A CELEBRATION OF NEUROSURGERY

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NEUROSURGERY AND CANCER NANOTECHNOLOGY

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NEUROMODULATION SYMPOSIUM
EDITOR’S NOTE

This issue of the CNSQ is dedicated to the 2010 CNS Annual Meeting, October 16-21, in San Francisco, California. This is the CNS’ 60th Annual Meeting and the meeting theme, A Celebration of Neurosurgery is exemplified throughout this issue.

The Scientific Program and Annual Meeting Committees are commended for the excellent job that they have done with organizing this program. Ali Rezai, Russ Lonser, and Ganesh Rao provide a summary of this year’s program. Further, the length of the programs have been condensed and activities and lectures will end at 3:00 PM. This provides a greater opportunity to enjoy the San Francisco region. The CNS is also offering dinner seminars for the first time to further expand the venues which to offer educational events. I and the meeting committee members would like to thank you, the CNS members, for taking the time to complete the evaluations. Each evaluation is individually reviewed and all aspects are analyzed in order to make these annual meetings the most positive and beneficial educational endeavors. All the changes to this year’s meetings were based on past years’ survey comments and evaluations.

In addition, this meeting is being held in combination with our international colleagues from Korea. Dr. Daniel Barrow is the 2010 Honored Guest and Costas Hadjipanayis and Gerald E. Rodts have written a brief review of Dr. Barrow’s significant accomplishments in neurosurgery.

This year’s meeting will also continue the successful Consensus Sessions. Four articles summarizing each individual session are included here. Results of the CREST study by Elad Levy, Alexander A. Khlessi, Mandy J. Binning and L. Nelson Hopkins; utilization of hemicraniectomy by myself; the use of bone morphogenic protein (BMP) by Edward Benzel, Richard Schlenk and Zo Ghogawala; and the recent work defining brain death criteria by Cathy Mazzola. Further, the new dinner seminars will be discussed by Russ Lonser. Lastly, the neuromodulation symposium is discussed by Ashwini D. Sharan.

We are fortunate to have numerous CNS committee reports including the Membership committee by Zo Ghogawala, the Education committee by Jamie Ullman, the IT and web editorial board committees by Michael P. Steinmetz and Brian T. Ragel, and the Publications committee by myself. This is in addition to the featured AANS/CNS Joint CV Section on vascular disease by Fernando Gonzalez. In addition, Richard Komotar has written an excellent summary of the annual neurosurgery charity softball tournament in New York City.

We hope this issue serves as a guide to the Annual Meeting, to gain maximum educational value as well as enjoyment for your time in San Francisco.
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Images in Neurosurgery
It was sixty years ago that a small group of neurosurgeons formed the Congress of Neurological Surgeons. The vision of those founding CNS members has been realized far beyond their original expectations. The core values of education, creativity and volunteerism have stood strong and have expanded in ways unimaginable to our founding fathers. I encourage everyone to assemble in San Francisco to celebrate our 60th Anniversary and to take advantage of the extraordinary educational offerings.

We have come a long way from the time when spouses organized all the logistics for the meeting venue and a small scientific planning committee selected papers for presentation. The 2010 Scientific Program Committee, under the leadership of Russ Lonser, MD, PhD, and Ganesh Rao, MD, has put together a very rich, diverse, and innovative program that will further enrich your neurosurgical practice. With your yearly feedback, the Scientific Program Committee has evolved both the content and structure of the Annual Meeting. This year, we are pleased to introduce our inaugural Opening Session on Sunday afternoon, titled “Challenging Neurosurgical Environments”, which will focus on the impact of healthcare reform as well as on the challenge of caring for our soldiers in combat. Our General Scientific Sessions will highlight neurosurgical pioneers (Monday), explore how to overcome obstacles through understanding of anatomy and biology (Tuesday), and focus on present and future neurosurgical paradigms (Wednesday). Thursday will culminate with the very popular and informative 3-D Digital Masters Video Symposium.

We welcome our 2010 International partner, the Korean Neurosurgical Society. Our Korean colleagues are an important part of the fabric of our meeting, and they have actively participated in its design. An increased number of special lecturers will present in San Francisco. We will celebrate the tremendous career and contributions of Daniel L. Barrow, MD, the 2010 CNS Honored Guest. We eagerly anticipate the 2010 Walter Dandy E. Orator and the 66th Secretary of State of the United States, Condoleezza Rice. A variety of exciting guest speakers includes Apollo 13 Commander James Lovell, Yoon-Woo Lee from Samsung Electronics, celebrated author Gerald E. Rodts, Jr., MD

President, Congress of Neurological Surgeons
Michael Lewis, Eric Topol, MD, of the Scripps Institute, Bernard Lo, MD, from the Institute of Medicine, and many others.

This has been a challenging era for neurosurgery. The ongoing challenges of federal healthcare reform, the frustrating stagnancy for medical liability reform, the zealous scrutiny and efforts to limit legitimate free-market consultation and medical design with industry, the increasing reluctance of the insurance private industry and the federal government to fairly compensate for medical services, the battle over resident work hours, and the fractionation of medical societies between medical and specialty lines have all made the world of the neurosurgeon far more complex than in the year of our inception.

Despite these never-ending challenges, I believe it is important to take time to celebrate the wonders of our field, the richness and diversity of our colleagues, and our proud history of CNS-sponsored education here and around the globe. In San Francisco we will learn, socialize, and reflect on the advances and accomplishments of the past 60 years.

It truly has been a honor and a privilege to serve you and the CNS this past year, and I thank you for the opportunity. See you in San Francisco! 🌴
The Congress of Neurological Surgeons 60th Annual Meeting, A Celebration of Neurosurgery, October 16-21 in San Francisco, California, focuses on the important contributions that neurological surgery has made to the understanding and treatment of neurological disorders. Topics were specifically chosen to highlight the contributions made by neurosurgeons throughout history and the obstacles that have been overcome in the various facets of neurosurgery, as well as emerging research and the clinical paths that we can follow for continued success in a changing health care environment.

To highlight and underscore the 2010 Annual Meeting goals, we will be working with an international partner that is committed to education and advancement in the field of neurosurgery. We are honored and delighted that this year's Annual Meeting will be a joint venture between the Korean Neurosurgical Society and the CNS (see inset). Similarly, the objectives of the meeting are exemplified by this year's Honored Guest, Dr. Daniel Barrow. Dr. Barrow, a CNS Past-President and an international neurosurgical leader, has made critical contributions to the field of vascular neurosurgery, training and education. He will provide insights into the various aspects of neurosurgery that he has gleaned during his celebrated career, and we are proud to have him as an integral part of our program.

Based on CNS membership input, we have made several important changes to the Annual Meeting format. First, we have incorporated an educational Opening Session on Sunday, October 17, 2010 from 4:30 – 6:00 PM, that immediately precedes the Opening Reception from 6:00 – 8:00 PM at the Marriott Marquis Hotel. Second, we have significantly shortened the length of the afternoon sessions. This year, the scientific program will end 3:00 PM on Tuesday and Wednesday instead of 5:30 PM as in past years, allowing more time to view the exhibits on Tuesday during the Wine and Cheese Reception with the CNS Exhibitors, and to enjoy the beautiful city of San Francisco. Third, we have added two Dinner Seminars that will address timely and controversial topics on Tuesday and Wednesday evenings. These Dinner Seminars provide an opportunity for additional continuing medical education in an enjoyable interactive environment at two of San Francisco’s premier restaurants. In addition, the CNS is pleased to invite Dr. Aaron A. Cohen-Gadol to deliver two new cutting-edge Live Surgical Presentations using telemedicine technology on Tuesday and Wednesday mornings in the CNS Product and Technology Showcase. Finally, based on their popularity, we have added sessions and courses that will cover established and emerging guidelines across the field of neurosurgery. We believe all these and other changes to the meeting will greatly enhance the educational experience and enjoyment for attendees. The following articles will outline in detail key courses, sessions and seminars that you will find in San Francisco, giving you a better idea of the dynamic program we have in store for you.

The meeting has been developed through the dedicated efforts of the Scientific Program Committee, the CNS Headquarters, the Korean Neurosurgical Society and a number of other CNS members. Based on the content described above and efforts of the numerous individuals who have crafted the meeting components, we are confident that the program will be of broad interest to neurosurgeons and will highlight the timely topics that impact all of our practices. We look forward to seeing you in San Francisco! [ ]

CNS International Partner: The Korean Neurosurgical Society

The CNS is honored and delighted to welcome the 2010 Joint meeting partner, the Korean Neurosurgical Society. The CNS Scientific Program Committee has been working closely with Professor Kyu-Sung Lee (President of the Korean Neurosurgical Society), CNS Liaison Professor, Jin Woo Chang, and other members of the Korean Neurosurgical Society to develop the scientific program for the 2010 Annual Meeting. The CNS is also honored to have Yoon-Woo Lee, Chairman of the Board of Directors of Samsung Electronics Corporation to present the 2010 International Leadership Lecture “Technological Innovation and Future Society” on Tuesday October 19th.
Drs. Rodts and I are pleased to introduce the Honored Guest for the 2010 Congress of Neurological Surgeons (CNS) Annual Meeting, Dr. Daniel Louis Barrow. For many of you, this serves as a re-introduction, as Dr. Barrow has been active in organized neurosurgery, holding a variety of leadership and editorial positions. He served the CNS for over a decade on the Executive Committee (1989-2001), the AANS/CNS Washington Committee (1997-2001), Scientific Program Committee Chairman (1991), Annual Meeting Committee Chairman (1992), Secretary (1992-1995), and President (1999-2000). Many of you recall Dr. Barrow’s CNS presidency at the mark of the new millennium and his unforgettable Presidential address in San Antonio entitled, “Reaching for Utopia and Slouching Toward Gomorrah.” Others are familiar with Dr. Barrow’s tireless involvement with the American Board of Neurological Surgery (ABNS), where he currently serves as Secretary. He is also a member of the American Academy of Neurological Surgery.

Dr. Barrow is the MBNA/Bowman Professor and Chairman of the Department of Neurosurgery at Emory University School of Medicine, and has led the department for 15 years. After completing his neurosurgical residency at Emory University and subsequent cerebrovascular fellowships at the Mayo Clinic and the Barrow Neurological Institute, he established Emory as a leading cerebrovascular center of excellence. His world-class neurosurgical skill grew from mentors such as George T. Tindall, John A. Jane, Thoralf M. Sundt, Jr., David G. Piepgras, and Robert F. Spetzler. He has received numerous accolades including being featured as Atlanta’s premier neurosurgeon in the “Top Doc” issue of Atlanta Magazine from 1998 through 2010. He received the prestigious Lifetime Alumni Award from Westminster College. He has published an enormous volume of peer-reviewed articles and book chapters, and has edited some of the most important textbooks in our specialty.

In the Department of Neurosurgery at Emory University, Dr. Barrow is known as a man of unlimited integrity who “works” for the faculty and does not have the faculty “work” for him. He is a role model to all of us. His midwest upbringing and schooling have taught him the meaning of family and devoted friendship. He was born in Pittsfield, Illinois (population approximately 4,000), attended Westminster College (1976), and received his medical degree from Southern Illinois University School of Medicine (1979). During his schooling, he enjoyed participating in drama/acting and multiple varsity sports including golf, track, and football. He continues to be an enthusiast for any and all outdoor activities including hunting, fishing and camping (see prior CNSq Summer 2010 issue). Dr. Barrow is the son of a general practitioner Warren Barrow, MD who continues to practice medicine in Pittsfield to this day. He is married to Mollie Winston Barrow and has 3 children, Emily, Jack and Tom. Mollie is a successful oral and maxillofacial surgeon in Atlanta, but more importantly, she shines as an amazing mother, wife, and best friend to Dan.

We honor Dr. Barrow for his achievements and service, and are very excited to have him as the 2010 CNS Honored Guest in San Francisco, California.
A sixtieth anniversary is remarkable in the cultural memory of any organization, for it marks the fading of the founding generation and its mentees, and the emergence of a sustained new dynamic of leadership. For the Congress of Neurological Surgeons (CNS), having enshrined youthful leadership in its Bylaws, it also means that the organization was born a decade before its current leaders.

In his reflection on the first 60 years of the history of the United Nations, political scientist Martin Hewson proposed a historical theory of an organization in terms of progress, evolutionary growth, episodic and cyclical trajectories (J Military and Strategic Studies, Vol 8, Issue 1, Fall 2005). These same trajectories can be considered for the CNS. As a Congress, our organization is best defined by its Annual Meetings, and these reflect elements of the CNS – continuity, change and cyclical renewal. In six decades of CNS history, Annual Meetings have been convened in San Francisco six times (1958, 1967, 1977, 1995, 2004 and 2010). A historiographic journey through these past meetings in the same venue helps us reflect on selected milestones that accompanied them, and also better understand what the CNS embodies and how it has evolved.

1958: First Time in San Francisco, Targeting Neurosurgeons in Training

The Eighth Annual Meeting of the CNS was convened at the famed Saint Francis Hotel near San Francisco’s Union Square in 1958 (Figure 1), under the Presidency of Raymond K. Thompson, the Maryland neurosurgeon who was one of the CNS’ Founding Members and early activists. It was the second time a CNS meeting was held in a Western venue (Los Angeles, 1955), and it took advantage of the geography to organize a Post-Congress Tour in Hawaii “for those who have a few additional days plus a few dollars.” The first Post-Congress Tour in Havana, Cuba, followed the 1953 CNS meeting in New Orleans.

By honoring A. Earl Walker of Johns Hopkins, a new tradition was started of recognizing guests from the President’s home city (Figure 2). This tradition has been repeated many times, including this year in 2010 with...
Honored Guest Daniel Barrow and President Gerald “Rusty” Rodts, both from Atlanta.

The CNS Executive Committee (Figure 3) included the early activists, who were behind the founding of the new organization seven years earlier. In 1958, the idea of recruiting residents into CNS membership was germinated in a letter from then Bylaws Committee Chairman John R. Russell to the CNS Secretary Richard DeSaussure (Figure 4). This proposal was formally adopted at that first meeting in San Francisco, in contrast to the chauvinism prevailing in other neurosurgical organizations at the time toward younger trainees. It inarguably enshrined a defining CNS commitment to inclusiveness, and to the education and mentoring of the next generation of neurosurgeons.

1967: Asserting a Leadership Role on Behalf of Neurosurgeons

The CNS returned to San Francisco a decade later, firmly established as a growing and distinctive organization, thriving in its commitment to educational excellence and serving the needs of the younger generation of neurosurgeons. John Russell of Indiana was now President, and he invited Cleveland’s star neurosurgeon and innovator W. James Gardner as Honored Guest (Figure 5).

Having launched the Survey Committee in the early 1960s with a charge of compiling “relative fee schedules,” the CNS had started to assert its leadership in socioeconomic matters on behalf of our guild. At the 1967 meeting, the CNS first listed Past-President William H. Mosberg, Jr. and President Russell as “representatives to Liaison Committee to the Harvey Cushing Society,” the first record of formal representation of CNS leadership in the American Association of Neurological Surgeons.
Surgeons. Also in 1967, the roster of CNS Committees included a new “Ad Hoc Committee for Utilization Guidelines” chaired by Dr. William Lockhart. These early steps later germinated the dynamic of Joint Officers, the Washington Committee, and the Council of State Neurosurgical Societies that have served our profession for several decades.

Also at that second meeting in San Francisco, the CNS launched an ambitious project led by Survey Committee Chairman Dr. George Ablin, compiling the first ever directory of the world’s neurosurgeons (Figure 6). Early renditions of this Directory included two volumes, one for North America organized by State or Province, and the second for the rest of the world, organized by country. This important resource, used by thousands of neurosurgeons to connect with colleagues in subsequent decades, reflected a spirit of volunteerism and innovation that still characterizes the CNS to this day.

**1977: Launching a New Journal, NEUROSURGERY**

The CNS raised the bar with each passing year, with the maturation of ongoing projects and the launching of new initiatives. Richard Coy Schneider of Michigan was a highly celebrated choice as Honored Guest at the next CNS meeting in San Francisco in 1977. But President Bruce F. Sorensen had another surprise up his sleeve that year. One of the boldest and riskiest ventures ever undertaken by the CNS had been painstakingly debated and readied for launching. A new neurosurgical journal was to be sponsored by the CNS, under the editorship of Robert H. Wilkins (Figure 7). For the next 33 years, this scholarly medium has contributed immensely to education and innovation on behalf of our specialty.
1995 and 2004: Embracing the Internet Age

It would be almost two decades before the CNS returned to San Francisco in 1995. Ralph Dacey’s presidency (Figure 8) celebrated John A. Jane, Sr. as Honored Guest, and codified many processes governing the legal and financial affairs of the thriving organization. That year, the CNS introduced the IRIS System for real time interactions with meeting attendees, and for the first time ever broadcasted the Annual Meeting’s General Scientific Sessions in real time on the internet.

The last time the CNS convened in San Francisco was in 2004, under Vincent Traynelis’ presidency, with Arnold Menezes of Iowa as Honored Guest. The CNS Executive Committee was larger and more diverse than ever (Figure 9), hatching countless new initiatives, including the CNS University of Neurosurgery and new international projects. Clinical Neurosurgery, chronicling the scientific discourse at the CNS Annual Meetings for five decades, would henceforth also be posted online through the CNS web site.

The preceding are mere examples of CNS highlights from past meetings in San Francisco during six decades. In a letter dated June 21, 2005 to then CNS President Nelson Oyesiku, CNS Founding Member and Past President (1954) James R. Gay remembered, “Founding of the CNS had been considered a conspiracy… Early CNS members were professional activists with a serious agenda” (italics by the author in the original text). And he added, “the founders and early members are proud of the accomplishments of the officers and members who followed them.” The selected vignettes from past meetings in San Francisco illustrate a culture of “exceeding expectations” that has become the destiny of the CNS.
A special Tumor Section seminar will be held at the 2010 CNS Annual Meeting in San Francisco entitled, “Cancer, Neurosurgery, and Nanotechnology – A New Triumvirate.” This new seminar will focus on cancer nanotechnology and its applications in neurosurgery. Nanotechnology belongs to the category of so-called “disruptive technologies” which are innovations that are capable of breaking existing barriers and offering previously unexpected benefits. In the cancer context, nanotechnology can lead to a generation of new diagnostic and therapeutic products that may result in dramatically improved cancer outcomes. The cancer nanotechnology field has excellent potential for developing innovative ways to diagnose disease at its early stages, incorporating *in vitro* assays as well as novel imaging methods. This field is also well positioned to improve methods for cancer therapy as well as monitoring of therapeutic efficacy. The convergence of molecular biology, oncology, physics, chemistry, and engineering provide for the development of clinically-worthy technological approaches in cancer nanotechnology. It is expected that nanotechnology will become a core component of research and translational programs at all leading cancer research institutions and a significant part of comprehensive cancer care.

The concept of designing and synthesizing tumor-targeted or multifunctional nanoparticles for cancer imaging and therapy has been demonstrated, and the results show that nanotechnology may provide new means for *in vivo* tumor-targeted imaging, immunotherapy and drug delivery. Several types of nanoparticles including quantum dots (QDs), magnetic iron oxide nanoparticles (IONPs), and gold and polymer-based nanoparticles have been developed for cancer applications. IONPs (Figure 1) are of particular interest because of their ability to provide powerful MRI contrast enhancement in combination with targeted therapy after conjugation to peptides or antibodies specific to glioblastoma multiforme (GBM) cells. Optimal targeting of GBM tumors in animal models is
possible by convection-enhanced delivery (CED) and provides for direct agent imaging and distribution studies (Figure 2).

Cancer nanotechnology agents have been defined by the federal government through the National Nanotechnology Initiative (NNI) as structures or devices less than 300 nm and comprised of synthetic materials or biomaterials engineered to provide novel properties or modified functions based on nanoscale size. Naturally-occurring materials (e.g., carbohydrates, proteins, viruses) that are not specifically engineered or modified for a biomedical application are not considered cancer nanotechnology agents.

Cancer nanotechnology initiatives by the National Institutes of Health (NIH) include programmatic efforts to enable nanotechnology as a driver of advances in clinical oncology and cancer research, known collectively as the NCI Alliance for Nanotechnology in Cancer. The Alliance, founded in 2004, is committed to developing and applying nanotechnology to cancer prevention, detection, diagnosis and treatment. Within the Alliance, Centers of Cancer Nanotechnology Excellence (CCNEs) have been created at select institutions to develop research capabilities and programs enabling multi-disciplinary team research advancing cancer prevention, detection, diagnosis and/or treatment. In addition to strong, integrated research programs, these centers will also provide shared research support and other resources. It is expected that, as a part of the Alliance, CCNEs will ultimately generate novel preventive, diagnostic and therapeutic approaches to modulate and overcome cancer processes in ways and areas that are currently not available and cannot be realized using existing state-of-the-art technologies.

This special seminar will include outside speakers from the NCI Alliance and the Georgia Institute of Technology, as well as the Editor-in-Chief of Cancer Nanotechnology. At the conclusion of this session, participants will be able to describe applications of nanotechnology with regards to oncology and in particular, neuro-oncology. As the topic is novel, much of the session will be crafted to acquaint participants in the vernacular of nanotechnology and its current and future applications for neurosurgeons.

References:

Figure 2. Magnetic Nanoparticle CED in Mouse Brain
CED of IONPs. An IONP (0.2 mg/ml) infusion volume of 10 μl (Vi) was used and the infusion rate was 0.5 μl/min (IR) in the normal mouse brain. A. T2WI of the mouse brain showing signal drop and contrast effect after CED of IONPs (shown by white arrow). B. Prussian blue staining (red arrow) of mouse brain section after CED revealing distribution of the IONPs away from the needle track (asterisks). C. Higher magnification view (50x).
MO_Nday, oC_to B18
1:30 – 3:00 pm

Carotid endarterectomy (CEA) enjoys the strongest evidence-based support of any surgical intervention in modern medicine. Numerous trials support CEA against best medical therapy in the treatment of symptomatic (NASCET/ECST) and asymptomatic (ACAS/ACST) carotid artery disease. For symptomatic carotid stenosis greater than 50%, two-year stroke risk with CEA was 9% versus 26% with medical therapy under NASCET. ECST similarly demonstrated an absolute five-year stroke risk reduction of 21.2% for lesions greater than 70% and 5.7% for lesions between 50% and 70% treated by CEA. For asymptomatic disease, ACAS demonstrated an absolute five-year stroke risk reduction of 5.9% (relative risk reduction of 53%) for lesions greater than 60% treated by CEA. ACST produced a similar 5.4% rate of five-year stroke risk reduction. Importantly, ACAS and ACST set an ambitious 1.5% and 3% surgical morbidity and mortality standard for the CEA treatment of asymptomatic carotid disease.

> Overall, CREST suggests both CEA and CAS have low perioperative complications and excellent longer term results at experienced centers. Given the impressive and established record of CEA, the emergence of an endovascular complement is cause for substantial enthusiasm.
Against this background, carotid artery stenting (CAS) over the past decade has enjoyed increasing refinement in device technology and technique. Sufficient momentum around these advancements prompted research interest in the natural comparison of CAS and CEA. CREST, the Carotid Revascularization Endarterectomy versus Stenting Trial, involved 117 sites to assess CEA and CAS outcomes in the treatment of symptomatic and asymptomatic carotid artery disease. Prior to CREST, carotid artery stenting was relegated to patients considered high risk for carotid endarterectomy. Interestingly, historical consideration of high CEA risk anatomical and functional criteria was borne out by the CREST trial results; CAS and CEA treatment of carotid disease achieved equipoise with complementary risk profiles in patient subsets. Given carotid artery stenosis begets 10% of all ischemic strokes, the optimum treatment of these lesions in a variety of clinical setting carries substantial epidemiological import.

CREST, as a prospective, multicenter, randomized, controlled trial, established primary endpoints of peri-procedural stroke, MI, death or post-procedural ipsilateral stroke up to four years. Inclusion criteria for CREST included asymptomatic patients with carotid stenosis >60% by angiography or 70% by ultrasound or 80% by CTA/MRA and symptomatic patients with ≥50% stenosis by angiography or 70% by ultrasound/CTA/MRA. Symptomatic lesions were independently adjudicated by two neurologists, and required confirmation of a transient ischemic attack or stroke clearly referable to the appropriate distal vascular distribution.

CREST combined primary endpoint demonstrated equipoise between CAS and CEA (7.2% versus 6.8%, p = 0.51 for stroke, death, MI or long-term ipsilateral stroke event). Peri-procedural endpoints were likewise statistically equivalent (CAS 5.2% versus CEA 4.5%; p = 0.38). Moreover, CAS and CEA demonstrated countervailing and complementary risks in subset analysis. While the major stroke rate between CAS and CEA were equal (0.9% versus 0.6%, p = 0.52), CAS minor stroke rate exceeded CEA (CAS total 4.1% versus CEA total 2.3%, p = 0.01). CAS was superior to CEA in the incidence of peri-procedural MI (1.1% versus 2.3%, p = 0.03) and the somewhat obvious rate of cranial neuropathies (CAS 0.3% versus CEA 4.7%, p <0.0001).

Subset analysis further suggests younger patients may actually have improved outcomes with stenting while CEA may be superior for older patients. As our experience with CAS grows, this epiphenomenon is not surprising. Older patients often harbor tortuous or atherosclerotic aortic arch and great vessel disease; catheter manipulation of these vessels required by CAS subjects the patient to embolic complications. CEA spares the patient this risk, and therefore may represent a superior alternative in older patients with increasing rates of challenging endovascular access. These findings alone have the potential to change current practice and allow physicians to consider CAS as an option for younger, regular risk patients with carotid stenosis.

This rational approach to the individual patient represents precisely the spirit of the CNS session examining CREST. Both anatomical and functional criteria will be reviewed. In terms of CEA, high-risk anatomical features include C2 and higher lesions, contralateral carotid occlusions, severe ulceration and tandem intracranial stenosis. Functional considerations included age over 80-85, active coronary artery disease or congestive heart failure and a recent major stroke in the reference vascular territory. As our experience with CAS grows, the identification of high-risk CAS features such as arch access will allow increasingly mature and judicious application. Coupled with tremendous device advancements in distal protection, proximal protection, flow reversal, and stents themselves, a renaissance in CAS is at hand.

Overall, CREST suggests both CEA and CAS have low perioperative complications and excellent longer term results at experienced centers. Given the impressive and established record of CEA, the emergence of an endovascular complement is cause for substantial enthusiasm. The diversity of patients presenting with carotid artery stenosis demands a case-by-case consideration of relative risks and benefits. Patients now enjoy access to two established treatment approaches. Please join us to discuss how CREST and these advances can change your practice.
It has been long acknowledged that intracranial neural tissues die in the setting of prolonged increases in intracranial pressure. In patients with closed head injuries there are numerous situations when the intracranial pressure is elevated without a specific mass lesion. Therefore, surgical evacuation is not warranted. However, standard treatments of mannitol, lasix, sedation, ventriculostomy may fail to control the increased intracranial pressure. The surgeon then has to decide what is the next “best treatment” for the patient?

In patients with malignant cerebral edema due to middle cerebral artery occlusions some surgeons have proceeded with a hemicraniectomy. The goal being to remove the skull and provide the brain tissue sufficient space such to expand and remove the compression. This lowers the intracranial pressure and may prevent further neurologic loss by eliminating a deleterious ischemic cascade. In patients with vascular ischemic injury there is a focal neurologic deficit due to the cerebrovascular accident and the hemicraniectomy attempts to maintain that level of neurologic function by reducing secondary neural injury. Due to the success of lowering and in some patients eliminating elevated intracranial pressure in this ischemic population, neurosurgeons are exploring using this surgical procedure in the treatment of refractory elevated ICP in closed head injury.

The CNS through the consensus sessions will therefore provide a forum on this topic, **Futility or Utility? Hemicraniectomy for Increased Traumatic Intracranial Pressure**. An expert panel has been brought together with course director: Geoffrey T. Manley and moderators: Shelly D. Timmons, M. Ross Bullock. Overall, the goal of the course is to examine the clinical utility of hemicraniectomy in the setting of increased intracranial pressure secondary to traumatic brain injury. Specifically, the panel will review the potential benefits, complications and indications for use of hemicraniectomy in traumatic brain injury. The course will be further augmented with an audience polling system to have direct audience input and discussion.
Bone Morphogenetic Protein (BMP) represents a significant scientific advance in medicine. BMPs are commercially available proteins that can be used to promote new bone growth and remodeling in patients. Since its approval in 2002 by the Food and Drug Administration (FDA), the utilization of BMP in the United States for spinal fusion has grown substantially. It is estimated that 25% of all spinal fusions in the United States now use BMP to aid in the fusion process.1 BMP utilization is associated with significantly greater hospital charges and more complications particularly when used in the cervical spine.1 Many ask, “Is the use of BMP justified in so many cases?”

As neurosurgeons, we are accustomed to using expensive, novel technology for our patients. For the spinal surgeon in particular, BMP is a useful tool for enhancing the rate of fusion and for reducing the need for iliac crest bone grafting, especially in the lumbar spine. The evidence supporting the utilization of BMP comes from both basic science and clinical research groups.2-4 This evidence comes from models of anterior lumbar interbody fusion and the clinical evidence is strongest for this mechanism of fusion as well. Indeed, the most widely used BMP (rhBMP-2, INFUSE, Medtronic, Memphis, Tennessee) was approved by the FDA in 2002 for use in anterior interbody fusion performed

> BMP is now added to more than 25% of the 300,000 spinal fusions performed annually in this country. This comes with an enormous price. The average hospital charge (in 2006) for a lumbar fusion without BMP was $57,393 while the addition of BMP increased the hospital charge, on average, to $74,254.1 <
WE AS A COMMUNITY MUST ALSO FAMILIARIZE Ourselves WITH COST-EFFECTIVENESS METHODOLOGIES ... WE SHOULD ALSO INCLUDE MORE SOPHISTICATED HEALTH CARE ECONOMIC DATA IN OUR STUDIES SO THAT WE CAN ESTIMATE TRUE MEDICAL AND SOCIETAL COSTS AS OPPOSED TO RELYING ON HOSPITAL CHARGES (WHICH ARE LARGELY INFLATED) FOR ECONOMIC ASSESSMENTS.  

at a single level L4-S1 with interbody cages only. Today, it is widely used off-label to treat patients and multiple levels (anterior and posterior) and is often used for posterolateral fusion and in conjunction with transforaminal interbody fusion devices. In addition, its use in the cervical spine is growing despite multiple reports indicating increased rates of dysphagia and even life-threatening airway compromise in rare circumstances.  

How did we go from essentially no utilization of BMP in 2002 to the widely off-label usage that exists today? BMP is now added to more than 25% of the 300,000 spinal fusions performed annually in this country. This comes with an enormous price. The average hospital charge (in 2006) for a lumbar fusion without BMP was $57,393 while the addition of BMP increased the hospital charge, on average, to $74,254. Are patients better off? What are the true costs? How do we measure success? 

The bottom line is that these are questions to which our society needs answers, and the time to get these answers is now. In the absence of meaningful data, payers will likely ration or deny payments for expensive technologies such as BMP in the near future. While retrospective reviews of administrative databases are useful to identify trends in utilization, they provide Class III evidence at best for determining the effectiveness of treatment interventions. Retrospective reviews of state inpatient databases could, in principle, be used to determine if BMP-utilization has decreased re-operations following spinal fusion. Retrospective approaches, however, are unsatisfactory for assessing true complication rates. Organized Neurosurgery (e.g., the NeuroPoint Alliance) has begun to explore the use of prospective registries for outcomes research and quality assessment. Undoubtedly, these approaches will also become very important in the future for comparative effectiveness research (e.g., fusion with BMP versus fusion without BMP). 

We as a community must also familiarize ourselves with cost-effectiveness methodologies. Our clinical studies going forward must include outcomes measures that measure preference-based quality-adjusted life years (QALYs) such as the EuroQol 5D, which can be used in formal cost-effectiveness analysis. We should also include more sophisticated health care economic data in our studies so that we can estimate true medical and societal costs as opposed to relying on hospital charges (which are largely inflated) for economic assessments. When neurosurgeons take the lead on this type of research, we will be positioned to advise our patients better and to justify our opinions to payers. Failure to do this on our part is not an option.

References:
The numbers are shocking. As of May 14, 2010 there are 116,158 people waiting for organs. Of those, 1,946 were under the age of seventeen. What is even more shocking is how little agreement there is among medical professionals in regard to the pronouncement of brain death.

Brain death was first described by Mollaret and Goulon in 1959. In 1968, the condition was better defined by an Ad-Hoc Committee of the Harvard Medical School. Dr. Eelco Wijdicks has reviewed the confusion and conflict surrounding brain death several times, with his most recent publication in 2001. The American Academy of Neurology (AAN) Guidelines for the Pronouncement of Brain Death are currently being updated, publication pending.

Dr. Wijdicks and his group surveyed the top 50 neuroscience centers listed in US News and World Report. They found that there were no standards regarding the criteria for pronouncing brain death; their data was presented at AAN 2007. Interestingly, while there may be state recommendations, the exact methodology utilized for pronouncing brain death is often left to the discretion of hospital policy committees. Some hospitals have stringent criteria, while other hospitals have less specific regulations or controls over the declaration of brain death.

There is also significant confusion surrounding appropriate confirmatory tests for documenting brain death. There have been no prospective randomized trials evaluating the validity of these tests. Some centers allow CT angiography and MR angiography, while other hospitals rely on more standard nuclear medicine studies, EEG’s or formal cerebral angiograms. The addition of pentobarbital and other narcotics into the management of high intracranial pressure also introduces confusion. I will never forget the looks on the faces of parents who lost a child to severe TBI, when I told them that while we were very certain their child was brain dead we had to wait until barbiturate levels were low enough to pronounce. They wanted to donate their daughter’s organs, yet they had to wait at her bedside until enough time passed.

Even with the update of the AAN Brain Death Guidelines, I do not believe there will be consensus and agreement on the appropriate criteria for brain death in adults and children.

There needs to be a national mandate for the pronouncement of brain death.

On Wednesday, October 20 at the CNS Annual Meeting, Consensus Session IV will discuss the topic of brain death in children and adults. We plan to review the current AAN guidelines, as well as discuss the problems with pediatric brain death and the ethical concerns for neurosurgeons in the pronouncement of brain death, and moderate a discussion focusing on this topic.

The pronouncement of brain death is a medical process that involves neurological examination, evaluation and imaging ... in rare occasions, the family states that their wishes should override the patients, and a medico-legal crisis arises.

These issues and others will be discussed and debated by experts in the field at the upcoming consensus session. Please join us!
NEUROMODULATION SYMPOSIUM

SUNDAY, OCTOBER 17
8:00 AM – 4:00 PM

Neuromodulation is an emerging specialty which over the last 30 years has found a home in most neurosurgeons’ practices. The specialty cites its origins in the works of JL Pool in 1948, when silver electrodes were first implanted into the brain for depression and anorexia. Shortly thereafter, publications were released by Irving Cooper who was treating epilepsy and Bechtereva (Leningrad, Russia) who was treating Parkinson’s disease, Wilson’s disease and Torsional Dystonia with chronic deep brain stimulation. The initial technology was nascent, with monopolar electrodes with radio frequency generators. Of course, the field has since evolved significantly.

Breakthroughs occurred in 1987, 1992 and 1993 when Dr. Alim-Louis Benabid first discovered high frequency stimulation of the thalamic VIM for Tremor, Dr. Siegfried stimulated the GPi basal ganglia for Parkinson’s Disease, and Dr. Benabid described STN stimulation for Parkinson’s Disease.

Over the next ten years, both the technique and technology of this specialty have advanced significantly. With modern stereotaxy (and sometimes frameless surgery) the deep brain nuclei can more accurately be targeted with safer trajectory planning. Additionally, the impulse generators have seen technological improvement and we presently have over five rechargeable technologies FDA approved and available for patients.

Although “Neuromodulation” is not new, many practicing physicians, including neurosurgeons, are not aware of the field and the opportunities it affords patients. There are a multitude of FDA approved therapies available, such as Spinal Cord Stimulation for chronic pain, deep brain stimulation for Parkinson’s disease, essential tremor, and Dystonia, and vagal nerve stimulation for epilepsy. In addition, there are also intrathecal drug delivery devices for chronic pain and spasticity. In development, there are another five to ten active trials and therapies being studied for a variety of indications including headaches, depression, epilepsy, etc.

With these developments in mind, the Congress of Neurological Surgeons has organized a full day symposium with a focus on Neuromodulation therapies for the practicing neurosurgeon. It is the first all-day symposium of its kind and registration is open to all CNS attendees*. The day is broken down into four basic sessions. The first session is aimed at spinal cord stimulation surgery for spinal pain. Presentations will focus on science, patient selection, surgical technique and outcomes by leaders in the field. We have the opportunity of engaging Drs. Krishna Kumar and Richard North, who have both been instrumental in publishing the largest, highest level outcome studies on the subject matter over the past few years. The next session focuses on peripheral nerve stimulation. This emerging field may be one of the largest growing segments of Neuromodulation therapy, and includes treatment of headache disorders and axial pain.

The next two educational sessions will focus on intrathecal infusion therapies and brain stimulation. Not only will we present reviews on the indications and techniques for movement disorders, but also have speakers who have been involved in the initial development and research work for the development of brain stimulation for depression, obsessive compulsive disorder, pain, etc.

The symposium is also receiving generous support from some of the company’s that have been instrumental in developing these therapies for our patients. They have organized a breakout non-CME session where there will be experts discussing the technology and its advantages. We envision that the participants will rotate between the different stations, receiving broad exposure to the technology behind Neuromodulation and then judging for themselves when to use which tool for which job.

This is a truly unique opportunity to become up to date on the emerging field of Neuromodulation. Please register for the course promptly as space is limited, and we will see you in San Francisco.

*Space is limited for this complimentary course. Register Today!
Introducing …

CNS Dinner Seminars
Join your colleagues and expert faculty for education and outstanding cuisine.

Tuesday, October 19
Dinner Seminar I: Controversies in the Management of Metastatic Brain Tumors.
Faculty: Steven N. Kalkanis, Frederick F. Lang, Cameron Brennan, Raymond Sawaya
Moderators: Michael A. Vogelbaum, Jonas Sheehan
Learning Objective: This session will encourage participants to discuss the quality of the evidence supporting various treatment options for patients suffering from metastatic brain tumors as well as the potential consequences of whole brain radiation for the treatment of brain metastases. Participants will also be able to list therapeutic strategies for treating patients with metastatic brain tumors based on available data.

Harris’ Restaurant – Offering San Francisco’s finest dry-aged steaks, fresh seafood and lobster, come see for yourself why Harris’ is consistently voted #1 steakhouse by Zagat, DiRora, Citysearch, and San Francisco Magazine’s reader’s poll.

Wednesday, October 20
Dinner Seminar II: Spinal Arthroplasty: Fact and Fiction.
Faculty: Praveen V. Mummaneni, Fred H. Geisler, Domagoj Coric, James S. Harrop
Moderator: Michael Y. Wang
Learning Objective: This session will encourage participants to describe the quality of the evidence available for spinal arthroplasty as well as discuss the advantages and disadvantages of cervical and lumbar arthroplasty, and the role it may have in current and future treatment of degenerative spine disease.

Boulevard – Serving delectable American cuisine in an Art Nouveau setting, Boulevard is known as one of the city’s best restaurants featuring American regional flavors, French influenced style and enthralling design. Zagat rates Boulevard as the second most popular restaurant in San Francisco and a “Top 20 Restaurant for Best Food” in San Francisco.

Seating is limited for these two unique educational opportunities at two of San Francisco’s acclaimed restaurants and will include a three-course plated dinner and wine service for $165.

Advance Registration Deadline – September 16, 2010!
Stay connected with the CNS Annual Meeting Mobile Guide at http://m.cns.org!
The Congress of Neurological Surgeons is excited to offer two new Dinner Seminars as part of an effort to extend the educational experience at the CNS Annual Meeting this October in San Francisco. By combining the culinary excellence offered by two of San Francisco’s most famous restaurants with lectures by recognized experts in neurosurgery, we anticipate that these dinner seminars will be extremely enjoyable and useful to the membership. 

Dinner Seminar I: Controversies in the Management of Metastatic Brain Tumors will be held at Harris’ Restaurant on Tuesday, October 19. Harris’ is consistently voted the #1 Steakhouse in San Francisco by Zagat, Citysearch and San Francisco Magazine’s reader’s polls. During this seminar topics which are certain to be relevant to every neurosurgical practice, including the selection of radiosurgery or surgery for metastatic brain disease, the advantages and disadvantages of whole brain radiation, and management of multiple metastases will be discussed by experts in neurosurgical oncology. This is sure to be an evening of stimulating conversation and fantastic food.

The evening educational offerings continue on Wednesday, October 20, with Dinner Seminar II: Spinal Arthroplasty: Fact and Fiction. The setting will be Boulevard Restaurant, noted as a “Top 20 Restaurant for Best Food” in San Francisco. Join us as we enjoy delectable American cuisine while covering controversies involving cervical and lumbar arthroplasty. Well-known and experienced experts will offer their latest takes on the present-day utility and future of cervical and lumbar spine arthroplasty techniques.

Why not join a group of colleagues, enjoy an excellent meal, and take advantage of another outstanding educational offering provided by the CNS? These sessions are designed to stimulate intellectual curiosity and expose the membership to one of the finest aspects of San Francisco – its food! Transportation is provided to these restaurants, and the sessions will end at approximately 8:30 PM, giving you ample time to continue the discussion and enjoy the city. These events are sure to be very popular and tickets are limited. We look forward to seeing you there.
ANNUAL NEUROSURGERY CHARITY SOFTBALL TOURNAMENT

Neurosurgeons from 20 top medical institutions competed June 5, 2010 in Central Park at the 7th Annual Neurosurgery Charity Softball Tournament. The event was hosted by Columbia University and benefited pediatric brain tumor research. This year’s competing teams included the Departments of Neurosurgery from Columbia, Cornell, NYU, Albert Einstein, Mt. Sinai, Penn, Harvard, Jefferson, Dartmouth, Penn State, Alabama, Emory, Florida, Hopkins, Duke, Miami, Barrow, Utah, Pittsburgh, and Toronto. The playoffs included Penn, Cornell, Alabama, Barrow, Penn State, Columbia, and Miami. The Barrow Neurological Institute claimed their first championship with dominant performances throughout the tournament.

The Annual Neurosurgery Charity Softball Tournament has rapidly evolved into an international competition, with Toronto joining the field. The first two championships were claimed by Columbia University in 2004 and 2005, while The University of Pennsylvania repeated their title runs in 2006 and 2007. Harvard followed by winning in convincing fashion during the 2008 tournament. Columbia won their third overall championship last year. The championship trophy, named “The J. Lawrence Pool Memorial Trophy” in honor of the former Columbia chairman, will be housed at the Barrow Neurological Institute for the upcoming year.

For the seventh consecutive year, George M. Steinbrenner, III and the New York Yankees have sponsored the tournament. Supported by Mayor Michael Bloomberg, this date has been declared “Neurosurgery Charity Softball Tournament Day” in the City of New York. The Annual Neurosurgery Charity Softball Tournament has become a tradition within the neurosurgical community and represents the amiable competition, social camaraderie and charitable nature within our field. Moving forward, partnership with the American Association of Neurological Surgeons will allow expansion from an institutional effort to an international initiative, with AANS collaboration allowing funding to support an NREF pediatric neuro-oncology research fellowship. The planning has already begun for the games to continue next year in June 2011 at the 8th Annual Neurosurgery Charity Softball Tournament, with an expanded field to include 24 teams from across the US and Canada.
Today neurosurgeons occupy a unique position in the medical community in terms of the management of cerebrovascular disease. Not only are neurosurgeons the first to be called when a patient with an intracranial hemorrhage (either intracerebral or subarachnoid) arrives in the emergency room, but we are viewed as essential to provide an understanding of the management of cerebrovascular disease as well as carrying the proper armamentarium to treat these patients comprehensively.

In the spectrum of cerebrovascular disease, ischemic disease is more than an order of magnitude more common than hemorrhagic disorders, including intracerebral hemorrhage and subarachnoid hemorrhage. An increasing number of patients are suffering from ischemic stroke; which has become the third leading cause of death in the United States and the leading source of permanent disability. The resulting financial burden for society is tremendous. Unfortunately, only a small fraction of eligible patients for thrombolysis receive the benefit of this therapeutic modality. Even the worst, just a small number of stroke patients receive iv-TPA, in part for the fear of not having a neurosurgeon “on-board” in case of a hemorrhage. Furthermore, despite the fact that we know that symptomatic severe intracranial stenosis is a risk factor for a major stroke, the knowledge in the medical community of its potential treatment is lacking.

Traditionally, neurosurgeons interested in vascular disease have been involved in treating patients with arteriovenous malformations, subarachnoid hemorrhage and, even more so those with incidental aneurysms. However the prevalence of these disorders, in the general population is low compared to the incidence of ischemic disorders. Comprehensive stroke treatment provides the opportunity of performing a wide diversity of procedures such as carotid revascularization, carotid endarterectomy, intracranial angioplasty and stenting, extracranial to intracranial bypasses etc.

To be able to treat patients with ischemic diseases we must reinvent our training; learning a completely different set of techniques and most important a different way to think about vascular disease. Today an endovascular rotation is mandated by the RRC (Residency Review Committee). Now that I’m in practice I see that having the combination of surgical and endovascular trainings offers the possibility of providing patients a disease-oriented approach to their problem rather than a technique-oriented which by itself may be limited. A disease-oriented approach allows the clinician to select the best treatment for a specific problem within a wider spectrum of possibilities.

If neurosurgeons fail to take an active role in the treatment of stroke they will face the same fate as that of cardiothoracic surgeons, whose role in the endovascular management of patients with coronary artery disease is limited. Another issue that threatens neurosurgery is the fact that other specialties pay significantly lower premiums for their professional liability coverage. Potentially this disparity will make more attractive for hospitals to hire other specialists to lead their local programs; additionally stroke centers are beginning to proliferate, this may have the same sort of decentralizing effect that has occurred in the treatment of patients with ruptured aneurysms. That is, a vast majority of aneurysms are not treated in high-volume centers and potentially treated by other specialists that are more devoted to treat patients with ischemic disease.

This challenge requires the constant adaptation of new technologies and techniques to enable neurosurgeons to develop innovative and efficient treatments, and improved devices that will expand the neurosurgical armamentarium. Such progress will provide neurosurgery the opportunity to treat with greater safety and efficacy patients with cerebrovascular disease. Examples of this progress are plentiful. In the last 5 years alone FDA (Food and Drug Administration) has approved as HDE (Humanitarian Device Exemption) the use of the Wingspan stent device for intracranial stenosis, the use of Onyx a liquid embolic for the occlusion of wide neck aneurysms, and the Penumbra system, which is the second device for mechanical thrombolsis using an aspiration pump. Imagine what will come in the next few years.

Defining the role of a neurosurgeon as part of a stroke team will place other demands on us. For example, neurosurgeons should help increase the awareness of stroke as a potential preventable and treatable entity, in their local community. Neurosurgeons should work and engage other specialists on the stroke team. We should pursue and participate in clinical trials that will help answer the many unknowns identifying best therapies.

The decision is in our hands if we want to be leaders in the field of cerebrovascular disease. The alternative is marginalization and only being called to perform decompressive craniectomies and to evacuate of cerebral hemorrhages.

The time to choose is now.

The author would like to acknowledge Dr. Giuseppe Lanzino, MD, for his insightful comments on this text.
The Congress of Neurological Surgeons remains fiscally sound and a responsible steward for its members. There have been significant financial challenges faced by the Congress over the last several years. These included the effects of the recession on long term investments on the available resources of our members, exhibitors and fellowship sponsors. There is a changing playing field with regards to the relationships between corporate exhibitors and medical societies due to increased scrutiny of such relationships by the federal government, the Accreditation Council for Continuing Medical Education, and the lay press. Increased activities at the Washington Office resulted in correspondingly greater expenses, as the importance of efforts such as public advocacy, development of clinical practice guidelines, and support of quality improvement through meaningful outcomes research becomes even more important.

The good news is that the CNS has weathered the financial storm and is well positioned to meet future challenges. Our long term investments have (through careful selection of investments, the modest market recovery, and new investments) returned to pre-recession levels providing additional financial security for the Congress and ensuring the ability of the Congress to continue to pursue its educational mission. The editorial office of NEUROSURGERY, located at Emory University, is now administered through the CNS Headquarters in Schaumburg, Illinois. Eliminating sub-contracts with University employers has allowed substantial flexibility and cost savings without sacrificing the quality of the outstanding editorial office employees. Cooperative development of information technology platforms has additionally allowed a significant economy of scale. Our longstanding relationship with our publisher, Lippincott Williams & Wilkins, has been extended through a multi-year contract, further stabilizing the foundation of our world-class journal.

The Annual Meeting remains the centerpiece of the CNS educational mission and remains the largest single expenditure and largest single income generator. Headquarters staff, the Annual Meeting chair, the Scientific Program chair and the various committees work tirelessly at improving the content, design, and delivery of the CNS educational product. Members of the Congress “voted with their feet” this past year resulting in a spectacularly successful meeting from a scientific, social and fiscal standpoint. As we prepare for the 2010 Annual Meeting in San Francisco, the meeting teams are well into high gear to improve even further on previous meetings with high quality science, compelling visiting speakers, and rewarding interaction opportunities which assure that the meeting provides a true value for our membership.

The CNS educational portfolio also includes the SANS (Self Assessment in Neurological Surgery) product, the CNS University of Neurosurgery, the NeuroWiki, and the newly launched webinar series. The SANS product (free of charge to all who are participating in the ABNS maintenance of certification program) is self-sustaining through subscriptions to support itself as it evolves over time, incorporating new topics, questions, and technologies. The CNS University and, in particular, the webinar series provide an exceptional CME value for the CNS members. As more CNS members take advantage of these opportunities, both of these products have gone from being educational investments requiring support to self-sustaining CNS programs. The committee chairs and members who have dedicated thousands of hours to these important initiatives deserve tremendous praise and are shining examples of the volunteerism that continues to distinguish the Congress.

In summary, through application of common sense, conservative money management strategies, transparent business processes, aggressive containment of expenses, and creative development of new revenue streams, the Congress of Neurological Surgeons remains financially strong. The Congress is well positioned to move forward and face the challenges of the near and long term. The CNS invites its members to participate in the numerous volunteer committees dedicated to furthering our collective educational mission.
The Congress of Neurological Surgeons is one of the largest organizations of neurological surgeons in the world. Today, the CNS represents 7,070* members from all over the globe. The membership includes 3,177 active North American, 453 active international, 526 international vista, 1,210 resident, 992 senior, 463 inactive, 11 honorary, 79 affiliate, 31 associate, 66 transitional, 58 medical student, and 28 international vista resident members.

The growth of CNS membership continues to be robust with a 30% increase in total membership over the past five years, as shown in Figure 1. The global reach of the CNS continues as international membership has experienced substantial growth. The relatively new International Vista category (with a reduced annual membership fee of $135) has been particularly successful. Since its inception in January 2007, there are now 526 international vista members. Overall, international membership has grown by more than 50% over the past three years, as shown in Figure 2.

The next campaign for increasing membership in the CNS is to step up efforts to bring more allied health professionals to our Annual Meetings. Many nurses, nurse practitioners, and physicians assistants are active participants in the care of neurosurgical patients. The CNS offers a wide variety of educational opportunities for these individuals, including reduced subscription prices for access to NEUROSURGERY®, Operative Neurosurgery, and the CNSQ, as well as full internet access to CNS University including the webinars, image database, and NeuroWiki, the largest wiki dedicated to neurosurgical topics.

The CNS continues to be a global leader in neurosurgical education and brings the latest scientific knowledge to all of its members through the CNS Annual Meeting, its publications, and its growing web-based educational platforms. For more information, please feel free to contact me or any of the CNS staff at info@1cns.org.

Figure 1. Total CNS membership over the past six years.

Figure 2. Growth in international membership since inception of Vista category.
The CNS Education Committee remains active in developing new methods for delivering continuing education to our members. The Education Science subcommittee, chaired by Past-President Anthony L. Asher, spearheaded the interactive “Controversies in Neuro-Oncology: An Academic-Community Forum” which completed its highly successful run in June. This webinar series combined didactic lectures, with case presentations, audience polling and stimulating panel discussions. Attendees were then afforded the opportunity to continue the discussion on a blog site hosted by the CNS. Thanks to the tumor webinar subcommittee, chaired by CNS University of Neurosurgery (CNSU) Tumor Department Chief Philip Theodosopoulos and Steven Kalkanis, a template has been created to apply this learning format internationally, both in practice and in training. In addition, the NeuroWiki, the CNSU’s most popular site, continues its expansion and each year the lecture hall is updated with archived videos from the CNS Annual Meeting General Scientific Sessions. In addition, the image database has been completely revised and updated, providing depictions of neurosurgical disease entities for site viewers to study and use.

The CNS mission is focused on education, and the Education Committee is at the core of this mission. According to the Accreditation Council for Continuing Medical Education (ACCME), CME providers such as the CNS are required not only to educate, but to fill identifiable knowledge gaps, for example, through inquiry, evidence in the literature, and outcomes data. In addition to identifying these knowledge gaps and designing educational activities to address them, CME providers must also demonstrate that such activities have had a positive effect upon long-term practice patterns. This is predicated upon the notion that CME ultimately promotes better patient outcomes through knowledge advancement. Therefore, the CNS will be sending brief electronic surveys to attendees within three to six months after attending certain webinars and Annual Meeting seminars.

In accordance with its role as an ACCME-approved CME provider, the CNS is committed to facilitating the presentation of topics that are free from commercial bias. All faculty and planners are required to disclose their relevant financial relationships with industry. A special subcommittee then mitigates potential conflicts of interest to assure that presentations are free from commercial influence. Importantly, attendee feedback alerts planners to areas of potential bias and are thoroughly evaluated.

It is the CNS Education Committee’s hope that all neurosurgeons and affiliated practitioners take advantage of the various educational offerings at the Annual Meeting and in the CNS University of Neurosurgery. We always welcome suggestions to improve or expand these offerings. In addition, we are always looking for able-bodied individuals who are willing to volunteer time to the Education Committee and its many efforts. The Committee can be contacted at info@1cns.org.

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**Recent Publications on Education Science Through the Congress of Neurological Surgeons**


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**Table 1.**
Two Live 3-D Cadaveric Demonstrations!

Witness the nuance and skill of neurosurgical experts from across the globe – each demonstrating microneurosurgical principles, live from the GSS stage! Utilizing state-of-the-art 3-D technology and videos, these cadaveric demonstrations offer a unique learning experience to help refine your surgical technique.

NEW!

3-D Cadaveric Demonstration of Spinal Surgical Approaches
Tuesday, October 19   1:30 – 3:00 PM
Moderators: Joseph S. Cheng, Edward C. Benzel
Faculty: Richard G. Fessler, Christopher I. Shaffrey, Ziya L. Gokaslan

3-D Cadaveric Demonstration of Cranial Surgical Approaches
Wednesday, October 20   1:30 – 3:00 PM
Moderator: Saleem I. Abdulrauf
Faculty: Robert F. Spetzler, Madjid Samii, M. Gazi Yasargil

Advance Registration Deadline – September 16, 2010!

Stay connected with the CNS Annual Meeting Mobile Guide at http://m.cns.org!
The Information Technology (IT) Committee is charged with overseeing the CNS’ digital content through the management of six World Wide Web domains, as well as researching new ways to provide educational content to its members. In conjunction with a hard-working, dedicated CNS staff, the IT committee attempts to leverage cutting-edge digital technologies to provide educational content to our members.

The sites managed by the CNS provide various functions from administrative to the SANS online learning modules (Table 1). In August 2010, the CNS University of Neurosurgery site expanded its content with the addition of animated PowerPoint courses, webinar series, lecture hall presentations, and a critical reading section for pivotal manuscripts, as well as PubMed links to the CNS supported publications (example, Modern treatment of cerebral metastases: Integrated Medical Learning™ at CNS 2007, Journal of Neuro-Oncology 93:89-105).1,4

In the last year, the CNS Education Committee has successfully sponsored over 15 web-based lectures. These web conferences (webinars) allow neurosurgeons to interact with world experts on current treatment options and cutting-edge surgical techniques. Webinars are offered at $35 for each lecture at 1 - 1.5 continuing medical education (CME) credits apiece. These lectures are recorded and archived at the CNS University of Neurosurgery web site for future review (Table 1). In fact, you can pay and view the Webinar Library for CME credit, providing CME opportunities at your convenience.

More recently, under the direction of CNS Headquarters staff, a new CNS domain has been created to leverage personal digital assistants (PDA). By simplifying digital content and utilizing next generation web code we are able to provide information to any web browser equipped PDA device (http://m.cns.org, Figure 1). This places meeting information at CNS members’ fingertips and makes content available across various types of PDA devices (e.g., iPhone, BlackBerry, Palm).

Figure 1. Mobile web site home page is located at http://m.cns.org. Content is programmed using “next generation” web code. Mobile pages are designed to be viewed on any personal digital assistant device (PDA) with a World Wide Web browser. This offers the advantage of being available across all PDA platforms.
Finally, members can subscribe to follow the CNS Twitter feed (http://www.twitter.com/cns_update, Figure 2). This weekly “tweet” provides quick, text-only information that can be integrated in multiple ways from Really Simple Syndication (RSS) feeds to instant messaging. This is a great way to disseminate quick, time-sensitive information.

Our goals for the next year are to continue to support the robust CNS University of Neurosurgery efforts (e.g., webinars) and to promote research and development on creating the web infrastructure for mobile digital content. One example of this is our effort to create a mobile education product that provides questions in a trivia format along with learning critiques at the conclusion. This would truly place educational content in your pocket and at your fingertips. In our rapidly evolving digital world, the IT Committee continues to think and change the ways we display digital educational content with the ultimate goal of improved learning opportunities for neurosurgeons.

REFERENCES:


Table 1. The six web domains that the CNS Information Technology and Web committee oversees.

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<thead>
<tr>
<th>SITE</th>
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<td>cns.org</td>
<td>Home page</td>
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<td>wiki.cns.org</td>
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<td>m.cns.org</td>
<td>Mobile CNS, mobile content</td>
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Figure 2. CNS_Update (www.twitter.com) provides updates on upcoming CNS events. Twitter feeds can be integrated in multiple ways including Really Simplified Syndication (RSS) feeds. “Tweets” allow for wide dissemination of information for those who choose to subscribe.
The 2010 Featured Lecturers Offer Unique Perspectives!

**Special Lecturer**
**Eric J. Topol, MD**
Director of the Scripps Translational Science Institute
Sunday, October 17
4:35 PM

**Special Lecturer**
**Ronald K. Poropatich, MD**
Deputy Director of the Telemedicine and Advanced Technology Research Center, US Army Medical Research and Materiel Command
Sunday, October 17
4:57 PM

**Fifth Annual John Thompson History of Medicine Lecturer**
**Captain James Lovell**
NASA Legend and Apollo 13 Commander
Sunday, October 17
5:20 PM

**Colonel Rocco Armonda, MD**
Director, Department of Neurosurgery, Uniformed Services University of the Health Sciences School of Medicine
Sunday, October 17
5:45 PM

**Eleventh Annual Walter E. Dandy Oration**
**Condoleezza Rice**
Monday, October 18
10:05 AM

**International Leadership Orator**
**Yoon-Woo Lee**
Vice Chairman & Chairman of the Board of Directors, Samsung Electronics Co., Ltd.
Tuesday, October 19
10:55 AM

**Special Lecturer**
**Gregory A. Dumanian, MD**
Plastic Surgeon and Associate Professor of Surgery, Northwestern University
Wednesday, October 20
7:52 AM

**Special Lecturer**
**Eric A. Mann, MD, PhD**
Clinical Deputy Director for the Division of Ophthalmic, Neurological, and Ear, Nose, and Throat Devices
Wednesday, October 20
8:12 AM

**Special Lecturer**
**Bernard Lo, MD**
Professor of Medicine and Director of the Program in Medical Ethics University of California, San Francisco
Wednesday, October 20
8:32 AM

**Fourth Annual Julian T. Hoff Lecturer**
**Michael Lewis**
Best-Selling Author and Financial Journalist
Wednesday, October 20
10:05 AM

Advance Registration Deadline – September 16, 2010!
Stay connected with the CNS Annual Meeting Mobile Guide at http://m.cns.org!
PUBLICATIONS COMMITTEE REPORT

The global mission statement of the CNS is “to enhance health and improve lives worldwide through the advancement of education and scientific exchange. The CNS serves to promote health by advancing neurosurgery worldwide through innovation and excellence in education.” The CNS Publications Committee serves to promote these educational goals through written, verbal and electronic means.

The Committee is composed of five members: Chair and Editor of Congress Quarterly, James S. Harrop; NEUROSURGERY Editor-in-Chief, Nelson M. Oyesiku; Clinical Neurosurgery Editor, Gerald Grant; Neurosurgery On-Call Editor, Brian T. Ragel; and Advisory Board Member-at-Large Jamie S. Ullman. Nathan Selden has been serving as a liaison from the Executive Committee.

The Publications Committee provides multiple platforms for neurosurgical education to advance knowledge and patient care. In general, medical media has been transitioning away from paper-backed publications over the past several decades to electronic or internet-based platforms. Despite this transition, the CNS paper journals (NEUROSURGERY, Clinical Neurosurgery and CNSQ) have continued to prosper and grow. However, in order to meet the CNS members’ needs for web-based or internet educational platforms, SANS, CNSU and NeuroWiki have been created. Looking further into the future, we believe medical media will continue to shift away from conventional text to newer and more interactive platforms through the use of more sophisticated technology. Therefore, the committee has been examining different resources to meet members’ areas of knowledge gaps in conjunction with our publisher, LWW.
Some potential concepts being explored include “living books” and internet datasources that interlink and integrate NEUROSURGERY with the CNSU.

The Congress Quarterly (cnsq) was transformed in late 2006 out of Neurosurgery News. The cnsq is published quarterly, in the spring, summer, fall and winter. This fall issue is also referred to as the CNS Annual Meeting Issue, since it coincides with the CNS Annual Meeting and serves to inform members of the numerous activities taking place during the event. This current issue illustrates the changes that have taken place for the Annual Meeting and is a credit to the tremendous efforts CNS members put forth to review the evaluations from past meetings. Upcoming issues of the cnsq will be dedicated to Neurosurgeons’ response to disasters (Winter 2011) and robotics in neurosurgery (Spring 2011). The cnsq encourages members to submit ideas and comments so that we can continue to improve.

The official journal of the CNS, NEUROSURGERY, is under the direction and guidance of Editor-in-Chief Nelson M. Oyesiku, who took over production in 2009. The foundations of the present journal were laid by Michael Apuzzo, and Dr. Oyesiku continues to advance this leading publication. Recent actions and improvements have included reducing and eliminating a backlog of publications and increasing the efficiency and speed at which manuscripts are reviewed. Now the journal’s goal is an immediate review, and then processing accepted articles into electronic journal article-based workflow.

Clinical Neurosurgery records the clinical proceedings of the CNS Annual Meeting, serving not only as an educational tool but also as an archive of the CNS history. Gerald Grant is the editor of this journal, which is currently publishing Volume 57, from the CNS Annual Meeting in New Orleans, Louisiana. The Clinical Neurosurgery web pages are located on the main website, under publications, at http://www.cns.org/publications/clinical. Plus the videos from the General Scientific Sessions from previous meetings are located within each Department’s Lecture Hall in the CNS University.

The CNS Publications Committee is dedicated to the continued advancement of neurosurgical educational platforms. Through support of the membership and the CNS Executive Committee, it continues to explore and expand internet learning resources to meet and exceed the expectations of our members.
A 58-year-old truck driver presented with left hand/arm weakness and pituitary dysfunction due to an unusual presentation of a convexity meningioma and invasive prolactinoma. Complete resection of his meningioma and bromocriptine treatment of his prolactinoma led to complete resolution of his symptoms.