **Expand "Centers of Excellence" Program**—Currently HCFA is conducting demonstration projects for CABG and total hip and knee replacement whereby "Centers of Excellence" bid to provide these services at a reduced, all-inclusive global fee. This saves both the Medicare program and beneficiaries money. The House proposal would have expanded this program to apply to any surgical procedures HCFA deemed appropriate, and likely would have included some neurosurgical services (possibly back surgery, because it is a high volume, high dollar Medicare service). Organized medicine opposed this provision, and it ultimately was stripped out of the final bill.

- **Medical Liability Reform**—The House version of the bill included comprehensive medical liability reforms including: a 2 year statute of limitations, a \$250,000 cap on noneconomic damages, the elimination of joint and several liability, a cap on punitive damages, periodic payment for future losses, consideration of collateral sources of payment in calculating damages, and preemption of more lenient state laws. The provision died because it did not have the enough votes in the Senate and would have subjected the entire bill to a presidential veto. The AANS and CNS will continue to seek other legislative vehicles for federal tort reform.

For more information or copies of the details of any of the above provisions, please contact Katie Orrico in our Washington Office at (202) 628-2072 or e-mail KateOrrico@aol.com. The complete text of the bill is available on the Internet at the House Speaker's Web site: <http://speakernews.house.gov>.

MANAGED CARE *update*

Capitation for Specialists: Plans Try to Make It Work



By John A. Kusske, MD

Central to the expansion of managed care, which accounts for 77 percent of all employer-sponsored health benefits today—up from 45 percent two years ago, is a change in the method of paying providers. According to recent data from

Faulkner and Gray's *Medicine and Health*, the rule of thumb is that 40 percent of a fee-for-service charge represents waste because of inefficiency or unnecessary services. The savings that managed care companies say they can deliver depend on squeezing out that perceived waste.

As Faulkner and Gray's editors point out, no bookshelf full of practice guidelines and treatment protocols is going to do the job if the doctors in the plan don't see it to be to their advantage to practice lean and efficient medicine.

A recent report from Milliman and Robertson, a national actuary firm, states many medical groups have been slow to adopt efficiency as an objective in their overall strategies. The firm's consultants state to operate successfully under managed care arrangements, medical groups need to:

- reexamine their physician compensation methods and overall business strategy,
- improve and expand their management information services,
- develop a better understanding of insurance risk, and
- develop standard treatment guidelines and measures of efficiency.

Status of Capitation

Capitation, that is giving a doctor a lump sum of money to care for an enrollee regardless of that person's healthcare needs, is discerned as the surest way to direct market forces to involve the doctors,

themselves, in changing their practice methods and achieving the efficiencies the health plans promise.

There is wide variation in the estimates of just how common capitation is today; a study published recently by *Medical Economics* finding that 38 percent of all physicians in the United States participate in some capitation plan seems near a consensus figure. But there is little doubt that the practice is most common among primary care providers.

Medical Economics concluded that capitated contracts covered 65 percent of all pediatricians, 61 percent of general practitioners, and 51 percent of internists.

Capitated arrangements with neurosurgeons have tended to lag at least partially because of the numbers. Obviously, it costs neurosurgeons, in time and resources, far more to treat some patients than the HMO is paying.

The actuarial basis for the system is that those "expensive" patients will be balanced out by those with no need for care, or at least infrequent demands, in the course of a year. The narrower the specialty, the bigger the population base needed for the averaging to work. For example, accurately predicting the demand for pediatric cardiac surgery required at least one million lives to be covered by a plan, according to an analysis published last year in the *Archives of Pediatrics*. Moreover, in neurosurgery some indicated interventions are extremely costly, upping the capital needed to bear the risk of a year in which there is an unfortunate mix of serious neurosurgical problems.

Risk Contracting

Despite such obstacles, some plans and specialist groups are experimenting with capitation arrangements. As we noted in the last column, neurosurgeons need to be organized in some fashion to participate in these new forms of specialty payment. According to Richard Krohn, a director at Medical Alliances in Alexandria, VA., "The risk contracting strategies of a specialty network should reflect the overall mission and economic goals of the participating specialists." He further stated that, "Risk contracting should serve first as a vehicle to gain entry to the market for managed health care delivery. Risk contracting also should provide the network with market leverage establishing strong provider alliances."

New risk bearing, single specialty networks are being established in various

specialties throughout the United States. These new entities include several attributes that are absolutely vital to successful specialty capitation contracting. First, according to Faulkner and Gray's *Medicine and Health*, is performance-based capitation. That is, specialists capture and retain member volume based on outcomes and patient satisfaction. Second, the financial incentives of participating specialists are aligned. Third, physicians are supported by physician-friendly, relevant clinical and business information. Fourth, physician leaders are empowered to introduce clinical efficiencies, through education, protocol development, demand and disease management, peer review, and outcomes measurement, that reduce variation and improve outcomes. And, finally, participating specialists understand the financial and clinical risk aspects of capitation, and adopt their behavior to a risk environment.

Measuring Quality

It is to no one's advantage to develop a health care delivery system that squeezes cost at the expense of quality of care given to the patients. Aetna-U.S. Healthcare has developed Specialist Performance Reports for its 10 most frequently used specialties. Its approach suggests how the quality of service can be made a component of a capitated provider contract. The system is based on three categories of measurements:

1. An array of clinical elements, such as performing procedures in the most appropriate site, reducing the rate of adverse events, and shortening lengths of hospitalization.
2. Support of managed care, such as billing electronically and following recertification procedures.
3. Satisfaction scores for the specialists from both health plan members and the referring primary physician.

These are rated and weighed to create an aggregate score. This is then multiplied by a market share factor.

Plans can also reward quality suggests Richard Bernstein, MD, senior medical director at Aetna, by enhancing market share. This could apply to specialists with superior performance demonstrated by warranties for their work (no further charges in complications and reoperation are required) or by quality as demonstrated by procedure-specific low complication rates and low average length of stays.

What Doctors Can Learn from the Business World

by Regina E. Herzlinger, PhD
Harvard Business School

"How many of you are the sons or daughters of physicians?" I asked the students in my course at Harvard Business School, "Managing in the New Health Care Sector." A forest of hands, representing nearly half of the 87 students, shot up.

"Why didn't you go to medical school?" I asked one student.

"My mother told me not to," he said. "She said physicians are no longer free to practice medicine. She said I wouldn't be happy." A concurring murmur rippled through the classroom.

Many practicing physicians share the outlook of these students, all candidates for a master's degree in business administration. In fact, the class included five MDs. As I looked out at the group, I realized I was more optimistic than they were. My cause for hope? After studying the health care sector for some time, I've concluded that it will go the way other American businesses have gone — and I think that's good news. I predict that medical care will respond to market forces, becoming more focused and hence more efficient and satisfying for patient and doctor alike. Furthermore, I think market forces will put decision making back in the hands of physicians. Why? Because doctors are the professionals best qualified to run the business of medicine — and consumers actively dislike managed care's intervention in the patient-doctor relationship.

Everything for Everybody?

The recent crisis in health care has arisen in part from what's known as vertical integration, which comes from the desire of huge organizations to be everything for everybody. Enterprises in other fields have made the same basic mistake. When United Air Lines decided a few years back that it was no longer a mere carrier but rather a one-stop source of services for the business traveler, replete with rental cars and hotels, its fortunes sank — until it reversed its strategy and concentrated on what it knew

best, flying customers to their destinations.

Eastman Kodak learned a similar lesson. After bogging down while trying to conduct pharmaceutical and diagnostic side businesses (sound familiar?), the company had to refocus on its best shot: photography. Once that decision was made, the leaders beefed up research and development, introduced new camera technology, and dramatically increased profits. In the end both companies succeeded by narrowing their goals and concentrating on what their customers really wanted from them.

How does this apply to medicine? Here, too, some organizations have tried to offer everything for everybody and have faltered in the process. Take the case of Humana. In the 1980s, when its chief executive officer concluded that the hospital vacancy rate would remain high, he created a vertically integrated system that included hospitals, physicians, and a health maintenance organization.

The combination appeared foolproof. The Humana HMO was sure to be cost efficient because money would be saved by hospitalizing patients in Humana hospitals. Enrollees in the HMO would thus receive convenient, one-stop shopping and low-cost health insurance. What could possibly go wrong?

Well, so much went wrong that the corporation ultimately sold its physician practices and spun off its hospitals to shareholders, retaining only the HMO. In short, it dumped the strategy of trying to do so much for so many.

Even Humana's skilled hospital managers found it too difficult to operate three discrete businesses simultaneously. The insurance and medical units had opposite agendas: The insurer wanted to minimize medical-loss ratios, while the medical facilities wanted to maximize use of their services.

Then again, running an insurance business and a physician practice is a tough job for anyone. Humana's staff physicians never saw as many patients as the company had anticipated they would, and the occupancy rates of Humana hospitals continued to drop.

Vertical integration led to human relations problems, too. Physicians not employed by Humana increasingly referred their hospital patients elsewhere, perhaps in retaliation for the fact that Humana was competing with them. And some of Humana's own hospital managers were dispirited by the company's move into nonhospital services.

Other vertically integrated health care operations appear to have gone through similar troubles. As an executive of

UniHealth, a formerly multifaceted company, points out, "We failed to recognize that being a hospital and being a physician group are fundamentally different businesses."

Specialization Pays

Gainful health care organizations, like gainful businesses in other fields, are learning that it pays to acquire experience in doing one thing well. In short, it pays to specialize. They are also realizing that it's smart to provide quality at a reasonable price and that it's a good idea to listen to the consumer.

Denton Cooley had the right idea when he launched an open-heart-surgery factory, the Texas Heart Institute in Houston. The eminent surgeon, who in 1994 had performed more than 60,000 cardiac bypasses himself, began by charging about one-third less than the national average price. Like other health care factories with a focus, his appears to be simultaneously cheaper and better. Why? Because the goals are distinct, and practice makes perfect. Studies show that health care units whose volume provides workers with lots of practice deliver better quality and lower costs.

"The achievement that may have the greatest impact on health care did not occur in the operating room or the research laboratory," Cooley was quoted as saying in the *New York Times*. "It happened on a piece of paper ten years ago when we created the first-ever packaged pricing plan for cardiovascular surgical procedures."

Quality at the right price. Cooley's enterprise is obviously exemplary, but strange as it may seem, health care organizations might also want to follow the example of Home Depot, the chain of focused, well-run superstores that help customers do it themselves. If you look at success stories in the consumer sector, Americans, an assertive and pragmatic people, want competitive pricing; convenience (one-stop shopping); assistance in accomplishing things themselves; and reliable, useful information. In short, the public's expectations of a health care system do not fundamentally differ from what they want from any other part of the economy.

A Lesson in Business

To apply such lessons from the retail sector to the health care industry, consider the struggle of U.S. institutions to treat diabetes. In today's system all too many diabetics don't get the care they require because elements of it are spread over

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several places and no one provider is responsible for coordinating the whole. According to a Johns Hopkins University study published in a 1995 issue of the *Journal of the American Medical Association*, 84 percent of elderly diabetics did not receive an important hemoglobin test and a significant number of doctors did not follow other protocols recommended for maintenance of their diabetic patients. These errors most likely increase the incidence of other problems — such as kidney and heart disease, blindness, and amputations — that may result from the condition. No wonder diabetes has accounted for almost 6 percent of personal health care expenditures in recent years.

Doctors and hospitals do not cause such problems. Rather the failing is in the absence of a specific system for treating the condition. Such a system could include convenient, community-based sources of testing and support: a neighborhood pharmacy for drugs, other medical supplies, and guidance from specially trained pharmacists; computer or video programs for information, support group linkups, and daily monitoring of self-care; and diabetes centers in shopping malls, staffed by multiskilled teams.

The coordinated efforts of physicians, nurses, podiatrists, therapists, and nutritionists could help diabetics with the difficult task of changing the deadly habits that worsen the disease, such as eating poorly, smoking, and leading a sedentary life. A few hospitals in each state could specialize in the surgical and medical procedures that diabetics often require.

When applied to the other chronic diseases (including arthritis and asthma) that together account for 76 percent of medical care costs, such a focused approach would help the many weary people who are now forced to stitch together a fragmented treatment plan from numerous providers — doctors, hospitals, therapists, nutritionists, and others. It would sharply reduce the amounts of wasted time and money for both patients and caregivers.

One innovator, who developed a focused diabetes care system in Hawaii, notes that the approach decreased the number of patients expected to require dialysis or to risk diabetes-related vision loss in the next ten years by 50 percent.

Indeed, it is the lack of convenience, information, support, and specialized centers that has increased health care costs. Not only diabetics but asthmatics require

expensive emergency and other hospital care because they don't receive the advice and encouragement they need to carry out the complex self-care a chronic illness demands. The absence of custom-tailored care goes a long way toward explaining the shockingly high rates of adverse drug effects, many of them avoidable, in everything-for-everybody hospitals.

The One Stop Hernia Shop

Consider the outcome when an institution does narrow its goals and pay attention to the consumer — right down to the smallest detail. Toronto's Shouldice Hospital is a hernia facility so beloved by its patients that it hosts an alumni reunion for them. The hospital's focus on one procedure enables it to manage the thousands of details that surgery for any condition entails. The thoughtful amenities that engender this amazing loyalty include a facility specially designed with low-rise stairs, so that patients can comfortably walk after their operations, and beautifully landscaped grounds to lure them outdoors. But even if they can resist Mother Nature, Shouldice patients must get on their feet because the hospital does not provide regular meals in the rooms and attendants are trained to urge supine patients to go for walks.

So why do the patients love it? For one thing, the Shouldice system empowers the patient. He is not a passive, reclining lump but an upright, active participant in the healing process. Indeed, many Shouldice patients ask to go there. All prepare themselves for surgery by participating in orientation classes. And, of course, the quality of care is good. The surgical team's concentration on a single procedure gives rise to continual refinements, efficiency, and high standards.

Doesn't all of this regard for the customer increase costs? The evidence says no. Shouldice claims lower costs and better results than most general hospitals.

Just as is true in other industries, consumer-responsive, specialized systems provide a win-win solution to the current predicament in the health care sector. The approach is good for society, good for patients, and good for the organizations themselves. Success is not guaranteed, of course. But savvy venture capitalists are already financing physician-led organizations that provide targeted services for primary care, chronic diseases, or certain high-volume procedures at a capitated fee.

Good results are not derived from giving people less than what they pay for, as managed care has been accused of doing, nor by providing unnecessary

services, as some fee-for-service providers supposedly do. Instead, the delivery process is creatively resized to give people more while using fewer resources. Indeed, the ultimate success of these organizations will increase the possibility of resolving the plight of poor people who are uninsured. Highly productive, efficient providers may be able to provide the poor with the health care they need, without bankrupting the country.

The Future

It is no accident that two of the organizations I cite as models were led by physicians — Denton Cooley in one case, Byrnes Shouldice, the son of a Shouldice Hospital cofounder, in the other. After all, those who actually provide the care are the ones who best understand how to resize the caregiving process.

So here's my message for people who love medicine but worry about their ability to practice it: Don't despair. Market forces will fix the health care system just as they've fixed other parts of the economy. They will radically alter managed care. The new managed care insurers, whose hefty administrative expenses averaged 12.4 percent of revenues in 1996, should eagerly contract with focused providers. HMOs will thus reduce both their costs and their direct involvement in managing health care. They will serve as brokers, selecting the capitated specialty groups that treat their enrollees.

Market forces will also diminish the number of mammoth everything-for-everybody, hospital-centered systems, as more hospitals cultivate specific-care systems. Consumers will play an increasingly active role in the purchase of health care, thus restoring many lost elements of the patient-doctor relationship.

Focused health care organizations led by physicians? Influential consumers? Attenuated insurers and the diminishment of all-inclusive health care systems? Straightforward information that serves consumers? Where do these ideas come from? It's simple. They reflect the best of American business — the characteristics and achievements of organizations that have triumphed in the nonhealth sectors of the economy.

About the Author

Regina E. Herzlinger is the Nancy R. McPherson Professor of Business Administration at Harvard Business School and the author of "Market-Driven Health Care" (Addison-Wesley, 1997).

Joint Section on Cerebrovascular Surgery

Robert Harbaugh, MD

One of the most exciting projects undertaken by the Joint Section on Cerebrovascular Surgery is the upcoming combined Annual Meeting with the American Society of Interventional and Therapeutic Neuroradiology (ASITN). This will be the first meeting held jointly with the ASITN and it will take place in Orlando from February 1 - 4, 1998.

The Scientific Program of this Annual Meeting will focus on innovations in the management and outcomes analysis of cerebrovascular disease, including aneurysms, AVMs, ischemic disease and other cerebrovascular disorders. The format includes both separate and combined interventional and surgical sessions, and internationally recognized experts in both surgical and endovascular treatments will participate in discussions, case presentations, seminars and abstract presentations.

This JCVS/ASITN Joint Annual Meeting immediately follows the American Heart Association Stroke Meeting, also in Orlando. For more information on the JCVS 3rd Annual Meeting, contact Robert Harbaugh at (603) 650-8732, or e-mail, robert.e.harbaugh@Hitchcock.org

Joint Section on Neurotrauma and Critical Care

Pediatric Neurotrauma

P. David Adelson, MD

The Pediatric Neurotrauma Committee of the Joint Section on Neurotrauma and Critical Care continues to be involved in guidelines development for traumatic brain injury in children. A draft of the guidelines has been completed and is being revised. In the near future it will be sent to the Guidelines Committee prior to final revision. In addition, we are reviewing a draft of the Mild Head Injury Guidelines that are being developed in conjunction with the American Academy of Pediatrics. Hector James, MD, and Tom Luersson, MD, are spearheading this effort. Guide-

lines projects are the major goals of the Subcommittee at this time. Upon their completion, the committee will develop further goals and projects related to pediatric neurotrauma.

Spinal Cord Injury

Michael G. Fehlings, MD, PhD

The Spinal Cord Injury Committee of the Neurotrauma Section is developing Guidelines for the Management of Spinal Cord Injury, and assessment of the role of decompression in spinal cord injury (STASCIS study). The Guidelines group met at the 1997 AANS Annual Meeting and formulated a series of questions which will be examined relative to the management of acute spinal cord injury. These include pre-hospital care and transport of patients suspected of having a spine injury; pharmacological management; optimal critical care; and the role of traction, decompression and surgical stabilization. A prospective, non-randomized feasibility study (STASCIS) has been underway over the last six months to examine whether it is possible to decompress patients with acute spinal cord injury within 8 hours after trauma. The results indicate that the 8-hour time window is not feasible, but that a 12-hour time window should be. A multicenter study is currently in progress to develop reproducible, quantitative, and clinically relevant radiographic outcome measures to assess cord compression. These instruments will be used in the planned prospective, controlled study of the timing of surgical decompression in spinal cord injury.

Prevention

Michael J. Caron, MD

The Prevention Committee of the Joint Section on Neurotrauma and Critical Care provides a vehicle for education and involvement of members of the AANS and CNS in issues related to prevention of neurological injuries. The current areas of activity for the Prevention Committee are gun safety, and ongoing endorsement of the Think First brain and spinal cord injury prevention educational programs.

The gun safety subcommittee is chaired by Howard K. Kaufman, MD. The committee is in the process of recruiting interested members from the AANS and the CNS. Those interested in becoming committee members, or individuals having

issues which they would like to be addressed by the committee, should contact Howard Kaufman, Professor and Chairman, Department of Neurological Surgery, West Virginia University School of Medicine, Robert C. Byrd Health Science Center, P.O. Box 9183, Morgantown, WV, 26506-4819. Phone: (304) 293-5041; Fax (304) 293-4819.

Joint Section on Tumors

Mark Bernstein, MD

Guidelines

Jack Rock, MD, and Mark Bernstein, MD, are in the progress of developing Low-Grade Glioma Guidelines on behalf of the Joint Section. These Guidelines are in the process of being reviewed. Members of the Joint Section are also working on a Glioma Outcome project, sponsored by Rhone-Poulenc-Rorer, that is designed to facilitate collection of outcome data on patients with malignant gliomas.

Awards

The Joint Section on Tumors recently awarded the Mahaley Award to Douglas Kondziolka, MD; the Preuss Award to Andrew Metzger, MD; and the Young Investigator Award to Scott Litofsky, MD. The National Brain Tumor Foundation Grant was awarded to Roberta Glick, MD.

Joint Section on Pediatrics

Awards

The Pediatric Section recently named John Park, MD, PhD, of Harvard University, as the winner of the Shulman Award for his paper entitled "Platelet Derived Growth Factor Induces Differentiation of Neuroepithelial Stem Cells into Neurons." Two Traveling Fellowships were also awarded. Regan Gallher, MD, of the University of New Mexico, traveled to the Primary Children's Medical Center in Salt Lake City, Utah, and Sooho Choi, MD, of the University of Southern California traveled to The Children's Hospital in Boston.

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Documentation Requirements for E/M CPT Codes

by Robert Florin, MD

Recently, there has been increased interest and attention to fraud and abuse in healthcare. The current estimate of \$23 billion was recently released by the Health Care Financing Administration (HCFA) as a measure of the scale of this problem. Many efforts, coupled with serious funding, are under way to ferret out examples of such abuse. Inaccurate billing for the appropriate level of Evaluation and Management (E/M) services provided is high on the list. This upsurge in attention to how E/M services are billed was a significant factor in the legal settlements reached by several academic healthcare centers last year.

A project to specify the components for different levels of documentation required for E/M services (office visits, consults, etc.) provided by physicians has been compiled through the efforts of the American Medical Association (AMA) and HCFA. The purpose was to provide the specifications for preparing or reviewing documentation for the E/M services. Another objective was to lay out objective criteria for use in chart and record review that could identify deficiencies that did not match the record to the level of service billed. These new policies specifically state what details must be specified in the patient record to bill for E/M services. There is extensive criteria to follow when billing for detailed or comprehensive examination, especially when confined to a single system such as neurological.

If patient records are reviewed and do not meet these explicit criteria for the level of service billed, the physician could be subjected to stringent penalties. The details of these documentation criteria are available on the Internet at www.hcfa.gov under a heading entitled: Medicare/master1.wp6 or .pdf. A copy will also be posted on **NEUROSURGERY://ON-CALL**® if you wish to examine the details and download it from that site.

Project to Create A Knowledge Bank of Neurosurgical Information

by Julian Bailes, MD

Neurosurgery is currently the focus of one of the nation's premier multimedia technology projects. The National Medical Practice Knowledge Bank (NMPKB), a \$51 million project between Allegheny Health Education and Research Foundation and AT&T in conjunction with Pittsburgh's Carnegie-Mellon University, was instigated by a \$21.3 million grant from the U.S. Department of Commerce. The objective of this project is to develop a suite of multimedia technologies to support a series of national medical specialty practice knowledge banks. These will gather, analyze, index and retrieve medical information in multiple media formats including text, still images, audio and video in order to improve access to expert advice and consultation. This Internet-based project is entering its second year of funding and activity, and has accomplished several milestones.

The groundwork is laid for creating the world's first on-line, interactive "virtual" textbook. Neurosurgery is the first medical specialty to be involved with creating such a unique and encompassing patient management and educational resource. This project will endeavor to construct intelligent software to create services which are context-based, interactive and pooled from all available medical data. Petabyte database capacity will exist to incorporate the existing and future massive amounts of information in video, audio, imagery, text, sensory and other data.

The first "virtual" medical meeting took place in May and featured 12 of the country's top experts in stroke in a presentation entitled, "Brain Attack: Current Treatment Recommendations." The meeting was organized by Marc Mayberg, MD, and myself, and took place in a television studio setting in Scottsdale, Arizona. The meeting was recorded, digitized, and reworked and will be available for interested physicians to view on AT&T's Web site in the near future.

NMPKB is a unique project, pulling from diverse sources, a multitude of high technology and computerized systems to bear upon the organization and delivery of

medical knowledge. As an Internet-based system with universal access, this project and its resultant technology can play a pivotal role in all forms of medical applications. Although the project is beginning with the field of neurosurgery, it is anticipated that proven paradigms will rapidly expand to other medical specialties.

NEUROSURGERY ON://CALL® will be incorporated into as many components of the NMPKB project as possible. AANS and CNS members will be able to access links to "virtual" conferences like the recent stroke presentation, and future AANS and CNS sponsored events will also become available on-line. Projects like this will help spread research and medical knowledge throughout our field.

If you have questions on NMPKB, please call me at (407) 667-9399 ext. 355 or e-mail julianb@carelinkmgmt.org

AANS Heads to Amsterdam

The International Congress of Neurological Surgery Meeting held in Amsterdam was the recent focus of AANS international recruiting efforts.

Several AANS membership staff members, as well as staff members from the *Journal of Neurosurgery*, went to the Meeting and sold AANS publications, *Journal* subscriptions, and back *Journal* issues on CD ROM's.

During the meeting, over 1,000 applications for International Associate Membership were distributed. The *Journal* staff also demonstrated *Neurosurgical Focus*™.

The Amsterdam trip was financed through product sales and was used as a means for increasing the Association's visibility on an international level.



The AANS recruiting efforts focused on the International Congress of Neurological Surgery Meeting in Amsterdam.

Preparing for the Coming Century

by John Oro, MD

In 1991, the U.S. Capital spending on information technology exceeded that of Industrial Age spending. That year we entered the Information Age.

What do we have at the beginning of this new era? For one, we have an Internet that is slow, uses incompatible technologies, is difficult to configure, and, once logged on, is often difficult to find what we are looking for. But these are transient difficulties. In the next five to ten years we will have an Internet that, like a phone, is "on" at all times (the "digital dial tone"), is fast, has video quality, and is frequently accessed with a large screen or portable device.

With the satellite systems planned for the beginning of the next century, it will be accessible from any point on the planet. More importantly, the cost will fall. A \$300 Internet device available at a local retailer will bring a much greater segment of humankind online.

Thus fast, high quality, low cost access to the Internet from anywhere on the earth will become a reality through which medicine will diffuse. The eventual impact on the practice of medicine is difficult to predict. Futurists indicate that we tend to overestimate the near term future and underestimate the long term changes. However, patients and physicians want information, communication and interaction that is efficient, dependable and accessible and that is where we are headed.

To prepare for this future and to benefit from the current capabilities of the Internet, the AANS and CNS created the **NEUROSURGERY ON://CALL**® Web site. The site has five broad goals:

1. Report on the activities of the AANS & CNS.

This work began when the site was launched in 1996. Under the stewardship by Rich Toscelli, MD, and subsequently under William Friedman, MD, content areas were developed in a

broad range of topics. We are consolidating the progress that has been made and continuing to present news, information, and announcements. We continue to enhance the content of the Section pages, the library, the socio-economic area and more. New areas are under consideration. Content creation will continue to be a major aspect of **N://OC**® and will continue to require contributions from many within the AANS & CNS.

2. Reach and educate the public about neurosurgery.

Through **N://OC**®, the AANS and CNS are able to reach and educate the public on the role of neurosurgery in their health and health care. The Public Pages, under the direction of Dr. John Popp and the Public Pages Liaisons, have been designed to that end and continue to incorporate new content. In addition, we will explore supplying **N://OC**® created content to other health care Web sites.

We are also continuing to explore the use of "push" technology which currently is available in the Intermind Communicator. As "push" becomes part of the browser, more users will have ready access and will have an automatically updated page available on their desktop. We will explore the possibility of having our content distributed through other push sites. Also, we are obtaining the infrastructure to offer site visitors a monthly e-mail letter that will provide an update of changes within the site.

3. Continue to develop an online neurosurgical community.

This is essential for the long term future of the site. **N://OC**® should become a ready and easy place to interact with other neurosurgical professionals. David McKalip, MD, an new member of the Editorial Board, is evaluating our options for improved chat capabilities to facilitate this exchange.

E-mail remains the single best method of electronic communication. However, it is still limited by two factors. Imagine a phone system in which few have access and there are no phone books or directory assistance.

This is the current state of e-mail. To allow the full potential of e-mail to be realized, neurosurgeons should obtain e-mail addresses. Our job, at **N://OC**®, will be to develop a directory.

Currently, under the sponsorship of the CNS, the *World Directory of Neurological Surgeons* is being converted to online form and will be available on **N://OC**® soon. In addition, we are adding pertinent e-mail links throughout the site to allow you to access individuals in the different areas.

4. Extend the reach of the AANS & CNS and promote global standards.

The great road system of ancient Rome allowed the diffusion of knowledge and culture throughout much of the "known" world. At the end of the 20th century, we are developing a grid around the world. Although we may not be able to travel physically on this grid, information and knowledge can travel easily.

Through the use of the Internet, the AANS and CNS have an opportunity to contribute greatly to the enhancement of global neurosurgical education and standards of practice using this grid. One area under development is CME, which should allow neurosurgeons world wide to take the most current courses available around the world while sitting at home. In the future, when we or our descendants look back, the distribution of knowledge world wide will be viewed as the greatest impact of the Internet during the first half of the 21st century. It is up to those individuals and organizations that create and serve as repositories for this knowledge to become part of the diffusion. **N://OC**® will work to become more global and local at the same time.

In 1994, John Naisbitt published the *Global Paradox*. In his book, he discussed the paradox that the world is at once trying to become more unified at the same time that groups want increased identity often leading to separation from the whole. This paradox faces our profession as well and could be called the Neurosurgical Paradox. In response to our current socio-political environment, neurosurgery is becoming more unified.

Gratitude Shown For Van Wagenen Support

Frank Smith, MD, and AANS Executive Director Robert Draba, PhD, recently presented Abigail Van Wagenen, widow of William Van Wagenen, MD, with a certificate of appreciation on behalf of The American Association of Neurological Surgeons for her financial support of the Van Wagenen Fellowship. The certificate was awarded to Mrs. Van Wagenen at her home in Rochester, New York.

Beginning in 1968, the Van Wagenen Fellowship has been awarded annually to a resident in his/her final year of training. The fellowship was established to give a promising young neurosurgeon the opportunity to do a year of study outside of North America, as Dr. Van Wagenen himself did.

"The Fellowship offers promising neurosurgeons an opportunity for extraordinary study which they themselves would be unlikely to finance," Dr. Smith said.

The first Fellowship stipend was \$7,500; and, the stipend has continued to increase to its current value of \$20,000.



Robert E. Draba, PhD, (lower right) and Frank Smith, MD, (center back) present Mrs. Van Wagenen with a certificate of appreciation.

N://OC continued from page 26

Yet, at the same time, partly due to the ever increasing knowledge base, groups within the whole want increased recognition, and failing to obtain it, consider breaking away. It is neurosurgery's challenge to straddle the paradox. We must become more unified as we recognize individuality. **N://OC**® will contribute by enhancing the local character of its components while at the same time developing process and standards that allow it to become a healthy and thriving whole.

In addition, a revised **N://OC**® will have a more international emphasis and will contain country specific guides to neurosurgical Web sites. This will allow users to evaluate neurosurgical information in any country, and over time, the ideas that stand the test of time will likely diffuse through this Web Site.

5. Develop a measure of self sufficiency.

The success of **N://OC**® in meeting its goals will depend on gaining some self sufficiency and not solely relying on the dues of its members. Thus, we will continue to work to secure funding of the site. Current mechanisms include advertisements, sponsorships, and the sale of books. We are exploring other options including the development of premium content, such as CME.

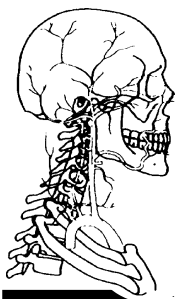
What should you look for in the next few months on **N://OC**®? Expect more content in both the Public Pages and the professional section, an enhanced chat area, a revised Web Guide, the World Directory of Neurological Surgeons, an e-mail newsletter, interviews and more.

What can you do? Please contribute. Get to know your **N://OC**® Editorial Board members and the Public Pages Liaisons. Their areas of responsibility in **N://OC**® and their e-mail addresses are listed on the **N://OC**® Editorial Board page which can be accessed through the Welcome page. Send them your e-mails. Encourage them, give them your suggestions, and ask how

you can contribute. Look for them at meetings. They will be wearing banners that recognize their contributions, but more importantly, are to let you know that they are interested in your input.

Also, explore the site. If you have a graphic that you think would enhance a page, send it to us. If you find a link that should be added to the Web Guide or to other areas, send them to the respective Editorial Board member or Liaison, or to myself at john_oro@surgery.missouri.edu

Although, the Internet seems to focus on technology, it is really about people. We seek to learn, interact, exchange ideas, argue, agree or disagree, come to resolution and strive for continue progress. It has been so since the establishment of neurosurgery. **N://OC**® is only a small part of this human endeavor. The professional staff and volunteer members of the **N://OC**® team are working to make your site reflect the vitality of the members and leaders of the AANS and CNS. It is people that make the difference.



1998 COURSE SCHEDULE

1998 Socio-Economic Courses

1998 Reimbursement Update for Neurosurgeons

February 19–21 Costa Mesa, CA
March 5–7 Boston, MA
May 28–30 Orlando, FL

June 18–20 Minneapolis, MN
August 27–29 Chicago, IL
November 5–7 Houston, TX

1998 Clinical Skill Courses

Re-introduction to Neurosurgical Critical Care for Neurosurgeons, Neuroscience Nurses, and Physician Assistants

June 4–6 Chicago, IL

Interactive Image-Guided Neurosurgery (Frameless Stereotaxy)—Hands-On

March 20–21 Memphis, TN

Extracranial Carotid Reconstruction— Hands-On

March 27–28 Rancho Mirage, CA

Spine Surgery—Hands-On: A Comprehensive Approach for Neurosurgeons & Neuroscience Nurses

May 16–22 Albuquerque, NM

Neurosurgery Review by Case Management: Oral Board Preparation

May 24–26 Iowa City, IA
November 8–10 Houston, TX

Surgical Management of Movement Disorders

March 6–7 New Orleans, LA
June 26–27 San Francisco, CA

Minimally Invasive Neurosurgery: Neuroendoscopy—Hands-On

November 13–14 Cleveland, OH

1998 NEW Courses!

Topics in Neurosurgical Critical Care

January 24–27 San Juan, PR

Brain Anatomy for Nurses

March TBA
June 28 San Francisco, CA
November 21 New Orleans, LA

Advanced Surgical Pain Management

September 11–12 Portland, OR

Spine Review—Hands-On— For Young Neurosurgeons

August 15–21 Albuquerque, NM

The American Association of Neurological Surgeons is accredited by the Accreditation Council for Continuing Medical Education (ACCME) to sponsor continuing medical education for physicians.

The American Association of Neurological Surgeons designates these educational activities for the designated hours in category 1 credit toward the AMA Physician's Recognition Award. Each physician should claim only those hours of credit that he/she actually spent in the educational activity.

For more information or to register, please call the Professional Development Department at 847-692-9500, or e-mail us at info@aans.org or visit our web site at www.neurosurgery.org



Research Foundation

Increased Member and Corporate Support the Goal for 1997



Robert G. Ojemann, MD,
Chairman

The Research Foundation's "Donor Wall," on display since 1996, will again make an appearance at our next Annual Meeting in Philadelphia. Last year, ten corporations provided much needed support as part of our Corporate Associates Program (see accompanying box). This year, we hope for expanded

support from our corporate friends, and a similar increase from you, our members. I encourage every one of you to reserve a place for your name on this display by making your commitment to the 1997 Campaign *today!*

Gifts to the Annual Campaign are placed in the Foundation Council's designated endowment fund, which is currently valued at over \$4 million. Income is then used to fund Young Clinician Investigator Awards and Research Fellowships. Since the first Awards were made in 1982, the Research Foundation has funded over \$1.9 million to promising neuroscientists. Problems that have been addressed with Research Foundation funding include expanded study of brain tumors, neural regeneration, cerebral ischemia, epilepsy, movement and developmental disorders, and several other important areas. Earlier this year, the Scientific Advisory Committee provided for two Research Fellowships and two Young Clinician Investigator Awards, bringing to 46 the total number of projects funded in 15 years. All of us who have supported our Research Foundation should be proud of the advances that have been made as a result of this funding.

Despite these promising developments, there is still a long way to go. Each year, more than 35 grant requests are submitted

to the Research Foundation. Unfortunately, because of a lack of funds the vast majority of these requests, all with vast potential, are left unfunded.

This year, we would like to substantially increase our member participation. With increased support from our members, there is potential for expansion of Research Foundation support to include more clinical studies. I believe that every member of the AANS should be happy to help this worthwhile endeavor. The routine techniques we use everyday all had their start in basic research.

A donation to the Research Foundation is a show of support for the future of our profession, an investment in tomorrow that will forever benefit the specialty.

Each donor will be listed in the Spring issue of the *Bulletin*, on our Web site **NEUROSURGERY:// ON-CALL®**, and will have their name on display on the Donor Wall. Group gifts of \$1,000 or more will also be acknowledged in our Scientific Society. All neurosurgeons should consider joining the Cushing Scholars Circle; a minimum donation would be \$1,000 for a Cum Laude level of giving.

As the end of the year approaches, everyone of us should be planning for our year-end giving. Even though most supporters give by check, there are many ways in which to give. You can make a pledge, and a pledge payment schedule can be established with periodic reminders. You can even make your gift using

ANNUAL GIVING LEVELS

The Harvey Cushing Scholars Circle (Gifts from Individuals)

Summa Cum Laude	\$5,000 and up
Magna Cum Laude	\$1,500 to \$4,999
Cum Laude	\$1,000 to \$2,499

Other Giving Levels

Honor Roll	\$500 to \$999
Sponsor	\$250 to \$499
Supporter	\$100 to \$249

Scientific Society (Gifts from Groups and Organizations)

A gift of \$1,000 or more that is received from an organization or group of doctors will be recognized within the Scientific Society category. Individuals will also be listed at their giving level.

MasterCard or Visa. In these days of a rising stock market, you should consider making a gift of appreciated securities, deducting the full market value while likely avoiding all capital gains.

A gift can also be made as a tribute in honor of a colleague, friend or mentor, or as a memorial gift for a loved one who has passed away. Those you honor, or their surviving family members, will be notified of your unselfish generosity in their name.

Don't forget that many of your patients, with a little encouragement, could be interested in supporting neuroscientific research. Our "Grateful Patient" brochures are still available, and can be very effective in soliciting funds to support research. This informative publication also gives an excellent presentation of the goals and mission of the Research Foundation. Contact Fund Development Officer John O'Connell at (847) 692-9500, or E-mail him at jro@aans.org for more copies of this useful brochure, or for any other help or information that you would like.

RESEARCH FOUNDATION CORPORATE ASSOCIATES PROGRAM

The Executive Council of the AANS Research Foundation gratefully acknowledges the financial support given by the following companies. These companies have set the highest example of leadership by their commitment to neuroscientific research. Please join the Executive Council in applauding their efforts.

SUSTAINING ASSOCIATES (GIFTS OF \$50,000 TO \$75,000)

Synthes Spine/Synthes Maxillofacial

SUPPORTING ASSOCIATES (GIFTS OF \$25,000 TO \$50,000)

Codman/Johnson &
Johnson Professional, Inc.
Elekta
Leibinger
Sofamor Danek Group, Inc.

ASSOCIATES (GIFTS OF \$5,000 TO \$10,000)

Aesculap
Depuy Motech
Midas Rex Institute
Pharmacia & Upjohn, Inc.
Pmt Corporation

Research Foundation Announces

1997 Awardees

by: Robert G. Ojemann, MD

Applicants for the 1997 grants were of the highest caliber. I'd like to extend a public note of thanks to the members of the Scientific Advisory Committee for their efforts to identify the most outstanding applicants worthy of the financial support of the Research Foundation. A total of 33 applications were received, of which the following four individuals were selected. We are pleased with their selection and look forward to seeing the results of their efforts.

LILYANA ANGELOV, MD, BSc
1997 Research Fellow
University of Toronto

Chairman: Charles H. Tator, MD, PhD
Sponsor: Abhijit Guha, MD, MSc

Research Title: *Ras Activity and Expression of Vascular Endothelial Growth Factor in NF-1 Peripheral Nerve Tumors*

Abstract: Neurofibromatosis-1 (NF-1) is the most common familial cancer causing syndrome characterized by multiple peripheral nerve tumors. Neurofibromin, the protein encoded by the *NF-1* gene is a negative regulator of activated Ras, and important intra-cellular signaling protein involved in cellular proliferation and/or differentiation. Loss of neurofibromin function results in elevated levels of activated Ras, contributing to unregulated proliferation in NF-1 related peripheral nerve tumors.

Angiogenesis, the formation of new blood vessels from pre-existing ones is vital for the growth of solid tumors. Angiogenesis results from a net balance of endogenous inducing factors, such as Vascular Endothelial Growth Factor (VEGF), opposed by endogenous angiogenic inhibitors. Activation of the Ras pathway transcriptionally upregulates VEGF, demonstrating a link between important mitogenic and angiogenic mediators. Whether this link between increased Ras activity, VEGF expression and angiogenesis exists in both benign and malignant NF-1 peripheral nerve tumors, will be explored. What we learn is not only applicable to tumors in NF-1 patients, but also the large

number of human tumors where activation of the Ras pathway is implicated.

Amy B. Heimberger, MD
1997 Research Fellow
Duke University Medical Center

Chairman: Allen Friedman, MD
Sponsor: Darrell D. Bigner, MD, PhD

Research Title: *Cytotoxic Lymphocyte Response Against Central Nervous System Tumors*

Abstract: Our laboratory has identified a tumor specific antigen, EGFRvIII, on malignant gliomas and have shown that this antigen is able to induce an immune response that is cytotoxic specific and mediated by CD8+ cells in response to antigen presented within MHC I. With computer modeling based on crystallography, we have mutated peptides derived from the EGFRvIII antigen that can prime an immune response, initiate a cytotoxic response, and possibly circumvent the need for secondary signaling. We are currently demonstrating a murine model that in the presence of peptide tumor specific antigen a specific and effective cytotoxic response can be elicited and can suppress the progression of central nervous system tumors. The specificity of this response will minimize the induction of autoimmunity and will translate easily into clinical trials.

E. SANDER CONNOLLY, MD
1997 Young Clinician Investigator
Columbia University

Chairman: Robert A. Solomon, MD
Sponsor: David J. Pinsky, MD

Research Title: *Leukocyte Adhesion Receptors and Thrombosis in the Pathogenesis of Evolving Stroke*

Abstract: Pilot data demonstrates that leukocyte adhesion molecules induce PMN capture, postischemic no-reflow, and tissue injury in experimental stroke. Preliminary studies of intracerebral fibrin formation and both PAI-1 and tPA mRNA expression also indicate that endogenous fibrinolytic mechanisms are inhibited. Because adhesion receptors can interact with platelets, and leukocytes may promote thrombosis, we hope to determine whether leukocyte recruitment and thrombosis synergize to exacerbate cerebral injury following stroke. Preliminary evidence for this synergy comes from P-selectin null mice which exhibit reduced cerebral thrombosis in stroke.

To expand these findings, we will determine the role of leukocytes and

adhesion receptors in the pathogenesis of evolving stroke using adhesion receptor/counterligand deficient mice, and IL-1 receptor antagonist strategy, along with an exploration of whether PMNs activate local proinflammatory signal transduction mechanisms (ie. NF-kB). We will also determine the role of thrombosis in evolving stroke, focusing on endogenous modulators of fibrinolysis (tPA, uPA, and PAI-1). Finally, studies focusing on synergism between thrombosis, fibrinolysis, and leukocyte recruitment will explore the role of MPs in cerebral fibrin formation and PAI-1 expression (using MP-deficient mice), test whether endogenous fibrinolytic mechanisms alter PMN capture, and test how PMN recruitment modulates thrombosis in stroke. We will also determine whether adhesion receptor blockade increase the efficacy and safety of thrombolytic therapy.

ADAM N. MAMELAK, MD
1997 Young Clinician Investigator
California Institute of Technology

Chairman: William L. Caton, MD
Sponsors: Drs. Scott E. Fraser and Erin M. Schuman

Research Title: *Injury Induced Neuronal Reorganization in the Hippocampus*

Abstract: Injury to the hippocampus can induce the sprouting of new axon collaterals from the dentate gyrus granule cell axons to their own dendrites, ("mossy fiber sprouting, MFS), forming a recurrent pathway for spontaneous hyperexcitability. MFS is therefore an attractive model for epileptogenesis. The goal of this project is to establish an *in vitro* hippocampal slice system for direct observation of MFS in real-time, using fluorescence time-lapse microscopy. The pilocarpine seizure model will be used to induce MFS. Animals will be sacrificed at day 14-21 after pilocarpine administration, and hippocampal slices will be prepared. The granule cells will be fluorescently labeled by either *in vitro* pressure injection of DiO into the slices, or *in vivo* stereotactic labeling with FGP-adenovirus. The fluorescently labeled mossy fibers will be imaged on a two-photon laser scanning microscope for several hours, generating time-lapse movies of the sprouting process. This method will provide a powerful assay system for determining the effect of various biological modifiers on injury-induced axonal growth. As such, this research may significantly impact on our understanding of neuronal reorganization following seizure for other forms of injury.

Neurosurgery Faculty Position

Board eligible neurosurgeon sought for entry-level faculty position in dynamic S.E. clinical and academic training program. Clinical and research opportunities with a spine focus are available in a multidisciplinary group setting.

Successful candidates will have completed their graduate education in neurosurgery and have a demonstrated interest in the treatment of spine injury and disease. Related academic publications experience desired. Georgia medical licensure required. One-year instructor (Clinical Track) faculty employment starting July 1, 1998. Competitive compensation and support package available.

Applicants should send an introductory letter and curriculum vitae by November 30, 1997 to:

Terri L. Bassett, Coordinator
Faculty Search Committee
Department of Neurosurgery, EUSM
Room 6501, Building B
Emory Clinic
1365-B Clifton Road, N.E.
Atlanta, Georgia 30322-5120

Position Listing Service

**Do you have a vacancy to fill in
your hospital or practice?**

**By listing your vacant position in the *Bulletin*,
more than 4,400 neurosurgeons across North
America will be advised of it.**

**Quarter page ad costs \$275 each.
Call the AANS Marketing Department at
(847) 692-9500 for more information,
or fax or mail your descriptions to:**

**Floyd Brown
Sales Manager
AANS
22 South Washington Street
Park Ridge, Illinois 60068-4287
Fax: (847) 692-6770**

Although the AANS believes these classified advertisements to be from reputable sources, the Association does not investigate offers and assumes no liability concerning them.

Calendar of Events

fall '97

North American Stroke Meeting

October 16-18, 1997
Montreal, Quebec
Information: Kimberly Anderson
(403) 229-9544

American Pain Society 16th Annual Scientific Meeting

October 23-26, 1997
New Orleans, Louisiana
Information: Eric Penne
(847) 375-4830

The Society of Neuro-Oncology 2nd Annual Meeting

October 31-November 2, 1997
Charlottesville, Virginia
Information: Jan Esenwein,
(713) 745-2344

A Systems Approach to the Study and Treatment of Glial Neoplasms

November 13-15, 1997
NYU Medical Center
Information: Kim Kleber
(212) 263-8002

1997 Anterior Column Support of the Spine Symposium

November 13-15, 1997
Scottsdale, Arizona
Phoenician Resort
Information: 1-800-421-3756



Philadelphia Skyline. Photo courtesy of the Philadelphia CVB. Photo taken by Jim McWilliams

1998 AANS Annual Meeting

April 25-30, 1998
Philadelphia, Pennsylvania
Information: AANS Meetings Service Department
(847) 692-9500

Advanced Image-guided Stereotactic Surgery, Radiosurgery and Frameless Techniques

November 19-21, 1997
Palm Beach, Florida
Information: Clarence Mason
(412) 647-8263

1998 AANS/CNS Joint Section on Pediatrics Annual Meeting

December 2-5, 1997
New Orleans, Louisiana
Information: Annual Meetings Services Department
(847) 692-9500

2nd International Interdisciplinary Congress on Craniofacial and Skull Base Surgery

January 20-24, 1998
Cancun, Mexico
Information: (847) 398-5821

1998 AANS/CNS Joint Section on Cerebrovascular Surgery Annual Meeting

February 1-4, 1998
Lake Buena Vista, Florida
Walt Disney World Hilton
Contact: Annual Meetings Services Department
(847) 692-9500

1998 AANS/CNS Joint Section on Disorders of the Spine and Peripheral Nerves Annual Meeting

February 11-14, 1998
Rancho Mirage, California
Information: AANS Meetings Services Department
(847) 692-9500

24th Annual Symposium—Barrow Neurological Institute

Recent Advances in Neurology, Neurosurgery and Neuroradiology
March 8-11, 1998
Barrow Neurological Institute
Phoenix, Arizona
Information: Denise Eskildson,
(602) 406-3067

1998 National Conference on Hydrocephalus for Families and Professionals

March 26-29, 1998
Washington, DC.
Doubletree Hotel, Arlington, Virginia
Information: Hydrocephalus Association
(415) 732-7040

1998 AANS/CNS Joint Pain Section Satellite Symposium

April 23-24, 1998
Philadelphia, Pennsylvania
Information: Annual Meetings Services Department
(847) 692-9500

1998 Pallidotomy Accord

April 25, 1998
Princeton, New Jersey
Princeton University

1998 AANS/CNS Joint Section on Tumors Satellite Symposium

April 30-May 1, 1998
Philadelphia, Pennsylvania
Information: Annual Meetings Service Department
(847) 692-9500

1988 CNS Annual Meeting

October 3-8, 1998
Seattle, Washington
Information: Annual Meetings Service Department
(847) 692-9500

International Winter Congress on Neurosurgery in the 21st Century

March 20-27, 1999
Snowmass Village, Aspen, Colorado
The Silvertree Hotel
Information: Allegheny General Hospital, Department of Continuing Medical Education
(412) 359-4952