

AANS/CNS Section on Stereotactic and Functional Neurosurgery and American Society for Stereotactic and Functional Neurosurgery

Editor: Emad N. Eskandar, MD

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From the President

Physician-Industry Relationships: Too Close?



Philip A. Starr, MD, PhD

Relationships between physicians and companies have been in the news a lot recently, and the news is not flattering. A chair of psychiatry was found to have received \$960,000 from a pharmaceutical company whose products he is studying. An academic spine surgeon didn't inform his university of \$460,000 he was paid by companies whose devices he was studying and implanting.

As usual, abuses by a few invite greater regulation for all. A Senate committee headed by Charles Grassley, a Republican from Iowa, has taken a strong interest in physician-industry relationships and has introduced the "Physician Payments Sunshine Act" (<http://www.govtrack.us/congress/bill.xpd?bill=s111-301>). His staff notes that the drug industry spends \$19 billion annually on marketing to physicians in the form of gifts, travel, meals, and other consulting fees. Partly in response to this, hospital institutional review boards and conflict of interest committees are scrutinizing physician payments more closely. Even if the Grassley bill does not become law, the AdvaMed group of device manufacturers is proactively implementing its main requirement: public disclosure of the dollar amounts paid to physicians.

In our department at the University of California, San Francisco, we have had a longstanding total limit of \$20,000 per year in outside consulting fees and honoraria; income beyond this must be turned over to the university. Yet recently, stronger limitations have been imposed. The UCSF conflict of interest committee will no longer approve an IRB

protocol when an investigator is a paid consultant for a company whose device is under study. Since several of our studies involve Medtronic devices, I am no longer able to accept consulting fees from Medtronic. Increasingly, we are asked to make a choice: Do we wish to consult for a company, or do we wish to use and study their products?

There are good arguments in favor of physician-industry relationships. Such partnerships are an engine of innovation. Further, if we as physicians put something of value into a company partnership, shouldn't we be compensated? Shouldn't we profit from our own ideas and knowledge, or should only businesspersons profit? Where should the limit be?

Regarding consulting work, I have encouraged my own colleagues to ask themselves several questions when accepting consulting fees from a company (over and above the need to comply with local and national regulation): (1) Does the activity represent an excessive distraction from your core mission of clinical care, research and teaching? (2) Does the activity unfairly compensate you for work that others in your group may be performing, but for which they receive no gain? (3) Could the activity expose you or your colleagues to negative publicity when the dollar value of the payment becomes public? (4) Do you think the activity poses an actual conflict of interest? For example, could it be biasing your ability to objectively choose between different manufacturers' devices?

I continue to partner with industry on several of my core projects and have never adopted an anti-corporate philosophy. Yet I welcome the Physician Payments Sunshine Act, and the AdvaMed position. Current rules of the AANS and many of our other professional organizations do require physicians presenting at meetings

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Considerations for Starting a Practice in Functional Neurosurgery

For chief residents and fellows, autumn is filled with anticipation and uncertainty. A new life of independent practice, new partners, new daily accomplishments and worries is only months away. The purpose of this article is to highlight some essential components for building or expanding a functional neurosurgery practice. As the job search unfolds, these are some items to inquire about.



Patrick J. Connolly, MD

Neurology

Neurologists are essential for a functional neurosurgery practice. Neurologists treat movement disorders, epilepsy and chronic pain, among many other conditions. While surgery is quite effective for movement disorders, epilepsy and some types of pain, only a small number of patients have proper indications for surgical management of a neurological condition.

For instance, only 2 percent to 3 percent of patients with Parkinson's disease are candidates for surgery. It is very helpful to have a neurologist who is specifically interested in movement disorders. These individuals are often interested in keeping outcomes data and doing programming in addition to other aspects of disease management.

For epilepsy, it is essential to have an epileptologist who is interested in epilepsy surgery. Evaluating epilepsy patients for surgery is very time consuming, so you will want to partner with a neurologist who enjoys the hunt for surgical candidates. Be prepared to do invasive electrode placements and vagal nerve stimulation.

If you are interested in surgical management of pain, it is good to become acquainted with pain management physicians and practices. While these individuals are usually capable of doing percutaneous lead trials, implantations and battery management, a neurosurgeon is a useful resource for them when a bona fide surgical procedure is necessary, e.g., a laminectomy for a paddle lead, craniotomy for motor cortex stimulation, or spinal operations.

At the time of an interview, meet the neurologists with whom you may be working closely.

Hospital Support

Functional neurosurgery is technologically intensive. If you are starting a practice, it will be important to meet with OR managers to see what equipment is on the shelf, whether upgrades and replacements will be necessary and to gauge what level of commitment the operating room has for a functional practice with the understanding that other subspecialties in neurosurgery have higher productivity and OR utilization/efficiency indicators.

A strong hospital marketing department understands all of the nooks, crannies and idiosyncrasies of its community. If you are new to town, you will want to partner with the marketing department to meet physicians, arrange grand rounds, and have a general presence. This is how a community gets to know you.

This will not be a problem if the hospital is committed to developing a functional program. You will also need support from senior hospital administrators, and it is important to visit this at the time of an interview. Hospitals generally look on functional neurosurgery favorably, because (1) the field has captured the public imagination; (2) a functional program is a feather in the cap for a hospital; and (3) there are many services that a hospital provides to a functional program, such as radiology, rehabilitation and the OR. These factors generally balance the lower productivity of a functional practice.

Neurophysiology

Who does neural monitoring? Intraoperative microelectrode recordings are fairly specialized, so not all neurophysiology techs know how to do it. Deep brain stimulation generally requires this. While you may understand how to interpret the recordings, the neurophysiologist needs to know how to optimize the conditions in the OR and acquire the right apparatus to make the recordings. It is important to ask this when interviewing. The techs who do a great job monitoring EMG, SSEP and motor-evoked potentials for spinal cases may not be able to help you with functional or epilepsy cases. Inquire about neurophysiology resources when you interview.

Vendor

When you begin your new job, you will want to meet company representatives. Often, they will find you first. These individuals are there to help build your practice and help develop relationships. They usually know the community landscape well, and can help get the word out about you, sometimes even partnering with the hospital marketing department on outreach projects. Examples include Medtronic, ANS, Adtech, Integra, Codman, etc. You do not have to have dinner with every company representative, but reach out to the key ones and get to know them.

Research

You've written papers, given talks, presented posters. Now there is a chance to articulate your own ideas. While you are finishing ongoing projects, you can begin to think about the projects that you want to do. This always begins by collecting data. Many rating scales and surveys can be filled out by the patient in the waiting room. These can be tracked in a database. Once the data is collected and filed, analysis becomes much easier than trying to chug through charts.

The challenge is to know ahead of time what data you want to collect. Any kind of research project needs to have proper institutional review board protocols and permissions in place. Department research staff can be immensely helpful with this.

Mentor

Someone cued your interest in functional neurosurgery. This individual can be a source of guidance at the early stages of your career, and he or she typically will be happy to hear from you. Finishing training clears you to practice independently because you

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SFN Integrated Medical Learning Session

Anterior Temporal Lobectomy Versus Selective Amygdalohippocampectomy: Is There an Advantage in Seizure or Neuropsychological Outcomes?



Emad N. Eskandar, MD

Temporal lobe epilepsy is one of the more commonly encountered causes of medically refractory seizures. Numerous studies have demonstrated that in appropriately selected cases with medically refractory unilateral disease, surgery can be successful in curing or significantly reducing seizures in a majority of cases. Hence this is a chronic and disabling disorder where neurosurgery plays a critical

role. Nonetheless, there is considerable uncertainty regarding the optimal type of procedure that should be performed—anterior temporal lobectomy, selective amygdalohippocampectomy, or other variants—and whether different techniques should be used for disease in the dominant or nondominant hemisphere. Empirically, there is a sense among some epilepsy surgeons that larger resections offer better seizure control so long as they are not associated with neurological deficits. Conversely, many other surgeons believe that more limited procedures provide comparable benefit in regard to seizure control with less risk of adverse neuropsychological outcomes. This important debate has been ongoing for some time and remains unresolved.

The primary issues are whether one procedure offers better seizure control over the other and whether the neuropsychological outcomes differ significantly between the procedures. These questions will be addressed during the Integrated Medical Learning session on Tuesday, Oct. 27, at 4 p.m. during the 2010

Considerations *continued from page 2*

have demonstrated safe clinical judgment and sound technical skill; however, it does not mean mastery of the craft. Consulting with mentors and partners is quite helpful in this regard. Oftentimes your new partners will be “keeping an eye on you” to make sure that you are not hurting patients. They have the reputation of their practice to protect, after all.

You

Build on everything learned in training. Your reputation often rides the coattails of your new practice, but you want to establish your own reputation as a surgeon too. This is built one patient at a time and it is an essential part of who you are as a surgeon. Reputation has value. Accountants call it “goodwill.” Every patient you touch helps you build it. Treat your patients well, think carefully how you can help, then do a good job. Then once you do a good job, figure out how you can improve. Complications will happen, and patients do not expect perfection, but be honest with them and do your best to remedy the situation. A busy practice, and esteem from the community will follow. Good luck!

Patrick J. Connolly, MD
Philadelphia, Pa.

CNS Annual Meeting in New Orleans. A panel (experts: G. Rees Cosgrove, Nicholas Barbaro; moderators: Guy McKhann II, Robert Gross, Emad Eskandar, Jeffrey Elias, and Kathryn Holloway) was selected to discuss some recent and appropriate articles on this topic, to review a sample of relevant cases and to answer questions from attendees during the session. This promises to be a very interesting, timely, and interactive session. The papers were selected to highlight some of the relevant points are briefly summarized below.

Long-term seizure outcome after mesial temporal lobe epilepsy surgery: cortical amygdalohippocampectomy versus selective amygdalohippocampectomy. Taner Tanriverdi, Andre Olivier, Nicole Poulin, Frederick Andermann, and Francois Dubeau. J Neurosurg 108:517–524, 2008

The aim of this study was to compare seizure outcomes at the five-year follow-up in patients with medically refractory unilateral mesial TLE (MTLE) due to hippocampal sclerosis (HS) who were treated using a cortical amygdalohippocampectomy (CorAH) or a selective AH (SelAH). The authors obtained data from 100 adult patients who underwent surgery for MTLE. Fifty patients underwent a CorAH and 50 underwent an SelAH. Overall, at the five-year follow-up, favorable (Engel Classes I and II) seizure outcomes were noted in 82 and 90 percent of patients who had undergone CorAH and SelAH, respectively. Furthermore, 40 percent of the patients who had undergone a CorAH and 58 percent of those who had undergone an SelAH were seizure free (Engel Class Ia). There was no statistically significant difference between the two surgical approaches in terms of seizure outcome at the five-year followup ($p = 0.38$). The authors conclude that both CorAH and SelAH can lead to similar favorable seizure control in patients with MTLE/HS. However, the authors suggest that the transcortical approach has the advantage of minimizing or abolishing the impact of dividing venous and arterial adhesions, which is tedious, time consuming, and perhaps associated with some degree of cerebral swelling.

Neuropsychological outcome after selective amygdalohippocampectomy with transylvian versus transcortical approach: a randomized prospective clinical trial of surgery for temporal lobe epilepsy. Martin T. Lutz, Hans Clusmann, Christian E. Elger, Johannes Schramm, and Christoph Helmstaedter. Epilepsia, 45(7):809–816, 2004

Eighty randomized patients were included in the analyses. In 41 patients, the transylvian approach, and in 39 patients, the transcortical approach, was performed. All patients received comprehensive neuropsychological testing of verbal and nonverbal memory, attention, and executive functions before and six months or one year after SAH. Seventy-five percent of patients became completely seizure free with no difference depending on the chosen approach. Repeated measures multivariate analysis of variance (MANOVA) showed that cognitive outcomes after both approaches were essentially the same. Interestingly, the only exception

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2009 CNS Annual Meeting Preview

The 2009 CNS meeting in New Orleans Oct. 24–29 promises to be an exciting event, with many presentations on stereotactic and functional neurosurgery.

On Monday, Oct. 26, there will be oral presentations followed by a Neurosurgical Forum. On Tuesday, Oct. 27, there will be an Integrated Medical Learning Session, which is detailed in the article on page 3. And on Wednesday, Oct. 28, there will be a session on socioeconomic factors in Stereotactic and Functional Neurosurgery.

Monday, Oct. 26

2:30 – 4:00 PM

Top Ten Abstracts—Section on Stereotactic and Functional Neurosurgery

Moderators: Philip A. Starr, Ali R. Rezai

Stereotactic and Functional Neurosurgery Resident Award

2:30 – 2:39 PM

961

Motor Cortex Plasticity Driven by Artificial Feedback From an Autonomous, Closed-Loop Neural Implant

Timothy H. Lucas, II; Eberhard E. Fetz



2:39 – 2:48 PM

962

Prefrontal and Caudate Neurons Solve the Temporal Credit Assignment Problem

Wael Asaad; Emad N. Eskandar

2:48 – 2:57 PM

963

Localization of Language Cortex by High Frequency Electrocorticography

Taylor J. Abel; Kai Miller; Tim Blakely; Adam Olding Hebb; Erik Edwards; Shahin Hakimian; Jeffrey G. Ojemann

2:57 – 3:06 PM

964

Longitudinal Magnetic Resonance Imaging Analysis of a Dose-escalation Study of Human Embryonic Stem Cell-Derived Human Neural Stem Cells in Experimental Model of Stroke

Marcel M. Daadi; Ahmet Arac; Gary K. Steinberg

3:06 – 3:15 PM

965

Predictors of Successful Memory Encoding in the Human Hippocampus and Amygdala

Adam N. Mamelak; Ueli Rutishauser; Ian B. Ross; Erin Schuman

3:15 – 3:24 PM

966

STN Neuronal Firing Rate Increases with Parkinson's Disease Progression

Michael S. Remple; Courtney H. Hayes; Chang Qing Kao; P. David Charles; Joseph Samir Neimat; Peter Konrad

3:24 – 3:33 PM

967

Enhanced Orexin Neuropeptide Signaling Prevents Features of Metabolic Syndrome in Mice

Jon T. Willie; Hiromasa Funato; Takeshi Sakurai; Masashi Yanagisawa

3:33 – 3:42 PM

968

Nonresective Hippocampal Surgery for Epilepsy

Arun-Angelo Patil

3:42 – 3:51 PM

969

An Evaluation of Neuroplasticity and Behavior with Deep Brain Stimulation in the Nucleus Accumbens of the Rat

Steven M. Falowski; Ashwini D. Sharan

3:51 – 4:00 PM

970

Deep Brain Stimulation of the Pedunculopontine Nucleus in Combination With the Caudal Zona Incerta for the Treatment of Axial Symptoms in Parkinson's Disease

Sadaquate Khan; Shazia Javed; Puneet Plaha; Alan Whone; Steven Gill

4:00 – 5:30 PM

Neurosurgical Forum – Section On Stereotactic and Functional Neurosurgery

Moderators: Philip A. Starr, Robert E. Gross

Tuesday, Oct. 27

4:00 – 5:30 PM

**Integrated Medical Learning Clinical Science Session: Section on Stereotactic and Functional Neurosurgery
Anterior Temporal Lobectomy Versus Selective Amygdalohippocampectomy: Is There an Advantage in Seizure or Neuropsychological Outcomes?**

Moderators: Guy M. McKhann, II, Robert E. Gross

Experts: G. Rees Cosgrove, Nicholas M. Barbaro

Technology Moderators: Emad N. Eskandar, W. Jeffrey Elias, Kathryn Holloway

Learning Objective: Upon completion of this session the participants will be able to list the indications for temporal lobe surgery in the treatment of epilepsy, assess the advantages and disadvantages of anterior temporal lobectomy versus selective amygdalohippocampectomy in the treatment of epilepsy, and describe conditions that favor the use of one or the other of these procedures.

- Case Presentations
- Audience Polls
- Current Opinion
- Evidence
- Practice
- Digitally Submitted Questions
- Expert Discussion: Anterior Temporal Lobectomy Versus Selective Amygdalohippocampectomy: Is There an Advantage in Seizure or Neuropsychological Outcomes?

Residents and Fellows Reception

Our tradition of holding a social reception for residents and fellows will continue at the 2009 Congress of Neurological Surgeons Meeting in New Orleans. The reception will be on Tuesday, Oct. 27, from 6 p.m. to 8 p.m. in the Fountain Room of the Hilton Hotel. This is a great opportunity for current and prospective fellows to learn more about functional neurosurgery! Please plan to join your current and future colleagues to discuss your successes and challenges. This is a very informal event and, based on the experience of past meetings, the atmosphere is perfect for learning, sharing, establishing connections and making new friends. For more information, please contact Konstantin Slavin, MD, at kslavin@uic.edu



Wednesday, Oct. 28

4:00 – 5:30 PM

SECTION ON STEREOTACTIC AND FUNCTIONAL NEUROSURGERY

Socioeconomic Factors in Functional and Stereotactic Neurosurgery

Moderators: Michael G. Kaplitt, Aviva Abosch

Learning Objective: At the conclusion of this session, participants will be able to discuss financial aspects of neuromodulatory devices, including deep brain, vagal nerve and spinal cord stimulators, which are an expanding part of neurosurgical practice throughout the world; describe the economic impact of neuromodulatory implants on current practice; and enumerate the economic impact of neuromodulatory implants on society.

4:00 – 4:20 PM

How Much Does Reimbursement Affect DBS Technique?

Donald M. Whiting

4:20 – 4:40 PM

The Economics of Functional Neurosurgery in the United States

Alon Y. Mogilner

4:40 – 5:10 PM

Congressional Outlook for 2010

David Charles

5:10 – 5:30 PM

Panel Discussion

was phonemic fluency, which was significantly improved after transcortical but not after transsylvian SAH. The authors conclude that either surgical approach can be chosen independent of cognitive outcome criteria. Improvement in phonemic fluency after transcortical SAH may reflect selective normalization of cognitive function after epilepsy surgery, whereas frontal lobe manipulation might have hindered recovery of this function after transsylvian SAH.

Seizure and memory outcome following temporal lobe surgery: selective compared with nonselective approaches for hippocampal sclerosis.

Eliseu Paglioli, Andre Palmirini, Mirna Portoguez, Eduardo Paglioli, Ney Azambuja, Jadeerson Costa Da Costa, Helio Fernandes Da Silva Filho, Jose Victor Martinez, and Joao Rubiao Hoeffel. J Neurosurg 104:70–78, 2006

The aim of this study was to compare seizure and memory outcome in patients with medically refractory mesial temporal lobe epilepsy due to hippocampal sclerosis (MTLE/HS) treated using an anterior temporal lobectomy (ATL) or a selective amygdalohippocampectomy (SA). Surgical outcome data were prospectively collected for two to eleven years in 161 consecutive patients with MTLE/HS. Eighty patients underwent an ATL and 81 an SA. Seizure control achieved with each technique was compared using the Engel classification scheme. Postoperative memory testing was performed in 86 patients (53 percent). At the last follow-up, 72 percent of the patients who had undergone an ATL (mean follow up 6.7 years) and 71 percent of those who had undergone an SA (mean follow-up 4.5 years) were seizure free (Engel Class IA). Estimated survival in patients in Engel Classes I, IA, and I and II combined did not differ between the two surgical techniques. Preoperatively, 58 percent of the patients had verbal memory scores one standard deviation (SD) below the normal mean. One third of the patients with preoperative scores in the

normal range worsened after surgery, although this outcome was not related to the surgical technique. In contrast, one third of those whose preoperative scores were less than –1 SD experienced improvement after surgery. Nine (18 percent) of the 50 patients whose left side had been surgically treated improved their verbal memory scores by more than 1 SD. Seven (78 percent) of these nine underwent an SA ($p = 0.05$). The authors conclude that both ATL and SA can lead to similar favorable seizure control in patients with MTLE/HS. Preliminary data suggest that postoperative verbal memory scores may improve in patients with preexisting verbal memory deficits who undergo selective resection of a sclerotic hippocampus in the dominant temporal lobe.

The seizure outcome after amygdalohippocampectomy and temporal lobectomy H. Bate, P. Eldridge, T. Varma and U. C. Wieshmann. *European Journal of Neurology 14: 90–94, 2007*

The aim of this study was to compare the seizure outcome of two different types of epilepsy surgery, selective amygdalohippocampectomy (AHE) and anterior temporal lobectomy (ATLE) in patients with temporal lobe epilepsy. The authors included 114 patients who had mesiotemporal lobe epilepsy and hippocampal sclerosis or gliosis on histology. Patients had ATLE if the nondominant hemisphere was affected or if the whole temporal lobe was atrophic. Patients had AHE if the dominant hemisphere was affected. Standardized seizure outcome at one year following surgery was used. Overall 40 percent of the 114 patients who had temporal lobe epilepsy surgery were seizure-free at one year (Engel's class Ia). A good outcome (Engel's classes I and II) was significantly more frequent in ATLE than in AHE (66 percent and 44 percent, respectively, $P = 0.03$). The authors conclude that ATLE had a better seizure outcome than AHE.

*Emad Eskandar, MD
Boston, Mass.*

2009 AANS Annual Meeting Highlights

The 2009 AANS Annual Meeting was held May 2–6 in San Diego, Calif., and it was a very exciting event. There were two scientific sessions. The first session included an invited talk by Johannes Schramm, MD, “How Much to Resect in Surgery for Temporal Lobe Epilepsy: Concepts, Trials, Findings,” and presentation of the Gildenberg Resident Research Award. The second session included a fascinating symposium on emerging treatments for dementia and Alzheimer's disease.



From the President *continued from page 1*

to disclose that there is a financial relationship with a company. However, most existing rules do not require specification of the dollar amount. Yet it seems obvious that an annual payment of \$3,000 to a physician for consulting has far different implications than an annual payment of \$100,000. The Grassley legislation and the AdvaMed position will allow others to know the true extent of our conflicts of interest. Once there is “sunshine” on physician payments, perhaps academic medical centers will see less need to eliminate them.

*Philip A. Starr, MD, PhD
San Francisco, Calif.*



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American Society for Stereotactic
and Functional Neurosurgery

The American Society for Stereotactic and Functional Neurosurgery

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2010 ASSFN Biennial Meeting

June 13-16, 2010

Marriott New York Downtown Hotel

www.assfn.org

Application for New Membership



American Association of Neurological Surgeons



American Society for Stereotactic and Functional Neurosurgery

Name _____

Office Address _____

City _____ State _____ Country _____

Phone _____ Fax _____ E-mail _____

Residency Training Program _____ Years: _____

Medical School _____

Specialty (circle) Neurosurgery Neurology Other: _____

AANS Member Yes No CNS Member Yes No

Interests in Stereotactic and Functional Neurosurgery: (please circle)

Movement Disorders Pain Epilepsy Psychosurgery
Biomedical Engineering Tumors Radiosurgery Image Guidance

Determine and circle your membership category:

Category	Yearly Fee	Description
Active	\$325	For practicing neurosurgeons in the United States or Canada who have completed residency/fellowship
Resident/Fellow	\$25	One-time fee (not yearly). For neurosurgical trainees currently in residency or fellowship
Senior	Free	For neurosurgeons who are retired and over 65 years old
Associate	\$50	For non-neurosurgeons

The benefits of Active membership include:

- Membership in the AANS/CNS Section on Stereotactic and Functional Neurosurgery
- Membership in the World Society for Stereotactic and Functional Neurosurgery
- Reduced fees for the biennial ASSFN meetings
- Subscription to the journal *Stereotactic and Functional Neurosurgery* (including online access)

The benefits of all other membership categories are:

- Membership in the AANS/CNS Section on Stereotactic and Functional Neurosurgery
- Reduced fees for the biennial ASSFN meetings
- Eligibility to subscribe to the journal *Stereotactic and Functional Neurosurgery* (including online access) at the reduced rate of \$135. If you are joining the ASSFN as a Resident/Fellow, Associate, or Senior member and wish to have the journal subscription, send a check for \$135, payable to AANS, directly to our secretariat at the AANS. Mail to: ASSFN, c/o AANS, 5550 Meadowbrook Drive, Rolling Meadows, IL 60008, and check this box:
 YES, I would like to receive the society journal at the reduced rate.

There are two ways to become an ASSFN member:

(1) Apply online at www.MyAANS.org (for Active member applications only), or (2) mail this application form and a check for the appropriate fee (see table above), payable to ASSFN, to: ASSFN, c/o AANS, 5550 Meadowbrook Drive, Rolling Meadows, IL 60008.

For questions or concerns, contact the current (2008–2010) treasurer, Konstantin Slavin, at kslavin@uic.edu, or the membership chair, Kelly Foote, at foote@neurosurgery.ufl.edu.

ASSFN–AANS/CNS Section on Stereotactic and Functional Neurosurgery

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Upcoming Meetings Calendar

One of the purposes of this newsletter is to inform all ASSFN members about upcoming meetings and conferences of interest. The organizers of future meetings are encouraged to send information about their meetings to the newsletter editor, Emad Eskandar, MD.

2009 Congress of Neurological Surgeons Annual Meeting
New Orleans, La.
Oct. 24–29, 2009
www.cns.org

North American Neuromodulation Society 13th Annual Meeting
Wynn Encore Hotel, Las Vegas, Nev.
Dec. 3–6, 2009
www.neuromodulation.org

78th American Association of Neurological Surgeons Annual Meeting
Philadelphia, Pa.
May 1–5, 2010
www.aans.org

2010 Biennial Meeting of the ASSFN
Save the date!
New York, N.Y.
June 13–16, 2010
www.assfn.org