



# Broca's Area

*The Voice of Texas Neurology*

## President's Message

*Jerry J. Bettinger, MD*



Dear Fellow Members,

2011 will be a memorable year for me. Having been the Texas Neurological Society President, I have met many new friends and been to meetings that I thought I would never attend. The most interesting was in Minneapolis just a few weeks ago for the American Academy of Neurology — State Society Leaders meeting. Representatives of all the different states were invited and probably twenty or so came. It is amazing how few of the other states have a dues-paying membership, let alone any useful meetings or educational programs produced by the local neurological societies.

The main discussion there was how to help the other societies develop a structure like Texas'. Needless to say, I was proud to represent the TNS that weekend.

Just last weekend, Rachael Reed, executive director, Bill Gilmer MD, William Bradley, MD Sara Austin MD, and I were in Austin at the TMA Specialty Leadership meeting trying to communicate our needs for the future and what we want from the TMA leaders. Almost all the individual physicians expressed needs in areas of financial protection, quality of care support, and legislative advocacy for our own practices and our patients. It seems that everyone is thirsty for meaningful leadership both on the local and national levels. With the poor performance of our national political parties and the apparent gridlock in philosophy of those elected officials, useful change is unlikely to occur. It is my personal opinion that the Texas Medical Association has a unique opportunity to lead the other states in development of new policies and practices that can put doctors back in the leadership roles in patient management and the delivery of health care. We are ultimately the best suited to own and operate physician offices, outpatient surgi-centers, testing facilities and also hospitals. We can't let the government take it all away. The TMA can provide a unified voice if they are willing to accept the challenge.

The TNS has over 600 dues-paying members making us the largest organized neurological state society in the US. The board has done an outstanding job producing two annual CME meetings and keeping up with the details involved. Pharmaceutical support has dwindled over the last few years (what happened to all those cute pens, sticky notes, and coffee cups?) and we may be facing higher fees in the future, but until then we have enough monies to pay for the upcoming events. Be sure to attend the winter conference in Austin this coming February and the summer meeting in July at the Moody Gardens in Galveston. So far, we have extremely low fees; we are trying to keep it that way. Be sure to complete the comments request so we can focus on the topics most interesting to all.

If you know any neurologist who doesn't belong to the TNS, invite them in. If you work with any neurology residents, invite them too. It is a great place to meet and interact with other Texas neurologists and learn what is going on in other areas of the state. Maybe you'll meet a future partner. Take a minute when you check into one of the meetings to personally thank Rachael Reed for all her efforts at keeping the Texas Neurological Society operating as smoothly as she does. She is a great manager and I think she can get just about anything done when we need it. I look forward to seeing everyone in Austin.



### Mark Your Calendar!

**2012 WINTER  
CONFERENCE  
February 3-5  
Hyatt Regency  
Austin**

*(More details on page 2)*



## TNS 15th Annual Winter Conference Preview

**The 15th Annual Winter Conference** will be held at the Hyatt Regency Austin on Lady Bird Lake. The dates of the Conference are February 3-5.

Friday morning will focus on Pediatric Neurology and Friday evening will host a welcome reception for you to catch up with fellow neurologists.

The attendee can obtain up to 17.75 CME credits including one hour of ethics. Go to [www.texasneurologist.org](http://www.texasneurologist.org) to register and to view the schedule.

## Editor's Notes

*Randolph W. Evans, MD*

### **This issue**

I thank our officers and other authors for their excellent contributions to this issue.

We look forward to seeing you at the TNS Winter Conference in Austin February 3-5 for an outstanding meeting planned by Erin Furr-Stimming, MD and the education committee. Please register by January 23 for the early fee of only \$250. We had a record attendance last year.

### **Cheaper cash prices for newer generics**

Recently, a patient asked me to refill topiramate for migraine prevention for one year at a mail order pharmacy ([www.healthwarehouse.com](http://www.healthwarehouse.com)) that she told me had really good prices. She was right. For the 100 mg dose, the prices are the following: 30 tablets, \$11; 90, \$27; and 360, \$79. Shipping is free.

I checked [www.walgreens.com](http://www.walgreens.com) for comparison. Topiramate 100 mg: 30 tabs, \$86; 90, \$249.99; and 360, \$987.94.

Sumatriptan was similarly cheaper for \$2-3/tablet depending upon quantity vs about \$11/tablet. I checked other drugs and found significant differences as well.

Later the same day, another patient came for a follow-up. Her large insurance carrier had denied my prescription for topiramate for migraine prevention and she continued taking multiple expensive triptans in the interim. She was happy to pay cash at the mail order pharmacy which was less than her generic co-pay.

Perhaps this accounts for the constant barrage of faxes suggesting that we switch patients from brand to generics and "accidents" when patients are switched without our authorization. (I'm all for the use of generics as appropriate. However, concern over the FDA definition of bioequivalence and the use of generics for treatment of epilepsy and some other diseases is well-known to you.) This is not a new issue, of course, but of growing importance as more brand names become generic. Perhaps this accounts for the constant barrage of faxes suggesting that I switch patients from brand to generics (I'm all for use of generics as appropriate. The concern over the FDA definition of bioequivalence and treatment of epilepsy and some other disorders with generics is well-known to you and accounts for "accidents" when patients are switched without my authorization.)

I'm not endorsing this particular mail order pharmacy. However, many of our patients have a difficult time paying their bills and can't fill their prescriptions even with insurance coverage, or may choose to pay less. If patients choose to have prescriptions filled locally for cash pay, they may wish to compare the prices at various discounted pharmacies such as Costo, Sam's, Walmart, and Target where the savings can be large. Mail orders are available as well.

### **Electronic Health Record**

In recent months, I have started using an EHR. The process has been initially frustrating and perhaps unduly wasteful of time as many of you

veterans have told me it would be. The complaints I have with my particular software are many (despite lots of research beforehand) and not many of us are completely satisfied with any of the 200 products available. (For example, I didn't know that I would need dual monitors to view prior records and to type in the current note. Where is there room on a little desk for dual monitors?) Is this Tower of software Babel we've constructed unable to communicate with other users a step forward? Some of you working in different settings have to learn different EHRs. Medical students rotating with me tell me they've been exposed to 6 different EHRs.

As we stare intently at the screen entering data, the patient can get lost in the encounter as we can become just as concerned with E&M and ICD-9 coding and meaningful use documentation as actual medical care. Although there are many advantages, EHRs in the exam room are resulting in less eye contact, less dialogue, and less interaction with our patients as we are too busy entering data like the clerks and health care providers we have become to have the discussions with our patients about their diseases and their lives like the physicians we used to be.

Complying with meaningful use criteria appears to be an exercise in going through hoops rather than improving patient care. It seems akin to the recertification process which has been almost universally disdained as a waste of time and money by every type of physician I've spoken with. I review my meaningful use dashboard and wonder if this is the future of medicine. In several years, will we all have new dashboards on our EHRs evaluating our quality as providers (i.e. cost to the system) with dollar demerits for poor "quality?"

How about two of the 25 objectives that I use? As I click the mouse on fields to indicate that I've briefly counseled patients to lose weight and stop smoking, is our collective intervention really effective? Or are we engaging in wishful clicking or clicking for dollars? However well-intended, are the interventions evidence based to justify such a large scale intervention in physician behavior?

### Counseling for weight loss and smoking cessation.

A review of weight loss counseling by pcps concluded, "None of the four studies in which PCPs provided low- to moderate-intensity behavioral counseling alone resulted in clinically significant weight loss." (Tsai AG, Wadden TA. *Treatment of obesity in primary care practice in the United States: a systematic review.* J Gen Intern Med. 2009;24(9):1073-9). Of course, not everyone with a BMI of more than 25 is overweight but the EHR does not make this distinction in counting compliance.

What about counseling for smoking cessation? "There is a consistent relationship between more intensive counseling (with respect to both the duration and number of counseling sessions) and abstinence from smoking. According to a meta-analysis of 35 randomized trials, 6-month abstinence rates increased

*continued on next page*

## Mark Your Calendar

**2012 Winter Conference** • February 3-5  
Hyatt Regency • Austin

**2012 Summer Conference** • July 27-28  
Moody Gardens Hotel • Galveston

## TNS Thanks our Supporters of the 2011 Summer Conference

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[texasneurologist.org](http://texasneurologist.org)

The screenshot shows the Texas Neurological Society website. At the top, there are navigation tabs: About TNS, Member Only, Education, Advertising, Find a Neurologist, and Links. Below the navigation is a banner for the 2012 Annual Winter Conference at the Hyatt Regency Hotel in Austin, Texas, from February 3-5, 2012. A large image of the hotel is shown with the text "Click Here to Book Your Room". To the right, there are sections for "Membership" (with a link to "Join TNS today"), "Meeting" (listing "Register for Conference", "Book Your Room", "View Conference Schedule", "Attendee Package", "Click Here to Register for the Friday Morning Publishing Session Only"), "Reserve" (with a link to "Reserve for Medical (limited Availability)"), and "Exhibitor" (with a link to "The Exhibit Hall is currently... TNS is currently only accepting educational grants"). At the bottom, there are four columns: "Member Links" (Log In, Renew Membership, Update Profile, Member Directory, Join TNS Today!), "Resources" (Who is My Legistator?, Practice Guidelines, Become a Key Contact, AAN, TNS, North County Neurological Society, Practice Opportunities), "Upcoming Events" (2012 Annual Winter Conference - Austin, FEBRUARY 3-5, 2012 Annual Summer Conference - Galveston, JULY 27-28), and "Conference Supporters" (Teva Neurosciences, Inc., Cyberonics, Inc.).

## Headache Clinic for Sale

A prestigious Headache Clinic Practice is for Sale!

After 35 years of serving the headache population with a comprehensive headache program, the Houston Headache Clinic is available for purchase.

The clinic draws patients from all over the U.S. and abroad. Prefer Neurologists interested in pursuing a dedicated headache practice.

Contact Dr. Ninan Mathew.  
ntmathew@houstonheadacheclinic.com

significantly with minutes of total counseling contact: about 14% for 1 to 3 minutes of counseling, 19% for 4 to 30 minutes of counseling, and 27% for 31 to 90 minutes of counseling, versus 11% for no counseling." (Fiore MC, Baker TB. *Clinical practice. Treating smokers in the health care setting*. N Engl J Med. 2011 Sep 29;365(13):1222-31.) You may wish to read this article for a discussion of different counseling techniques. So perhaps a 3% short-term cessation from brief counseling which most physicians are likely to provide. Long-term abstinence rates are not provided.

You can refer your patients to these adjuvant treatment resources: 1-800-QUIT-NOW, a national tobacco-cessation quitline

Online smoking-cessation resources include [www.smokefree.gov](http://www.smokefree.gov) and [www.women.smokefree.gov](http://www.women.smokefree.gov).

### Misinformed patients and the internet

In a recent survey from *Wolters Kluwer Health*, 78% of physicians (a phone survey of 300, about half primary care and half specialists) affirmed that lack of time is one of the most common challenges for physician-patient communication (*Medscape Medical News*. 11/4/11. Available at [www.medscape.com/viewarticle/752952](http://www.medscape.com/viewarticle/752952)).

The next biggest problem, cited by 53% of physicians, is misinformed patients with 1 in 5 reporting that information from the internet "has been detrimental, leading to misinformation and incorrect self-diagnosis." Similarly, in our 2006 survey, 55% of you agreed that the following patient behavior was bothersome: "Challenges your recommendations or statements based upon incorrect information they say they read on the Internet." (Evans RW, Evans RE, Evans RI. *A survey of neurologists on bothersome patient behaviors*. *Medscape General Medicine* 8(4):35-43, 2006).

What's interesting is how insistent some patients are when they are misinformed and inappropriately overconfident. When I explain the evidence and my over 30 years of experience, some still insist that they have all the answers from their internet research or from what their relative or friend told them or what their experience (n=1) was. Never underestimate the importance of n=1 (whether real or exaggerated; where are all of the people who have been paralyzed after lumbar punctures?) in the decision making of patients or physicians, the anecdotal Ronald Reagan school of persuasion. (If you're interested in reading more about physician decision making, see Vickrey BG, Samuels MA, Ropper AH. *How neurologists think: A cognitive psychology perspective on missed diagnoses*. *Ann Neurol*. 2010;67(4):425-33 and Gorini A, Pravettoni G. An overview on cognitive aspects implicated in medical decisions. *Eur J Intern Med*. 2011;22(6):547-53.)

## Legislative Update

By Sara Austin, MD

### FEDERAL ISSUES

**The 'doc fix' (AKA- the SGR)** – the AMA proposed that the deficit reduction committee put the long term fix for the SGR in the deficit reduction bill. Not only did the deficit reduction committee not go anywhere, but the proposal to have the doc fix in there also went nowhere. The scuttlebutt around D.C. is that legislators knew when they set up the committee that it would not get anything done because none of it takes effect until 2013 and they will not make hard choices until they are forced to. As usual, there was a last minute deal, this time for a two-month extension thrown in with the payroll tax cut and unemployment benefits extension.

**'Primary' care vs. 'Cognitive' care.** The big push for the DC lobby of the AAN is trying to get legislators to stop using the term 'primary care', and start using the term 'cognitive care'. Neurology has been left out of the primary care definition, but most neurologists clearly qualify for the 'cognitive care' term. The specific criteria for a 'cognitive care' doc would be one that bills more than 60% of their services as E&M codes. The AAN joined with a coalition of other cognitive care physicians and it seems we are making headway educating legislators about the problem. In the past 3 months, the AAN has visited 70 congressional offices specifically talking about this, in the hopes that when a health care bill is written we will be considered in the same boat as family practice, (and not radiology).

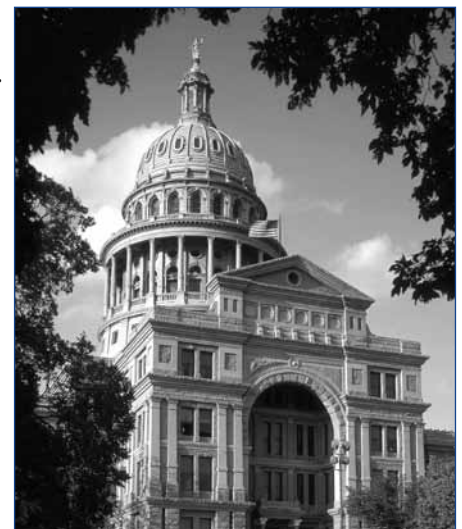
I think that we always need to remind legislators what we already know: that lowering physician funding makes access to care for the most needy more difficult. We also need to emphasize that payments to physicians only make up 15% of the total Medicare budget. They cannot balance the Medicare deficits on our backs; hospitals, pharma, home health and medical equipment all need to be considered.

The AAN is just getting started putting together a NeuroKey program to identify neurologists in key congressional districts (with members who sit on a committee with jurisdiction over health care) who are active politically or have a special relationship with a member of Congress. If that applies to you or a neurologist that you know, let us know and be on the look out for the NeuroKey program when it rolls out.

### STATE ISSUES

**Concussion management legislation – HB 2038**, also known as Natasha's Law, passed the Texas Legislature this last session, was signed by the Governor, and goes into effect this year. Texas school districts will have to require education on concussion for coaches and trainers, and will require a kid who sustains a concussion to be cleared by a physician prior to return to play. The pediatricians and sports doctors are gearing up for this, but we Neurologists are leading the charge as well. Recommendations for the treatment of concussion have changed in the past 10 years, so if you are not up to date on the management, it may be time to get caught up. The AAN website has some tools that will be helpful at [www.aan.com/go/practice/concussion](http://www.aan.com/go/practice/concussion). The AAN Practice Committee (they are the folks who write the practice guidelines) are working diligently on evidence based guidelines for concussion management, they are promised to be out by next May.

**Medicaid changes** – The Texas legislature did the right thing and did not cut payments to doctors during this last session. However, they did direct HHS to save money in the Medicaid system by eliminating Part B coinsurance and deductible payments for dual-eligible patients (Medicare patients who also qualify for Medicaid). Many of us who see these patients will notice a difference in reimbursements.



**Thank you to our  
supporters of the  
15th Annual  
Winter Conference**

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## TMA Update

*By Bill Gilmer, MD*

*Chair, and TNS representative to TMA Interspecialty Society Committee*

The Interspecialty Society Committee at TMA's October Fall Conference discussed multiple issues important to Neurology including ICD 10, Employment of physicians, "pill mills," ACO's, and scope of practice issues.

**ICD 10 is the proposed next generation of codes for diseases.** In the US we currently use ICD 9 to specify what condition we are treating. The rest of the world has used ICD 10 for years. CMS plans to require everyone in the US to use the much more complex ICD 10 system by 2013. But there is dissent in the informatics community that ICD 10 is flawed and should be scrapped in favor of ICD 11 which should be ready by 2015. Physicians are already struggling to adopt rapidly evolving Health Information Technology including EMR, eRX, and Health Information Exchanges to meet meaningful use requirements all within the next two years. The American Academy of Pediatrics recognizes there is only so much change physicians can absorb at one time. They request CDC scrap the transition to ICD 10 altogether, allowing time for us to adjust to EMR, then convert directly to ICD 11 when it is ready for prime time. They ask all fellow specialty societies including TNS to support them by similar petitions. ISC overwhelmingly supported this request and will also present a supporting resolution. This proposal was carried to the AMA and passed at that level as well. Hopefully CMS will listen to reason.

**TMA policy continues to strongly protect the ban on "the corporate practice of medicine" despite withering opposition in the Texas legislature.** In order to gain support for new strong protections for physicians in any sort of "employment" situation such as those in 501a's or future Accountable Care Organizations, some limited exceptions were allowed in rural areas. As a result, broad protections for physician autonomy were greatly strengthened. The underlying goal is to prevent anyone (especially employers) from threatening independent physician medical judgment. In the end, we strengthened all physicians' ability to remain autonomous even in newly devised "creative" cooperative working arrangements.

**Pill mills continue to be opposed at every opportunity.** Doctor shopping is difficult to control in a free society but TMA is working with the legislature on creative ways to detect it and let physicians know when they are being "shopped."

**Accountable Care Organizations (ACO's) final 700 pages of rules have just been released.** TMA is working to review and understand them. We desperately need their help guiding us through the mind numbing fog of legalese.

**No significant scope of practice issues passed this session, but dozens of groups are preparing to ask the legislature for special exceptions allowing them to practice medicine without going to medical school.** Every specialty faces these challenges every session. We must remember our responsibility to act as the most educated and trusted leader of the medical team, or we will lose it.

# Hemicrania Continua: A Question and Answer Review

*Randolph W. Evans, MD, Clinical Professor of Neurology,  
Baylor College of Medicine  
subspecialty certified, Headache Medicine*

There are four primary types of chronic daily headache with a duration of 4 hours or more daily which include hemicrania continua (HC), chronic migraine, chronic tension-type headache, and new daily persistent headache. Probably first described as a cluster variant responsive to indomethacin in 1981,<sup>1</sup> the term "HC" was proposed in 1984.<sup>2</sup> Since then, more than 100 cases of HC have been reported.<sup>3</sup>

## **What are the diagnostic criteria for HC? What are the symptoms?**

**The International Classification of Headache Disorders 2nd edition diagnostic criteria<sup>4</sup> are as follows:**

- A. Headache for more than three months fulfilling criteria B through D
- B. All of the following characteristics:
  - Unilateral pain without side-shift
  - Daily and continuous, without pain-free periods

### **Moderate intensity, but with exacerbations of severe pain**

- C. At least one of the following autonomic features occurs during exacerbations and ipsilateral to the side of pain:
  - Conjunctival injection and/or lacrimation
  - Nasal congestion and/or rhinorrhea
  - Ptosis and/or miosis
- D. Complete response to therapeutic doses of indomethacin
- E. Not attributed to another disorder.

HC is a unilateral headache with varying intensity which is rarely bilateral or alternates sides.<sup>5</sup> In Cittadini and Goadsby's study of 39 patients, the pain was reported in the following locations: temporal, 82%; orbital, 67%; frontal, 64%; retro-orbital, 59%; occipital and parietal, 54%; vertex and periorbital, 51%; neck, 33%; maxillary and ear; 30%; upper teeth, 20%; shoulder, 18%; nose, 15%; jaw, 15%; eyebrow and lower teeth, 10%; retro-auricular area, 8%; and upper and lower gum, 2%.<sup>4</sup>

The pain was described by the following percentages: throbbing, 69%, sharp, 43%; constant/continuous, 41%; pressure, 30%; dull, 26%; burning sensation, 15%; aching, 15%; stabbing, 13%; boring, 10%. Exacerbations of pain could occur spontaneously or after triggers by the following percentages: stress; 51%; alcohol, 38%; irregular sleep, 38%; bright lights, 36%; exercise, 31%; warm environment, 28%; skipping meal, 23%; strong smell, 15%; coughing, 15%; weather change, 13%; tiredness, 13%; period, 10%. Fifty three percent of patients reported exacerbations during the night time. During severe pain, 69% of patients were agitated or restless or both and 28% were verbally aggressive. Twenty three percent of patients had abnormal findings on neurological examination which were mainly ipsilateral sensory changes such as decreased sensation of the face.

HC can be labeled chronic when daily and continuous without pain-free periods for a minimum of one year and episodic when there are pain-free intervals of at least a day without treatment. In one series, 82% of cases had chronic (unremitting) HC which was chronic from the onset in 69%.<sup>5</sup> Evolution from the episodic form occurred in 28% after a latency of 7.9 years (range of 2 weeks to 26 years). Some of the patients with the initial episodic form had headaches which were not daily initially and one patient had about 10 headache days per month. Fifteen percent of patients had the episodic form which was episodic from the onset in 33% and evolved from the chronic form in 66%

Seventy five percent have exacerbations of severe throbbing or stabbing pain lasting 20" to several days which can be associated with photophobia (59%), phonophobia (59%) [often unilateral], nausea (53%), and vomiting (24%). A visual aura can rarely occur.<sup>6</sup> Exacerbations can last from 20" to several days with pain awakening 1/3 of patients. Cranial autonomic features are present in up to 75% with tearing and then conjunctival injection the most common. Primary stabbing headache or jabs and jolts are reported by 41% especially in exacerbations. Some report a feeling of sand in the eye.

HC is often misdiagnosed. In a study of 25 patients with HC seen at a headache center, 85% were assessed by physicians within 6 months of the onset of symptoms but the mean latency of diagnosis was 5 years with the average number of physicians seen before the headache was correctly diagnosed was 4.6.<sup>7</sup>

### **What is the epidemiology?**

HC is a rare disorder which may have a prevalence of up to 1% of the population.<sup>8</sup> HC is more common in females than males, 1.6:1. The onset is often during the third decade of life with a range from the first to seventh decade.<sup>9</sup>

### **What is the pathophysiology?**

Unknown. However, a PET study of seven patients with HC showed activation of the contralateral posterior hypothalamus and ipsilateral rostral pons during baseline pain which was blocked by administration of intramuscular indomethacin.<sup>10</sup>

### **What is the differential diagnosis?**

Secondary causes reported include the following: mesenchymal tumor of the sphenoid, lung malignancy, HIV (causal association unclear), C7 root irritation reported to aggravate, left lateral medullary infarction with left vertebral artery occlusion on MRI and MR angiography (head pain contralateral to infarction) internal carotid artery dissection, unruptured cavernous internal carotid artery aneurysm, prolactinoma (headache exacerbation with dopamine agonists), venous malformation of the right masseter; sphenoid sinusitis, osteoid osteoma of ethmoid sinus, post-traumatic, and cerebellopontine angle epidermoid.<sup>11</sup>

Other chronic daily headaches of long duration can be unilateral including chronic migraine, tension-type, and new daily persistent headache. An indomethacin trial should be considered in all patients with strictly unilateral daily headaches to exclude HC since the clinical features can be the same. The issue of transformed migraine is not entirely clear but if the initial frequency before becoming daily was less than 10 days per month, then the odds are great that the patient has chronic migraine. If 10 days or greater per month, then the patient may have evolved from episodic to chronic HC and a trial of indomethacin is indicated.

Trigeminal autonomic cephalalgias are also unilateral but of shorter duration. Chronic paroxysmal hemicrania has a duration of 2 to 45 minutes with a frequency of attacks of 5 or more per day and associated cranial autonomic symptoms. Cluster headache has a duration of 30 to 180 minutes with up to 8 attacks per day.

### **What is the treatment?**

Absolute response with headache freedom on indomethacin 50-300 mg per day in divided doses, usually 150 mg/d or less. One regimen is the following: 25mg three times a day for 5-7 days, subsequently increasing, if ineffective, to 50mg three times a day for a further 5-7 days and then, if ineffective, to 75mg three times per day for 2 weeks (Peter Goadsby, personal communication). There are rare reports of response at 300 mg/d. Side effects occur in 75% of patients with this regimen.<sup>5</sup> This extended titration schedule has been used so the occasional patient with HC who is a slow responder will not be missed. However, most patients may respond quickly. In a prospective study of 12 patients who discontinued indomethacin until HC recurred, complete pain relief was obtained within 8 to 48 hours.<sup>12</sup> Based on this, Rozen has suggested a trial of 3 days at each dose.<sup>13</sup>

The lowest effective dose of indomethacin should be used because of the risk of side effects including abdominal pain, dizziness, nausea and/or vomiting, diarrhea, ulcer disease, renal impairment, and association with adverse cardiovascular thrombotic events. Some patients may respond to doses as low as 25-50 mg daily. One study found benefit from a median dose of 61 mg daily when the patients were asked to taper the doses down to lowest effective after 6 months of treatment.<sup>14</sup> Because of the risk of gastroduodenal mucosal injury, indomethacin is typically taken with a proton pump inhibitor. Some patients may respond to other NSAIDs such as ibuprofen and COX-2 inhibitors (celecoxib). Some patients may have contraindications to indomethacin or not able to tolerate use. There are other options which, unfortunately, are not nearly as effective. In a recent series,<sup>5</sup> greater occipital nerve block and intravenous dihydroergotamine were effective as a short-term treatments in 35% and 33%, respectively; topiramate was effective in 41% for prevention. Occipital nerve stimulation is a promising treatment where larger series for confirmation will be of interest.<sup>15</sup> Melatonin 6-12 mg hs, anabotulinum toxin, verapamil, gabapentin, and intravenous methylprednisolone have been reported as effective in case reports.



### What is the prognosis?

One small study suggests that some patients may remain pain-free after initial treatment with indomethacin for 3 to 15 months.<sup>16</sup>

### So what's the point?

HC is a unilateral headache with daily and continuous mild to moderate pain which can be anywhere in the head, face or the neck. Most have severe exacerbations often brought on by triggers and usually with cranial autonomic symptoms and migraine features. HC can easily be mistaken for unilateral chronic migraine or new daily persistent headache. Secondary headaches should be excluded especially early on. HC is completely responsive to indomethacin which makes the diagnosis and is the treatment. Topiramate helps about 40%. Gabapentin may be effective. Occipital nerve blocks and intravenous dihydroergotamine may temporarily be of benefit. Occipital nerve stimulation is a promising treatment which requires confirmation in further studies.

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# Expert Opinion: Deep Brain Stimulation for Parkinson's Disease

*Joohi Jimenez-Shahed, MD*  
*Assistant Professor of Neurology, Baylor College of Medicine*  
*Parkinson's Disease Center and Movement Disorders Clinic*

## Case history:

A 61-year old female with levodopa-responsive parkinsonism for 8 years presents for a new patient evaluation. She is inquiring about deep brain stimulation (DBS) because her friends told her to ask about it and she saw a program on TV demonstrating the impact of this treatment. Her symptoms began with left-sided tremor and have progressed to involve freezing of gait and incapacitating dyskinesias in the last 2-3 years. She has long-standing constipation, recent onset of mild orthostasis (especially after her morning dose of medications), and nocturnal urinary frequency. She is currently taking carbidopa/levodopa 25/250, 1 tablet five times daily (q 3hrs), pramipexole 1mg t.i.d., and rasagiline 1mg q.a.m. Her morning medications take about 1 hour to kick in, and she has painful left foot dystonia during that time. Doses typically last 2-2.5 hours, and she has peak-dose dyskinesias including back-and-forth head movements and facial grimacing which are particularly distressing. Her tremors recur during off times and are present bilaterally, though still worse on the left. She also has severe gait freezing with gait initiation difficulty when medications wear off. She does not go out in public much (e.g., out to eat) because she is embarrassed about the dyskinesias, and occasionally develops sudden, unpredictable off times. She has no significant past medical history other than depression that started after her PD diagnosis, and for which she takes a selective serotonin reuptake inhibitor. She reports mild short-term memory problems, trouble multi-tasking, and has occasional difficulty thinking of the right word. The patient is examined as her medications are beginning to wear off, and is found to have bilateral rest tremors (left worse than right), mild generalized bradykinesia, and mild left-sided rigidity. No dyskinesic movements are apparent, and her gait is fairly normal without freezing. MoCA testing is 24/30 with deficits on visuospatial tasks (-2 points), recall (-3 points, though she identifies all items with category cues), and attention (-1 point).

## Questions:

When should DBS be considered in PD? Is DBS an appropriate consideration in this patient? How should this or any patient be evaluated for appropriateness of DBS? If she is a candidate, which target would be best? What are the expected outcomes of DBS?

## Expert opinion:

There are no evidence-based guidelines to help clinicians determine if or when PD patients are appropriate candidates for DBS, though decision tools exist [1, 2]. Generally accepted criteria include patients with idiopathic Parkinson's disease, a robust response to levodopa, complications of medical therapy (such as motor fluctuations or dyskinesias), lack of significant psychiatric and/or mood symptoms, no dementia, and age under 70 [3]. Less commonly, DBS is considered in PD when disabling tremor is refractory to medical therapy. Individual risk/benefit analyses and subjective considerations, such as impact on quality of life, may also be applied [4]. For example, there are uncommon cases in which DBS may still be considered in the presence of severe, disabling, or painful dyskinesias despite evidence of cognitive impairment. DBS initially seems reasonable to consider in the patient described above, who has disabling motor fluctuations and dyskinesias, dystonic symptoms and significant gait problems during off times, and minimal cognitive symptoms.

The first step in considering DBS in PD is confirming the clinical impression of idiopathic levodopa-responsive parkinsonism without atypical features to suggest secondary causes. This is generally established by routine clinical examination, careful history taking, and brain imaging when appropriate. Our patient reports experiencing some dysautonomia, which is not unexpected in advanced idiopathic PD. The time frame for development is crucial in determining if manifestations of dysautonomia are indicative of atypical parkinsonism such as multiple systems atrophy (MSA)[5]. MSA can sometimes pose a dilemma to the treating Neurologist, because it can begin with levodopa responsive parkinsonism, often with fluctuations and dyskinesias. However, the parkinsonism is quite rapidly progressive, and more florid dysautonomia occurs early in the disease course. Any patient presenting a management challenge that might seem amenable to DBS within 5 years of symptom onset should signal the Neurologist to consider an atypical cause of his/her parkinsonism.

The next step is to carefully review the DBS candidate's medications. Often, significant improvements in daily functioning can be achieved by maximizing dopamine agonist dosing or using extended release formulations, limiting levodopa to the least amount required to turn "on", or adding amantadine [6]. Extended release formulations of dopaminergic drugs at night can be used to improve morning off periods. Botulinum toxin injections or anticholinergic medications may be used to address the dystonic symptoms [7]. Any or all of these strategies could be used in this patient's case. However, these adjustments are temporizing for weeks or months, or side effects may occur such that DBS may still be the ultimate recommendation.

Third, the patient should be appropriately informed about the indications and risks/benefits of DBS. Ideally, the discussion and education process about DBS should begin at the time that the treating neurologist recognizes the presence of complications of PD therapy. The time it takes for these manipulations to run their course can be maximally utilized by the healthcare provider to prepare the patient and family for the ultimate choice to pursue DBS surgery. This can take the form of distribution of the increasingly numerous patient education materials (DVDs, monographs, books or websites), referral to a Movement Disorders specialist or other center with expertise in managing PD patients with DBS, or scheduling the appropriate pre-surgical evaluations when appropriate. Our patient would certainly benefit from any of these possibilities.

Once the decision is made with the patient to pursue DBS, he/she should undergo pre-operative assessments to finalize his/her candidacy for the procedure. At our center, this consists of an off/on evaluation and Neuropsychological evaluation. The off/on evaluation is conducted in the morning, in the practically defined medication "off" state, meaning that the patient has not taken any medications for PD after midnight of the night before presentation. Patients should be reminded to take their usual doses of non-PD medications. A Unified Parkinson's Disease Rating Scale (UPDRS) is administered in this state, and once again after the patient has taken the usual dose (or sometimes more) of morning medications and has turned fully "on". A demonstration of a minimum 30% improvement is generally accepted as satisfactory for pursuing DBS. The Neuropsychological evaluation is performed in the medication "on" state in order to measure the DBS candidate's emotional and cognitive well-being prior to surgery [8]. Patients with significant cognitive decline often fare poorly after surgery. Those with depression or anxiety are at risk of poor psychosocial adjustment after DBS and should be appropriately treated pre-DBS. Patients diagnosed with dementia are often started on acetylcholinesterase inhibitors and/or memantine and are considered inappropriate candidates for DBS. This patient's MoCA score are consistent with the cognitive deficits associated with PD, but should be confirmed with the Neuropsychological evaluation. She also reports some depression that might warrant advancing her antidepressant therapy prior to surgery or even referring to a psychiatrist for appropriate therapy recommendations. Psychotherapy is sometimes recommended at our site concurrently with pre- and post-DBS evaluations.

Our center also uses a multidisciplinary team approach to review candidates for DBS and make recommendations about unilateral vs. bilateral procedures and the site of stimulation. The meeting is attended by Neurologists, Neurosurgeons, and Neuropsychologists. In the absence of a committed team, individual practitioners should remain in close contact and discussion with the consulting Neurosurgeon and Neuropsychologist to ensure appropriate care is provided to the patient. There are limited guidelines by which to choose the most appropriate target for DBS in PD. The American Academy of Neurology evidence-based guidelines for management of advanced PD with motor complications [9], does not take into consideration several recent publications on the topic of DBS compared to best medical therapy. In fact, in answer to the question: "Does DBS reduce off time, dyskinesia, medication usage, and improve motor function?", DBS of the subthalamic nucleus (STN) was assigned a Level C for evidence, meaning that it is "possibly effective, ineffective, or harmful". Pallidal (GPi) and thalamic (ViM) DBS were assigned a Level U for evidence, meaning that the data are "inadequate or conflicting; given current knowledge, treatment is unproven". Since that time, three randomized and controlled trials have demonstrated superior effectiveness of DBS compared to best medical therapy (BMT) [10-12] and one randomized study compared STN to GPi DBS [13]. The VA cooperative study is of particular interest because the first component [11] compared DBS to BMT regardless of site of stimulation (60 STN and 61 GPi cases), and demonstrated that in general, DBS improved motor outcomes significantly while BMT did not. In the second component of this study, which directly compared STN to GPi [13], the authors found essentially similar improvements in motor function, with greater reduction in medications in the STN group (31% vs 17.8% in GPi), and improvements in depression in the GPi group. Neither site of stimulation resulted in major cognitive adverse events in aggregate. Both groups experienced declines in verbal abilities, previously only well-recognized in STN DBS. Further subgroup analyses of the VA cooperative study population are eagerly awaited.

In summary, these studies tell us that either STN or GPi DBS can improve on times (up to 11 hrs/day), reduce off times, and markedly reduce dyskinesias, often while allowing reduction in medications. Recent evidence suggests that depression may improve following GPi stimulation. PD patients with prominent dystonic symptoms may also benefit from

GPI stimulation. By contrast, ViM DBS is unlikely to improve any symptoms other than tremor, and is generally only useful in cases of truly tremor-dominant PD. In the long term, patients with parkinsonian symptoms other than tremor (e.g., rigidity, bradykinesia, gait changes) will still suffer from levodopa-induced dyskinesias and motor fluctuations after thalamic DBS [14]. For this patient, GPI stimulation may be the best choice due to co-morbidities of depression (though mild) and dystonia.

Lastly, let us turn to appropriate counseling of the patient. One idea that is essential to convey to patients is that DBS is not a cure, and that it does not work any better than medications can. At our center, expectations of outcomes are guided by the results of the off/on evaluation. If a symptom does not improve with maximal medical therapy, it is unlikely to improve after DBS. A dedicated discussion of the anticipated benefits reduces the likelihood that patients will proceed down the DBS pathway with unreasonable expectations or that they will be disappointed afterward. Our patient should be counseled about what to expect after completing her off/on evaluation, and that medications will likely be reduced, though not eliminated. She should further be counseled that optimization of DBS settings will occur over a 6-month period, that continued adjustments will be necessary over time as her disease progresses, but that axial symptoms such as cognition, speech, swallowing and balance likely to progress despite adjustments. Finally, a discussion about the actual surgical procedure and risks, choice of battery, and battery life should be incorporated. Once the target choice is determined, the reasons for and implications of this decision are reviewed with the patient and family.

Appropriate patient selection, pre-operative assessments and careful patient counseling are all essential components to successful DBS in PD. A close working relationship with the consulting Neurosurgeon and Neuropsychologist will further ensure that patients get the most comprehensive care. Together these aspects will set the stage for a better patient experience during post-operative care.

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## Talking About New Reimbursement Strategies (Are We Drowning In An Alphabet Soup?)

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In The Beginning there was FFS (*Fee For Service*). And then there was RBRVS (*Resource Based Relative Value System*). In the late 1970s the federal agency HCFA (*Health Care Financing Administration*), which in 2001 became CMS (*Centers for Medicare and Medicaid Service*), funded the research which led to the methodology of RBRVS. This new system was designed to address the soaring cost of health care in the United States. Following passage of OBRA (*Omnibus Budget Reconciliation Act*) in 1989, legislation established the RBRVS which eventually replaced physician charge based payments. Medicare implemented the RBRVS in 1992. The present day E/M (*Evaluation and Management*) model is part of RBRVS. The CPT (*Current Procedural Terminology*) codes, especially those related to E/M



services, were also developed as an outcome of RBRVS. While Health Care Economics predicts that some type of global reimbursement system will ultimately replace fee for service, it is likely that CPT will continue to be the identifying codes for reporting medical services and procedures. As newly proposed legislative regulations become integrated into practice reimbursements, organizations that integrate physicians and hospitals will have oversight in the form of governance by administrative practice leaders. Clinical documentation to measure a physician's economic performance will be monitored. Since reimbursements for levels of care will likely utilize the existing Documentation Guidelines, perhaps it would be worthwhile to briefly review some of the features of CPT.

CPT has a RVU (*Relative Value Unit*) attached to each code. The RVU is a numeric value that has been developed to represent three components of each medical service. These three components are physician's work (52%), practice expense (44%), and medical liability insurance (4%). A GPCI (*Geographical Practice Cost Index*) adjusts the RVU for regional differences. Using the three components of RVU, one can calculate the total adjusted RVU as follows:

$$\mathbf{RVU = RVUw \times GPCIw + RVU pe \times GPCIpe + RVUml \times GPCIml.}$$

The reimbursement for any given CPT code is based on the RVUs assigned to the CPT code multiplied by a CF (*Conversion Factor*) which translates the RVUs into dollar amount or actual payment for the services provided. The CF is a multiple of four components which are the estimated medical economic index, legislation change, budget neutrality and the well known "SGR" (*Sustainable Growth Rate*) which is essentially the expenditure target determined by different components and calculations. The SGR is the major factor responsible for the almost-30% Medicare pay cut which must be overridden by Congress annually. By using the Conversion Factor as currently defined, the calculation for physician reimbursement for any CPT code is:  $RVU \times CF$ .

Evaluation and Management services make up more than 50% of total Medicare physician payments and over 60% of most neurology practices. For neurologists, E/M codes capture the majority of inpatient and outpatient services. With the CMS elimination of the consultation code, neurologists are billing most new patient visits codes 99201 - 99205. These are the same code series used by primary care physicians but according the 2010 Medicare data, neurology is the single largest biller of CPT code 99205. There has been much literature focused on better defining "primary care" in terms of E/M services which would differentiate procedural specialties from non-procedural specialties. E/M services are often equated to "Cognitive Care Services" which also include care coordination, and integration of services; especially important when treating patients with chronic illnesses such as Alzheimer's Disease, ALS, Parkinson's Disease, MS and Epilepsy, to name a few. However, at this time, MedPAC (the *Medicare Payment Advisory Commission*)

has recommended broad cuts to the Conversion Factor for all specialties, which currently would include neurology. This one legislative change, in by itself, would have significant impact on a neurologist's income.

The functions of MedPAC should not be confused with the IPAB (*The Independent Payment Advisory Board*). IPAB was created as a provision of the PPACA (*Patient Protection and Affordable Care Act*), which is now being referred to as the ACA (Affordable Care Act), signed into law by Congress in March 2010. MedPAC was established in 1997 by the BBA (*Balanced Budget Act*). MedPAC is an independent U.S. federal body which proposes limitations on Medicare spending. The commission holds a total of 17 members each appointed for three years. The commissioners are appointed by the GAO (*Government Accountability Office*). The United States Comptroller General is the head of the GAO. At the commission's September 2011 meeting, the MedPAC recommendation was to repeal the SGR and institute three years of 5.9% cuts to specialists (including neurology). The commissioners advised freezing most Medicare payments to primary care physicians for 10 years and cutting specialists' payments by 17% over 3 years followed by a 7 year freeze. MedPAC propositions are submitted to Congress, who then either accept or reject the recommendations. If Congress were to accept these proposals, there is widespread concern that this change could create even more adverse consequences than exists with the current SGR.

The IPAB has a very different function than MedPAC. IPAB is a 15 member board of "health experts" appointed by the President and confirmed by the Senate for 6 year terms. The board will be supplemented by 3 officials representing the Department of Health and Human Services (*DHHS*) IPAB will make recommendations to Congress for reducing Medicare expenditure growth. A three - fifths ("super majority") Senate vote will be needed to overturn IPAB recommendations. Some feel that the power given to IPAB shifts responsibility and accountability for cuts in the Medicare program away from members of Congress to a 15 member unelected board. Since IPABs sole task is to reduce Medicare spending, there is concern that this board could impose arbitrary cuts in Medicare reimbursements for some providers while excluding others from its effects. There is strong support by numerous medical organizations, including the AAN (*American Academy of Neurology*), to repeal IPAB. The AAN has sent out action alerts asking members to contact their members of Congress to support the repeal of IPAB. An excellent overview of The Independent Payment Advisory Board could be found in the July 8, 2010 issue of *The New England Journal of Medicine*.

In addition to the cuts and freezes in physician reimbursements, additional proposals and plans have been developed to reduce the Medicare price tag. According to CMS, the National Health Cost for Medicare in 2010 was an estimated \$525 billion while spending on private health insurance benefits was an estimated \$822.3 billion. The 2012 projected cost for Medicare and Medicaid combined is \$737 billion. The gradual development of highly specialized interrelated and costly services compounded by the fact that about 80 million Americans will be eligible for Medicare in the year 2030 have resulted in the initiatives to overhaul the entire health care delivery system. This led to the current popular model of care which has become well know to all physicians; the ACOs (*Accountable Care Organizations*). ACOs were also a provision of the ACA.

On March 31, 2011, CMS released the proposed Rules and Guidelines for the MSSP (Medicare Shared Savings Program) and the development and implementation of ACOs. On April 23, 2011, less than a month later, CMS announced the BPCII (*Bundled Payments for Care Improvement Initiative*) as a reimbursement model where the fees of multiple providers are bundled into a single comprehensive payment that covers all the services involved in a patient's care. There appears to be widespread belief that ACOs could provide the necessary collaborative and contractual relationships between physicians and hospitals to manage bundled payments. The fact that the BPCII was released less than a month after the MSSP was probably not coincidental. However, in response to the 1,320 comments the agency received regarding the March, 2011 Rules and Guidelines on the MSSP and how ACOs are constructed, on October 20, 2011 CMS released a 696 page revised "Final Rule on Accountable Care Organizations". The ACO rules first proposed in March were criticized as being too demanding to entice health care providers into forming an untested health care delivery model by 2012. The October "Final Rule" contains many significant revised regulations which seem to make it easier for doctors and hospitals to participate in the program.

While all the focus has been on the National health care releases, the state of Massachusetts continues to move forward with even newer ways of paying for health care that replaces the traditional fee for service model. AOCs (*Alternative Quality Contracts*) are yet a different reimbursement plan which provides global payments to physician groups, hospitals, and other providers for each patient treatment episode. Under this plan, if the health care provider treats the patient for less than the payment amount, the provider keeps the difference. To ensure quality care, all providers will be expected to meet quality standards. Bonuses will be provided for those who exceed those standards. Again focusing on Value as a function of Quality over Cost, the best providers will be rewarded. A discussion of this model can be found in the September 8 issue of the *New England Journal of Medicine*.

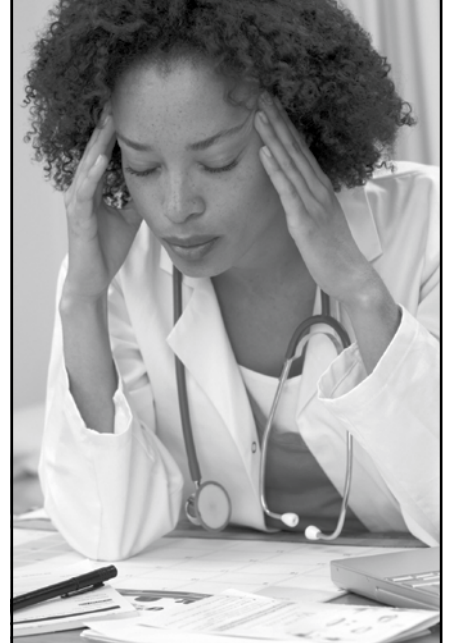
When the RBRVS was established in 1989, it changed the entire fee for service payment model. The historical development of medical reimbursements has been associated with greater demands on physician reporting and compliance with economic guidelines. Ever since the introduction of RBRVS and the E/M system, there has been physician concern regarding the complexity and administrative burden associated with the rules of compliance. The CPT system currently is still the methodology that determines how physicians get paid today. However, now that Health Care Reform has become the law of the land, it is even more important that physicians recognize the challenges created by the ongoing changes in health care. Whatever the future design of medical care turns out to be, one thing is for certain. Our profession's overall quality of care is not only being questioned but tied to value measured by monetary parameters. Most believe that it is inevitable that fee for service will be replaced by some form of global payment model. Whether it takes the form of "Bundled Payments" or "Alternative Quality Contracts" remains to be seen, but the future of medical reimbursements will require some type of integrated health care system linking hospital and physician services.

While it is obvious that our current medical delivery system is economically unsustainable, I only wish some of the initialisms and acronyms would go away so we know what we are talking about.

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