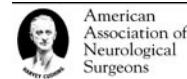


# Neurotrauma & Critical Care NEWS



Spring 2003

## AANS/CNS Section on Neurotrauma & Critical Care

Editor:

P. David Adelson, MD, FACS, FAAP

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## Chairman's Message



*Donald Marion, MD, FACS*

This issue of *Neurotrauma & Critical Care News* addresses the debate regarding non-neurosurgeons performing emergency craniotomies from the perspectives of a rural trauma surgeon, a neurosurgeon and a retired military trauma surgeon.

Most readers will agree that the rapid diagnosis and treatment of patients harboring an acute subdural or epidural hematoma offers the best chance for a good recovery, and that delays of several hours or more have been shown to significantly increase the likelihood of death or disability. Unfortunately, however, there are twice as many hospitals in the United States that provide emergency services and require neurosurgical coverage as there are properly trained and certified neurosurgeons who are currently taking call. Indeed, recent estimates are that there are less than 3,000 board-certified neurosurgeons in the United States who take call. And these neurosurgeons are concentrated in large metropolitan areas, at least in part because they are more likely to have a reasonable call schedule compared to the every night or every other night call they often have in rural communities.

### Who Should Perform Craniotomies?

As a result, many rural areas of the United States do not have adequate neurosurgical coverage. In the northern regions of the United States the problem is magnified during the winter months when inclement weather prohibits helicopter transport of trauma victims out of rural communities to trauma centers capable of immediate neurosurgical intervention. The simple question becomes: Are patients with acute, life-threatening subdural or epidural hematomas better served by having a local non-neurosurgeon evacuate their clot in the rural hospital, or are they better served by being sent to the remote trauma center that is capable of immediate neurosurgical intervention even if that means a significant delay in their treatment? Global military conflicts present a similar problem; it is extremely unlikely that

neurosurgeons will be immediately available to treat patients with traumatic brain injuries caused during combat in remote areas around the world.

We invited Christopher Kauffmann, MD, a trauma surgeon and recently retired U.S. military officer, to provide a military trauma surgeon's perspective on this issue. We also asked Chuck Rinker, MD, a general surgeon from rural Montana, to comment on this issue from a rural surgeon's perspective. Dr. Rinker published the results of his own experience performing trauma craniotomies under well-defined conditions in a *Journal of Trauma* article in 1998. Finally, Alex Valadka, MD, chairman-elect of the Neurotrauma Section, has agreed to provide the neurosurgeon's perspective.

### A Personal Perspective

My personal belief is that we as neurosurgeons should carefully consider the implications of non-neurosurgeons' involvement in neurotrauma care, and why such involvement is even necessary. In some cases, this "trend" may represent a reaction to our unwillingness to be as involved as we should in neurotrauma care at our individual trauma centers. If so, we must remember that there is no subspecialty in medicine as well trained and well equipped as neurosurgery to provide high-quality care to neurotrauma patients.

But in other cases it simply is a matter of an insufficient number of neurosurgeons in the community or region. In those cases, particularly when the incidence of severe traumatic brain injury is extremely rare, it may make sense that select rural trauma surgeons spend time with the neurosurgeon at the regional trauma center and learn the basics of trauma craniotomies. Teleradiography equipment should be installed in the rural trauma centers and linked to the regional trauma center. With a preestablished relationship to the regional neurosurgeon and a teleradiography link, the rural trauma surgeon would be able to immediately evacuate the large and life-threatening intracranial hematoma under the close supervision and guidance of the neurosurgeon. Following the lifesaving procedure, the patient would be transported

In response to the JCSNS concerns, I emphasize that the Executive Committee of the AANS/CNS Section on Neurotrauma and Critical Care supports reimbursement for neurotrauma call coverage.

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# Neurotrauma and Critical Care Highlights at the 2003 AANS Annual Meeting



The 71st Annual Meeting of the American Association of Neurological Surgeons, themed "Cultural Connections: Bringing Global Perspective to Neurosurgery," will be held April 26-May 1, 2003, at the San Diego Convention Center. For the most up-to-date program listings and registration information, check online at [www.neurosurgery.org/aans/meetings/2003](http://www.neurosurgery.org/aans/meetings/2003).

## Sunday, April 27, 2003

1:00–5:00 PM

### 036 Head Trauma: Current Treatments and Controversies

Co-Directors: *Dominic P. Esposito, Geoffrey T. Manley*  
Clinic Fee: \$375

## Monday, April 28, 2003

6:00–8:30 PM

Executive Committee Meeting

## Wednesday, April 30, 2003

2:45–5:30 PM

### AANS/CNS Section on Neurotrauma and Critical Care

Moderators: *Domenic P. Esposito, Shelly D. Timmons*  
Opening Remarks: *Donald W. Marion*

#### Presentation of Awards

- |              |  |
|--------------|--|
| 2:55–3:00 PM | 2003 J. Douglas Miller Traveling Fellowship<br>Recipient: TBA                                |
| 3:00–3:05 PM | 2003-2004 Codman Fellowship in Neurotrauma and<br>Critical Care<br>Recipient: Jason H. Huang |
| 3:05–3:10 PM | 2003 Synthes Award for Brain and Craniofacial Injury<br>Recipient: Iain K. Haitsma           |
| 3:10–3:15 PM | 2003 Synthes Award for Spinal Cord and Spinal<br>Column Injury<br>Recipient: Eve C. Tsai     |



3:15–4:00 PM

### Neurotrauma Symposium

Moderator: *Donald W. Marion*

#### Guidelines for the Surgical Management of Traumatic Brain Injuries

*Franco Servadei*

#### Timing of Surgery for Spinal Cord Injuries

*Edward C. Benzel*

#### Surgical Treatment of Acute Peripheral Nerve Injuries

*Susan E. Mackinnon*

4:00–5:30 PM

### Scientific Session

4:00–4:15 PM

#### 835. Functional Locomotor Recovery After Spinal Cord Transection and Repair Correlates With Regeneration of Corticospinal Tract Axons Into Grey Matter

*Eve C. Tsai, Charles H. Tator*

4:15–4:30 PM

#### 836. Brain Tissue Oxygen Reactivity in Swine Under Different CO<sub>2</sub> and Blood Pressure Levels: Experimental Results and Clinical Implications

*Iain K. Haitsma, Diane Morabito, Nikita Derugin, Valerie Coppes, Andrew I.R. Maas, Geoffrey T. Manley*

4:30–4:45 PM

#### 837. Increasing the Level of Neuroprotection in Neurointensive Care: Five Years' Experience With Bedside CT Scanning of the Head

*Thorsteinn Gunnarsson, Annette Theodorsson, Jan Hillman*

4:30–4:45 PM

#### 838. The Paucity of Ischemia in the ICU After Traumatic Brain Injury

*Jean Louis Benaie, Thomas C. Glenn, Paul Vespa, David L. McArthur, Neil A. Martin*

5:00–5:15 PM

#### 839. Improved Cerebral Oxygenation Following Decompressive Hemicraniectomy in Patients With Refractory Intracranial Hypertension

*Michael F. Stiefel, Gregory G. Heuer, Stephanie Bloom, Michelle Smith, Eileen Maloney-Wilensky, M. Sean Grady, Peter D. LeRoux*

4:15–5:30 PM

#### 840. Evaluation of Topiramate Neuroprotective Effect in Severe TBI Using Microdialysis

*Oscar L. Alves, Aiden Doyle, Charlotte Gilman, Mohamadi Sarkar, Harold F. Young, Ross Bullock*

*Photo courtesy of the San Diego Convention and Tourism Bureau.*

## Editor's Note

Dear Section Members and Readers,

The fall issue of the *Neurotrauma & Critical Care News* was my inaugural issue as editor. In our planning for the newsletters during our terms in office, Dr. Marion and I felt that to enliven the content, we would present point-counterpoint type articles of significant and controversial issues of the day, providing for you, the reader, a more interesting format.

In the last issue, the topic revolved around whether neurosurgeons should receive stipends for emergency room coverage. Two excellent but opposite points of view were presented in order to allow for an understanding of both the pros and cons of the subject. The arguments by the authors were well delineated, and both John McVicker, MD, and Jack Wilberger, MD, brought a certain level of passion to their comments. Both of these articles generated a significant amount of interest indeed, and I received numerous phone calls, e-mails and letters, such as the letter by Thomas Hoyt, MD, that is published in this issue.

While the goal was to engender a thoughtful discourse on a particular topic, a number of letters (some from outside of neurosurgery), questioned or expressed concern as to whether either of these articles represented the opinions of organized neurosurgery, or the Neurotrauma Section, in particular. Based on the numerous comments, particularly coming from outside of neurosurgery, as editor I felt the need to responsibly address this specific question and reiterate again for the present issue and all future issues of the newsletter, that the opinions provided in our articles are those of the authors and are not meant to express a particular opinion of the leadership of the section or the leadership of organized neurosurgery.

I also thank you, the reader, both inside and outside of neurosurgery, for your interest and comments. As you read these articles and formulate your opinions, please feel free to write or e-mail me a response if you so wish. Again, enjoy the newsletter! It is surely not just another throwaway.



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### Chairman's Message (continued from front page)

to the neurosurgical service at the trauma center. I emphasize, however, that craniotomy by the non-neurosurgeon would be considered only when prolonged transport is truly felt to jeopardize the life of the patient.

It is our hope that these thought-provoking articles will cause many of you to reassess the trauma care provided in your community or region. Please send a response for publication in our next newsletter if you have strong feelings about this controversy.

#### Statement on On-Call Responsibilities

I also would like to report that the Neurotrauma Section has finalized a second position statement related to neurotrauma on-call responsibilities. The statement is titled Reconciling On-Call Responsibilities With EM-TALA Requirements, and has been endorsed by the executive committees of the American Association of Neurological Surgeons (AANS) and the Congress of Neurological Surgeons (CNS). The complete statement is available at [www.neurosurgery.org/trauma](http://www.neurosurgery.org/trauma); an excerpt is available on page 10. Finally, I invite members of the Neurotrauma Section to tell us (Dr. Adelson, Dr. Valadka, or me) of any specific issues you would like to see covered more in depth in future issues of the newsletter.

#### JCSNS Concerns Evoke Neurotrauma Section's Response

At the fall meeting of the Executive Committee of the AANS/CNS Section on Neurotrauma and Critical Care, the Joint Council of State Neurosurgical Societies (JCSNS) presented a letter to me expressing its concerns about the comments made by Jack Wilberger, MD, regarding hospital reimbursement for neurotrauma coverage, published in the Fall 2002 issue of this newsletter.

In response to the JCSNS concerns, I emphasize that the Executive Committee of the AANS/CNS Section on Neurotrauma and Critical Care supports reimbursement for neurotrauma call coverage. Indeed, several members of the Executive Committee—and I, myself—were the principal sponsors of the position statement recommending on-call reimbursement. At the same time, however, the Executive Committee believes that neurosurgeons should support their regional trauma programs in every way possible, including not only prompt response to neurotrauma calls, but also involvement in the quality improvement and other committees as required by the Committee on Trauma for trauma center certification.

*The opinions expressed in these articles are those of the authors and are not meant to express a particular opinion of the AANS/CNS Section on Neurotrauma and Critical Care or the leadership of organized neurosurgery.*

### A Military Trauma Surgeon

#### Military Epidural Hematomas: Not Just for Neurosurgeons By Christopher Kauffmann, MD, MPH, FACS

Life is short for patients with untreated epidural hematomas. However, the supply of neurosurgeons does not permit coverage for every military unit, every rural town, or even a very large island.

Take beautiful Guam for example, where 150,000 Americans live without neurosurgical support. The roads become like ice after it rains and motor vehicle collisions (MVCs) occur. Should these citizens be denied necessary intracranial decompression for epidural hematomas that have been identified by a CT scan? If a visiting neurosurgeon were injured, would he or she rather have a non-neurosurgeon perform an indicated decompression, or wait eight hours for evacuation to a neurosurgeon?

Admittedly, operation for penetrating head injury from bullets frequently is futile, but more soldiers were hospitalized for MVCs than for bullet wounds during Desert Shield/Desert Storm. Hospital ships and general hospitals have CT scanners and neurosurgery expertise; there is no problem treating epidurals at this level. Evacuation hospitals may or may not have these capabilities. Combat support hospitals rarely have CT scanners and never have an assigned neurosurgeon. Two-surgeon forward surgical teams have the most limited surgical capability.

#### The Circumstances Dictate the Practice

The number of times that a soldier with a classic epidural will present to a deployed military unit that has operative capability but no CT scanner or neurosurgeon, will be small. Depending on circumstances, general surgeons in combat support hospitals should perform burr holes with craniotomy if a patient presents with classic history and physical findings of epidural hematoma. As in peacetime, if there are more lifesaving operations required than available surgeons or operating tables, cases of exsanguinating hemorrhage should be managed before treating suspected intracranial mass lesions. Two-surgeon forward surgical teams should not perform burr holes during wartime because they are at risk of receiving additional casualties and their priority is to remain ready to operate on patients with exsanguinating hemorrhage.

Evacuation to a higher level of care is often not possible in a timely fashion in tactical military settings. Treatment of epidural hematomas with burr holes and craniotomies is time-sensitive and lifesaving. Soldiers with identified or suspected epidural hematomas should not be denied lifesaving care. All military general

*continued on page 8*

### A Rural Trauma Surgeon

#### Rural Surgeons Should be Trained in Damage-Control Craniotomy

Charles F. Rinker, MD, FACS

Closed-head injury occurs with an incidence of 200 per 100,000 people in the United States, leading to an estimated 100,000 deaths every year. Trauma deaths occur disproportionately in rural areas. The neurosurgical workforce is limited and generally unavailable in communities with populations under 100,000. Patients with moderate to severe head injury must be transferred to a regional trauma center, leading to delays measured in hours and, sometimes, days. Even with appropriate pharmacologic and ventilatory management, ongoing hemorrhage and rising intracranial pressure will result in secondary brain injury. The risk of severe morbidity, or herniation and death, increases with time. Innovative strategies must be devised to provide temporary decompression of expanding intracranial mass lesions until the patient can be transported to a center capable of providing definitive neurosurgical care.

#### Emergency Craniotomy in a Rural Level III Trauma Center

We have reported our experience at an isolated level III trauma center that lacks neurosurgical services.<sup>1</sup> Air transport is dispatched from the regional level II center 150 miles away. Average round-trip time from the moment of notification is 2.5 hours. Eight patients who sustained either epidural or subdural hematomas, and exhibited signs of rapid deterioration, underwent emergency decompression. Patients were selected according to the following guidelines:

- CT confirmed epidural or subdural hematoma
- GCS score of 8 or less
- Lateralizing signs (dilated pupil, hemiparesis) or
- Progressive bradycardia and hypertension

Damage-control craniotomies were performed with the advice and consent of the neurosurgeon, who was immediately available by phone if needed. Surgery was accomplished through one or more strategically placed burr holes enlarged sufficiently to evacuate the hematoma and control bleeding. All patients were transferred immediately following surgery, and most underwent formal craniotomy immediately on arrival at the receiving hospital. Seven patients survived, 5 with a Glasgow Outcome Score of 5, and 2 with a GOS of 4. All procedures were performed by surgeons who had participated in a seminar and hands-on lab conducted by a neurosurgeon. General surgeons in other remote settings have also reported favorable outcomes with limited or formal craniotomy and transfer.<sup>2,3,4</sup>

#### Advocating Damage-Control Surgery

Damage-control surgery has been advocated in recent years for a variety of emergency thoracic and abdominal traumatic conditions.

Examples include extensive abdominal visceral and vascular injuries, pulmonary or cardiac injury, pelvic fractures, and complex extremity fractures in the multiple trauma patient.<sup>5,6,7</sup> If treatment occurs in a level I or level II trauma center, the patient is taken from OR to ICU, warmed and resuscitated, and returned to the OR for definitive repair. If initial care is rendered in an outlying hospital that lacks resources for definitive treatment, patients are transferred via aircraft from the OR to the trauma center ICU, warmed and resuscitated, and taken to surgery for completion of the operation.

Most U.S. hospitals that are large enough to have a general surgeon now have CT scanners. Most trauma centers have either rotor- or fixed-wing aircraft at their disposal for retrieval of patients from their surrounding areas. If a regional trauma system is in place, most patients with closed-head injuries can be transported to the trauma center rapidly and efficiently, well within the critical time interval in which craniotomy may be performed by a qualified neurosurgeon.

However, when distance is great or weather is bad, some patients will deteriorate before transfer can be effected. For these patients, intervention by a general surgeon who has been trained in the principles and techniques of damage-control craniotomy, and who follows the guidelines we have proposed, can be lifesaving. Such training could occur during residency for surgeons who anticipate practice in remote areas. Established surgeons could come to the regional trauma center and receive appropriate training in skills and indications as part of a thoughtfully devised outreach project of the trauma service.

### What Is in the Patient's Best Interest?

We have shown that general surgeons can be trained to decompress intracranial expanding mass lesions and control ongoing hemorrhage. The question is, what is in the best interest of the patient? Is it preferable to employ nonoperative measures to minimize brain swelling and delay surgery until the patient can be delivered to the care of the better-trained and more skillful neurosurgeon? And if so, what length of time delay can we tolerate? If the anticipated delay is excessive—set the bar wherever you wish, some patients will exceed the time constraints—is it not then better to at least limit the damage by decompression and hemorrhage control, followed by transfer to definitive care?

The literature is equivocal on the matter of timing. Seelig and Becker documented marked reduction in mortality with early intervention.<sup>8</sup> Cohen and colleagues suggested a significant decline in outcome in patients operated on more than 90 minutes after the onset of anisocoria.<sup>9</sup> However, Wilberger et al. were unable to document a statistically significant difference between patients decompressed between one and four hours, although there was a trend toward improved outcome with earlier intervention.<sup>10</sup> Physiological data indicate immediate improvement in cerebral oxygen metabolism occurs upon opening the dura. Accordingly, when indicated, craniotomy for traumatic mass lesion should be carried

out as expeditiously as possible. Common sense would suggest that the sooner the problem is fixed, the more the likely the outcome will be better.

### Developing a Neurotrauma Outreach Program

In many areas of the country access to neurosurgical care is limited because of distance, geography, weather, and time. Traumatologists and neurosurgeons at the regional trauma centers serving these areas could develop outreach programs to

- educate prehospital and community hospital personnel in resuscitation, diagnostic, and transfer priorities that would minimize delay and optimize brain physiology;
- train general surgeons when and how to perform damage control craniotomy;
- conduct performance review, with active neurosurgical input; and
- prospectively study outcomes.

If sufficient numbers of institutions were to embark on such a project, we might in a fairly short time have an indication of whether the concept is valid, and lives can be saved.

*Charles F. Rinker, MD, FACS, is trauma director at Bozeman Deaconess Hospital, in Bozeman, Mont., (406) 587-0704, crinker@attglobal.net. He is a member of the ACS National Committee on Trauma.*

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### A Neurosurgeon

#### Should General Surgeons Do Emergency Craniotomies?

Alex B. Valadka, MD, FACS

I have been asked to provide a neurosurgeon's perspective about general surgeons performing trauma craniotomies. The bottom line: Except for special military situations and for exceptional situations in geographically isolated communities, this is a bad idea.

#### Background

The roots of this concept may lie in reports of difficulties experienced by emergency rooms in obtaining timely neurosurgical coverage. Although neurosurgery is a small specialty, some studies report that many (and perhaps even most) high-acuity trauma patients have some type of neurological injury. This inherent demand for emergency neurosurgical services was expanded by the Emergency Medical Treatment and Labor Act (EMTALA), which essentially requires on-call neurosurgeons to accept every emergency transfer from outside facilities (even if such a transfer may not be in the patient's best interest) and to see every patient for whom the emergency room requests consultation. At the same time, reimbursements from Medicare and other payers have been dropping sharply, while professional liability insurance premiums have been skyrocketing. Thus, although neurosurgeons are working harder just to keep their offices open, their elective practices may be disrupted at any moment by the need to provide federally mandated emergency services, which often are unreimbursed, but which still subject neurosurgeons to the risk of professional liability claims. As a result, many neurosurgeons have sought to remove themselves from hospital on-call panels, thus stretching the remaining neurosurgical emergency workforce even thinner.

On the other hand, many general surgeons who are compensated to take in-house call on a regular basis find themselves performing fewer and fewer operations because the care of general trauma patients in many parts of this country has become largely nonoperative. In combination with the previously discussed dissatisfaction with the manner in which many neurosurgeons provide emergency coverage, this large number of general surgeons hoping to do more cases while they are on call has caused many of them to ask, Why can't we do our own cranis? Indeed, at the annual meeting of the Eastern Association for the Surgery of Trauma in January 2003, a breakfast session on the theme "Tales from the Front Lines," which presumably discussed combat surgery, was entitled "Craniotomy in the Field: Why Does It Take Neurosurgeons 7 Years?" The unspoken premise underlying this title is that a general surgeon needs to be proctored on only a few trauma craniotomies—perhaps as few as five—before he or she can be credentialed to perform them independently. Some general surgeons have expressed the opinion that trauma craniotomies are "the neurosurgical equivalent of an appy,"

that is, as easy to perform as appendectomies. It has also been stated that physician assistants (presumably on a general surgery service) could "easily" be trained to perform neurotrauma procedures.

#### What's So Easy About Trauma Craniotomies?

As someone who has scrubbed on countless emergency craniotomies with residents at all levels of training, I can report that I have seen some very good chief and senior residents get into trouble during unexpectedly complicated trauma craniotomies on very sick patients. It would be hard enough for a general surgeon to get through a straightforward elective craniotomy for an easily removed convexity meningioma; letting him or her tackle an emergency craniotomy for a large subdural hematoma complicated by brain swelling, parenchymal venous bleeding, superior sagittal sinus laceration, hypotension, hypoxia, coagulopathy, and other common complications is clearly a frightening concept. Furthermore, advocates of letting general surgical physician assistants perform neurotrauma procedures overlook the facts that head-injured patients often require prolonged care in an experienced ICU and that an operation is only part of their overall management.

#### The Military Setting

Certainly, in the military setting, it makes sense to provide general surgeons with some hands-on experience in performing craniotomies. For several years, my level I trauma center was a training site for combat surgical teams. We encouraged the military general surgeons to scrub with us on both elective and trauma craniotomies, but very few accepted our invitation. Two who did were senior officers who had had to perform emergency craniotomies in remote parts of the world. They appreciated the complexity of the procedure and were eager to have a "refresher course" in case the need arose again.

However, an unpleasant truth that is often overlooked relates to the harsh realities of triage decisions on the battlefield. In the time it would take a general surgeon who is inexperienced in craniotomies to complete one on a severely head-injured patient, he could have done several emergency laparotomies. Thus, when a physician in a forward surgical team is forced to use limited resources (including time) to save as many patients as possible, the patient who needs a craniotomy may have to be put at the bottom of the list.

Another problem is that CT scanning may not be available for the diagnosis of operative lesions, thus making it difficult—if not impossible—to identify those patients who require a craniotomy. The counterargument is that plain skull X-rays could be used to identify skull fractures, which would indicate the need to perform burr-hole exploration. However, such a practice would not only result in many patients undergoing unnecessary procedures, but it might also mean that patients with large mass lesions would not receive prompt attention if they did not have a skull fracture. Even open injuries can be deceiving, either in their simplicity or in their complexity, and the full

extent of the necessary surgical repair (if any is needed at all) is often impossible to determine from the external appearance of the wound.

Different considerations apply when a military general surgeon must perform an emergency craniotomy under noncombat conditions, for example, after a serviceman or servicewoman has been in a jeep accident or has suffered a fall. Triage decisions about operating time and resource utilization are much less important in such isolated cases. If immediate craniotomy is necessary, a telemedicine or telephone link to a neurosurgeon can be created to assist the general surgeon during the procedure. Such live communication with a neurosurgeon in a remote location may not be possible during combat.

### Lessons From Civilian Settings

The major question in such cases is whether immediate craniotomy is indicated or whether the patient should be transferred to a neurosurgeon. Several reports from the civilian setting are quite informative in this regard. Scandinavian neurosurgeon Knut Wester has reported the poor results of general surgeons operating upon epidural hematomas in his country.<sup>1,2</sup> In many cases, only a small amount of the clot was evacuated, or it was even missed altogether. These results effectively counter the general surgeons' argument that they should be allowed to perform "decompressive burr holes," which are not a very effective means for removing a solid clot because hematoma evacuation was often incomplete even when a full craniotomy was performed by a general surgeon.

Dr. Wester suggests that the time wasted by having a general surgeon perform a craniotomy would be better spent by transferring the patient to a neurosurgeon sooner. This is an important conclusion, because many aggressive general surgeons feel that patients with epidural hematomas cannot be transferred because the hematoma may continue to increase in size during transfer. Likewise, the superficial location of these lesions has caused some general surgeons to view them as being easy to take out. However, delaying transfer to definitive care so that an incomplete operation can be performed by an inexperienced surgeon is hardly in a patient's best interest.

Charles Rinker, MD, in Montana has published his experience in such situations.<sup>3</sup> His article makes it clear that only a small minority of head-injured patients (less than 14 percent) were operated on when they were felt to be too unstable for a one-hour flight to the nearest neurosurgeon. In all cases, the neurosurgeon approved the general surgeon's performance of the craniotomy, and, in fact, the trauma surgeons had gone through a special course put together by the neurosurgeon.

Thus, in many ways, the civilian situation is comparable to the military situation. Most civilian head-injured patients are better served by immediately transferring them to the nearest appropriate neurosurgical facility. However, as in the military, civilian general surgeons who might reasonably expect to be forced to do so should be able to perform emergency craniotomies, but only as a last resort, and then only after consultation with a neurosurgeon and after appropriate training.

### What's the Answer?

Should general surgeons be encouraged to learn how to perform emergency trauma craniotomies? What this debate is really about is advance planning and optimization of resources to provide the best possible care

for patients. We would do well to remember that most of the improvements in trauma care over the last few decades have their roots in the creation of organized trauma care systems, not so much in anything that surgeons have done in the operating room. Thus, the best way to provide neurosurgical care to neurotrauma patients might be to focus on better ways to bring patients to appropriate experts (like neurosurgeons), not to let nonexperts "practice" on trauma patients.

In the civilian setting, we have the luxury of being able to take the time to create systems that attempt to organize local resources and manpower. Civilian non-neurosurgeons should have to perform trauma craniotomies only as a last resort. In military situations, however, the inevitable uncertainty about where the next conflict will arise makes long-range planning much more difficult. In these situations, it makes sense to give surgeons a certain amount of cross-training, whether this means teaching general surgeons the basics of emergency craniotomies or teaching neurosurgeons how to do emergency laparotomies. Nevertheless, even in the military, such cross-training should be put into practice only as an absolute last resort, when the patient would undoubtedly be harmed by waiting for definitive treatment by the appropriate specialist.

### These Steps Lead to Solutions

Although opinions of leading experts and statements from national societies provide helpful guidance, the question of whether general surgeons should perform trauma craniotomies will have to be answered individually by each community in which the question arises. Neurosurgeons must address for themselves the best way to care for neurotrauma patients. The obvious solutions are for neurosurgeons to take the following steps: to work with their hospitals and medical communities to try to ensure that their emergency rooms have as much neurosurgical coverage as feasible; to support efforts to make reasonable changes to EMTALA (as the AANS/CNS Washington Office has been instrumental in doing); to change local hospital bylaws to make it easier for neurosurgeons to provide appropriate care to patients with neurosurgical emergencies; and to negotiate interhospital transfer agreements when a neurosurgeon cannot be on call. Allowing non-neurosurgeons to perform craniotomies is a far less preferable solution, but in the few circumstances when it is the only option, prior training and real-time telephone or telemedicine support by a neurosurgeon are necessary.

*Alex B. Valadka, MD, FACS, is associate professor of neurosurgery at Baylor College of Medicine, and chief of neurosurgery at Ben Taub General Hospital in Houston, Texas. He is the chair-elect of the AANS/CNS Section on Neurotrauma and Critical Care.*

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# Letter Should We Give Back the Money?

Thomas E. Hoyt, MD, FACS

Many of us read with consternation the article, "Neurosurgeons and Their Responsibilities to Trauma Centers," in the Fall 2002 edition of *Neurotrauma & Critical Care News*. The article is very critical of the organized neurosurgery's support of compensation for on-call services. For example, on the practice of providing stipends to neurosurgeons for emergency room (ER) coverage, the author, Jack Wilberger, MD, asks: "Has it made neurosurgeons more responsive to providing neurotrauma care? In my opinion the answer is a resounding no."

Apparently, he conducted an as yet unpublished survey of trauma centers which led him to conclude that "The Neurotrauma Section's support of stipends for neurotrauma call has been, in my opinion, a step in the wrong direction." Furthermore, he states, "The Neurotrauma Section has unintentionally done an injustice to the necessary and appropriate delivery of neurotrauma care by sanctioning open-ended stipend negotiations without appropriate checks and balances." He then calls for action by urging the Neurotrauma Section to take a strong stance on this issue.

The movement to compensate neurosurgeons for ER call began in the late 1990s. Neurosurgeons found themselves in an ever tightening vice between governmental regulations and declining reimbursements. At a time when collections for ER services were drastically diminishing, newly enacted Emergency Medical Treatment and Labor Act (EMTALA) regulations were being enforced. These laws strictly required a continued high level of ER service without regard for compensation. Naturally, individual neurosurgeons and groups negotiated with local hospitals to obtain some fiscal relief. Some of these efforts initially met with success, but many hospital administrators refused any reasonable plan. Out of frustration, neurosurgeons turned to their state and national organizations for help. The state societies were the first to act. California, for example, enacted a policy in September 1998 supporting compensation for ER call for its members. The national organizations worked on this issue as well. In April 1999, the Council of State Neurosurgical Societies (CSNS) passed a plan for privately funding neurosurgical call coverage.

On April 20, 2001, a position statement was published by the AANS and CNS supporting the principle of reasonable compensation for serving on an on-call panel. The Neurotrauma Section was instrumental in drafting the policy statement. The support of organized neurosurgery has been influential in achieving justice and fairness for many neurosurgeons who take ER call.

Is the Section on Neurotrauma and Critical Care being asked to reverse its policy based upon a survey? Should neurosurgeons return their stipends because some emergency departments feel that neurosurgery coverage has not improved?

We need to examine the principal mission of the AANS, CNS, CSNS, various sections and state societies. In my opinion, these organizations exist to benefit the members first and foremost. The ER physicians and hospital administrators do not need the help of

this section to bully neurosurgeons onto their on-call panels. The success of our policy to support compensation for ER call should be judged by the satisfaction of our members and not the opinion of emergency departments. If we in organized neurosurgery have failed, it is only that we have been unable to compel recalcitrant hospitals to cooperate fully.

Regarding the need for "checks and balances": We all acknowledge that there are responsibilities attendant with accepting compensation for ER call. Such duties are clearly defined by EMTALA regulations, hospital medical staff bylaws and emergency call contracts.

Concerning the author's call for the Section of Neurotrauma and Critical Care to act, I would respond by saying it already has acted admirably. The policy of compensation for ER call should be changed only if our members demand it.

*Thomas E. Hoyt, MD, FACS, is CSNS liaison to the AANS/CNS Section on Neurotrauma and Critical Care, chair of the CSNS Committee on Neurotrauma, and past president of the California Association of Neurosurgeons.*

Editorial Note: The Fall 2002 edition of *Neurotrauma & Critical Care News* is available in the newsletter archive at [www.neurosurgery.org/trauma/newsletter](http://www.neurosurgery.org/trauma/newsletter).

## A Military Trauma Surgeon (continued from page 4)

surgeons are capable of performing burr holes and craniotomies. They should not hesitate to do them if the circumstances dictate emergent evacuation of a suspected epidural hematoma and there is no possibility of professional neurosurgical care in a timely fashion.

### Burr Holes Are Easy

Making burr holes is easy. Making burr holes and removing a flap of bone with control of the bleeding vessel can be performed by non-neurosurgeons as has been published both in case reports and series. Courses exist to teach these skills to military surgeons in different countries around the world. One day, telemedicine capability will be helpful in austere environments; for this problem today, the best telemedicine is the telephone. In any case, rapid transfer of the patient for neurosurgical care always will remain the gold standard.

*Christopher Kauffmann, MD, MPH, FACS, a retired colonel in the U.S. Army Medical Corps and formerly professor of surgery at Uniformed Services University of the Health Sciences, is a trauma surgeon at Legacy Emanuel Hospital in Portland, Ore.*



American Association of Neurological Surgeons

# Application for Membership

## AANS/CNS Section on Neurotrauma and Critical Care



**Eligibility:** Members of the AANS and/or CNS who are actively interested in Neurotrauma.

*Note: Adjunct Membership is available to non-neurosurgeons who are not members of the AANS or CNS. Please contact 847-378-0500 for an Adjunct Membership application.*

### I. Biographical:

- (A) Name: \_\_\_\_\_
- (B) Home Address: \_\_\_\_\_
- (C) Office Address: \_\_\_\_\_  
\_\_\_\_\_
- Phone: \_\_\_\_\_ Fax: \_\_\_\_\_
- (D) E-Mail: \_\_\_\_\_

### II. Category of Membership Requested:

- Active       Associate       International       Resident\*

\* Membership dues are waived for applicants currently enrolled in a neurosurgical residency program.

### III. Membership, Certification and Practice:

- (A) Are you certified by the American Board of Neurological Surgery?       Yes       No
- (B) For Resident Applicants-Expected Residency Completion Date (month/year) \_\_\_\_\_
- (C) Are you a member of
  - 1. The American Medical Association?       Yes       No
  - 2. A Local or Regional Medical Society?       Yes       No
  - 3. A State or Provincial Medical Society?       Yes       No
  - Name: \_\_\_\_\_
  - 4. American Association of Neurological Surgeons?       Yes       No
  - 5. Congress of Neurological Surgeons?       Yes       No

- (D) I would like to support  with my donation of
  - \$10.00 (Recommended)       Other amount \$ \_\_\_\_\_

\_\_\_\_\_  
Signature of Applicant

\_\_\_\_\_  
Date

**Please return completed application with your membership fee of \$50 and any donations to:  
AANS/CNS Section on Neurotrauma and Critical Care  
Dept. 77-7550  
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### Reconciling On-Call Responsibilities With EMTALA Requirements

*Excerpt from the AANS/CNS Section on Neurotrauma and Critical Care Position Statement (November 2002), available in its entirety at [www.neurosurgery.org/trauma](http://www.neurosurgery.org/trauma).*

#### Consensus Opinion

Multiple factors within various geographic regions (including location, available neurosurgical work force versus nonparticipatory work force, proximity to other neurosurgical centers, and typical elective and neurotrauma workload) inevitably conflict with the EMTALA guidelines established to protect the patient, the neurosurgeon and the institution. Each institution and its neurosurgeons should therefore specify these provisions contractually when they address the unique requirements of the area to ensure compliance with EMTALA. Ultimately, only the individual neurosurgeon can determine the limits of his or her ability to provide continued coverage. Hospitals should not force or coerce neurosurgeons to provide continuous on-call coverage when it is impossible or unreasonable for neurosurgeons to do so.

To best meet the needs of patients, in advance and prior to crisis, the neurosurgeons and the institutions must negotiate contingency plans and interhospital transfer agreements for periods of non-coverage (whether due to fatigue, simultaneous coverage, vacation, or limited number of neurosurgeons in the