



**Spine Section EC Meeting
Marriott Marquis, 780 Mission Street, San Francisco, CA**

**Saturday, October 19, 2013
11:30am-4:00pm**

AGENDA

Meeting was called to order and began at 11:35am

1. **Secretary's Report** (P. Mummaneni)
 - a. D. Benzil will attend on behalf of ANNS and D. Resnick will attend on behalf of CNS

2. **Treasurer's Report** (C. Kuntz) – **See attached pages 13-17**
 - a. Will discuss if annual meeting made budget

Without the annual meeting we run in a deficit. The section has paid for unfunded fellowships from our own account.

Kuntz/Groff – the annual meeting made \$55,914 in 2013 and \$15,831 in 2012. Concerns were voiced that the annual meeting might not make money in the future, and Section's efforts in funding the Washington Cmte, etc may be at risk.

3. **New Business**
 - a. Hypothermia and Human Spinal Cord Injury (M. Wang/J. O'Toole) – **See attached pages 17-30**
 - I. New statement from J. O'Toole needed for EC vote

No vote was taken at EC. There are ammendments needed to this statement. Marjorie will edit it and send it to the EC for a vote.

II. Send to trauma section for approval
(original statement was a joint effort between Spine and Trauma). We do want to coordinate with trauma section for this statement per Dr Cheng and Dr Groff

- b. Joint Position Statement on Vertebroplasty coordinated by SIR (M. Groff)
– **See attached pages 30-34**

A subcommittee will be created to make a position statement per Dr. Groff and Dr. Steinmetz. Dr. Steinmetz will form a subcommittee to do this.

- c. NREF (T. Tippet) – Dr. Tippet is the new president NREF, and NREF is a new 501c3.
 - NREF will work with Spine Section EC to award grants to spine fellowship programs
 - NREF since 1980 has given over \$11.7 million in grants and scholarships; NREF supports training programs;

Dr. Tippet asked each EC member to give \$1000 per year to NREF.

Only 4% of neurosurgeons are Cushing level supporters.

Dr. Groff and Dr. Mummaneni – encouraged all to contribute and noted that at SRS – all EC members are donors and top level supporters.

d. Choosing Wisely Campaign (M. Groff) – AANS Request – **See attached pages 34-39**

Dr. Knightly pointed out two issues of interest in spine: 1. No steroids for acute cord injury 2. No imaging for acute low back pain in the short term.

Dr. Groff moved to approve the above two items and Dr. Mummaneni seconded the motion and the motion carried.

Dr. Knightly will take this information back to QIW.

e. Aetna IOM Policy (R. Haid) – **See attached pages 40-65**

Dr. Cheng pointed out that a neurology organization created a guideline statement that every spine case should have neuromonitoring.

Aetna may not cover this modality.

Per Dr. Cheng, we have not yet found a case where neuromonitoring has been denied for payment from Aetna. If a case is found, then Dr. Cheng would like to know of that case.

The Rapid Response Committee has a response prepared for this contingency.

f. Update on MOC Textbook (J. Cheng, P. Mummaneni, M. Groff) – **See attached pages 65-83**

- I. Requirements for authors and criteria for remaining on
- II. Chapter Assignments – **See attached pages 83-85**

g. Need for consistent Section committee report form (P. Mummaneni/A. Pacia)

h. Signature needed for contract for administrative support (P. Mummaneni/A. Pacia)

- A. Pacia has contract

Dr. Groff moved to approve the contract sent to Spine Section by AANS and CNS to engage Amanda Pacia for admin support. Dr. Mummaneni seconded the motion. The Motion carried.

i. Spine Section Fall Report – **See attached pages 35-103**

I. Current rules and regulations - to AANS. Our bylaws say we can remove them from membership after 1 year of nonpaid dues. In practice, we have allowed two years before we remove them from membership per Dr. Eicholz

II. Action plan for members with unpaid dues – to AANS. Dr. Eicholz has emailed and called late dues payers and often gets a positive response to his emails and calls.

III. 2014 Dues changes, if any – to AANS – we have increased from \$50 to \$100 in the last few years and we will not increase it for 2014.

IV. Name of individual to work with AANS on cover letter to be sent with 2014 section dues – to AANS – Dr. Kurt Eicholz will be the Section liaison for this process.

- j. Wrong Level Spinal Survey Checklist (J. Cheng) – **See attached pages 104-114**
- k. NASS effort to advocate on your behalf for fair coverage policies (M. Groff)
– **See attached pages 115-116**

Dr. Groff says we are not letting our membership know what advocacy we are doing. Katie Orrico has suggested that she would be willing to send out info from the Washington Committee on the Section's behalf using Section mast head. Katie Orrico can help with survey responses as well.

Dr. Benzil updated the group on a "back at work" program to help neurosurgeons stay at the forefront of spine care. She is working on this with Dr. Joe Cheng. She asked for an official rep from Spine Section

Dr. Groff suggested forming a strategic planning committee with the past chairs, current officers, and exhibits chair to make a long range plan. Dr. Groff will form an ad hoc cmte to explore this option with the past chair, future chair, and current chair and report back to the EC at the Section annual meeting.

4. **Old Business**

- a. SRS/Section AUC Project for Adult Deformity (S. Glassman) – **See attached pages 116-117**
 - I. Update on N2QOD (M. McGirt), there are 8000 lumbar patients and 1500 cervical patients enrolled now in N2QOD. Dr. Ghogawala and Dr. Selden are rotating on and Dr. McGirt is rotating off N2QOD as the scientific program chairs.
- b. N2QOD deformity module update (P. Mummaneni) - **See attached pages 118-124**
 - I. SRS: (J. Coe, S. Berven, S. Glassman, C. Shaffrey)
 - II. Section: (P. Mummaneni, M. McGirt, M. Groff)
- c. OneAsk (R. Haid)
 - I. Changing industry sponsorship rules

Dr. Haid says the Chair of the section, the past Chair, and the Chair elect need to interact with exhibiting companies and help obtain funding commitments.

Suggestion – request that grant funds are earmarked with contracts for NREF to go back to spine and periphaeral nerve section for specific use.

5. **Committee Reports** (Oversight by Chair) (M. Groff)

- a. Annual Meeting (J. Knightly) – **See attached pages 125-144**
- b. Exhibits (Dan Hoh) - **See attached pages 145-154**

Section has increased requests 5% from last year and Dr. Hoh is tracking this.

- c. Future Sites (I. Kalfas) – 2014 is in Orlando at the Swan, and 2015 is in Phoenix, and 2016 the possibilities are Orlando at the Peabody vs the Gaylord Palms.
- d. Nominating Committee (J. Cheng) – **No new Information**
 - I. Section
 - 1. Chair-Elect: John Hurlbert
 - 2. Member-at-Large: Zo Ghogawala
 - 3. Ex-Officio: Marjorie Wang
 - 4. Slate of officers for 2013-2014:
 - a. Chair: Mike Groff
 - b. Past-Chair: Joe Cheng
 - c. Secretary: Praveen Mummanenni
 - d. Treasurer: Charlie Kuntz
 - e. SPC: Mike Wang
 - f. AMC: Jack Knightly

- g. Member-at-Large: Pat Jacob, Matt McGirt
- h. Ex-Officio: Daryl Fourney

e. Scientific Program (Mike Wang) **See attached pages 154-155**

"Putting patients first" is the theme for 2014. Dr. Fessler is honored guest, and Story Musgrave is the invited speaker per Dr. Groff and Dr. Mike Wang.

The Chinese Orthopedic Association is the invited guest association.

Dr. Wang has reached out to NASS and AOA and DO neurosurgeons to join the meeting.

I. Abstract Reviews – AANS Request – **See attached pages 155-190**

6. Committee Reports (Oversight by Chair-Elect)

a. CPT (P. Angevine) – **See attached page 191**

The CPT Committee will be asked to look at SI joint fusion and get back to the EC with a report and recommendation on the request to support a CPT code for this procedure.

b. Membership (K. Eichholz) – **See attached pages 35-103**

- I. Expand member categories
- II. Membership drive
- III. Current rules and regulations - to AANS
- IV. Action plan for members with unpaid dues - to AANS
- V. 2014 Dues changes, if any – to AANS
- VI. Name of individual to work with AANS on cover letter to be sent with 2014 section dues – to AANS

c. Newsletter (J. Ratliff) - **No new information**

d. Payor Response (J. Cheng) - **No new information**

I. Aetna IOM Policy (R. Haid) – **See attached pages 40-65**

e. Rules and Regs (J. Smith) - **No new information**

7. Committee Reports (Oversight by MOL) (M. McGirt)

a. ASTM (J. Coumans) – **No new information**

- I. Medical and Surgical Materials and Devices Meeting (Nov 2013)

Biomechanical testing standards are proposed and our support is requested. Dr. Coumans will draft a statement and send to Dr. Mummaneni and Dr. Groff to get a vote from the EC

b. FDA Drugs and Devices (C. Sansur) - **No new information**

c. NPA (E. Woodard) – **The essential modules is being deployed**

d. S2QOD/N2QOD (N. Brooks) – **See attached pages 118-124**

e. Outcomes (M. Steinmetz) – **See attached pages 191-194**

8. Committee Reports (Oversight by MOL) (P. Jacob)

a. Education (F. LaMarca) - **No new information**

- b. Fellowships (M. Kaiser) – Dr. Kanter will take over this committee. He was tasked with working on the infolded fellowship proposal by the SNS. Per Dr. Groff, the NCAST will accredit the infolded fellowships and CAST will accredit postgraduate fellowships. Dr. Kanter will help establish how NCAST approval will occur.

For NREF funding review, Dr. Groff will review the applications with some of the officers.

- c. Guidelines (J. O'Toole) **See attached pages 194-195**
 - I. **Action:** Propose formal letter to JGC and AANS/CNS Guidelines that ALL Section work be accessible by the Section.
 - II. Hypothermia and Spinal Cord Injury Position Statement Update (J. O'Toole, M. Wang, Kaiser)
 - III. Guidelines efforts updates
 - a. Lumbar Fusion update—completed, approved by JGC and submitted to JNS: Spine
 - b. Metastatic Spinal Tumors—chapters in revision (Tim Ryken is workgroup chair)
 - c. Thoracolumbar Trauma—workgroup reforming
 - d. Cervical spondylosis guideline update—workgroup to form in mid to late 2014
 - IV. SRS/AUC Degenerative Deformity with RAND corporation—waiting to hear on workgroup assignments

d. Research and Awards (J. Chi) **See attached pages 197-199**

Dr. Chi has requested three year sponsorship for the research and awards. A minority of vendors have responded.

Dr. Kanter and Dr. Chi will work with Dr. Wang to arrange platform time for the award winners for status reports on the platform at the annual meeting.

9. Committee Reports (Oversight by Ex-Officio) (J. Hurlbert)

- a. AANS PDP (R. Fessler) - **No new information**
- b. AANS Board Liaison (D. Benzel) - **No new information**
- c. AANS/CNS Joint Tumor Liaison (L. Rhines) - **No new information**
- d. Publications (L. Holly) – Nov/Dec there will be solicitation letters from JNS Spine for platform talk abstracts
- e. Web Site (E. Potts) – **See attached pages 199-204**
 - I. Increase budget for Oral Platform recording
 - II. Repository for all our contracts and letters of intent
 - III. Wrong level surgery survey – update

10. Committee Reports (Oversight by Ex-Officio) (Z. Ghogawala)

- a. CME (G. Trost) - **No new information**
 - I. Single Accreditation System for Graduate Medical Education (MD, DO)
- b. NREF (Z. Gokoslan) – **No new information**
 - I. How many proposals from Spine?
 - II. NREF Review and Grading Committee (Ziya - Liaison) – Dr. Gokaslan is not able to see all the grants being submitted for spine/peripheral nerve. Dr. Gokaslan suggests we ask NREF for a report for spine and peripheral nerve total grants and how many were finalists and how many were funded.
 - 1. M. Groff (Committee Chair)
 - 2. Committee: P. Mummaneni, Z. Ghogawala, D. Sciubba, S. Dhall, C. Kuntz, F. Lamarca
- c. Spinal Deformity training (M. Schmidt) – **No new information**
 - I. MOC textbook is now in process
- d. Washington Committee (R. Heary/ K. Orrico) – **See attached pages 205-281**

11. Committee Reports (Oversight by Ex-Officio) (D. Fourney)

- a. COSSS (J. Cheng, I. Kalfas) – **No new information**
 - I. COSSS Representatives: J. Cheng, I. Kalfas. Alternate: M. Groff

Operating agreement is being created with assistance of Dr. Heary.

b. Inter-Society Liaison (M. Rosner) – **No new information**

- I. Add Inter-Section Liaison to job and attend other Section EC's
- II. Section Partnerships: CSNS, Tumor
- III. Society Partnerships: AO, SRS, CSRS

There was a proposal to combine efforts for an annual meeting with ISASS and Dr. Wang and Dr. Kuntz and Dr. Hurlbert will explore this option for a future meeting.

c. Peripheral Nerve Task Force (A. Belzberg) – **No new information**

d. Public Relations (S. Dhall) – **No new information**

- I. Cervical trauma and SCI Guidelines published in Neurosurgery
 - 1. Mobile and web application (Dhall, Potts)
- II. Publicize what the Section does
- III. Alerts: Safety alerts, new devices, etc.
 - 1. BMP issues

e. Young Neurosurgeons Committee (C. Upadhyaya) – Reminder: there is a medical student fellowship for funding to attend the AANS or CNS annual meeting.

2013-2014 AANS/CNS Section on Disorders of the Spine and Peripheral Nerves Resource Guide

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AGENDA BOOK

Agenda Item 2a:

AANS/CNS SPINE AND PERIPHERAL NERVE SECTION As of June 30, 2013

	FY '09 Final	FY '10 Final	FY '11 Final	FY '12 Final	FY '13 Budget	FY '13 Final	FY '14 Budget
SPINE AND PERIPHERAL NERVE SECTION							
SECTION INCOME							
Dues (AANS)	49,300	52,550	52,903	48,290	48,800	70,999	99,900
Mailing List Sales	2065	1190	885	690	0	345	0
SPONSORSHIP REVENUE							
H. Alan Crookard Int'l Fellowship	5,000	5,000	5,000	5,000	5,000	5,000	5,000
Samford Larson Research Award	30,000	30,000	30,000	30,000	30,000	30,000	35,000
Ronald Applebaum Research Award	15,000	15,000	15,000	15,000	15,000	15,000	20,000
David Cahil Fellowship	30,000	0	30,000	0	30,000	30,000	30,000
Ralph Croward Fellowship	0	30,000	30,000	0	30,000	30,000	30,000
David Kline Research Award	15,000	15,000	15,000	15,000	15,000	15,000	20,000
David Kline Lectureship	5,000	5,000	5,000	5,000	5,000	0	5,000
David Kline Lectureship Dinner	N/A	N/A	3,000	0	3,000	5,000	5,000
Clinical Trials Fellowship Award	50,000	0	52,000	0	0	0	25,000
Comtag International Fellowship	5,000	5,000	5,000	0	5,000	5,000	5,000
Regis W. Hald, Jr., MD Adult Deformity Research Award	N/A	N/A	N/A	30,000	30,000	30,000	30,000
Return of Un-expended Kline Research Award (ok to keep per Integra)	0	0	0	5,895	0	0	0
Contributions for Operating Expenses	7,977	7,863	8,439	6,193	7,187	8,275	12,666
Miscellaneous Revenue	0	0	104	0	0	0	0
Total Income	214,342	166,633	252,331	162,054	223,987	244,620	322,299
SECTION EXPENSES (AANS)							
Audio Visual	1,971	1,499	1,724	1,197	2,000	6,964	7,500
Bank Fee	648	470	604	498	498	889	1,019
Contributions & Affiliations	90,000	187,500	75,000	191,500	140,000	140,000	140,000
Decorating	205	607	540	395	950	455	950
Food & Beverage	4,827	3,984	5,914	7,023	6,500	5,977	9,750
Gifts & Gratuities	0	0	0	164	0	439	1,000
HONORARIA & AWARDS (AANS)							
H. Alan Crookard Int'l Fellowship	5,000	5,000	0	5,000	5,000	5,000	5,000
Samford Larson Research Award	30,000	30,000	30,000	30,000	30,000	30,000	35,000
Ronald Applebaum Research Award	15,000	15,000	15,000	15,000	15,000	15,000	20,000
David Cahil Fellowship	30,000	30,000	30,000	30,000	30,000	30,000	30,000
Ralph Croward Fellowship	30,000	30,000	30,000	30,000	30,000	30,000	30,000
David Kline Research Award	15,000	15,000	15,000	15,000	15,000	15,000	20,000
Clinical Trials Fellowship Award	0	50,000	50,000	0	50,000	50,000	50,000
David Kline Lectureship	5,000	0	5,000	1,457	5,000	0	5,000
Comtag International Fellowship	10,000	5,000	5,000	5,000	5,000	5,000	5,000
Mayfield Clinical Award	3,000	0	2,000	2,000	2,000	2,000	2,000
Mayfield Basic Science Award	3,000	4,000	2,000	2,000	2,000	2,000	2,000
Outcomes Committee Award	2,000	2,000	2,000	2,000	2,000	2,000	2,000
Regis W. Hald, Jr., MD Adult Deformity Research Award	0	0	0	30,000	30,000	30,000	30,000
Clinical Trial Proposal Award	1,500	1,500	0	1,500	500	1,500	500
Travel for Clinical Trials Award	1,534	0	0	0	0	0	0
Plaques for 14 Awards @ \$325 each	270	997	273	287	4,550	273	4,550
Office & other Supplies	592	135	335	387	350	522	550
Photocopy	0	1	2	3	25	0	25
Postage & Distribution	1,354	1,146	1,073	1,163	1,500	731	1,500
Printing	1,966	0	0	0	0	0	0
Newspaper Professional Fees	0	0	7	0	0	800	1,000
Staff Travel	0	0	0	0	250	830	1,000
Telephone	487	30	143	1,193	2,200	147	2,200
Volunteer Travel	60	0	19,966	0	5,500	2,254	5,000
Website	3,354	436	909	0	12,500	3,399	3,645
Other Personnel Service Fees	0	0	0	0	0	0	50,000
Staff Coordination	7,977	7,863	8,439	6,189	7,187	8,761	12,666
Miscellaneous	12,398	0	7,500	0	0	0	0
Guidelines Development	297	10,010	4,420	27,303	50,000	36,973	50,000
Spine Section History Project	17,969	15,982	0	0	0	0	0
Subtotal Expenses	265,630	216,170	312,840	406,258	456,110	426,895	559,459
Net Total Income - Total Expenses	(71,296)	(251,547)	(60,517)	(244,185)	(232,123)	(182,265)	(206,859)
Investment Revenue	(183,369)	120,354	175,898	85,879	115,096	214,397	130,348

Net income including Investment Revenue	(254,695)	(131,153)	115,361	(158,310)	(117,627)	32,132	76,541
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SPRINE AND PERIPHERAL NERVE ANNUAL MEETING (CNS)

ANNUAL MEETING INCOME (CNS)							
Registration	228,710	230,296	216,570	222,890	249,235	224,440	230,810
Exhibits	427,225	372,240	360,155	331,125	369,800	394,925	761,600
Contributions/Sponsorships	337,500	389,159	342,500	347,500	360,000	367,500	0
Social Events	2,300	2,000	2,000	2,600	2,100	2,300	2,000
Special Courses/Luncheon Symposia	47,900	44,110	38,000	47,460	44,900	44,950	42,550
Total Income	1,043,635	1,037,804	959,225	951,575	1,016,055	944,155	1,037,070

ANNUAL MEETING EXPENSES (CNS)							
Scientific Program/Special Courses	233,994	237,007	251,810	234,240	277,722	275,924	217,556
Abstract Management	0	0	0	0	20,560	12,145	21,012
Program Book	0	0	0	0	24,762	26,846	23,700
Opening Reception	0	0	0	0	56,079	65,073	51,656
Social Events	145,927	141,475	156,155	154,396	0	0	0
Committee Dinners/Events	0	0	0	0	54,505	59,015	94,758
Exhibit Hall Program	43,186	49,557	45,660	49,600	86,437	70,517	115,461
AM Registration	47,826	50,599	54,585	52,149	63,912	62,369	56,037
Annual Meeting Promotion	63,870	67,929	62,463	60,624	20,200	13,128	0
Onsite Coordination & Offices	12,213	9,423	12,910	15,054	17,537	16,751	19,133
Annual Meeting Planning Cmte	1,016	2,145	0	2,528	4,212	4,608	2,070
Staff Coordination	80,000	100,000	100,000	100,000	0	100,000	100,000
Total Expenses	625,034	657,636	676,514	671,560	664,927	706,979	731,422

Net*Total Income - Total Expenses	418,601	380,169	282,711	280,015	351,129	237,175	305,648
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Net income including Annual Meeting	160,906	249,016	398,092	121,706	234,101	266,311	225,101
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Clockard Fellowship Payment for FY09 received in FY10	(5,000)	5,000					
Santors Larson Award Payment for FY09 received in FY10	(30,000)	30,000					
Agfelaum Award Sponsorship for FY10 received in FY11		(15,000)	15,000				
Clockard Fellowship Sponsorship for FY12 received in FY13 (January)				(5,000)			
Santors Larson Award Sponsorship for FY12 received in FY13 (January)				(30,000)			
Santors Larson FY12 Not Yet Paid				15,000			
Stopped Payment on 2 Clinical Trials Proposal Award Checks - reissued in FY14 - checks were lost in the mail						1,000	
Total Adjustments	(35,000)	20,000	15,000	(25,000)	0	1,000	0
Net income per Audit	125,906	269,016	413,092	101,706	234,101	270,311	225,101

AANS/CNS Section on Disorders of the Spine
Statement of Financial Position
As of June 30, 2013

	Current Year 06/30/13	Prior Year 06/30/12
ASSETS		
Checking & Short Term Investments	\$488,486	\$737,668
Accounts Receivable, net of Allowance for Uncollectible Accounts	480,280	400
Long-Term Investment Pool, at Market	2,711,432	2,497,208
TOTAL ASSETS	<u>\$3,680,198</u>	<u>\$3,235,275</u>
LIABILITIES AND NET ASSETS		
Liabilities		
Accounts Payable and Current Liabilities	\$118,858	\$55,000
Deferred Contribution Revenue	100,000	15,000
Deferred Dues	50,586	25,731
Total Liabilities	<u>\$269,444</u>	<u>\$95,731</u>
Net Assets		
Unrestricted	\$3,134,005	\$2,985,837
Unrestricted - Peripheral Nerve Task Force	\$1,217	
Unrestricted - Fellowships	\$4,322	\$52,000
Net Revenue (Expense)	271,211	101,706
Total Net Assets	<u>\$3,410,754</u>	<u>\$3,139,544</u>
TOTAL LIABILITIES AND NET ASSETS	<u>\$3,680,198</u>	<u>\$3,235,275</u>

	FY '09 Final	FY '10 Final	FY '11 Final	FY '12 Final	FY '13 Final	FY '13 Budget	FY '14 Budget
REVENUES							
Membership Dues	49,300	52,550	52,903	48,290	70,996	48,800	99,900
Mailing List Sales	2,065	1,180	885	690	345	0	0
Fellowship/Award Sponsorship	120,000	125,000	205,000	71,895	165,000	168,000	210,000
Miscellaneous Revenue	0	0	104	0	0	0	0
Contributions for Operating Expenses	7,977	7,893	8,439	6,189	8,279	7,187	12,696
Annual Meeting Revenue	1,043,635	1,037,804	959,225	951,576	944,155	1,016,055	1,037,070
TOTAL REVENUES & SUPPORT	1,222,977	1,224,427	1,226,556	1,078,640	1,188,775	1,240,042	1,359,666
EXPENSES							
Audio Visual	1,971	1,499	1,724	1,197	6,964	2,000	7,500
Bank Fee	648	470	604	498	889	498	1,019
Contributions & Affiliations	90,000	187,500	75,000	191,500	140,000	140,000	140,000
Decorating	205	607	540	385	405	550	550
Food & Beverage	4,827	3,994	5,914	7,023	5,977	6,500	9,750
Fellowships	151,604	0	0	0	0	0	0
Gifts & Gratuities	0	0	0	164	439	0	1,000
Honoraria & Awards	0	188,497	186,273	152,787	216,773	226,050	241,050
Office & other Supplies	592	135	335	387	522	350	550
Photocopy	0	1	2	3	0	25	25
Postage & Distribution	1,284	1,146	1,073	1,163	731	1,500	1,500
Printing/Typesetting	1,966	0	7	0	0	0	0
Newsletter Professional Fees	0	0	0	0	900	0	1,000
Speaker Expenses	0	0	0	1,457	0	0	0
Staff Travel	0	0	0	0	832	250	1,000
Telephone	487	30	143	1,193	147	2,200	2,200
Volunteer Travel	60	0	19,966	0	2,254	6,500	6,000
Website	3,354	436	908	0	3,288	12,500	3,645
Other Personnel Service Fees	0	0	0	0	0	0	50,000
Staff Coordination	7,977	7,893	8,439	6,189	8,791	7,187	12,696
Miscellaneous	12,398	0	7,500	0	0	0	0
Guidelines Development	297	10,010	4,420	27,303	36,973	50,000	50,000
Spine Section History Project	7,968	15,952	0	0	0	0	0
Annual Meeting Expense	628,034	657,634	676,514	671,561	706,976	664,927	731,422
TOTAL EXPENSES	913,672	1,075,804	989,362	1,062,810	1,132,861	1,121,037	1,260,907
Investment Earnings	(183,399)	120,394	175,898	85,875	214,397	115,096	130,348
NET REVENUE	125,906	269,017	413,092	101,705	270,311	234,101	229,107

AANS/CNS Section on Disorders of the Spine
Annual Meeting
For the Twelve Months Ending June 30, 2013

	FY '09 Final	FY '10 Final	FY '11 Final	FY '12 Final	FY '13 Final	FY '13 Budget	FY '14 Budget
Revenues							
Registration Fees	276,610	274,405	254,570	270,351	269,430	294,155	273,470
Exhibitor Fees	427,225	372,240	360,155	331,125	304,925	369,800	761,600
Exhibitor Sponsorship Revenue	337,500	389,159	342,500	347,500	367,500	350,000	0
Special Event Revenues	2,300	2,000	2,000	2,600	2,300	2,100	2,000
Total Revenues	1,043,635	1,037,804	959,225	951,576	944,155	1,016,055	1,037,070
Expenses							
Scientific Program	233,994	237,007	251,810	234,240	275,924	277,722	217,556
Abstract Management	0	0	0	0	12,145	20,560	21,012
Program Book	0	0	0	0	26,846	24,762	23,700
Opening Reception	0	0	0	0	65,673	95,079	81,695
Social Events/General	145,927	141,475	156,184	154,396	0	0	0
Committee Dinners/Events	0	0	0	0	59,015	54,506	94,758
Exhibit Program	43,188	49,057	48,660	49,600	70,517	86,437	115,461
Advanced Registration	47,826	0	0	52,149	62,369	63,912	56,037
On-Site Registration	0	50,598	54,587	0	0	0	0
Annual Meeting Promotion	63,870	67,929	52,464	60,624	13,128	20,200	0
On-Site Coordination	12,213	9,423	12,809	18,024	16,751	17,537	19,133
Annual Meeting Planning Cmte	1,016	2,145	0	2,528	4,608	4,212	2,070
Staff Coordination	80,000	100,000	100,000	100,000	100,000	0	100,000
Total Expenses	628,034	657,634	676,514	671,561	706,976	664,927	731,422
Net Excess (Loss)	415,601	380,170	282,711	280,015	237,179	351,128	305,648

AANS/CNS SECTION ON DISORDERS OF THE SPINE

NOTES TO FINANCIAL STATEMENTS

June 30, 2013

Revenue

Membership Dues: Budget \$48,800, Actual \$70,996

The Section elected to double the Membership Dues price for the 2013 dues billing, after the budget was created.

Expense

Audio Visual: Budget \$2,000, Actual \$6,964

The Audio Visual expenses for the Section EC meeting at the CNS Annual Meeting were significantly higher than in prior years.

Bank Fee: Budget \$498, Actual \$889

More members paid their dues with a credit card this year than in years past.

Gifts and Gratuities: Budget \$0, Actual \$439

Gifts for the Past Chairs were purchased to give out at the Past Chairs dinner.

Office Supplies: Budget \$350, Actual \$522

The cost of the Section's custom-printed supplies (envelopes, etc.) has increased. This budget was raised to \$550 for FY14.

Newsletter Professional Fees: Budget \$0, Actual \$900

The Section incurred design costs for the Fall 2012 Newsletter. This expense was not expected and not budgeted as the Section has not had any design costs in the past.

Staff Travel: Budget \$250, Actual \$832

The AANS Director of Development made several site visits to corporations on behalf of the Section seeking sponsorships.

Agenda Item 3a: Below and also see PDF attachment "Hypothermia SCI Article"

Date: October 10, 2013 at 6:24:04 AM PDT

To: Michael Groff <mgroff@mac.com>, Pm <vmum@aol.com>

Cc: Cheng Joseph <joseph.cheng@Vanderbilt.Edu>, Allan Levi <ALevi@med.miami.edu>, Marjorie Wang <mwang@mcw.edu>, Michael Kaiser <Mqk7@columbia.edu>

Subject: RE: Hi Joe

Mike and Praveen,

Please find attached the update to the Hypothermia and SCI position statement that Marjorie Wang, Mike Kaiser and I put together.

If the EC meeting is still scheduled for Sat Oct 19th, I will not be able to attend, but Marjorie should be there to discuss our findings. I am happy to address any concerns and modify the document either before or after the meeting. An additional action item on this document would be whether or not to send it to the Trauma section for approval as well (the original statement was a joint effort between Spine and Trauma).

Thanks,
John

John E. O'Toole, MD, MS
Associate Professor of Neurosurgery
Rush University Medical Center
1725 W Harrison St., Ste 855
Chicago, IL 60612
office (312) 942-6644
fax (312) 942-2176

From: Michael Groff [<mailto:mgroff@mac.com>]

Sent: Thursday, August 15, 2013 8:39 AM

To: Pm

Cc: Michael Wang; Cheng Joseph; Eric Potts; Allan Levi; Jacqueline Walters; John O'Toole; Marjorie Wang; Michael Kaiser

Subject: Re: Hi Joe

Guys I agree with all but want to make a couple of changes.

Allan thanks for making us aware.

- Praveen lets put this on the agenda as new business
- Let's have John O'Toole review this with help from Marjorie and Mike Kaiser. They should look at the old statement and the subsequent literature. I attached Allan's recent paper to serve as a starting point.
- John should draft a new statement that Praveen can distribute to the EC + Allan one week prior to our EC meeting for a quick vote.

Would everyone I have volunteered please chime in with an OK or not.

Thanks, mike

Hypothermia and Human Spinal Cord Injury: Updated Position Statement and Evidence Based Recommendations from the AANS/CNS Joint Section on Disorders of the Spine Peripheral Nerves

John E. O'Toole, Marjorie C. Wang, and Michael G. Kaiser

Recommendation:

Grade I - There is insufficient evidence to recommend for or against the practice of either local or systemic therapeutic hypothermia as a treatment for acute spinal cord injury.

Grade I - There is weak evidence to suggest that systemic modest hypothermia might be applied safely to this population. The fact that this conclusion is predominantly based on the same patient cohort included across multiple publications in addition to the absence of comparative studies disallows definitive recommendations regarding therapeutic effectiveness and safety.

Background:

Both local and systemic hypothermia have been of interest for decades as potential therapies for acute spinal cord injury (SCI).^{1,2} In 2007 the American Association of Neurological Surgeons (AANS)/Congress of Neurological Surgeons (CNS) Joint Section on Disorders of the Spine and Peripheral Nerves and Joint Section on Trauma released a position statement and evidence-based review on hypothermia after SCI.⁷ In that review, Resnick et al found a lack of evidence to either support or refute the use of local or systemic hypothermia for acute SCI in humans. The reviewers advocated for controlled clinical trials investigating the safety and efficacy of this intervention prior to its adoption in clinical practice.

In an effort to keep the position statement current, an *ad hoc* committee was formed to generate an updated evidence-based recommendation founded upon a review of the literature from the intervening time period since the 2007 statement.

Methodology:

Literature Search:

A computerized search of the National Library of Medicine database was performed using PubMed with the search terms “hypothermia AND spinal cord injury.” The search was limited to the years 2005 to present since the prior review covered 1965-2005. One hundred and thirty-one references were obtained. The titles and abstracts of these references were then reviewed, and all publications not pertaining to the clinical use of hypothermia after acute SCI in humans were eliminated including laboratory, preclinical, and vascular surgical reports. Only papers published in English were included. Case series and case reports as well as systematic reviews/meta-analyses were included, but general review papers were excluded. The bibliographies of selected papers were also reviewed for additional references. This yielded four publications of relevance.

Grading of the Evidence and Elaboration of Recommendations:

Publications were graded according to the attached Levels of Evidence for Therapeutic Studies (Table 1) similar to that used by the North American Spine Society and other professional societies. Each member of the committee individually graded the publications and these grades were then compared. Differences were adjudicated by discussion and consensus voting. These grades were then synthesized with the evidence from the 2007 position statement to elaborate a recommendation using the attached guide (Table 2).

Scientific Foundation of Recommendation:

The four new publications included one retrospective comparative case series, one pooled retrospective and prospective case series, one retrospective case series and one case report.³⁻⁶ The details and critique of the evidence can be found in the attached evidentiary table (Table 3).

Briefly, the case report from Cappuccino et al³ described the treatment of a professional football player who sustained a blunt cervical SCI (ASIA A) during play that was treated with systemic hypothermia one day after undergoing anterior-posterior decompression and fusion for C3-4 dislocation. He eventually recovered to ASIA D by four months postoperatively, and the authors felt the degree of recovery was more than would be expected in the absence of hypothermia. Unfortunately, this single case example (level IV evidence) provides inadequate evidence to judge the safety or efficacy of hypothermia in this clinical situation.

The remaining three studies were all published from the same institution and all included the same retrospectively reviewed cohort of 14 patients with complete (ASIA A) acute cervical SCI treated with operative decompression and stabilization followed by 48 hours of modest (32-34°C) systemic hypothermia via an intravascular cooling catheter.⁴⁻⁶ The first report from Levi et al in 2009⁶ was a feasibility and early safety study that provides at best level IV evidence that systemic hypothermia can be used safely in acute SCI patients.

The second report from Levi et al in 2010⁵ examined this same cohort of patients but compared them to a similar group of SCI patients who did not undergo systemic hypothermia in an attempt to establish baseline safety for this intervention. The authors found no statistically significant difference in complications between the groups except for an increased incidence of pleural effusions and anemia in the hypothermia group. The authors concluded that systemic hypothermia for acute SCI is safe and that phase 2 and 3 trials are feasible. This study suffers from several significant

limitations as outlined in the evidentiary table that downgraded its level of evidence from III to IV. It therefore provides weak evidence that endovascular systemic hypothermia may be applied to acute cervical SCI patients safely.

The final report from this group, Dididze et al in 2013 ⁴, presented a pooled analysis of the previously reported retrospective cohort of 14 patients with an additional prospectively treated cohort of 21 patients all undergoing systemic hypothermia in which they investigated clinical outcomes and complications. Comparison of pre- and post-treatment ASIA scores at 12 months revealed that 43% of patients improved at least 1 ASIA grade at follow-up (35% when excluding 4 patients that spontaneously improved in first 24 hours). Most common complications were pulmonary, as seen previously. Overall, 14% had venous thromboembolic events (VTE) (24% in prospective group, none in the smaller retrospective cohort). The authors conclude that systemic endovascular hypothermia for cervical acute SCI is safe and results in higher rates of neurological improvement than seen in previously reported population studies on SCI. As with the prior publications, the absence of a true control group precludes the formulation of definitive inferences on the actual safety or efficacy of systemic hypothermia for acute cervical SCI. This study provides weak (level IV) evidence for the safety of modest systemic hypothermia in this patient population.

Conclusions and Suggestions for Future Research:

Despite the convincing theoretical scientific basis and continued interest in this treatment modality, there remains a paucity of evidence to recommend for or against the practice of either local or systemic hypothermia for acute SCI in humans. The level IV evidence suggesting the safety of modest systemic hypothermia is promising, but controlled, comparative clinical studies investigating safety and efficacy must be performed prior to the introduction of hypothermia in the routine clinical care of patients with acute SCI.

Table 1. Levels of Evidence

	Therapeutic Studies
Level I	<ul style="list-style-type: none"> • High quality randomized trial with statistically significant difference or no statistically significant difference but narrow confidence intervals • Systematic Review of Level I RCTs (and study results were homogenous)
Level II	<ul style="list-style-type: none"> • Lesser quality RCT (e.g. <80% follow-up, no blinding, or improper randomization) • Prospective comparative study • Systematic review of Level II studies or Level I studies with inconsistent results
Level III	<ul style="list-style-type: none"> • Case control study • Retrospective comparative study • Systematic review of Level III studies
Level IV	<ul style="list-style-type: none"> • Case Series • Case Reports
Level V	<ul style="list-style-type: none"> • Expert Opinion

Table 2. Grades of Recommendation

Grade of Recommendation	Alternate Language	Levels of Evidence	
A	Recommended	Two or more consistent Level I studies	
B	Suggested	One Level I study with additional supporting Level II or III studies	Two or more consistent Level II or III studies
C	May be considered; is an option	One Level I, II or III study with supporting Level IV studies	Two or more consistent Level IV studies
I (Insufficient or Conflicting Evidence)	Insufficient evidence to make recommendation for or against	A single Level I, II, III or IV study without other supporting evidence	More than one study with inconsistent findings*

Table 3. Evidentiary Table on Hypothermia and Spinal Cord Injury, 2005-2013

Authors and Year	Description of Study	Comments	Class
Levi et al, J Neurotrauma 2009	Retrospective case series on a subset of patients in a single-institution phase 1 feasibility study for modest (32-34°C) hypothermia in patients with complete (ASIA A) blunt traumatic spinal cord injury (SCI). A total of 14 patients with cervical SCI were included. All patients underwent operative decompression/stabilization. No patient received steroids. An intravascular cooling catheter in the femoral vein was used for 48 hours of cooling. Outcomes included temperature control and complications. Temperature was well controlled using the catheter. Complications included: 12/14 atelectasis, 8/14 pneumonia, 2/14 ARDS, 3/14 arrhythmia, 1/14 thrombocytopenia, 1/14 sepsis and 0/14 VTE. Authors claim similar rates in cohort of SCI patients without hypothermia but data not presented here (to be presented in "later manuscript").	The small number of patients (possibly highly selected/nonconsecutive), absence of clinical outcomes or validated outcome measures, and lack of control group make it impossible to infer the effectiveness or relative safety of systemic hypothermia for SCI. Statistical analysis not presented. Heterogeneous group in regards to timing of surgery, demographics. Unclear methodology for collection and definition of complications.	IV
Cappuccino et. al., Spine 2010	A case report of a professional football player who sustained a blunt cervical SCI (ASIA A) during play that was treated with systemic hypothermia one day after undergoing anterior-posterior decompression and fusion for C3-4 dislocation. He also received methylprednisolone. A femoral vein intravascular cooling catheter was used to induce the modest hypothermia for 48 hours and normothermia for several days after. He demonstrated improvement in motor function to at least anti-gravity strength in the legs. He eventually recovered to ASIA D by four months postop. No complications were noted. The authors felt the degree of recovery was more than would be expected in the absence of hypothermia.	No validated outcome measures. This solitary case example does not allow any conclusions to be drawn regarding the safety or efficacy of systemic hypothermia for traumatic SCI.	IV
Levi et al, Neurosurgery 2010	(Same cohort reported in Levi 2009). Retrospective comparative case series on a subset of patients in a single-institution phase 1 feasibility study for modest (32-34°C) hypothermia in patients with complete (ASIA A) blunt traumatic spinal cord injury (SCI). A total of 14 patients with cervical SCI were included. All patients underwent operative decompression/stabilization. No patient received steroids. An intravascular cooling catheter in the	Small sample size of cases (possibly nonconsecutive) and controls likely makes study underpowered to detect significant differences in complication rates. Confounding the differences in the clinical results are the fact that 3 patients in control group received methylprednisolone and only 50% (vs 85% in hypothermia group) underwent	Potential III, downgraded to IV

	<p>femoral vein was used for 48 hours of cooling. Outcomes included pre- and post-treatment ASIA scores for 12 months and complications. A cohort of 14 patients with similar age and SCI treated prior to hypothermia protocol initiation were selected as historical controls for comparison of complications. 6/14 patients in hypothermia group and 3/14 in control group improved their ASIA score at follow-up (no statistically significant difference). No statistically significant difference in complications except for more pleural effusions and anemia in hypothermia group. The authors conclude that systemic hypothermia for acute SCI is safe and phase 2 and 3 trials are feasible.</p>	<p>early surgery (<24hr). Steroid use may have actually increased complication rate in control group. No validated outcome measures. Unclear methodology for collection and definition of complications. Heterogeneous group in regards to timing of surgery, demographics. This study provides weak evidence that endovascular systemic hypothermia may be applied to acute cervical SCI patients safely.</p>	
<p>Dididze et al, Spinal Cord 2013</p>	<p>Pooling of same retrospective cohort of 14 patients from Levi 2009 and Levi 2010 with prospective cohort of 21 patients at same single-institution for modest (32-34°C) hypothermia after complete (ASIA A) blunt traumatic spinal cord injury (SCI). All patients operative decompression/stabilization. No patient received steroids. An intravascular cooling catheter in the femoral vein was used for 48 hours of cooling. Outcomes included pre- and post-treatment ASIA scores for 12 months and complications 43% of patients improved at least 1 ASIA grade (35% when excluding 4 patients that spontaneously improved in first 24 hours). Most common complications were respiratory as seen previously. Overall, 14% had VTE (24% in prospective group, none in smaller retrospective cohort). The authors conclude that systemic endovascular hypothermia for cervical acute SCI is safe and results in higher rates of neurological improvement than seen in previously reported population studies on SCI.</p>	<p>The absence of a control group precludes the drawing of inferences on the true safety or efficacy of systemic hypothermia for acute cervical SCI. The highly selected nature of this small group of possibly nonconsecutive patients makes comparisons of neurological outcome to previously published population studies on SCI specious at best. Unclear methodology for collection and definition of complications, but complications were commonplace in these patients. Heterogeneous group in regards to timing of surgery, demographics. This study provides weak evidence for the safety of systemic hypothermia in this patient population.</p>	IV

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ORIGINAL ARTICLE

Systemic hypothermia in acute cervical spinal cord injury: a case-controlled study

M Dididze, BA Green, W Dalton Dietrich, S Vanni, MY Wang and AD Levi

Introduction: Systemic hypothermia remains a promising neuroprotective strategy. There has been recent interest in its use in patients with spinal cord injury (SCI). In this article, we describe our extended single center experience using intravascular hypothermia for the treatment of cervical SCI.

Methods: Thirty-five acute cervical SCI patients received modest (33 °C) intravascular hypothermia for 48 h. Neurological outcome was assessed by the International Standards for Neurological Classification of Spinal Cord Injury scale (ISNCSCI) developed by the American Spinal Injury Association. Local and systemic complications were recorded.

Results: All patients were complete ISNCSCI A on admission, but four converted to ISNCSCI B in <24 h post injury. Hypothermia was delivered in 5.76 (±0.45) hours from injury if we exclude four cases with delayed admission (>18 h). Fifteen of total 35 patients (43%) improved at least one ISNCSCI grade at latest follow up 10.07 (±1.03) months. Even excluding those patients who converted from ISNCSCI A within 24 h, 35.5% (11 out of 31) improved at least one ISNCSCI grade. Both retrospective (*n* = 14) and prospective (*n* = 21) groups revealed similar number of respiratory complications. The overall risk of any thromboembolic complication was 14.2%.

Conclusion: The results are promising in terms of safety and improvement in neurological outcome. To date, the study represents the largest study cohort of cervical SCI patients treated by modest hypothermia. A multi-center, randomized study is needed to determine if systemic hypothermia should be a part of SCI patients' treatment for whom few options exist.

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Keywords: acute cervical SCI; cooling catheter; systemic hypothermia

INTRODUCTION

Hypothermia continues to show promise in a variety of acute central nervous system injuries. Various factors need to be considered with systemic cooling of the spinal cord injury (SCI) patient, including methods of cooling, window from injury to initiation, duration and depth of hypothermia, and rate of re-warming. Two main methods of spinal cord cooling exist. Local cooling (epidural vs intradural) has a rich history with both experimental and clinical evidence supporting its use.¹ Systemic cooling may be applied either via a transcutaneous or intravascular route. Modern cooling blankets can be applied and have the advantage of being less invasive but also the disadvantage of being less precise with regards to temperature control.² While profound levels of hypothermia (*T* <32 °C) can be difficult to administer and are subject to increased complication rates, mild (modest) levels of hypothermia (*T* 32–34 °C) have been shown to provide significant protection against traumatic and ischemic neuronal cell death.^{2,3} When administered after experimental acute SCI, there is a reduction in the volume of histopathological damage and a concomitant improvement in BBB walking index.^{4,5} A recent study revealed beneficial effect of hypothermia on somato-sensory and motor-evoked potentials.⁶ Our reported experience of 14 cervical SCI patients revealed that systemic hypothermia induced via an intravascular catheter and continued for 48 h showed improved functional outcome and appeared safe compared with a historical

control group.^{7,8} In this article we describe a larger series of cervical SCI patients based on our extended, single center experience of hypothermia treatment that now spans over 6 years.

MATERIAL AND METHODS

We present 35 acute cervical SCI patients, who received modest hypothermia in our institution: 14 patients were retrospectively analyzed (April 2006 to June 2008) and 21 were prospectively evaluated (May 2009 to April 2012) using University of Miami institutional review board-approved hypothermia protocols (# 20071018 and # 20060556, respectively). Patients were admitted to the Emergency Department at the Ryder Trauma Center of Jackson Memorial Hospital. Initial neurological examinations and clinical outcome at follow-ups were completed according to American Spinal injury Association and International Medical Society of Paraplegia Impairment Scales (ISNCSCI). During the neurological assessment, patients were not under the influence of sedatives, muscle relaxants or alcohol/drug intoxication and did not have head trauma. Patients with an admission ISNCSCI A Glasgow Coma Scale of 15, 18–65 years of age and non-penetrating cervical injury were included into hypothermia protocol. Patients with hyperthermia on admission (*T* >38.5 °C), severe systemic injury, coagulopathy, thrombocytopenia, pancreatitis, Reynaud's syndrome, severe bleeding, pregnancy, known prior cardiac history, and who were intubated and sedated before initial neurological examination were excluded (Table 1). No patient received either steroids or any other neuroprotective drug. Hypothermia administration did not affect the decision for timing of cranial tong application and reduction or surgical intervention. To deliver intravascular hypothermia, an Alsius Icy CoolGuard

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Table 1 Inclusion/exclusion criteria for initiation of therapeutic hypothermia

Inclusion criteria	Exclusion criteria
18–65 years of age ISNCSCI Score	Age > 65 years
A GCS = 15 Non-penetrating injury	ISNCSCI Score B, C or D
Patients urgently taken to the operating room for surgical reduction may also be included.	Hyperthermia on admission (> 37 degrees celsius)
	Severe systemic injury
	Severe bleeding
	Pregnancy
	Coagulopathy
	Thrombocytopenia
	Known prior cardiac history
	Blood dyscrasia
	Pancreatitis
	Reynaud's syndrome
	Cord transection
	Patients who are intubated and sedated before initial examination by the neurosurgical team
	Patients showing an improvement in the neurologic exam within 12 h from the injury

Abbreviation: GCS, Glasgow Coma Scale; ISNCSCI, International Standards for Neurological Classification of Spinal Cord Injury scale.

catheter (US Food and Drug Administration approved, Premarket Notification [501(k), K030421]; Alsius Corporation, Irvine, CA, USA) was inserted through the femoral vein soon after admission. Patients were cooled at a maximum rate (2–2.5 °C per hour) until they reached target temperature (T 33 °C), which was maintained for 48 h, and then re-warmed at 0.1 °C per hour until normothermia (T 37 °C) was achieved. Patients were intubated and sedated using muscle relaxants as required by their clinical condition. Additional forms of sedation (benzodiazepines, dexmedetomidine, meperidine) were used to prevent shivering response. Serum electrolytes, coagulation studies and CBC were performed daily. MAP was kept at > 85 mm Hg and hematocrit at ≥ 30 . An orogastric/nasogastric tube was placed in each patient. Nutrition was provided per nutritional supplementation protocol. DVT/pulmonary embolism (PE) prophylaxis was initiated in all patients. At the time of CoolGard removal, a venous Doppler ultrasound was performed in the lower limbs to evaluate the possibility of DVT. All the details of conducting the hypothermia protocol were previously published in Levi et al, 2009⁸

Patients underwent follow-up evaluations performed at acute care discharge, rehabilitation discharge, 6 weeks, 6 months and 1 year using ISNCSCI scale. The University of Miami Data Safety Monitoring Board evaluated hypothermia related potential complications, including infection, acute respiratory distress syndrome, DVT, pneumonia, atelectasis, electrolyte imbalance, septicemia, cardiac abnormalities (arrhythmias), thrombocytopenia, PE and death.

RESULTS

A total of 35 patients were enrolled: 8 females, 27 males (mean age 36.1 ± 2.54 years, range 18–65). The majority of patients had C5 or C6 injuries (15 and 10, respectively), while six had C4 and four had C7. Seventy-four percent (26 out of 35) of injuries were related to motor vehicle accidents, pedestrians hit by car or diving (Table 2) and were, for the most part, high-velocity injuries.

The mean (\pm s.e.m.) time from injury to initiation of hypothermia was $7.76 (\pm 1.09)$ hours. If we exclude four cases with delayed admission (> 18 h), the average initiation time ($n=31$) was $5.76 (\pm 0.45)$ hours from the time of injury (Figure 1). After insertion of the CoolGard and initiation of hypothermia, the target temperature

Table 2 Demographics, mechanism and level of injury of 35 patients

Patient ID no.	Age (when injured)	Mechanism of Injury	Spinal injury level	Latest F/U (months)	ISNCSCI at F/U
1	18	Diving	C4	12	A
2	20	MVA	C4	12	A
3	55	Pedestrian hit by car	C4	12	C
4	21	Diving	C4	12	A
5	21	MVA	C4	12	C
6	53	Fall	C4	12	B
7	62	MVA	C5	12	B
8	16	Fall	C5	12	B
9	46	MVA	C5	12	A
10	21	Diving	C5	12	A
11	22	Diving	C5	12	A
12	27	Diving	C5	12	A
13	30	Fall	C5	12	A
14	22	Fall	C5	12	D
15	51	Fall	C5	12	A
16	38	Diving	C5	12	A
17	27	Diving	C5	12	A
18	39	MVA	C5	12	A
19	32	Fall	C5	12	A
20	23	MVA	C5	12	D
21	39	MVA	C5	12	A
22	53	MVA	C6	12	C
23	20	MVA	C6	12	A
24	45	Diving	C6	12	D
25	29	Diving	C6	12	A
26	20	Fall	C6	12	B
27	47	MVA	C6	12	A
28	42	MVA	C6	12	E
29	61	MVA	C6	1.5	A
30	61	Fall	C6	12	C
31	23	Fall	C6	12	B
32	65	MVA	C7	12	A
33	43	Pedestrian hit by car	C7	6	A
34	26	MVA	C7	3	D
35	45	MVA	C7	3	B

was achieved in < 3 h (2.70 ± 0.20). The duration of hypothermia at target temperature was $46.77 (\pm 1.71)$ hours and total duration of cooling and re-warming was $113.55 (\pm 5.10)$ hours.

All patients were complete ISNCSCI A on admission, but four converted to ISNCSCI B in < 24 h post injury. Fifteen of total 35 patients (43%) improved at least one ISNCSCI grade at latest follow-up $11.01 (\pm 0.48)$ months (Table 2). In the group of patients ($n=31$) with stable ISNCSCI A within first 24 h: six (17.1%) converted to ISNCSCI B, three (8.6%) to ISNCSCI C, two (5.7%) to ISNCSCI D for a global conversion rate of 35.5% for stable ISNCSCI A patients in first 24 h (Figure 2). The neurological outcome in the remaining group of the four patients who converted to ISNCSCI B in < 24 h was the following: one (2.9%) improved to ISNCSCI C, two (5.7%) to ISNCSCI D and one (2.9%) to ISNCSCI E (Figure 3). No correlation was found between improvement in ISNCSCI grade at latest follow-up and a shorter cooling time from injury: the majority of patients who did not improve (18 out of 20) received cooling in < 8 h (Figure 4).

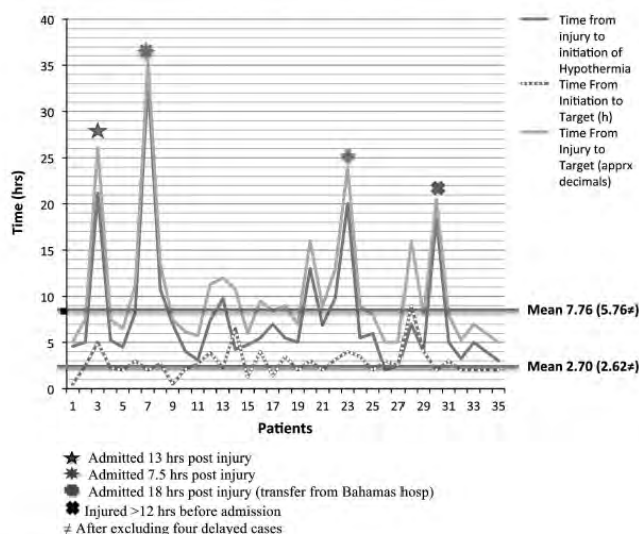


Figure 1 Timing of hypothermia administration in 35 patients.

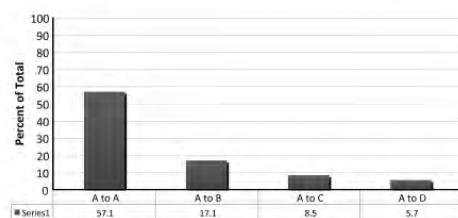


Figure 2 ISNCSCI outcome in 31 patients with initial and stable ISNCSCI A who did not improve within first 24 h from admission.

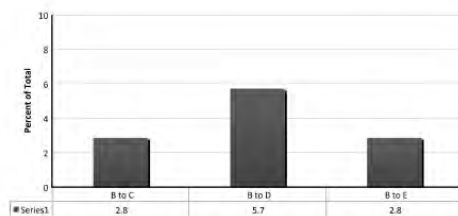


Figure 3 ISNCSCI outcome in four patients, who were converted to ISNCSCI B within <24 h after admission.

All patients underwent surgery under conditions of hypothermia with no complications during or immediately after surgery related to hypothermia. Early decompression (<24 h) was done in majority of patients (29 out of 35; 83%). Thirty-eight percent of patients (11 out

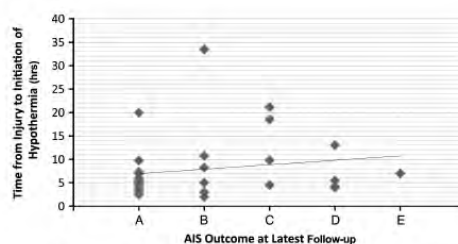


Figure 4 Time from injury to initiation of hypothermia vs ISNCSCI outcome.

of 29) with early decompression improved to ISNCSCI >A at the latest follow-up vs 66.7% (4 out of 6) with >24 h decompression. Time from injury to surgical decompression for the improved patients ($n=15$ patients) was 16.4 h (± 6.08) vs 17.95 h (± 3.54) the group of non-improved patients ($n=20$ patients).

We recorded all complications during the acute and follow-up care. Most complications were respiratory in origin: atelectasis in 83% ($n=29$), pneumonia 60% ($n=21$), pleural effusion 54% ($n=19$), pulmonary edema 43% ($n=15$) and acute respiratory distress syndrome 11% ($n=4$) (Figure 5). Two patients developed transient cardiac asystole: one—likely due to hypoxia and another after repositioning of a patient—that was shortly resolved without sequelae. A further reduction in heart rate with systemic hypothermia after SCI has been previously reported.⁸ Thirteen patients (37%) developed urinary tract infections. Five thromboembolic complications (14%) were observed: two PEs, one inferior vena cava clot, one DVT of femoral vein and one clot seen in a subclavian vein. All thromboembolic complications were well managed with

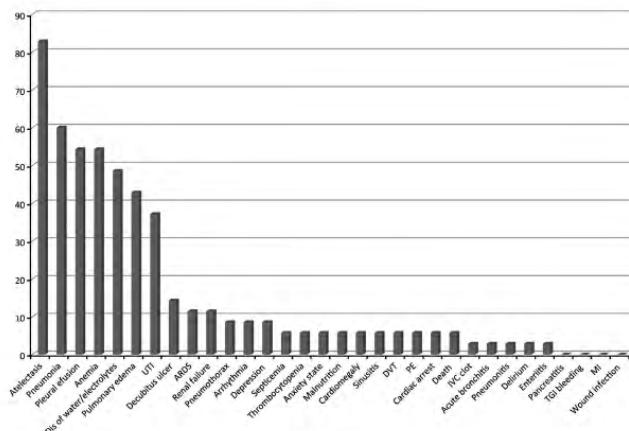


Figure 5 Percentage of complications in 35 patients recorded up to latest follow-up.

anticoagulants. Interestingly, in our first 14 patients receiving hypothermia—no patients developed thromboembolic complications; while in prospective 21 patients we observed five events (24%). The clot within the subclavian and inferior vena cava were unrelated to the catheter. Also of note is that the first group received Lovenox prophylaxis and the second Fragmin due to a hospital-wide mandatory change between the two studies. No patient died as a direct result of hypothermia. Two deaths were seen: one patient (aged 62 years, C5 injury) died of pneumonia 1 year post injury and another patient (aged 55 years, C5 injury) died of respiratory failure 2 months post injury.

DISCUSSION

The timing of hypothermia

Most promising strategies for a neuroprotection require early administration. The most well-known agent for SCI is methylprednisolone.⁹ The results of the multi-center trials suggest that early (<8 h) administration is required to observe a beneficial effect, and no effect was seen when late administration (>8 h) was included in the analysis. One of the secondary aims was to deliver systemic hypothermia as soon as possible upon admission. Although intravascular catheters for hypothermia are MRI compatible, allowing initiation of cooling before neuroimaging studies in the trauma ER, our 31 patients (excluding four delayed cases) received hypothermia in 5.76 ± 0.45 h from injury. In prospective patient group ($n=21$), hypothermia was initiated within a similar time frame post injury compared with the retrospective ($n=14$) group (5.51 and 6.15 h, respectively).⁸ Several factors are involved in these delays including transportation to trauma center, evaluation by the trauma team to rule out multi-system injury, imaging, consent process, insertion of the catheter, and so on. One can potentially decrease body temperature earlier by administering intravenous iced saline and applying cooling blankets in the field. Interestingly, when we looked at patients' improvement of at least one ISNCSCI grade or better and correlated with timing of hypothermia administration, there did not appear to be a clear benefit for early administration in this case series.

Neurologic improvement after SCI

The prospective patients revealed neurological improvement after hypothermia (9 out of 21–43%) similar to the retrospective patients (6 out of 14–43%) previously reported.⁷ The overall ISNCSCI conversion rates in our cervical SCI patients, who were ISNCSCI A on admission, was 43% (15 out of 35); even excluding those patients who converted from ISNCSCI A within 24 h.

Thirty-five percent (11 out of 31) of the cervical ISNCSCI A patients improved. This supports our hypothesis that patients who received hypothermia demonstrate functional improvement, which compares favorably to historical data. According to three major SCI database control group studies, overall only 26.1% improved to ISNCSCI >A grade in cervical SCI population: 73.9% remained ISNCSCI A, 14.3% converted to ISNCSCI B, 5.6% to ISNCSCI C, 6.2% to ISNCSCI D and none of the patients improves to ISNCSCI E level.^{10–12} The recent data from National Spinal Cord Injury Database¹³ revealed higher spontaneous conversion rates after traumatic cervical SCI subjects: 30% of initial ISNCSCI grade A improved by 1 year, with 22% of them converting to ISNCSCI grade B or better by rehabilitation discharge. We had four prospective patients who improved to ISNCSCI B after 12 h but within 24 h after injury. They were enrolled into hypothermia protocol upon admission according to the inclusion criteria described above and received hypothermia within the first 6 h. All these patients revealed high improvement rates, converting to ISNCSCI C, ISNCSCI D and ISNCSCI E (Figure 3) likely related to multiple factors, including early admission, expedient decompression, timely, as well as properly delivered cooling. Pre-reduction CT and postoperative MR images of the patient who improved to ISNCSCI E are shown (Figure 6).

The timing of surgical decompression

The optimal time for surgical decompression after SCI remains controversial. A meta-analysis concluded that class II evidence exists that early surgery (<24 h) results in better neurological outcomes than delayed surgery (>24 h).¹⁴ A recent evidence-based review recommended early intervention; although a number of studies indicated that patients who underwent early decompression had



Figure 6 (a) Preop CT demonstrating a severe bilateral facet-fracture dislocation at C6-7. The patient underwent emergent cooling and reduction and fixation of the injury. (b) An MRI performed 4 days post injury demonstrates re-establishment of canal diameter and spinal cord decompression with intrinsic spinal cord change at the level of injury. The patient ultimately converted from ISNCSCI A to B within 24 h and ultimately ISNCSCI E at final follow-up.

similar outcomes to those who had delayed decompression.¹⁵ In spite of unclear influence of early surgery on acute SCI outcome, the international spine community favors it based on the available clinical evidence and their own experience. The most recent multi-center, international, prospective cohort study in 313 cervical SCI patients from six North American centers concluded that <24 h decompression is not only safe, but also improves neurological outcome (at least a two-grade ISNCSCI improvement) at 6-month follow-up.¹⁶ The average time of decompression between the improved and non-improved patients (16.4 h vs 17.95 h) was not appreciably different. The majority of cases were decompressed in <24 h and 38% of them improved vs 66.7% of patients improving in the >24-h group. The numbers of patients in both the groups are small (11 out of 29 vs 4 out of 6). The neurological improvement seen in our patients cannot be definitively ascribed to early surgery.

Complications after SCI

Atelectasis, pneumonia, pulmonary edema, pleural effusion, acute respiratory distress syndrome and even respiratory failure are common in a patient with complete (ISNCSCI A) high SCI without hypothermia treatment. The high incidence of respiratory complications in prospective patients corresponds to the data described elsewhere.^{7,8} Three cases of acute respiratory distress syndrome were likely related to aspiration of salt water due to drowning in one case and aspiration of orogastric fluid during resuscitation in another two cases. Paralyzed patients are already at high risk for thromboembolic complications without hypothermic treatment. The incidence of DVTs after SCI can vary from 5.3–38.3% in a recent meta-analysis study,¹⁷ and up to 43% when examined prospectively in 37 SCI patients.¹⁸ The mortality rate from DVT/ PE is 9.7% during the first year after SCI injury in patients who didn't receive hypothermia treatment.¹⁹ Patients with hypothermia treatment are potentially even in a higher risk group due to series of coagulation events in response to cooling and the presence of an intravascular catheter. A small study ($n=10$) reported a 50% incidence of DVTs in cooled patients with traumatic brain injury.²⁰ We were expecting a high number of

thromboembolic complications in our cooled population, but we did not observe any DVT and PE in retrospective group ($n=14$).⁷ Five thromboembolic complications were seen in the prospective patients ($n=21$): two DVT (one seen in a subclavian vein unrelated to the femoral coolguard catheter), two PE and one inferior vena cava clot. All hypothermic patients ($n=35$) underwent Doppler screening for DVT after removal of the catheter and clinical screening for DVT and PE. They all received prophylaxis with low-molecular-weight heparin, together with compression stockings. The change in incidence may be related in part to the change in our method of DVT prophylaxis between the two groups (Lovenox vs Fragmin) as all other factors remained constant. In spite of the higher incidence in the prospective group, the overall incidence of thromboembolic complications in our hypothermic patients was similar to our prior experience and also with published data. Although hypothermia alters coagulation cascade, stasis, hypercoagulability, intimal injury and immobility related to the SCI are likely the major determining factors for thromboembolism in our patients.²⁰

Future perspectives

To determine if therapeutic hypothermia results in neurological and possibly functional improvement after SCI, we are pursuing multi-center, prospective randomized trials, in cervical ISNCSCI A and ISNCSCI B patients. Significant improvement will be determined by a greater than 10 point difference in the mean change from baseline in ISNCSCI motor score when compared with normothermic patients, at 12-month follow-up.¹⁰ Statistical analysis using the current data would require a sample size for randomization is 212 subjects (106 for each group).

CONCLUSION

The results are promising in terms of safety and improved functional outcome and to date represent the largest prospective series of cervical SCI patients treated by modest hypothermia described. A multi-center, prospective, randomized study is required to determine if

systemic hypothermia for SCI should be a part of treatment for these patients for whom few treatment options exist.

DATA ARCHIVING

There were no data to deposit.

CONFLICT OF INTEREST

The authors declare no conflict of interest.

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- 18 Chung SB, Lee SH, Kim ES, Eoh W. Incidence of deep vein thrombosis after spinal cord injury: a prospective study in 37 consecutive patients with traumatic or nontraumatic spinal cord injury treated by mechanical prophylaxis. *J Trauma* 2011; **71**: 867-870; discussion 870-871.
- 19 Furlan JC, Fehlings MG. Cardiovascular complications after acute spinal cord injury: pathophysiology, diagnosis, and management. *Neurosurg Focus* 2008; **25**: E13.
- 20 Simosa HF, Petersen DJ, Agarwal SK, Burke PA, Hirsch EF. Increased risk of deep venous thrombosis with endovascular cooling in patients with traumatic head injury. *Am Surg* 2007; **73**: 461-464.

Agenda Item 3b:

From: Michael Groff <mgroff@mac.com>
To: vmum <vmum@aol.com>
Sent: Tue, Aug 13, 2013 6:12 am
Subject: Re: up or down vote by email by Aug 15 Re APPROVAL: Joint Position Statement on Vertebroplasty coordinated by SIR

Yes.

Thanks,

mike

On Aug 13, 2013, at 8:43 AM, vmum@aol.com wrote:

Mike,
i did email the entire EC but the only votes that count by our bylaws are officers and all voted yes.

(cheng, groff, mummaneni, jack knightly, wang, kuntz, zo, and mcgirt).

Shall I send this info to Katie?

praveen

Praveen V. Mummaneni, M.D.
Professor and Vice-Chairman
Dept. of Neurosurgery, University of California at San Francisco
Co-Director: UCSF Spine Center

Secretary: AANS-CNS Joint Section - Spine and Peripheral Nerves

-----Original Message-----

From: Michael Groff <mgroff@mac.com>
To: vmum <vmum@aol.com>
Sent: Tue, Aug 13, 2013 5:24 am
Subject: Re: up or down vote by email by Aug 15 Re APPROVAL: Joint Position Statement on Vertebroplasty coordinated by SIR

an official tally of the vote.

Thanks,

mike

On Aug 13, 2013, at 8:02 AM, vmum@aol.com wrote:

Mike

Sorry not clear what summary you want.

pls clarify

p

Praveen V. Mummaneni, M.D.
Professor and Vice-Chairman
Dept. of Neurosurgery, University of California at San Francisco
Co-Director: UCSF Spine Center

Secretary: AANS-CNS Joint Section - Spine and Peripheral Nerves

-----Original Message-----

From: Michael Groff <mgroff@mac.com>
To: Praveen Mummaneni <vmum@aol.com>
Cc: Katie O. Orrico <korrico@neurosurgery.org>
Sent: Tue, Aug 13, 2013 4:14 am
Subject: Fwd: up or down vote by email by Aug 15 Re APPROVAL: Joint Position Statement on Vertebroplasty coordinated by SIR

Praveen,

Please send a summary to Katie and I when the deadline is passed. Looks like an overwhelming approval.

Thanks,

mike

Begin forwarded message:

From: <Walters>, Jacqueline <WaltersJ@neurosurg.ucsf.edu>
Date: Friday, August 9, 2013 2:33 PM
Subject: up or down vote by email by Aug 15 Re APPROVAL: Joint Position Statement on Vertebroplasty coordinated by SIR

Praveen,
Please send this to the EC for review and an up or down vote by email by Aug 15.
Thanks,
mike

Begin forwarded message:

From: "Katie O. Orrico" <korrico@neurosurgery.org<<mailto:korrico@neurosurgery.org>>>
Subject: FW: APPROVAL: Joint Position Statement on Vertebroplasty coordinated by SIR
Date: August 2, 2013 10:47:56 AM EDT
To: "Dr. Groff" <mgroff@mac.com<<mailto:mgroff@mac.com>>>
Cc: John Wilson - Neurosurgery <jawilson@wakehealth.edu<<mailto:jawilson@wakehealth.edu>>>, "Dr. Amin-Hanjani" <hanjani@uic.edu<<mailto:hanjani@uic.edu>>>, Koryn Rubin <krubin@neurosurgery.org<<mailto:krubin@neurosurgery.org>>>, "Dr. Cheng" <joseph.cheng@vanderbilt.edu<<mailto:joseph.cheng@vanderbilt.edu>>>

Mike,

We need to get the Spine Section's review of the attached position statement on vertebroplasty that the Society of Interventional Radiology is spearheading. As this is not an official guideline, it need not go through our Joint Guidelines Committee review process, but rather we are looking to the Section for its rejection or approval. If you are good with this, then we will recommend to the parent organization that

we lend the AANS and CNS names to the effort.

As you can see from the attached letter, Drs. O'Toole, Rasmussen and Ryken (not Tyken) were involved in the drafting of the statement.

This is not open to edits at this point, so it is either a yay or nay vote.

The deadline for reply is August 29.

Thanks in advance.

Katie

Katie O. Orrico, Director
Washington Office
American Association of Neurological Surgeons/
Congress of Neurological Surgeons
725 15th Street, NW, Suite 500
Washington, DC 20005
Direct Dial: 202-446-2024
Fax: 202-628-5264
Cell: 703-362-4637
korrico@neurosurgery.org <<mailto:korrico@neurosurgery.org>>

From: Koryn Rubin
Sent: Thursday, August 01, 2013 2:54 PM
To: Katie O. Orrico; Dr. Amin-Hanjani; Cockroft, Kevin
(kcockroft@hmc.psu.edu <<mailto:kcockroft@hmc.psu.edu>>); Cockroft, Kevin
(kcockroft@hmc.psu.edu <<mailto:kcockroft@hmc.psu.edu>>)
Cc: Laura S. Mitchell; Timothy Ryken MD MS FACS [rykent@me.com <<mailto:rykent@me.com>>]
(rykent@me.com <<mailto:rykent@me.com>>); John Wilson - Neurosurgery
(jawilson@wakehealth.edu <<mailto:jawilson@wakehealth.edu>>)
Subject: FW: APPROVAL: Joint Position Statement on Vertebroplasty coordinated by SIR

The Society of Interventional Radiology's Vertebroplasty's position statement is ready for endorsement. Their process for endorsement doesn't typically follow JGC's process. Our opportunity to comment was during their long development phase and was for the most part prior to my arrival. Tim Ryken and John O'Toole were writing group representatives and the last time I inquired about the guideline they said they didn't have any issues. How do you want to handle endorsement on this one? We only have until Aug. 29.

From: Debbie Katsarelis [<mailto:katsarelis@sirweb.org>]
Sent: Thursday, August 01, 2013 1:34 PM
To: Koryn Rubin
Cc: debbie@sirweb.org <<mailto:debbie@sirweb.org>>
Subject: APPROVAL: Joint Position Statement on Vertebroplasty coordinated by SIR

Hi Loryn,

Attached is the sign off letter and document for Vertebroplasty Position Statement. I am seeking a thumbs up or thumbs down approval. Deadline is August 29th.

Take care

Debbie Katsarelis
Senior Manager of Guidelines and Intersociety Affairs
Society of Interventional Radiology
3975 Fair Ridge Drive | Suite 400 North | Fairfax, VA 22033
Phone: (703) 460-5574 | Fax: (703) 691-1855| www.SIRweb.org<<http://www.sirweb.org/>>

Agenda Item 3d:

-----Original Message-----

From: Michael Groff <mgroff@mac.com>
To: Praveen Mummaneni <vmum@aol.com>
Sent: Thu, Jul 11, 2013 7:32 am
Subject: Fwd: Correspondence from AANS Past President

Praveen,

Please pass this on to the EC.

Thanks,

mike

Executans,

The AANS has asked the spine section to suggest 2-3 items for the Choose Wisely campaign (see attached). The gist is to recommend procedures or tests that could be omitted without compromising the quality of care. **MRI for patients with back pain** was suggested and I think we could support that. A second possibility that has been discussed amongst EC members in the past is **post-op x-rays for instrumented patients that are doing well**. Please let me know if there are others and we can send a coherent list back to Mitch Berger.

Thanks,
mike



American
Association of
Neurological
Surgeons

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Thomas A. Marshall
tam@aans.org

DATE: June 24, 2013

To: AANS JOINT SECTION LEADERS

FROM: MITCHEL S. BERGER, MD, AANS PAST PRESIDENT

RE: CHOOSING WISELY CAMPAIGN

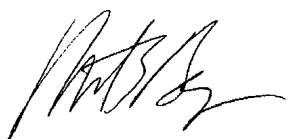
The Choosing Wisely Campaign was developed as an initiative of the American Board of Internal Medicine Foundation (ABIM). The goal of this campaign was to enhance discussions between physicians and their patients with regard to helping patients choose their care wisely based upon supportive evidence and not duplicating other tests that patients have already received. The goal of this Campaign is to essentially challenge national medical organizations representing various medical specialties to identify five tests or procedures commonly used in their field whose so called necessity should be questioned or further discussed. This concept was initially developed by the national Physicians Alliance through the ABIM Foundation and ultimately the idea was to try and promote more effective utilization of scarce healthcare resources. This was rolled out by internal medicine, family medicine, pediatrics, and these so called "five things physicians and patients should question" lists were published in the *Archives of Internal Medicine*.

It should be noted that these recommendations that come out of medical specialty organizations are not meant to be used to establish coverage decisions or exclusions. On the contrary, they are being developed to try to promote conversation between physicians and their patients as to what is appropriate and necessary care. We all realize that each patient's situation is quite different and this only helps to promote the discussion about which tests could be avoided without compromising patient care. More than 35 specialties decided to now join the campaign and Neurosurgery, to date, has not signed up. Signing up simply means making a commitment to put a list together of five tests or procedures that we feel should promote discussion as to whether or not they may be unnecessary. For example, should every patient with a brief loss of consciousness who comes into the ED receive a CT scan? Or should every patient with intermittent back pain

Therefore, I am asking you as an integral part of the Joint Section leadership to discuss this with your colleagues in the Section and subsequently develop a list of 2-3 items that represent your discipline in order to promote professionalism and resource utilization as part of organized Neurosurgery. The Executive Committee and its Board of Directors of the AANS supports this initiative and we would appreciate your willingness to work with us on this so that we can get our final list of five submitted by the end of this year.

Thank you very much. Please let me know if you have any questions.

Sincerely,

A handwritten signature in black ink, appearing to read 'MSB', with a stylized flourish at the end.

Mitchel S. Berger, MD, FACS, FAANS

Past President, American Association of Neurological Surgeons

Choosing Wisely Campaign

AANS/CNS Recommendations

Background

The Washington Committee, at the request of the AANS leaders, asked the QIW and Joint Guidelines Committee to recommend a number of neurosurgical services that could be deemed “unnecessary” and added to the *Choosing Wisely* campaign list. The committees have recommended that the AANS and CNS consider offering “Five Things Patients and Physicians Should Questions” from the neurosurgical service line. The initial list included:

Joint Guidelines Committee

- Don't perform routine screening for brain aneurysms in asymptomatic patients without a family or personal history of SAH.
- Don't administer Factor 7 routinely to patients with spontaneous ICH without coagulopathy.
- Don't administer high dose steroids after severe traumatic brain injury
- Don't administer high dose steroids after acute spinal cord injury
- Don't use seizure prophylaxis in patients without seizure at presentation following ischemic stroke
- No delayed or long term antifibrinolytic therapy after aneurysmal SAH.
- No prolonged hyperventilation for the control of elevated ICP
- No imaging studies for acute low back pain without neurological findings

Quality Improvement Workgroup

- Do not give steroids for spinal cord injury
- Patients with minor traumatic hemorrhage don't need a CT scan
- Endorse existing low back pain measure

Developing the List

Following this input, QIW leaders put a list together as follows:

1. Use of steroids in traumatic spinal cord injury
2. Use of imaging in acute lower back pain
3. Use of CT in mTBI
4. No routine screening for cerebral aneurysm in asymptomatic patients
5. Use of steroids in sTBI

In reviewing some of the Choosing Wisely sites, it appears that there is a no obvious format for how to present this data so will need to make sure we have this right. Below are links to several other societies who have already published their recommendations and how they were formatted.

- North American Spine Society: <http://bit.ly/H4rLR>
- Orthopaedic Surgery: <http://bit.ly/19Sbg8T>
- Neurology: <http://bit.ly/1bWXIQm/>
- Thoracic Surgery: <http://bit.ly/1ctZ6Bp>
- American College of Surgeons: <http://bit.ly/H1Nf31>

Based on a review of neurosurgical guidelines/literature, the following draft recommendations are offered for consideration:

1. Patients with acute mild Traumatic Brain Injury do not require a CT scan or MRI unless other risk factors are present.

A noncontrast head CT is indicated in head trauma patients with loss of consciousness or posttraumatic amnesia only if one or more of the following is present:

- headache,
- vomiting,
- age > 60 years old,
- drug or alcohol intoxication,
- deficits in short-term memory,
- physical evidence of trauma above the clavicle,
- posttraumatic seizure,
- GCS score < 15, focal
- neurologic deficit
- coagulopathy.

While CT scanning can be extremely helpful in diagnosing intracranial bleeding, there is risk of exposure to ionizing radiation and a significant increase in cost associated with these tests. There is no role for MRI in the acute management of mild traumatic brain injury

Source

Clinical Policy: Neuroimaging and Decisionmaking in Adult Mild Traumatic Brain Injury in the Acute Setting, jointly produced by CDC and ACEP.

2. In patients with acute traumatic spinal cord injuries, there is no role for the use of high-dose steroids.

The use of high-dose steroids, specifically methylprednisolone (MP) for the treatment of acute spinal cord injury (SCI) is not recommended. While there have been several studies suggesting a clinical benefit in these devastating injuries, the overall results of multiple studies have been inconsistent at best. There is high quality evidence that high-dose steroids are associated with harmful side effects including death.

Source

Pharmacological Therapy for Acute Spinal Cord Injury Neurosurgery: March 2013 - Volume 72 - Issue - p 93–105 Hurlbert, R. John MD, PhD, FRCSC⁺; Hadley, Mark N. MD⁺; Walters, Beverly C. MD, MSc, FRCSC^{±,§}; Aarabi, Bizhan MD, FRCSC[†]; Dhall, Sanjay S. MD[‡]; Gelb, Daniel E. MD[#]; Rozzelle, Curtis J. MD^{**}; Ryken, Timothy C. MD, MS⁺⁺; Theodore, Nicholas MD^{\$\$}

3. Patients with acute low back pain do not require imaging within the first 6 weeks unless certain “red flag” conditions are also present.

Acute low back pain is extremely common condition and accounts for significant health care costs both directly with diagnosis and treatment and indirectly through costs associated with loss of work. In the majority of cases, these episodes are self-limited and will respond to conservative management. Imaging in the form of MRI, CT scans and plain radiographs, are indicated after failure to respond to 6 weeks of conservative management unless other “red flag” conditions are also present. Red flag conditions that should prompt early imaging in episodes of low back pain include:

- Significant trauma
- Unexplained weight loss or fever
- Age >70 or >50 years in patients with prolonged use of corticosteroids, osteoporosis or ankylosing spondylitis
- History of cancer or active infection
- Immunosuppression or diabetes mellitus
- Intravenous (IV) drug use
- Focal neurologic deficit(s) with progressive or disabling symptoms,
- Cauda equina syndrome (bowel or bladder dysfunction, saddle anesthesia, lower extremity weakness)
- History of previous spinal surgery

Source

Davis PC, Wippold FJ II, Cornelius RS, Angtuaco EJ, Broderick DF, Brown DC, Garvin CF, Hartl R, Holly L, McConnell CT Jr, Mechtler LL, Rosenow JM, Seidenwurm DJ, Smirniotopoulos JG, Expert Panel on Neurologic Imaging. ACR Appropriateness Criteria® low back pain. [online publication]. Reston (VA): American College of Radiology (ACR); 2011.

4. Asymptomatic patients should not be screened for cerebral aneurysm unless there is a family history or aneurysms or the patient had a previous ruptured aneurysm

Rupture of a cerebral aneurysm carries with it a high mortality rate and risk of severe lifelong neurologic impairment. Cerebral aneurysms remain a relatively rare occurrence. Previously, screening patients involved invasive cerebral angiography, with the diagnostic procedure itself carrying risk of injury. Non-invasive screening can now be performed with CT angiography and MRI angiography. In patients with a family history of fusiform aneurysms or several primary family members with saccular aneurysms, non-invasive screening is recommended. Other factors that contribute to the formation of aneurysm in this population include those with hypertension, a smoking history, and female sex. Other risk factors that may indicate need for screening include congenital diseases such as fibromuscular dysplasia, polycystic kidney disease as well as some connective tissue disorders such as Marfan Syndrome.

Source

<http://www.bafound.org/node/45>

5. The use of steroids is not indicated in the routine treatment of severe traumatic brain injuries.

The use of steroids is not recommended for improving outcome or reducing intracranial pressure (ICP). In patients with moderate or severe traumatic brain injury (TBI), high-dose methylprednisolone is associated with increased mortality and is contraindicated. The majority of available evidence indicates that steroids do not improve outcome or lower ICP in severe TBI. There is strong evidence that steroids are deleterious; thus their use is not recommended for TBI.

Source

Guidelines for the management of Severe Traumatic Brain Injury 3rd edition; Brain Trauma Foundation, AANS, CNS, 2007

Agenda Item 3e:

From: Regis Haid <RHaid@AtlantaBrainandSpine.com>
To: Michael Groff <mgroff@mac.com>; 'vmum@aol.com' <vmum@aol.com>; Chris Shaffrey MD <CIS8Z@hscmail.mcc.virginia.edu>; Dr. Cheng <joseph.cheng@vanderbilt.edu>; Charles Kuntz <charleskuntz@yahoo.com>; Regis Haid <RHaid@AtlantaBrainandSpine.com>; R. John Hurlbert <jhurlber@ucalgary.ca>
Cc: Katie O. Orrico <korrico@neurosurgery.org>
Sent: Mon, May 13, 2013 5:41 am
Subject: FW: Aetna IOM policy

Dear Mike.

The Joint Section has issued a statement regarding the use of intraoperative EMGs. (IOM).

I am sure this was NOT intended to deal with the lateral retroperitoneal transpsoas approach, in which EMG is not only the standard of care, but arguably considered malpractice without its use.

Unfortunately, the use of IOP (intraoperative monitoring) is lumped with SSEP, MEP, EMG for decompression, along with the transpsoas approach.

Because of this position statement, insurance companies are now denying surgeons and hospitals payment for EMG usage during the lateral transpsoas approach. The current status is that EMG for the lateral approach is "investigational."

I would request that the Joint Spine Section have a phone conference of the voting officers to amend their statement. It is incorrect as it currently stands. I am sure this statement was issued prior to the usage of the lateral transpsoas approach.

Please refer to the recent Aetna policy attached. It is one of several.

Warmest regards,
Reg

Regis W. Haid, Jr. MD
Atlanta Brain and Spine Care
2001 Peachtree Road, Suite 575
Atlanta, Georgia 30309
Voice (404) 350-0106 / Fax (404) 350-0176

Aetna has revised their IOM policy again, effective 4-13. It was last revised in January when they maintained their investigational status for spine IOM and added 95940 and the Medicare G code. The current policy does not contain any material changes but removed criteria for intraoperative EEG and placed them in a separate policy. Since you're working on a letter to Aetna addressing their position, here's the most current version.

Thanks, Cindy

Please note new e-mail address and phone number:
Cindy Vandenbosch, President
Strategic Reimbursement Consulting, Inc.
406.702.1842
cvandenbosch@bresnan.net
www.strategic-reimbursement.com

Clinical Policy Bulletin: Intraoperative Electromyographic Monitoring

Number: 0697

Policy

- I. Aetna considers intra-operative electromyographic (EMG) monitoring of the facial nerve medically necessary for members undergoing any of the following intra-cranial neuro-otological surgeries:
 - A. Microvascular decompression of the facial nerve for hemifacial spasm; *or*
 - B. Surgery for acoustic neuroma, congenital auricular lesions, or cranial based lesions; *or*
 - C. Surgical excision of neuromas of the facial nerve; *or*
 - D. Vestibular neurectomy for Meniere's disease.

Aetna considers the combined use of intra-operative EMG monitoring of facial nerve and intra-operative monitoring of somato-sensory evoked potentials not medically necessary.

- II. Aetna considers intra-operative EMG monitoring of the facial nerve during parotid gland surgery, tympanoplasty, or maxillo-facial surgery experimental and investigational because its value for these indications has not been established.
- III. Aetna considers intra-operative EMG monitoring during selective dorsal rhizotomy medically necessary when selection criteria for the procedure set in CPB 0362 are met.
- IV. Aetna considers intra-operative EMG monitoring of any of the following cranial nerves medically necessary for surgical excision of neuromas of these cranial nerves.
 - Abducens nerve
 - Glossopharyngeal nerve
 - Hypoglossal nerve
 - Oculomotor nerve
 - Recurrent laryngeal nerve
 - Spinal accessory
 - Superior laryngeal nerve
 - Trochlear nerve
- V. Aetna considers intra-operative EMG monitoring during intra-cranial tumor resections, or during spinal surgery experimental and investigational because there is insufficient evidence that this technique provides useful information to the surgeon in terms of assessing the adequacy of nerve root decompression, detecting nerve root irritation, or improving the reliability of placement of pedicle screws at the time of surgery.

Policy History

> [Last Review](#): 04/30/2013
 Effective: 01/07/2005
 Next Review: 09/12/2014
 > [Review History](#)
 > [Definitions](#)

Additional Information

> [Clinical Policy Bulletin Notes](#)

Intraoperative Electromyographic Monitoring

- VI. Aetna considers intra-operative monitoring of the recurrent laryngeal nerve/intra-operative neuromonitoring during thyroid and parathyroid surgery experimental and investigational because its clinical value has not been established.
- VII. Aetna considers intra-operative EMG monitoring during hip replacement surgery experimental and investigational because its clinical value has not been established.

See also [CPB 0181 - Evoked Potential Studies](#), and [CPB 0362 - Spasticity Management](#).

Background

Cranial nerves (CNs) can be damaged during various neurosurgical procedures. Intra-operative monitoring of the function of CNs by means of electromyography (EMG), compound nerve and muscle action potentials (MAP), and auditory evoked potentials (AEP) has been used to reduce the risk of injuries to these nerves. Intra-operative EMG monitoring of CNs entails electrical stimulation of the proximal (brain) end of the nerve and recording via EMG in the facial or neck muscles. Thus, the monitoring of CNs is done in the direction opposite to that of sensory-evoked potentials, but the purpose is similar to verify the integrity of the neural pathway.

Electromyographic monitoring of the facial nerve (7th CN) is used to predict post-operative facial function after skull base surgery, which is associated with considerable risk to the functioning of the cerebral hemispheres, the brain stem and the CNs. This risk is due to problems associated with maintaining an adequate blood flow while exposing and removing the tumor, as well as direct or indirect trauma to the brain, perineural tissues and CNs.

EMG Monitoring of Facial Nerve:

Harner and associates (1987) compared with the results of patients who underwent acoustic neuroma resection with (n = 48) or without (n = 48) intra-operative monitoring of facial nerve. They reported that anatomical preservation of the facial nerve in patients with large tumors was substantially improved in the monitored patients (67 %) when compared with those without monitoring (33 %). Although no difference was noted in facial nerve function in the 2 groups of patients immediately post-operatively, the degree of improvement in the monitored group exceeded that observed for those who were not monitored at 3 months, particularly in those with medium-sized and large tumors.

Kwartler and colleagues (1991) compared a group of monitored translabyrinthine acoustic tumor removals (n = 89) to a similar un-monitored group (n = 155) in regard to facial nerve function. Function was assessed immediately post-operatively, at time of discharge, and at 1 year post-operatively using the House 6-point scale. Results were grouped as satisfactory, intermediate, or poor, and were analyzed by tumor size. Facial nerve results were better at all time intervals in the monitored groups, although the difference was not statistically significant at the 1-year interval. There was no difference between monitored and un-monitored patients in the subgroups with tumors smaller than 2.5 cm in diameter. The findings of this study supported the usefulness of intra-operative facial nerve monitoring in improving facial nerve results, especially in larger tumors.

Olds et al (1997) stated that "routine facial nerve monitoring is not considered the standard of care in most communities; however risk of facial nerve injury appears to be greatly reduced when this adjunctive technique is employed". Spielholz (1997) stated that intra-operative facial nerve monitoring is especially helpful during removal of large (4 cm or greater) acoustic neuromas in which the incidence of facial weakness can reach 31 %. Fabregas and Gomar (2001) noted that facial nerve monitoring for surgery of acoustic neuromas should be considered an absolute standard of care in neurosurgery. This is in agreement with the observation of Ingelmo et al (2003) who stated that intra-operative EMG monitoring of the facial nerve should be used routinely in acoustic neuroma

Intraoperative Electromyographic Monitoring

surgery to reduce the degree of post-operative neurological impairment.

Wilson et al (2003) assessed the cost-effectiveness of intra-operative facial nerve monitoring during middle ear or mastoid surgery. The authors concluded that facial nerve monitoring is cost-effective, and its routine use should be adopted to reduce the risk of iatrogenic facial nerve injury during otologic surgery.

The American Academy of Otolaryngology-Head and Neck Surgery (1998) recognized the proven effectiveness of neurophysiologic monitoring of the facial nerve (7th CN), which may minimize the risk of injury to the nerve during surgical procedures in which the nerve is vulnerable due to site of lesion or extent of disease. The American Academy of Neurology (AAN, 1990; Lopez, 2004) stated that brainstem AEPs and cranial nerve EMG monitoring is safe and effective during surgeries performed in the region of the brainstem or inner ear. Nevertheless, clinical situations need to be chosen carefully, avoiding those in which the nervous system is only at low-risk.

A Tech Brief by the American Medical Association (1994) stated that the safety and effectiveness of intra-operative monitoring of the facial nerve by the use of either nerve conduction studies or EMG as a means of determining the integrity of the nerve during surgery for acoustic neuromas, cranial base lesions, or congenital auricular lesions were considered to be established by an expert panel. This is in agreement with the reviews by Harper (1998, 2004) who stated that there are controlled data to suggest that monitoring reduces the risk of injury to the facial nerve during resection of acoustic neuromas and other tumors in the posterior fossa.

The facial nerve is often embedded by fibrous tissues in recurrent tumor of the parotid gland. Studies have suggested that facial nerve-monitored patients undergoing parotidectomy for recurrent tumors have a 0 to 4 % risk of permanent facial paralysis. Dulguerov et al (1999) analyzed the incidence and factors responsible for post-parotidectomy facial nerve paralysis when the surgery is performed with the routine use of facial nerve monitoring (n = 70). The authors concluded that despite a stringent accounting of post-operative facial nerve deficits, the data compared favorably to the literature with or without the use of monitoring. An overall incidence of 27 % for temporary facial paralysis and 4 % for permanent facial paralysis was found. Although the lack of a control group precluded definitive conclusions on the role of EMG-based facial nerve monitoring in routine parotidectomy, the authors found its use very helpful. Brennan et al (2001) studied the effectiveness of continuous intra-operative EMG monitoring in patients who underwent parotidectomies, thyroidectomies, and parathyroidectomies (44 facial nerves, and 96 recurrent laryngeal nerves). These investigators concluded that continuous intra-operative nerve monitoring was associated with extremely low rates of temporary and permanent nerve paralysis. However, these reports were not randomized, controlled studies. Therefore, it remains unclear whether facial nerve monitoring significantly lowers the risk of facial nerve injury.

In a retrospective, case-controlled study, Terrell et al (1997) evaluated whether continuous facial nerve monitoring during parotidectomy is associated with a lower incidence of facial nerve paresis or paralysis compared with parotidectomy without monitoring (n = 117). The authors found that continuous EMG monitoring of facial muscle during primary parotidectomy reduced the incidence of short-term post-operative facial paresis, but did not change the incidence of permanent paralysis. Furthermore, Witt (1998) compared post-operative facial nerve function after monitored (n = 20) and unmonitored (n = 33) parotid surgical procedures. No patient showed permanent facial paralysis. In 9 patients (17 %), transient nerve paralysis developed: 5 (15 %) of the 33 patients who underwent lateral parotidectomy without the use of a nerve-integrity monitor and 4 (20 %) of the 20 patients who underwent lateral parotidectomy with the use of a nerve-integrity monitor. Therefore, the clinical value of facial nerve monitoring during parotidectomy is still in question and its routine use in clinical setting awaits findings of well-designed randomized controlled studies.

In a prospective, controlled clinical two-center trial, Grosheva and colleagues (2009) analyzed the benefit of EMG neuromonitoring during primary surgery on benign parotid lesions for post-operative

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facial function compared to visual observation only. Using an operation microscope, 100 parotidectomies in 96 patients were performed: 50 procedures with a continuous EMG monitoring plus visual facial observation (EMG group), and 50 procedures with only visual facial control (control group). The rate of post-operative facial weakness was detected. Patients with post-operative facial paralysis were followed-up until total recovery or defective healing by repeated EMG examinations. A total of 79 superficial and 21 total parotidectomies were performed. Histological analysis found pleomorphic adenoma in 38 patients, cystadenolymphoma in 39, and chronic parotitis in 18.

Immediate post-operative facial paralysis was evident in 41 patients. Six patients had permanent paralysis; in this group definitive defective healing was detected by EMG in 5 cases. Electromyography was not classifiable in 1 case. Intra-operative EMG monitoring had no significant effect on immediate post-operative or definitive facial outcome ($p = 0.23$ and $p = 0.45$, respectively). The duration of superficial, but not of a total parotidectomy, was diminished in the EMG group ($p = 0.02$ and $p = 0.61$, respectively). This result was independent of the specimen's histology. The authors concluded that EMG monitoring in parotid surgery in addition to visual facial observation did not diminish either the incidence of post-operative facial paralysis or the final facial outcome. Nevertheless, the duration of surgery for superficial parotidectomy could be reduced by using EMG monitoring.

EMG Monitoring of Recurrent Laryngeal Nerve:

The recurrent laryngeal nerve (RLN) is one of the branches of the vagus nerve (10th CN). After the RLN leaves the vagus nerve, it travels into the chest and then loops back up to supply nerves to the larynx. Injury to the RLN is rare but may occur as a complication of surgery in the neck or chest. In this regard, damage to the RLN remains one of the most devastating complications of thyroid surgery. The nerve can also be injured by tumors or swollen lymph nodes in the mediastinum. Damage to the RLN causes laryngeal palsy on the affected side. Symptoms include hoarseness, difficulty in speaking, and difficulty in swallowing.

During thyroidectomy, the RLN is visually identified and dissected away from the thyroid gland. It has been advocated that intra-operative knowledge of the status of the nerve after dissection could potentially provide the surgeon with important decision-making information. However, it has not been established that intra-operative EMG monitoring of the RLN reduces the incidence of RLN injury during thyroidectomy. There are studies that have calculated the positive-predictive value (PPV) and negative-predictive value (NPV) of RLN monitoring during thyroid surgery. Most recently, Beldi and co-workers (2004) reported that the NPV of intra-operative RLN monitoring was 99 %, but the PPV was only 33 %. These results are similar to those of Otto and Cochran (2002) who reported a NPV of 98.6 % and a PPV of 33.3 %. Beldi et al (2004) concluded that although an intact nerve can be verified by RLN monitoring, the loss of nerve function can not be reliably identified, and that the incidence of RLN lesions was not lowered by intra-operative monitoring. This is in agreement with the findings of Robertson et al (2004) who reported that there were no statistically significant differences in RLN paralysis, paresis, or total injury rates between control and continuous laryngeal nerve integrity monitoring among patients who underwent thyroidectomy ($n = 165$).

In a prospective study ($n = 328$ patients with 502 nerves at risk), Hermann et al (2004) examined the ability of neuromonitoring to predict post-operative outcome in patients undergoing thyroid surgery for different indications. These authors concluded that neuromonitoring is useful for identifying the RLN, in particular if the anatomical situation is complicated by prior surgery, large tissue masses, aberrant nerve course. However, neuromonitoring does not reliably predict post-operative outcome. Thus, the value of intra-operative EMG monitoring of the RLN has not been established.

Chiang et al (2008) determined the causes of RLN palsy and identified potentially reversible causes of RLN injury during thyroid surgery with the use of intra-operative neuromonitoring (IONM). A total of 113 patients with 173 nerves at risk were enrolled in this study. All operations were performed by the same surgeon. The 4-step procedure of IONM was designed to obtain EMG signals from the

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vagus nerve and RLN before and after resection of thyroid lobe. A total of 16 nerves had loss of EMG signals after thyroid dissection, and the causes of nerve injuries were well elucidated with the application of IONM. One nerve injury was caused by inadvertent transection, which led to permanent RLN palsy. Among the remaining 15 nerves, 1 injury was caused by a constricting band of connective tissue, which was detected precisely and released intra-operatively, 2 by inadvertent clamping of the nerve, and 12 by apparent over-stretching at the region of Berry's ligament (5 nerves regained signals before closing the wound, but 1 showed impaired cord movement. Another 7 nerves did not regain signals before closing the wound, and all developed temporary RLN palsy). The authors concluded that their 4-step procedure of IONM is useful and helpful in elucidating the potential operative pitfalls during dissection near the RLN. However, the rates of RLN palsy were not decreased in this study.

The National Institute for Health and Clinical Excellence's (NICE) guidance on intra-operative nerve monitoring during thyroid surgery (2008) noted that the evidence raises no major safety concerns. However, only 2 of the 9 specialist advisers stated that this procedure is useful for teaching; while 1 adviser stated that there are significantly different opinions between surgeons as to whether this technology improves outcomes or whether it gives false reassurance to inexperienced surgeons.

The NICE (2008) assessment reported that 4 non-randomized studies of 16,448, 684, 639 and 136 patients (29,998, 1,043, 1,000 and 190 nerves) reported permanent rates of vocal cord paralysis ranging from 0 % to 2 % in the intra-operative nerve monitoring groups, compared with 0 % to 1 % in the control groups (visual recurrent laryngeal nerve identification or no recurrent laryngeal nerve identification). No statistically significant differences were seen between procedures undertaken with or without intra-operative nerve monitoring. The NICE assessment also found that 3 case series of 328, 288 and 171 patients reported rates of permanent vocal cord paralysis using intra-operative nerve monitoring in 3 % (15/502), 1 % (6/429) and 1 % (2/271) of recurrent laryngeal nerves, respectively.

The NICE (2008) assessment also indicated that 4 non-randomized studies of 684, 639, 165 and 136 patients (1,043, 1,000, 236 and 190 nerves) reported rates of transient vocal cord paralysis ranging from 3 % to 5 % in the intra-operative nerve monitoring groups, compared with 3 % to 4 % in the control groups (none was statistically significant). The NICE assessment stated that another non-randomized study reported that vocal cord immobility was detected at 3-month follow-up in 6 % (6/104) of patients when intra-operative nerve monitoring was used and 5 % (5/100) of patients when intra-operative nerve monitoring was not used ($p = 0.55$). The 3 case series of 328, 288 and 171 patients reported rates of transient recurrent laryngeal nerve palsy as 9 % (43/502), 9 % (37/429) and 5 % (13/271), respectively.

The NICE (2008) assessment stated that the non-randomized study of 639 patients (1,000 nerves at risk), which compared intra-operative nerve monitoring with visual identification of the recurrent laryngeal nerve, reported that intra-operative nerve monitoring indicated no nerve damage in 10 out of 21 vocal cords that were paralyzed as a result of surgery. Conversely, intra-operative nerve monitoring indicated nerve damage in 27 out of 480 patients who were found to have normal post-operative vocal cord function.

Barczyński and colleagues (2009) tested the hypothesis that identification of the RLN during thyroid surgery reduces injury, and that IONM may be of additional benefit. A total of 1,000 patients scheduled to have bilateral thyroid surgery were randomized to standard protection or additional nerve monitoring. The primary outcome measure was prevalence of RLN injury. Of 1,000 nerves at risk in each group, transient and permanent RLN injuries were found respectively in 38 and 12 nerves without RLN monitoring ($p = 0.011$) and 19 and 8 nerves with RLN monitoring ($p = 0.368$). The prevalence of transient RLN paresis was lower in patients who had RLN monitoring by 2.9 % in high-risk patients ($p = 0.011$) and 0.9 % in low-risk patients ($p = 0.249$). The NPV and PPV of RLN monitoring in predicting post-operative vocal cord function were 98.9 and 37.8 %, respectively. The authors concluded that nerve monitoring decreased the incidence of transient but not permanent

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RLN paresis compared with visualization alone, particularly in high-risk patients.

In a retrospective case control study with 993 patients, Cavicchi et al (2009) examined the accuracy of neurostimulation with laryngeal palpation (NSLP) and IONM to predict the post-operative function of RLN in thyroid surgery. The control group (799 patients with 1,450 nerves at risk) included patients who underwent NSLP and the case group (194 patients with 354 nerves at risk) consisted of those who underwent NSLP in association with IONM. Sensitivity, specificity, PPV, NPV, and accuracy were calculated for NSLP and IONM, with nerve palsy as the target outcome. A significant difference in nerve injury between the case and the control group ($p = 0.31$) was not observed. The presence or absence of laryngeal twitch (LT) ($p < 0.0001$) and the acoustic response to electrical stimulation ($p = 0.003$) were significantly associated with nerve function at the end of the surgery. The authors concluded that these findings indicated that NSLP is a safe and reliable intra-operative method of RLN monitoring. Moreover, these results confirmed that IONM is not a helpful tool to reduce the rate of palsy in thyroid surgery.

Harrison and Triponez (2009) reviewed the evidence regarding the use of intra-operative parathyroid hormone (PTH), radio-guided parathyroidectomy (RGP), methylene blue (MB), frozen section, and IONM during surgery for primary hyper-parathyroidism (PHPT). A Medline keyword search of English-language articles led to the production of a draft document, subsequently revised by committee, containing levels of evidence and the grading of recommendations as proposed by the Agency for Healthcare Research and Quality. Literature review provided the basis for clear recommendations on the use of intra-operative PTH at surgery for PHPT. In contrast, there is little evidence to support the use of RGP, MB, routine frozen section, and IONM.

Kiviniemi and colleagues (2010) stated that the knowledge of the anatomy of the parathyroid and thyroid glands helps a surgeon to localize important details and lessen complications, especially laryngeal palsy and hypo-parathyroidism. The ligament of Berry and tuberculum Zuckerkandl cover the recurrent laryngeal nerve in the upper part of the thyroid lobes. The recurrent laryngeal nerve or its branches are exposed during the mobilization of these structures during total thyroidectomy. The upper parathyroid gland can be found on the upper part of the tuberculum Zuckerkandl behind the recurrent laryngeal nerve, whereas the lower parathyroid gland can be found in front of the nerve on the under surface of the thyroid lobe or in the thymus below. The tertiary branches of blood vessels are cut preserving the function of the parathyroid glands. If the parathyroid has lost its blood circulation, it is made into pieces and transplanted into the pockets of sternocleidomastoideus muscle. Exposing the recurrent laryngeal nerve during operation seems to decrease permanent recurrent laryngeal nerve injury. The authors noted that the role of neuromonitoring during parathyroid and thyroid surgery is still controversial.

EMG Monitoring of Other Cranial Nerves:

Schlake et al (2001) reported that EMG is effective as a mapping tool for intra-operative localization and identification of ocular motor nerves -- the oculomotor nerve (3rd CN) and the abducens nerve (6th CN) in skull base surgery. However, the predictive value of conventional neurophysiological parameters for clinical outcomes appears to be rather poor. Further investigations on a larger number of patients are thus needed to develop new quantification techniques which enable an intra-operative prediction of ocular motor nerve deficits. More studies are also needed to extend this technique to the trochlear nerve (4th CN). Furthermore, in a review on the electrophysiological examination of CNs, Vial and Bouhour (2004) stated that intra-operative monitoring of various CNs can be useful but techniques still need to be validated.

There are no controlled studies that examined whether EMG monitoring of the oculomotor, trochlear, and abducens nerves during surgery in the middle cranial fossa reduces the risk of post-operative ophthalmoplegia. Moreover, although there are reports of monitoring, either alone or in combination, of glossopharyngeal, laryngeal branches of the vagus (e.g., the superior laryngeal nerve and the recurrent laryngeal nerve), spinal accessory, and hypoglossal nerves during skull base surgeries

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such as surgical resection of tumors in the region of the foramen magnum, jugular foramen, hypoglossal foramen, and clivus, there are no controlled data to indicate that the risk of CN injury is reduced by monitoring (Harper, 2004). Thus, the clinical value of intra-operative monitoring of the oculomotor, trochlear, abducens, glossopharyngeal, laryngeal branches of the vagus, spinal accessory, and hypoglossal nerves has not been established.

EMG monitoring During Spinal Surgery:

Spinal surgery is associated with a risk of injury to the spinal cord. Methods to intra-operatively monitor spinal function have been employed to minimize such risks. These neurophysiological techniques include somato-sensory evoked potentials (SSEP - see CPB 0181), dermatosensory evoked potentials (DSEP - see CPB 0181), and motor evoked potentials (MEP - see CPB 0181). This CPB specifically addresses the continuous, free-running monitoring of EMG activity and stimulus-triggered EMG activity from anatomically appropriate muscles done to detect injury to nerve roots during surgery. The main objective of intra-operative neurophysiological monitoring of spinal cord or nerve root function is to identify induced neurophysiological alterations so that they can be detected as they occur and corrected during surgery; thus avoiding post-surgical complications such as myelopathy or radiculopathy, as well as permanent injury.

Weiss (2001) discussed the application of intra-operative neurophysiological monitoring to surgical treatment of lumbar stenosis. The author noted that benefits of SSEP and MEP studies during surgical correction of spinal deformity are well known and documented. Continuous free-running and stimulus-triggered electromyography (EMG) monitoring during placement of pedicle screw is an accepted practice at many institutions. Moreover, the functional integrity of spinal cord, cauda equina, and nerve roots should be monitored throughout every stage of surgery including exposure and decompression. Continuous free-running EMG provides feedback regarding the location and potential for surgical injury to the lumbo-sacral nerve roots within the operative field, while stimulus-triggered EMG can confirm that transpedicular instrumentation has been positioned correctly within the bony cortex. Continuous free-running EMG is monitored from muscles innervated by nerves or nerve roots considered to be at risk during spinal surgery. Surgical trauma to these nerve roots and motor nerves will produce high-frequency spikes or trains of motor unit potentials in monitored muscles. These neural discharges can be used to alert the surgeon of inadvertent trauma to nerve roots/peripheral nerves, and avoid more severe or irreversible injury. Multiple channels of continuous free-running EMG activity can be monitored simultaneously, providing real-time information regarding lumbosacral nerve root motor function throughout the operation (Holland, 2002).

Electro-stimulation of intact motor nerves will elicit compound muscle action potentials (CMAP) in innervated muscles. Intra-operative CMAP responses (all-or-none) are usually recorded by means of intra-muscular needle electrodes and submaximal stimulation, in contrast to those measured in diagnostic EMG laboratories where surface electrodes and maximal stimulation are employed. Electro-stimulation is usually performed by the surgeon using a hand-held monopolar or bipolar device within the operative field. The advantage of bipolar stimulation is that it evokes a localized stimulating current, thus avoiding unwanted current spreading to nearby nerves. This is especially useful during peripheral nerve or plexus surgeries, when multiple nerves lie in close proximity. Two examples of stimulus-triggered EMG monitoring are as follows: (i) the presence of a stimulus-triggered CMAP response can be used to differentiate nerve root from fibrous bands during surgical dissection for tethered cord release (Legatt et al, 1992), and (ii) the failure to produce a CMAP response from stimulation of pedicle screws and holes at a stimulus intensity of 7 to 11 mA is the electrophysiological criterion most commonly used to exclude a pedicular cortical perforation (Maguire et al, 1995). However, since the expected finding is negative (i.e., no CMAP responses), it is always beneficial to test and document a positive control response to confirm the reliability of the test results. This is best achieved by directly stimulating an exposed nerve or nerve root at the same stimulus intensity (Holland, 2002).

Although intra-operative monitoring of EMG has been used to monitor spinal cord function during

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spinal surgery, there is disagreement regarding its clinical value.

In a clinical trial, Owen and colleagues (1994) examined the use of mechanically elicited EMG during placement of pedicle screws in patients undergoing surgery for spinal stenosis (n = 89).

Mechanically elicited EMG was recorded in muscle groups innervated by cervical or lumbar nerve roots. Confirmation of surgical activity with the level of the EMG was correlated. Results of this study indicated that mechanically elicited EMG is very sensitive to nerve root irritation. Compared to other neurophysiological methods, EMG is a viable alternative. These authors concluded that mechanically elicited EMG is sensitive and specific to nerve root firings and should be considered for use during the dynamic phases of surgery.

In a case series study, Beatty et al (1996) discussed their experiences with the use of continuous intra-operative EMG recording during spinal surgery. A total of 150 patients underwent spinal surgery for radiculopathy (120 underwent lumbar surgery and 30 had cervical operations). All of the surgeries were performed to alleviate symptoms due to disc herniation, spondylosis, or both. During the surgical procedures, continuous intra-operative EMG recordings were taken from the muscle corresponding to the involved nerve root. In baseline recordings taken in the operating room 10 minutes before lumbar surgery, electrical discharge or firing was recorded from the muscle in 18 % (22 of 120 patients) of the cases. Once the nerve was decompressed, muscle firing ceased. Electrical discharges were produced with regularity on nerve root retraction. These authors concluded that continuous EMG monitoring can be accomplished easily and yields valuable information that indicates when the nerve root is adequately decompressed or when undue retraction is exerted on the root. The findings of Owen et al (1994) as well as Beatty et al (1996) are in congruous with that of Limbrick and Wright (2005) who stated that surgeon-driven evoked EMG threshold testing may provide a simple, effective adjunct to lumbar microendoscopic disectomy for intra-operative verification of nerve root decompression as well as that of Jimenez and co-workers (2005) who reported that the incidence of post-operative C-5 palsies was lowered from 7.3 to 0.9 % as a consequence of intra-operative continuous EMG monitoring. Jimenez et al (2005) also noted that no patient suffered a post-operative C-5 palsy when intra-operative evidence of root irritation was absent.

Continuous intra-operative EMG plus SSEP have also been used in spinal surgery to prevent neural injury. However, only limited data are available on the sensitivity, specificity, and predictive values of intra-operative electrophysiological changes with regard to the occurrence of new post-operative neurological deficits. Gunnarsson and colleagues (2004) retrospectively analyzed a prospectively accrued series of 213 consecutive patients who underwent intra-operative monitoring with EMG and SSEP during thoraco-lumbar spine surgery. The authors examined data on patients who underwent intra-operative monitoring with continuous lower limb EMG and SSEP. The analysis focused on the correlation of intra-operative electrophysiological changes with the development of new neurological deficits. A total of 213 patients underwent surgery on a total of 378 levels; 32.4 % underwent an instrumented fusion. Significant EMG activation was observed in 77.5 % of the patients and significant SSEP changes in 6.6 %. Fourteen patients (6.6 %) had new post-operative neurological symptoms. Of those, all had significant EMG activation, but only 4 had significant SSEP changes.

Intra-operative EMG activation had a sensitivity of 100 % and a specificity of 23.7 % for the detection of a new post-operative neurological deficit, while SSEP had a sensitivity of 28.6 % and specificity of 94.7 %. These investigators concluded that intra-operative EMG activation has a high sensitivity for the detection of a new post-operative neurological deficit but a low specificity. In contrast, SSEP has a low sensitivity but a high specificity. They noted that combined intra-operative monitoring with EMG and SSEP is helpful for predicting and possibly preventing neurological injury during thoracolumbar spine surgery.

In a prospective clinical study, Raynor et al (2002) assessed the sensitivity of recording rectus abdominis-triggered EMG to evaluate placement of thoracic screw. A total of 677 thoracic screws were inserted into 92 patients. Screws placed from T-6 and T-12 were evaluated using an ascending method of stimulation until a CMAP was obtained from the rectus abdominis. Threshold

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values were compared both in absolute terms and also in relation to other intra-patient values. Screws were divided into 3 groups: (i) group A (n = 650 screws) had thresholds greater than 6.0 mA and intra-osseus placement, (ii) group B (n = 21) had thresholds less than 6.0 mA but an intact medial pedicle border on re-examination and radiographical confirmation, and (iii) group C (n = 6) had thresholds less than 6.0 mA and medial wall perforations confirmed by tactile and/or visual examination. Thus, 3.9 % (27 of 677) of all screws had thresholds less than 6.0 mA. Only 22 % (6 of 27) had medial perforation. Group B screws averaged a 54 % decrease from the mean as compared with a 69 % decrease for group C screws ($p = 0.016$). There were no post-operative neurological deficits or radicular chest wall complaints. These investigators concluded that for assessment of thoracic pedicle screw placement, triggered EMG thresholds of less than 6.0 mA, coupled with values 60 to 65 % decreased from the mean of all other thresholds in a given patient, should alert the surgeon to suspect a medial pedicle wall breach. These investigators further stated that although this retrospective analysis of electrophysiological observations and subsequent guidelines are not currently validated, this electrophysiological approach can be used in conjunction with precise surgical techniques, careful pedicle tract palpation, as well as intra-operative biplanar fluoroscopy and/or radiography to create the safest environment for placement of thoracic screw. They noted that further investigations of these guidelines will be carried out to validate this electrophysiological approach.

It is interesting that the conclusion of the study by Raynor et al (2002) was directly opposite to that by Reidy et al (2001), who, in a prospective study, examined the use of inter-costal EMG monitoring as an index of the accuracy of the placement of pedicle screws in the thoracic spine. A total of 95 thoracic pedicle screws in 17 patients were studied. Prior to insertion of the screw, the surgeon recorded his assessment of the integrity of the pedicle track, and then stimulated the track using a K-wire pedicle probe connected to a constant current stimulator. A CMAP was recorded from the appropriate inter-costal or abdominal muscles. Post-operative computed tomography (CT) was performed to establish the position of the screw. The stimulus intensity needed to evoke a muscle response was correlated with the position of the screw on the CT scan. There were 8 unrecognized breaches of the pedicle. Using 7.0 mA as a threshold, the sensitivity of EMG was 0.50 in detecting a breached pedicle and the specificity was 0.83. Thoracic pedicle screws were accurately placed in more than 90 % of patients. These investigators concluded that EMG monitoring did not significantly improve the reliability of placement of the screw.

Regarding the observations by Raynor and colleagues (2002), Finkelstein (2003) stated that "the value of a screening test should be such that the outcome could be altered by the prediction of an adverse event. The protocol of the study by Raynor et al would suggest that the damage of a medially placed screw would have already occurred by the time the screws were tested for CMAP and then compared to the other screws, determining an "average" of all other thresholds. Aside from improving the radiograph, it would seem to have little clinical utility". Finkelstein also noted that the utility of a screening test is defined by its sensitivity and specificity, as well as its positive predictive value. These were assessed in the study by Reidy and associates, and deemed unable to improve the accuracy beyond an experienced surgeon's knowledge of well described anatomical landmarks.

In a review on intra-operative EMG monitoring during thoracolumbar spinal surgery, Holland (1998) stated that this approach has a number of potential limitations, including: (i) EMG is sensitive to blunt lumbosacral nerve root irritation or injury, but may provide misleading results with "clean" nerve root transection, (ii) EMG must be recorded from muscles belonging to myotomes appropriate for the nerve roots considered at risk from surgery, (iii) EMG can be effective only with careful monitoring and titration of pharmacological neuromuscular junction blockade, (iv) when transpedicular instrumentation is stimulated, an exposed nerve root should be stimulated directly as a positive control whenever possible, (v) pedicle holes and screws should be stimulated with single shocks at low-stimulus intensities when pharmacological neuromuscular blockade is excessive, and (vi) chronically compressed nerve roots that have undergone axonotmesis (wallerian degeneration) have higher thresholds for activation from electrical and mechanical stimulation. Hence, whenever axonotmetic nerve root injury is suspected, the stimulus thresholds for transpedicular holes and

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screws must be specifically compared with those required for the direct activation of the adjacent nerve root (and not published guideline threshold values).

Krassioukov et al (2004) examined the neurological outcomes after complex lumbo-sacral surgery in patients undergoing multi-modality neurophysiological monitoring. A total of 61 patients were consecutively enrolled in this study. These subjects underwent complex intra- and extra-dural lumbo-sacral procedures with concomitant intra-operative EMG monitoring of the lower-limb muscles, external anal and urethral sphincters (EAS and EUS), and lower-limb SSEP. Long-term (minimum of 2 years) clinical follow-up data were obtained in all cases. Most subjects were treated for spinal/spinal cord tumors (61 %) or adult tethered cord syndrome (25 %). Recordable lower-extremity SSEP were reported in 54 patients (89 %). New post-operative neurological deficits occurred in only 3 patients (4.9 %), and remained persistent in only 1 patient (1.6 %) at long-term follow-up examination. In only 1 of these cases was a significant decrease in SSEP amplitude detected. Spontaneous EMG activity was observed in the lower-extremity muscles and/or EAS and EUS in 51 cases (84 %). Intra-operatively, EMG demonstrated activity only in the EUS in 5 % of patients and only in the EAS in 28 %. In 7 patients (11 %) spontaneous intra-operative EMG activity was observed in both the EAS and the EUS; however, in only 3 of these cases was EMG activity recorded in both sphincters simultaneously. In addition to spontaneously recorded EMG activity, electrically evoked EMG activity was also used as an intra-operative adjunct. A bipolar stimulating electrode was used to identify functional neural tissue before undertaking microsurgical dissection in 58 individuals (95 %). In the majority of these patients, evoked EMG activity occurred either in 1 (33 %) or in 2 muscles (9 %) simultaneously. The presence of electrically evoked EMG activity in structures encountered during microdissection altered the plan of treatment in 24 cases (42 %). The investigators concluded that the combined SSEP and EMG monitoring of lower-limb muscles, EAS, and EUS is a practical and reliable method for obtaining optimal electrophysiological feedback during complex neurosurgical procedures involving the conus medullaris and cauda equina. Analysis of the results indicates that these intra-operative adjunctive modalities positively influence decision making with regard to microsurgery and reduce the risk of peri-operative neurological complications. Moreover, the authors noted that validation of the clinical value of these approaches, however, will require further assessment in a larger prospective cohort of patients.

In a review on electrophysiological intra-operative monitoring for spinal surgeries, Slimp (2004) stated that the advent of equipment capable of performing SSEP, MEP, and EMG in a multi-plexed fashion, and in a timely manner brings a new level of monitoring that far exceeds the previous basic monitoring done with SSEP only. However, the author noted that whether this more comprehensive monitoring will result in greater protection of the nervous system awaits future analysis. It is also interesting to note that when Erickson and co-workers (2005) from the technology assessment unit of the McGill University Health Center developed a report on the use of intra-operative neurophysiological monitoring during spinal surgery, they only examined the use of SSEP and MEP. These investigators recommended that combined SSEP/MEP should be available for all cases of spinal surgery for which there is a risk of injury to the spinal cord.

The American Association of Neurological Surgeons/Congress of Neurological Surgeons' guidelines for the performance of fusion procedures for degenerative disease of the lumbar spine (Resnick et al, 2005) stated that there does not appear to be support for the hypothesis that any type of intra-operative monitoring improves patient outcomes after spinal surgery such as lumbar decompression or fusion procedures for degenerative spinal disease. The report noted that evidence does indicate that a normal evoked EMG response is predictive for intra-pedicular screw placement (high negative predictive value for breakout); while the presence of an abnormal EMG response does not, however, exclude intra-pedicular screw placement (low PPV). The majority of clinically apparent post-operative nerve injuries are associated with intra-operative changes in SSEP and/or DSEP monitoring. Thus, changes in DSEP/SSEP monitoring appear to be sensitive to nerve root injury. However, there is a high false-positive rate, and changes in DSEP and SSEP recordings are often not associated with nerve injury. A normal study has been shown to correlate with the lack of a

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significant post-operative nerve injury. There is insufficient evidence that the use of intra-operative monitoring of any kind provides clinically useful information to the surgeon in terms of assessing the adequacy of nerve root decompression at the time of surgery. Furthermore, the authors stated that a randomized prospective study comparing clinical and radiographical outcomes in similar groups of patients undergoing lumbosacral fusion with or without intra-operative monitoring would provide Class I evidence (well-conducted randomized prospective trials) supporting or refuting the hypothesis that the added expense associated with the use of intra-operative monitoring is justified by a clinical benefit.

In a prospective analysis, Paradiso and colleagues (2006) evaluated the sensitivity, specificity, as well as PPV and NPV of multi-modality intra-operative neurophysiological monitoring in surgery for adult tethered cord syndrome. The results of multi-modality intra-operative neurophysiological monitoring were compared with the "gold standard" (neurological outcomes). Multi-modality intra-operative neurophysiological monitoring included posterior tibial nerve SSEPs, continuous EMG monitoring of the L2 to S4 myotomes, and evoked EMG. Follow-up neurological evaluations were performed for at least 1 year. A total of 44 consecutive patients, including 19 males and 25 females (aged 43 +/- 15 years), who underwent microsurgery for adult tethered cord syndrome were evaluated. After surgery, new neurological deficits, including 1 transient and 1 permanent, developed in 2 patients. There was 1 patient who had persistent posterior tibial nerve SSEP amplitude reduction following microsurgical manipulation. In 1 patient, a transient posterior tibial nerve SSEP amplitude reduction prompted a change in microneurosurgical strategy. This patient awoke with no new post-operative neurological deficits. For SSEPs, the sensitivity was 50 % and specificity 100 %. Electromyographical bursts were recorded in 36 patients (82 %). The 2 patients with post-operative neurological worsening had EMG activity in the myotomes, where their new deficits presented. Continuous EMG had a sensitivity of 100 % and a specificity of 19 %. The authors concluded that this was the largest series to date reporting the use of multi-modality intra-operative neurophysiological monitoring in the surgical management of adult tethered cord syndrome. Posterior tibial nerve SSEPs have high specificity, but low sensitivity, for predicting new neurological deficits. In contrast, continuous EMG showed high sensitivity and low specificity. Evoked EMG accurately identified functional neural tissue. The combined recording of SSEPs in concert with continuous and evoked EMGs may provide a useful adjunct to complex microsurgery for adult tethered cord syndrome.

In a systematic review, Fehlings and colleagues (2010) examined if intra-operative monitoring (IOM) is able to sensitively and specifically detect intra-operative neurologic injury during spine surgery and to assess whether IOM results in improved outcomes for patients during these procedures. A review of the English language literature was undertaken for articles published between 1990 and March 2009. MEDLINE, EMBASE, and Cochrane Collaborative Library databases were searched, as were the reference lists of published articles examining the use of IOM in spine surgery. Two independent reviewers assessed the level of evidence quality using the Grading of Recommendations Assessment, Development, and Evaluation (GRADE) criteria, and disagreements were resolved by consensus. A total of 103 articles were initially screened and 32 ultimately met the pre-determined inclusion criteria. These researchers determined that there is a high level of evidence that multi-modal (SSEP and MEP) IOM is sensitive and specific for detecting intra-operative neurologic injury during spine surgery. There is a low level of evidence that IOM reduces the rate of new or worsened peri-operative neurologic deficits (a grade of "low" means that further research is very likely to have an important impact on our confidence in the estimate of effect and is likely to change the estimate). There is very low evidence that an intra-operative response to a neuromonitoring alert reduces the rate of peri-operative neurologic deterioration (a grade of "very low" means that any estimate of effect is very uncertain). The authors concluded that based on strong evidence that multi-modality intra-operative neuromonitoring is sensitive and specific for detecting intra-operative neurologic injury during spine surgery, it is recommended that the use of multi-modality intra-operative neuromonitoring be considered in spine surgery where the spinal cord or nerve roots are deemed to be at risk, including procedures involving deformity correction and procedures that require

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the placement of instrumentation. Furthermore, they stated that there is a need to develop evidence-based protocols to deal with intra-operative changes in multi-modality intra-operative neuromonitoring and to validate these prospectively. Intra-operative EMG monitoring was not recommended as a means of neurophysiological monitoring during spinal surgery.

Kundnani et al (2010) reported the analysis of prospectively collected intra-operative neurophysiological monitoring data of 354 consecutive patients undergoing corrective surgery for adolescent idiopathic scoliosis (AIS) to establish the efficacy of multi-modal neuromonitoring and to evaluate comparative sensitivity and specificity. The study group consisted of 354 patients (45 males and 309 females) undergoing spinal deformity corrective surgery between 2004 and 2008. Patients were monitored using electrophysiological methods including SSEP and MEP simultaneously. Mean age of patients was 13.6 years (\pm 2.3 years). The operative procedures involved were instrumented fusion of the thoracic/lumbar/both curves. Baseline SSEP and neurogenic MEP (NMEP) were recorded successfully in all cases. Thirteen cases expressed significant alert to prompt reversal of intervention. All these 13 cases with significant alert had detectable NMEP alerts, whereas significant SSEP alert was detected in 8 cases. Two patients awoke with new neurological deficit (0.56 %) and had significant intra-operative SSEP and NMEP alerts. There were no false-positives with SSEP (high specificity) but 5 patients with false-negatives with SSEP (38 %) reduced its sensitivity. There was no false-negative with NMEP but 2 of 13 cases were false-positive with NMEP (15 %). The specificity of SSEP (100 %) is higher than NMEP (96 %); however, the sensitivity of NMEP (100 %) is far better than SSEP (51 %). Due to these results, the overall sensitivity, specificity and PPV of combined multi-modality neuromonitoring in this adult deformity series was 100 %, 98.5 % and 85 %, respectively. The authors concluded that NMEP monitoring appears to be superior to conventional SSEP monitoring for identifying evolving spinal cord injury. Used in conjunction, the sensitivity and specificity of combined neuromonitoring may reach up to 100 %. Multi-modality monitoring with SSEP and NMEP should be the standard of care.

In a cross-sectional study of non-consecutive cases (level III evidence), de Bla et al (2012) reported the findings of a series of young patients with thoracic scoliosis who were treated with pedicle screw constructs. Data obtained from triggered EMG (t-EMG) screw stimulation and post-operative computed tomographic scans were matched to find different threshold limits for the safe placement of pedicle screws at the concavity (CC) and convexity (CV) of the scoliotic curves. The influence of the distance from the medial pedicle cortex to the spinal cord on t-EMG threshold intensity was also investigated at the apex segment. A total of 23 patients who underwent posterior fusions using 358 pedicle thoracic screws were reviewed. All patients presented main thoracic scoliosis, with a mean Cobb angle of 58.3 degrees (range of 46 to 87 degrees). Accuracy of the screw placement was tested at surgery by the t-EMG technique. During surgery, 8 screws placed at the CC showed t-EMG threshold values below 7 mA and were carefully removed. Another 25 screws disclosed stimulation thresholds within the range of 7 to 12 mA. After checking the screw positions by intraoperative fluoroscopy, 15 screws were removed because of clear signs of mal-positioning. Every patient underwent a pre-operative magnetic resonance imaging examination, in which the distances from the spinal cord to the pedicles of the concave and convex sides at 3 apex vertebrae were measured. Post-operative computed tomographic scans were used in all patients to detect screw mal-positioning of the final 335 screws. According to post-operative computed tomographic scans, 44 screws (13.1 %) showed different mal-positions: 40 screws (11.9 %) perforated the medial pedicle wall, but only 11 screws (3.2 %) were completely inside the spinal canal. If these researchers considered the 23 screws removed during surgery, the true rate of misplaced screws increased to 18.7 %. In those screws that preserved the pedicle cortex (well-positioned screws), EMG thresholds from the CC showed statistically significantly lower values than those registered at the CV of the deformity (21.1 ± 8.2 versus 23.9 ± 7.7 mA, $p < 0.01$). In the concave side, t-EMG threshold values under 8 mA should be unacceptable because they correspond to screw mal-positioning. Threshold values above 14 mA indicate an accurate intrapedicular position with certainty. At the convex side, threshold values below 11 mA always indicate screw mal-positioning, and values above 19 mA imply accurate screw placement. At the 3 apex vertebrae, the average

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pedicle-spinal cord distance was 2.2 ± 0.7 mm at the concave side and 9.8 ± 4.3 mm at the convex side ($p < 0.001$). In well-positioned screws, a correlation between pedicle-dural sac distance and t-EMG threshold values was found at the concave side only (Pearson $r = 0.467$, $p < 0.05$). None of the patients with misplaced screws showed post-operative neurological impairment. The authors concluded that independent of the screw position, average t-EMG thresholds were always higher at the CV in the apex and above the apex regions, presuming that the distance from the pedicle to the spinal cord plays an important role in electrical transmission. They stated that the t-EMG technique has low sensitivity to predict screw mal-positioning and can not discriminate between medial cortex breakages and complete invasion of the spinal canal.

Also, an UpToDate review on "Treatment and prognosis of adolescent idiopathic scoliosis" (Scherl, 2012) mentions the use of intra-operative SEP and MEP monitoring; but not intra-operative EMG monitoring.

In summary, there is insufficient scientific evidence that intra-operative monitoring of EMG during spinal surgery provides useful information to the surgeon in terms of assessing the adequacy of nerve root decompression, detecting nerve root irritation, or improving the reliability of placement of pedicle screw at the time of surgery.

Monitoring During Intra-Cranial Tumor Resections:

Grabb and colleagues (1997) reviewed the results of continuous intra-operative EMG monitoring of muscles innervated by cranial nerves in 17 children whose pre-operative imaging studies showed compression or infiltration of the 4th ventricular floor by tumor to determine how intra-operative EMG activity correlated with post-operative cranial nerve morbidity. Bilateral lateral rectus (6th) and facial (7th) nerve musculatures were monitored in all children. Cranial nerve function was documented immediately post-operatively and at 1 year. Of the 68 nerves monitored, 9 new neuropathies occurred in 6 children (6th nerve in 4 children and 7th nerve in 5 children). In 5 new neuropathies, intra-operative EMG activity could be correlated in 1 of 4 6th nerve injuries and 4 of 5 7th nerve injuries. Electromyographic activity could not be correlated in 4 children with new neuropathies. Of 59 cranial nerves monitored that remained unchanged, 47 had no EMG activity. Twelve cranial nerves (3 6th nerves and 9 7th nerves) had EMG activity but no deficit. Of 4 children with lateral rectus EMG activity, 3 had new 7th nerve injuries. Lateral rectus EMG activity did not predict post-operative abducens injury. The absence of lateral rectus EMG activity did not assure preserved abducens function post-operatively. Likely because of the close apposition of the intra-pontine facial nerve to the abducens nucleus, lateral rectus EMG activity was highly predictive of 7th nerve injury. The authors noted that although facial muscle EMG activity was not an absolute predictor of post-operative facial nerve dysfunction, the presence of facial muscle EMG activity was associated statistically with post-operative facial paresis. The absence of facial muscle EMG activity was rarely associated with facial nerve injury. The authors speculated that EMG activity in the facial muscles may have provided important intra-operative information to the surgeon so as to avoid facial nerve injury.

Kombos et al (2000) stated that intra-operative cranial nerve monitoring has improved the preservation of facial nerve function following surgery in the cerebello-pontine angle (CPA). Facial EMG was performed in 60 patients during CPA surgery. Pairs of needle electrodes were placed subdermally in the orbicularis oris and orbicularis oculi muscles. The duration of facial EMG activity was noted. Facial EMG potentials occurring in response to mechanical or metabolic irritation of the corresponding nerve were made audible by a loudspeaker. Immediate (4 to 7 days after tumor excision) and late (6 months after surgery) facial nerve function was assessed on a modified House-Brackmann scale. Late facial nerve function was good (House-Brackmann 1 to 2) in 29 of 60 patients, fair (House-Brackmann 3 to 4) in 14, and poor (House-Brackmann 5 to 6) in 17. Post-manipulation facial EMG activity exceeding 5 minutes in 15 patients was associated with poor late function in 5, fair function in 6, and good function in 4 cases. Post-manipulation facial EMG activity of 2 to 5 minutes in 30 patients was associated with good late facial nerve function in 20, fair in 8,

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and poor in 2. The loss of facial EMG activity observed in 10 patients was always followed by poor function. Facial nerve function was preserved post-operatively in all 5 patients in whom facial EMG activity lasted less than 2 minutes. The authors concluded that facial EMG is a sensitive method for identifying the facial nerve during surgery in the CPA. EMG bursts are a very reliable indicator of intra-operative facial nerve manipulation, but the duration of these bursts do not necessarily correlate with short- or long-term facial nerve function despite the fact that burst duration reflects the severity of mechanical aggression to the facial nerve.

Furthermore, UpToDate reviews on "Clinical manifestations and initial surgical approach to patients with malignant gliomas" (Batchelor and Curry, 2012) and "Overview of the management of central nervous system tumors in children" (Lau and Teo, 2012) do not mention the use of intra-operative EMG.

CPT Codes / HCPCS Codes / ICD-9 Codes	
Intra-operative electromyographic (EMG) monitoring of cranial nerves:	
CPT codes covered if selection criteria are met:	
95867	
95868	
95887	
95940	
HCPCS codes covered if selection criteria are met:	
G0453	Continuous intraoperative neurophysiology monitoring, from outside the operating room (remote or nearby), per patient, (attention directed exclusively to one patient) each 15 minutes (list in addition to primary procedure
CPT codes not covered when combined with intra-operative monitoring of facial nerve:	
95925	
95926	
95927	
CPT codes for intra-cranial tumor resection surgery where intra-operative EMG is not covered::	
61518	
61519	
61520	
61521	
61526	
61530	
61545	

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62164	
Other CPT codes related to the CPB:	
21010 - 21499	
42300 - 42699	
69631 - 69646	
ICD-9 codes covered if selection criteria are met:	
160.1	Malignant neoplasm of auditory tube, middle ear, and mastoid air cells
171.0	Malignant neoplasm of connective and other soft tissue of head, face, and neck
173.2	Other malignant neoplasm of skin of ear and external auditory canal
212.0	Benign neoplasm of nasal cavities, middle ear, and accessory sinuses
215.0	Other benign neoplasm of connective and other soft tissue of head, face, and neck
216.2	Benign neoplasm of skin of ear and external auditory canal
232.2	Carcinoma in situ of ear and external auditory canal
351.0 - 352.99	Facial nerve disorders and disorders of other cranial nerves
386.00 - 386.04	Meniere's disease
ICD-9 codes not covered for indications listed in the CPB: :	
191.0 - 192.1	Malignant neoplasm of brain, cranial nerves, and cerebral meninges
195.0	Malignant neoplasm of head, face, and neck
198.3 - 198.4	Secondary malignant neoplasm of brain and spinal cord or other parts of nervous system [intracranial only]
225.0 - 225.2	Benign neoplasm of brain, cranial nerves, or cerebral meninges
237.5 - 237.6	Neoplasm of uncertain behavior of brain and spinal cord or meninges [intracranial only]
383.0 - 385.9	Mastoiditis and related conditions, other disorders of tympanic membrane, and other disorders of middle ear and mastoid
524.00 - 524.9	Dentofacial anomalies, including malocclusion
527.0 - 527.9	Diseases of the salivary glands
802.20 - 802.5	Fracture of mandible, malar, and maxillary bones
830.0 - 830.1	Dislocation of jaw
Intra-operative EMG monitoring during spinal surgery:	
CPT codes not covered for indications listed in the CPB:	

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51784	
51785	
95860	
95861	
95863	
95864	
95869	
95870	
95885	
95886	
95937	
95940	
HCPCS codes not covered for indications listed in the CPB:	
G0453	Continuous intraoperative neurophysiology monitoring, from outside the operating room (remote or nearby), per patient, (attention directed exclusively to one patient) each 15 minutes (list in addition to primary procedure
CPT codes covered for spinal surgery where intra-operative EMG is covered:	
63185	
63190	
CPT codes for spinal surgery where intra-operative EMG is not covered:	
22010 - 22865	
62263 - 63182, 63191 - 63746	
64470 - 64484	
64561	
64581	
64633	
64634	
64635	
64636	
64772	
HCPCS codes for spinal surgery where intra-operative EMG is not covered:	
S2348	Decompression procedure, percutaneous, of nucleus pulposus of

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	intervertebral disc, using radiofrequency energy, single or multiple levels, lumbar
S2350 - S2351	Discectomy, anterior, with decompression of spinal cord and/or nerve root(s), including osteophylectomy; lumbar, single interspace or each additional interspace (list separately in addition to code for primary procedure)
S2360 - S2361	Percutaneous vertebroplasty, one vertebral body, unilateral or bilateral injection; cervical or each additional cervical vertebral body (list separately in addition to code for primary procedure)
<i>Intra-operative EMG monitoring of the recurrent laryngeal nerve/intraoperative neuromonitoring during thyroid and parathyroid surgery:</i>	
CPT codes not covered for indications listed in the CPB:	
95867	
95868	
95887	
95940	
Other CPT codes related to the CPB:	
60000 - 60512	
HCPCS codes not covered for indications listed in the CPB:	
G0453	Continuous intraoperative neurophysiology monitoring, from outside the operating room (remote or nearby), per patient, (attention directed exclusively to one patient) each 15 minutes (list in addition to primary procedure)
ICD-9 codes not covered for indications listed in the CPB:	
Too many to list	
<i>Intra-operative EMG monitoring during hip replacement surgery:</i>	
CPT codes not covered for indications listed in the CPB:	
95870	Needle electromyography; limited study of muscles in one extremity or non-limb (axial) muscles (unilateral or bilateral), other than thoracic paraspinal, cranial nerve supplied muscles, or sphincters
Other CPT codes related to the CPB:	
27130	Arthroplasty, acetabular and proximal femoral prosthetic replacement (total hip arthroplasty), with or without autograft or allograft

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Date: September 5, 2013, 10:32:30 AM PDT

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Subject: Fwd: Subspecialty MOC Sample Chapter

Here is a sample chapter for the MOC book for ABNS.

please use this type of formatting for your chapter.

thanks

Praveen

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-----Original Message-----

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Sent: Thu, Sep 5, 2013 7:34 am

Subject: Subspecialty MOC Sample Chapter

Good Morning,

We would like to share the attached chapter from the Peripheral Nerve portion of the Subspecialty MOC publication. This is an excellent example of the chapter format and content for the publication. Please feel free to share with your authors as a reference.

Thank you to Dr. Allen Maniker for this example!

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POSTERIOR INTEROSSEOUS NERVE PALSY

Chapter for MOC

Allen Maniker, M.D.

CASE: A 54 year old right handed male with right forearm pain and difficulty holding tools at work for last 6 months. He works as a plumber and pain is exacerbated when he uses a wrench to tighten connections. Pain and weakness are especially bad after a full days work. He has had some neck pain but it is not very bothersome. He denies any direct trauma to the arm. When asked to extend his wrists the following picture is seen (figure 1). His sensory examination is intact.

QUESTIONS:

1. Which of the following muscles are innervated by the posterior interosseous nerve
 - a. adductor pollicis
 - b. pronator teres
 - c. supinator
 - d. flexor digitorum superficialis
 - e. abductor pollicis brevis
2. In a posterior interosseous nerve palsy (PIN) which of the following movements will be impaired
 - a. flexion of the thumb
 - b. extension of the thumb
 - c. adduction of the thumb
 - d. opposition of the thumb
3. In a posterior interosseous nerve palsy which of the following is true of sensory involvement
 - a. loss of sensation in the anatomic snuff box
 - b. loss of sensation on the dorsum of the hand
 - c. loss of sensation on one half of the 4th and complete 5th digits
 - d. loss of sensation on the thumb, second, third and half of fourth digit
 - e. no loss of sensation

4. Which of the following is a possible cause of entrapment in a posterior interosseous nerve palsy (PIN)
- a. flexor retinaculum
 - b. sublimis arch
 - c. bicipital aponeurosis
 - d. vascular leash of Henry
 - e. Arcade of Struthers
5. Which muscle is responsible for the partial wrist extension seen in a posterior interosseous palsy (PIN)?
- a. extensor carpi radialis longus
 - b. extensor pollicis brevis
 - c. extensor digitorum
 - d. extensor pollicis longus
 - e. extensor indicis

DIDACTIC MATERIAL:

An entrapment neuropathy is seen when there is a disproportion between the size (diameter) of a peripheral nerve and the volume of the space in the extremity through which it must pass. In these situations neural compression within fibrous or fibro-osseous structures may occur. The neural compression then provokes nerve edema, fibroblast proliferation, and migration of inflammatory cells. The edema will be proportional to pressure applied and this then exacerbates the problem further. Alteration of vascular supply and axonal transport can be observed after just a few minutes of compression. If the compression is prolonged then histological alterations in myelin structure may occur.

An entrapment of the posterior interosseous nerve or PIN may cause a syndrome that is noted for pain and motor loss and is called a **PIN Palsy**. Alternatively there may be persistent pain and no motor loss and this is known as a **Radial Tunnel Syndrome**.

ANATOMY: C5, C6, C7 and C8 contribute to the posterior cord which then continues on as the radial nerve. As the main trunk of the radial nerve passes anterior to the lateral epicondyle it lies posterior to the brachioradialis muscle (1). Within an area 3 centimeters proximal or distal to the elbow joint it divides into superficial and deep terminal branches. Once divided from the radial nerve the deep branch or posterior interosseous nerve will enter an area described as the radial tunnel (2). The nerve will course obliquely through the supinator muscle and into the extensor compartment of the forearm. The nerve lies between the abductor pollicis longus muscle deeply and the extensor carpi ulnaris, extensor digiti minimi and extensor digitorum muscles superficially. In the distal forearm the nerve passes superficial to the extensor pollicis brevis and deep to the extensor pollicis longus muscles. Penetrating either over or through the extensor pollicis brevis muscle the nerve comes to lie on the interosseous membrane between the radius and ulna. It will continue on to divide into terminal branches that provide sensory innervation to the wrist. The posterior interosseous nerve innervates from proximal to distal the supinator, extensor carpi ulnaris, extensor digitorum, abductor pollicis longus, extensor pollicis longus, extensor pollicis brevis, extensor digiti minimi, and extensor indicis muscles.

THE RADIAL TUNNEL: Just proximal to the radiocapitellar joint the PIN enters what is called the radial tunnel. This is not a true anatomical tunnel but it is in this area that most causes of compression of the nerve are found. There are five different sites of compression of the posterior interosseous nerve in or about the radial tunnel. From proximal to distal they can include:

1. Fibrous bands crossing and constricting the nerve from fascial tissue overlying the nerve that has become thickened
2. A vascular leash comprised of vessels from the radial recurrent artery that was first named by Henry hence, the vascular leash of Henry.
3. The medial fibrous edge of the extensor carpi radialis brevis.
4. The proximal edge of the supinator muscle. The Arcade of Froshe, sometimes call the supinator arch is formed by the most proximal part of the superficial layer of the supinator muscle that overlies the PIN.
5. The distal edge of the supinator muscle.

CLINICAL: Clearly any kind of sharp (i.e. laceration or stab wound) that transects the nerve or any blunt trauma that injures the nerve by stretch or direct compression (i.e. forceful blow to the arm in the area of the nerve or breakage of bone in proximity to the nerve) will cause a PIN palsy. Tumors and ganglion cysts can also be responsible. However the so called repetitive strain injuries where repeated use of the arm and forearm in supination and pronation are frequent causes of a PIN palsy. A PIN palsy causes a pathognomonic posture that is seen when the patient is asked to extend the wrist. Typically the fingers do not extend at the metacarpophalangeal joints of the fingers and thumb. The wrist will extend but it will exhibit a radial deviation as the extensor carpi radialis longus is innervated by the radial nerve, proximal to the take off of the PIN. The extensor carpi ulnaris on the other hand is innervated by the PIN and therefore cannot contribute to the wrist extension. No other nerve entrapment or problem can exhibit this posture. It is advised to memorize its appearance (see figure 1). One should also keep in mind that as the superficial radial nerve, which is a sensory nerve, has divided off the PIN that a PIN palsy exhibits no loss of sensation. It is a pure motor palsy.

DIAGNOSIS: Most often made by clinical examination with corroborative radial nerve conduction velocity (NCV) and electromyographic (EMG) studies. MRI (GAD+/-) and ultrasound studies should also be considered if a mass in the area of the PIN can be palpated or is suspected as the cause of the palsy.

TREATMENT: Generally the patient can be offered conservative therapy as a first option when the only symptom is pain. This usually consists of splinting and avoidance of activity that causes repetitive strain (i.e. forceful pronation and supination). If there has been no improvement after 4 to 12 weeks of treatment then operative exploration and neurolysis is usually indicated. Obviously if a mass is discovered in the diagnostic work up then conservative treatment is contraindicated and one should proceed directly to removal of the mass. Any acute fractures in the area or acute trauma that cause an immediate PIN palsy also require immediate surgical intervention. Similar to many other areas of Neurological surgery an acute deterioration also indicates a need for more urgent exploration. Similarly if the patient is improving clinically or electrically then surgical consideration should be delayed.

OPERATIVE EXPLORATION: There are several different approaches to expose the PIN (the anterior approach described by Henry, the brachioradialis splitting incision approach, the brachioradialis-extensor carpi radialis longus interval approach, and the posterior approach). The anterior approach described by Henry is this authors' preferred approach. When the patient is lying in anatomical position with arms at the side and palms forward it is well to remember that the PIN is located on the lateral or radial side of the arm. To expose the radial nerve in the distal arm and forearm the patient is placed in the supine position with the arm on an arm board. The shoulder is abducted and externally rotated. The hand is fully supinated. The operator will be most comfortable superior to the arm, just lateral to the neck and head of the patient. The incision will begin on the arm, 3-4 centimeters proximal to the elbow flexion crease in the interval between the biceps brachii and brachioradialis muscles. It crosses the elbow flexion crease obliquely and then curves down onto the forearm lateral to the biceps brachii tendon. About 4-5 centimeters distal to the elbow flexion crease the incision reaches the midline of

the forearm and then it continues distal in the forearm just radial of the midline. The skin is infiltrated with a vasoconstrictive agent such as Lidocaine 1% with epinephrine in a 1:100,000 concentration, and then divided. Once the skin is divided the nerve may be identified in the interval between the biceps and brachioradialis just proximal to the elbow flexion crease. The nerve is then traced down into the plane between the brachioradialis and extensor carpi radialis longus muscles (3). Shortly before encountering the supinator muscle the radial nerve will divide into the posterior interosseous and the superficial radial nerves. The posterior interosseous nerve will pass under a vascular leash of vessels and then beneath the supinator muscle. The supinator may be divided to fully expose the posterior interosseous nerve (4). A single cause of the entrapment can rarely be discerned and therefore all 5 sites of entrapment should be released.

RADIAL TUNNEL SYNDROME: In contradistinction to a PIN palsy the radial tunnel syndrome exhibits no motor or sensory disturbance, it is strictly a syndrome of pain. The syndrome can play a role in tennis elbow but the two terms are not synonymous. These patients complain of pain over the lateral aspect of the elbow and the pain may radiate either proximally or distally but far more often in a distal direction. Passive pronation and active supination and wrist dorsiflexion against resistance can frequently provoke the pain. It is still a syndrome that is considered a compression of the posterior interosseous nerve. Compression of the PIN by the radial tunnel is a dynamic process in that the pain is exacerbated by activity and relieved by rest. Therefore a time of conservative treatment is almost always indicated. However if the symptoms persist for more than 4 to 12 weeks operative intervention is indicated. The exposure, the release of entrapment sites are identical to those listed in the PIN palsy section.

ANSWERS TO QUESTIONS:

- 1 - C
- 2 - B
- 3 - E
- 4 - D
- 5 - A

SUMMARY WITH 3 PEARLS:

The posterior interosseous nerve is a purely motor nerve that is a terminal branch of the radial nerve therefore there is no sensory loss in a PIN palsy. An entrapment palsy of this nerve results in pain and a pathognomonic posture that appears when the patient is asked to extend the hand at the wrist. In this posture the fingers and thumb do not extend and the wrist can extend only in a radial deviation because the extensor carpi radialis longus is proximally innervated by the radial nerve (see figure). A PIN palsy should be distinguished from a radial tunnel syndrome where there is only pain and no motor loss. There can be multiple points of compression along the course of the nerve and all should be released at surgery.

Figure 1 legend:

The patient is being asked to extend his wrists. The right hand exhibits the pathognomonic posture of a posterior interosseous nerve (PIN) palsy. See text for description and explanation

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Begin forwarded message:

Dr. Mummaneni-

I have attached the chapter and 2 figures for Dr. Harrop's contribution.

Thank You,

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THORACOLUMBAR SPINE INJURIES

Chapter for MOC

**Christopher M. Maulucci MD, Mark E. Oppenlander MD,
George M. Ghobrial MD, and James S. Harrop MD**

CASE: A 30 year old man is involved in a high speed motor vehicle accident. He has back pain, grade 2/5 strength in his bilateral lower extremities, and preserved light touch and pinprick sensation in the perineal area. A CT of the thoracic spine is shown in figure 1.

QUESTIONS:

1. Based on the Thoracolumbar Injury Classification and Severity Score (TLICS) what is the numeric rating of this injury?

- a. 6
- b. 9
- c. 8
- d. 7

2. Based on the Arbeitsgemeinschaft für Osteosynthesefragen (AO) classification this would be categorized as a type ____ injury?

- a. A
- b. B
- c. C

3. Compared to the lumbar spine, the thoracic spine generally exhibits a great range of motion in which direction?

- a. flexion
- b. rotation
- c. extension
- d. lateral bending

4. The fractured vertebral body in figure 1 represents T6. What is the best way to access the vertebral body for anterior column reconstruction in the patient described above with an ASIA B classification injury?

- a. midline sternotomy

b. right thoracotomy

c. left thoracotomy

5. Non painful progressive kyphosis (less than 10 degrees) of a thoracolumbar compression fracture treated with a brace in the absence of new clinical findings is considered a failure of treatment and warrants surgical intervention.

a. False

b. True

DIDACTIC MATERIAL:

INTRODUCTION: The estimated incidence of spinal cord injury (SCI) in the United States is 40 cases per million population or 12,000 new case annually. The leading causes in the United States are vehicular accidents (39%), falls (28%), and violent acts (14%). Thoracolumbar injuries account for approximately 43% of all SCI.¹

ANATOMY: The anatomy and biomechanics of the thoracolumbar spine are relevant for understanding mechanisms and treatment paradigms for injuries in this region. The thoracolumbar junction (T10-L2) is the site of transition between the relatively stiff thoracic and the mobile lumbar spinal segments, rendering this region more susceptible to injury. The rib cage bolsters thoracic spine stiffness down to T10. Because the 11th and 12th ribs are floating, these spinal levels have increased mobility compared to upper thoracic segments. The facets also play an important role in thoracolumbar biomechanics. Thoracic facets are oriented coronally, thus limiting flexion-extension motion while allowing relatively increased rotational movement. In contrast, lumbar facets are oriented sagittally, allowing increased flexion-extension motion in this region. Kinematic measurements of the normal thoracolumbar spine reveal range of motion in flexion-extension at 4° at T2-T10, 12° at T11-12, and 15-17° from L1-5. Segmental axial rotation decreases from 8° at T2-T10, to 2° in the lower lumbar spine.

The integrity of the posterior ligamentous complex is an important factor in determining spinal stability after injury, and consists of the facet joint capsules, ligamentum flavum, and the interspinous ligament. Depending on the vertebral level(s) of injury, the spinal cord, conus medullaris, or nerve roots are at risk for injury. Additionally, the artery of Adamkiewicz is potentially at risk for injury, as it is located between T10 and T12 on the left side in approximately 80% of patients.

CLINICAL: Once stabilized according to Advanced Trauma Life Support (ATLS) protocols, the patient should be log rolled and a complete inspection and palpation of the spine should be performed. The American Spinal Injury Association (ASIA) examination is then completed and documented. A radiologic assessment then follows.

DIAGNOSIS: Following physical examination, radiographic investigation makes the diagnosis of thoracolumbar injuries. Standard radiographs may be useful to assess global alignment, including sagittal and coronal profiles. Fractures are suspected by assessing vertebral body height, symmetry of interpedicular distances, or symmetry of the posterior elements. Computed tomography (CT) has largely supplanted plain radiographs for diagnosis of thoracolumbar injuries due to the superior anatomic detail provided. Polytrauma patients will often undergo concomitant CT scanning of the chest, abdomen, and pelvis to exclude visceral injuries. Magnetic resonance imaging (MRI) is complementary to CT; it allows visualization of the discoligamentous structures, and may guide surgical decision making in the cases of spinal cord compression or disruption of the posterior ligamentous complex. Short tau inversion recovery (STIR) sequences on MRI aid in assessing dorsal ligamentous integrity or acuity of vertebral body pathology.

Classification of the thoracolumbar injury aims to guide treatment decision making and allow for a standardized nomenclature with which evidence based protocols can be developed. In the Denis classification, the vertebral column is divided into three columns and the disruption of the middle column is considered key in distinguishing an unstable injury pattern². The Arbeitsgemeinschaft für Osteosynthesefragen (AO) classification, introduced by Magerl et al. in 1994, is based on detailed descriptions of fracture anatomy³. In this scheme, injuries are classified into types of increasing severity: Type A are compression injuries, type B are distraction injuries, and type C are rotational injuries. Each type is further divided into groups and subgroups. In contrast, the Thoracolumbar Injury Classification System (TLICS) evaluates the neurologic status, the posterior ligamentous complex, and the injury morphology⁴. Based on a point system for each category, total points are used to recommend surgical (>4 points) versus non-surgical treatment (<4 points). Figure 2 provides a summary of the system. A point total of 4 is indeterminate and the surgeon uses their clinical judgment.

TREATMENT: Due to the heterogeneity of thoracolumbar injuries, the treatment strategy differs greatly. The above mentioned classification systems are to serve as guidelines. Overall patient health status, concomitant injuries, and other significant comorbidities, such as ankylosing spondylitis, must be taken into consideration.

A neurologically intact patient, or one with mild radicular symptoms, who has a compression or burst fracture and intact posterior ligaments can be treated nonsurgically with a brace and early mobilization. The natural history of these fractures is that of progressive kyphosis of 3 to 7° over 12 months.⁵ Patients who fail this treatment usually do so within the first week due to intractable mechanical back pain or progression of a neurological deficit and may require posterior stabilization and decompression of the affected nerve roots.

In neurologically intact patients with disruption of the posterior ligaments, spinal alignment is usually affected minimally. However these injuries are considered unstable and posterior stabilization is recommended. Minimally invasive procedures can be considered, but the ability to achieve adequate arthrodesis may be compromised via this technique.

The neurologically incomplete/cauda equina injury patient with ventral compression is usually best served with an anterior procedure which will allow for decompression of the neural elements and reconstruction of the anterior column. However, for injuries with a distraction or translation morphology, regardless of posterior ligament integrity, a posterior procedure should be performed before the anterior reconstruction.

Thoracolumbar injuries resulting in an incomplete neurologic deficit/cauda equina injury with disruption of the posterior ligaments usually require 360° approaches. Decompression of the neural elements takes precedence over stabilization except for translation and distraction injuries where posterior realignment and stabilization should be performed first.

Most patients with a complete spinal cord injury and intact posterior ligaments have suffered a severe burst fracture. Consensus for treatment of this injury pattern has not yet been attained. Some advocate for posterior stabilization without decompression as it is felt that there is little benefit to be gained by decompressing the spinal cord. Others believe that an anterior procedure is best for with a primary goal of restoring CSF flow and prevention of posttraumatic syringomyelia.⁷

The neurologically complete patient with disruption of the posterior ligaments requires posterior stabilization. Restoration of CSF flow, if deemed a goal, can be accomplished via decompression anteriorly and/or posteriorly.

Anterior approaches to the thoracic and lumbar regions vary based upon the level of interest. Knowledge of the regional anatomy including the nearby vasculature and viscera is crucial. T2 through T5 can be approached via a median sternotomy or right thoracotomy. T6 to T12 can be approached via a left

thoracotomy. A left sided approach is preferred for these levels as the liver can be obtrusive and mobilization of the aorta is preferred over the inferior vena cava. T12-L1 access may require a thoracoabdominal approach with mobilization of the diaphragm. L2-L5 can be accessed via a left retroperitoneal approach. L2 through S1 can be approached via a midline anterior transperitoneal or retroperitoneal approach as well. Assistance from an access surgeon can be useful. Alternately, a posterior or posterolateral approach to the vertebral body can be attempted but these techniques often involve manipulation of an already-damaged spinal cord and possible ligation of nerve roots and therefore radicular arteries.

SUMMARY WITH PEARLS

Thoracolumbar injuries can be classified in a number of ways. Essentially, though, the goals of treatment are mechanical stability and decompression of neural elements. This can be obtained via a variety of approaches. Knowledge of the anatomy surrounding the spine is crucial in that it will guide treatment. In the patient with a thoracolumbar injury, polytrauma is often encountered and knowledge of concomitant injuries may influence not only the timing of surgery, but the approach utilized. Close follow-up of these patients is needed to assess for maintenance of mechanical stability and possible development of a posttraumatic syrinx which may require surgical attention.

ANSWERS TO QUESTIONS

- 1 - B
- 2 -C
- 3 - B
- 4- C
- 5-A

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Figure 1: Sagittal CT scan

Figure 2: Thoracolumbar Injury Classification and Severity Score (TLICS) system. PLC=posterior ligamentous complex



Category	Points
injury morphology	
compression	1
burst	+1
translational/rotational	3
distraction	4
neurological status	
intact	0
nerve root	2
cord, conus medullaris	
incomplete	3
complete	2
cauda equina	3
PLC	
intact	0
injury suspected/indeterminate	2
injured	3

From: vmum@aol.com
Date: June 9, 2013 at 10:18:41 AM PDT
To: MGROFF@PARTNERS.ORG, reh1@mac.com
Cc: sal@aans.org, kliotm@neurosurg.ucsf.edu, cis8z@virginia.edu, rharbaugh@psu.edu,
charles.kuntz@yahoo.com, charleskuntz@yahoo.com, waltersj@neurosurg.ucsf.edu
Subject: Re: moc book

Dear all,

I have combined the latest revised chapter outline from Michel Kliot on periph nerve with the revised outline for the spine chapters that Shaffrey and I streamlined into one document.

I suspect this will be easier to follow for the MOC book planning.

Let me know if you need anything further.

Praveen

Praveen V. Mummaneni, M.D.
Professor and Vice-Chairman
Dept. of Neurosurgery, University of California at San Francisco
Co-Director: UCSF Spine Center

Secretary: AANS-CNS Joint Section - Spine and Peripheral Nerves

-----Original Message-----

From: Groff, Michael W., M.D., M.D. <MGROFF@PARTNERS.ORG>
To: ROBERT HARBAUGH <reh1@mac.com>
Cc: <vmum@aol.com> <vmum@aol.com>; <sal@aans.org> <sal@aans.org>;
<kliotm@neurosurg.ucsf.edu> <kliotm@neurosurg.ucsf.edu>; <cis8z@virginia.edu>
<cis8z@virginia.edu>; <rharbaugh@psu.edu> <rharbaugh@psu.edu>; <charles.kuntz@yahoo.com>
<charles.kuntz@yahoo.com>; <charleskuntz@yahoo.com> <charleskuntz@yahoo.com>;
<waltersj@neurosurg.ucsf.edu> <waltersj@neurosurg.ucsf.edu>
Sent: Sat, Jun 8, 2013 12:43 pm
Subject: Re: moc book

Praveen,

Could you send me the final outline?

Thanks,

mike

On May 28, 2013, at 6:11 PM, ROBERT HARBAUGH <reh1@mac.com> wrote:

Praveen,

Looks fine to me. Thanks for all the work.

Bob

On May 28, 2013, at 5:48 PM, vmum@aol.com wrote:

Samantha,

per our discussion at AANS, the spine and periph nerve section's chapter list for the MOC book was too lengthy.

I spoke with Chris Shaffrey and we trimmed it by 50% for the spine chapters.

I am copying Michel Kliot on this new version to see if any of the periph nerve chapters can also be combined.

Please let me know if you need anything further from me.

If you and Dr. Harbaugh think this abridged version is acceptable, then let me know and I will engage the spine authors to get it done.

thank you

Praveen

Praveen V. Mummaneni, M.D.

Professor and Vice-Chairman

Dept. of Neurosurgery, University of California at San Francisco

Co-Director: UCSF Spine Center

Secretary: AANS-CNS Joint Section - Spine and Peripheral Nerves

-----Original Message-----

From: vmum <vmum@aol.com>

To: CIS8Z <CIS8Z@hscmail.mcc.virginia.edu>; mgroff <mgroff@mac.com>; joseph.cheng <joseph.cheng@vanderbilt.edu>

Sent: Sat, May 4, 2013 11:09 pm

Subject: Fwd: moc book

Per the MOC cmte, our spine chapters and pages needed to be trimmed by 50% to fit into the MOC book.

I worked with shaffrey this past week to consolidate the chapters and bring the page count for spine MOC down from 400+ pages to 200+ pages. here is the latest edited version. let me and shaffrey know your thoughts.

if it is ok, then we can send it to dr harbaugh and the moc cmte.

Thanks

Praveen

ABNS MOC (Joint Section on Disorders of the Spine and Peripheral Nerves 2013)

Main Editor

Chris Shaffrey cis8z@virginia.edu

ABNS MOC Spine Editorial Board Representatives

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Mike Wang (SP) mwang2@med.miami.edu

ABNS MOC Peripheral Nerve Editorial Board Representatives

Allan Belzberg abelzbe1@jhmi.edu

Michel Kliot KliotM@neurosurg.ucsf.edu

Time Table

TBD

Tentative Format

Case presentation, questions, didactic material, answers, summary, references.

- Thieme to provide a mock-up of the chapter format for Editorial Board meeting in New Orleans on 4/27.

Spine Table of Contents/Section Editors:

- I. Basic Science of the Spine (**Marjorie Wang**)
 - a. Spinal Anatomy (**Kai-ming Fu**)
 - b. Spinal Biomechanics including Instrumentation (**Joe Cheng/ Charley Sansur**)
 - c. Pathophysiology of Axial Spinal Pain, Radiculopathy, Myelopathy (**John O'Toole, Marjorie Wang**)
 - d. Spinal Cord Injury- **Shekar Kurpad**
 - e. Complication Avoidance In the Spine (Infection, DVT, PE) (Charley Sansur)
- II. Spine Imaging and Assessments (**Erica Bisson, Meic Schmidt**)
 - a. Radiographs, CT and MRI – **Meic Schmidt**
 - b. Electrophysiological studies including Intraoperative Monitoring- **Uribe, Mummaneni**
 - c. Evaluation and Treatment of Osteoporosis (Labs: Vit D, Ca++, PTH, PCT, etc). (Pat Jacob, David Ibrahim – former shaffrey fellow)
- III. Non-Surgical Management of Spinal Disorders (**John Hurlbert, Sanjay Dhall**)
 - a. Nonsurgical management (PT, Injections, Bracing) (Hurlbert and friend)
 - b. Acute and Chronic Pain Management (Daniel Lu and Mrs. Lu)
- IV. Spinal Trauma (**Michael Groff, Okonkwo**)
 - a. Assessment of Spinal Instability and Classification, David Okonkwo, **Dan hoh**
 - b. Cervical Injuries (including OC and CT Jxn)- **Sanjay Dhall, Resnickl**
 - c. Thoracolumbar Spine Injuries-**James Harrop**
- V. Degenerative Spinal Disorders (**Frank LaMarca, Joe Cheng**)
 - a. Disc Herniations- **Scott Meyer, Jack Knightly**
 - b. Stenosis, Spondylolisthesis / Spondylolysis (**Park, LaMarca**)
 - c. Degenerative Disc Disease/Artificial Discs and Motion – Anthony Frempong/**Upadhyaya**
 - d. **Revision Spine Surgery –Dom/Ziewacz**
- VI. Congenital Spinal Disorders (**Ratliff, Daryl Fourney**)
 - a. Inflammatory spinal diseases (AS, DISH, etc.) (Mike Rosner/Tyler Koski)
 - b. Skeletal Dysplasias (achondroplasia) (Kojo Hamilton)
- VII. Spinal Deformities (**Praveen Mummaneni**)
 - a. Evaluation of the Patient with Deformity (Spinal balance/sacropelvic parameters) (**Mummaneni, Charles Kuntz**)
 - i. Including high grade spondylolisthesis
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 - c. Thoracolumbar deformity (**Justin Smith, Meic Schmidt**)
 - d. Proximal junctional kyphosis (**Ames, Uribe**)
 - e. Two and three column osteotomies (**Mike Wang, Chestnut**)
 - f. Sacropelvic fixation - anterior and posterior options (**Kanter, Okonkwo**)
- VIII. Intrinsic Abnormalities (**Kai-ming Fu, Charley Sansur**)
 - a. Syringohydromyelia/Tethered Cord (Sandami)
 - b. Vascular Malformations (Lawton/Sansur)
- IX. Spinal Tumors and Infections (**Daryl Fourney, John O'toole**)
 - a. Primary and Metastatic Extradural Spinal Tumors (**Groff**)
 - b. Primary Intradural Spinal Tumors (La Marca and Park)
 - c. Spinal Infection (Mike Wang)

- X. Sports Medicine and Spine (Adam Kanter and Jack Knightly)
 - a. **Athletic Spinal Injuries and Return to Play** (Kanter and Knightly)
- XI. Associated Spinal Topics (Joe Cheng and Juan Uribe)
 - a. Bone Graft Options
 - b. Guidelines, Spinal Outcomes, and Registries – O’toole, Cheng
 - c. ethics, costs, patient access, etc. - Orrico

Peripheral Nerve Table of Contents For MOC Exam

Michel Kliot and Allan Belzberg

Traumatic Nerve Injuries

1. Closed Traumatic Nerve Injury using example of Brachial Plexus stretch injury (Michel Kliot): to include discussion on grades of injury as relates to nerve anatomy and EMG/NCV findings
2. Open Traumatic Nerve Injury (Raj Midha): to include discussion of timing based on type of injury (sharp vs ragged) and grafting (nerve vs tubes).
3. Traumatic nerve injury with neurotization repair (Jason Brown and Allan Belzberg)
4. Brachial Plexus Birth Injury (Lynda Yang and Allan Belzberg)

Nerve Entrapment Syndromes

5. Carpal Tunnel Syndrome (Linda Yang): to include discussion of pronator teres syndrome.
6. Ulnar Nerve Entrapment At The Elbow (Eric Zager): to include discussion of Guyon’s Canal.
7. Thoracic Outlet Syndrome (Jason Huang and John McGillicuddy with Abbay Varma)
8. Suprascapular Nerve Entrapment (Jonathan Miller)
9. Radial Tunnel Syndrome (Allen Maniker)
10. Piriformis Syndrome (Aaron Filler)
11. Meralgia Parestherica (Marie-Noelle Hebert)
12. Peroneal Nerve Entrapment Across The Fibular Head (Mark Mahan)
13. Tarsal Tunnel (Vikram Pabhu)

Peripheral Nerve Masses

14. Schwannoma (Allan Levi): to include discussion of Schwannomatosis); with discussion of other nerve tumors (perineurioma...)
15. Neurofibroma (Michel Kliot)
16. Malignant Nerve Tumor (Allan Belzberg and Michael Dorsi)
17. Ganglion Cyst (Robert Spinner)

Other Peripheral Nerve Problems

18. Brachial Neuritis (Jason Huang): to include discussion of other types of neuropathies (diabetic, HNPP, CMT, Vit B12 deficiency, lead poisoning...)
19. Painful Neuroma in amputation stump (Chris Winfree)

Attendance List:

Jack Knightly Jknightly@ansdocs.com
John Hurlbert jhurlber@ucalgary.ca
Daniel Hoh Daniel.hoh@neurosurgery.ufl.edu
Frank La Marca flamarca@med.umich.edu
Kai-ming Fu KAF9045@med.cornell.edu
Charles Sansur csansur@smail.umaryland.edu
Michael Groff mgroff@mac.com
Sanjay Dhall saniaydhall@gmail.com
Adam Kanter kanteras@upmc.edu
Erica Bisson erica.bisson@hsc.utah.edu
Juan Uribe juribe@health.usf.edu
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Allan Belzberg belzberg@jhu.edu
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Chris Shaffrey cis8z@virginia.edu
Praveen Mummaneni vmum@aol.com

CHAPTER ASSIGNMENTS

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- c. ethics, costs, patient access, etc. – Orrico

Agenda Item 3i: Below and attached PDF "Spine Fall Report"

-----Original Message-----

From: Karen Yoshikawa <kny@aans.org>
To: Dr. Groff <mgroff@mac.com>; 'vmum@aol.com' <vmum@aol.com>
Sent: Wed, Oct 9, 2013 2:05 pm
Subject: Spine Section Fall report

Dear Spine Section Officers,

Attached is your Fall Section on Disorders of the Spine & Peripheral Nerves Membership Report. You can click on the bookmark tab on the left and it will take you to each section which includes:

- Current letterhead
- Rules and Regulations on file for your Section
- Outstanding 2012 and 2013 section dues – individuals with two years of outstanding dues are highlighted
- Membership Statistics including 2013 dues amounts
- Services provided to the joint sections

We request the following information by **November 1, 2013**:

- ☐ Your current Rules and Regulations, if what is attached is not the current version
- ☐ Confirmation that individuals with two years of outstanding dues should have their membership terminated, or advise of your action plan and when the terminations should be done
- ☐ If there are changes to be made to dues amounts for 2014 Dues (please refer to Membership Statistics for the current amounts)
- ☐ The name of the individual I should work with to develop the cover letter to be sent with the section 2014 dues.

Please let me know if you have any questions.

Kind regards,

Karen Yoshikawa • Section Member Services • AANS
5550 Meadowbrook Drive • Rolling Meadows, IL 60008
direct: 847.378-0554 • fax: 847.378.0654 • kny@aans.org • www.aans.org

-----Original Message-----

From: Karen Yoshikawa <kny@aans.org>
To: 'vmum@aol.com' <vmum@aol.com>
Cc: Dr. Groff <mgroff@mac.com>
Sent: Fri, Oct 11, 2013 7:19 am
Subject: FW: Spine Section Fall report

Hi Dr. Mummaneni,

Please see the information below from Chris Phillips. I have modified the report showing only the members who owe for 2012 and 2013 dues. There are around 20 members. This list also includes their email address. Please let me know if you want us to include a letter about their pending drop from membership so we can delay sending out the Spine section dues.

Kind regards,

Karen Yoshikawa • Section Member Services • AANS
5550 Meadowbrook Drive • Rolling Meadows, IL 60008
direct: 847.378-0554 • fax: 847.378.0654 • kny@aans.org • www.aans.org

From: Chris A. Philips
Sent: Friday, October 11, 2013 8:47 AM
To: Karen Yoshikawa
Subject: RE: Spine Section Fall report

AANS sends them regular monthly dues statements. The section does not contract with AANS to do collection calls. Generally, the section assigns individuals on their executive committee to make the contacts with the individuals and gives them a certain amount of time to pay or be expelled. If they want to write a cover letter to advise the members with outstanding dues that they have to pay or be expelled, we can send it with the invoices. Normally, those invoices would be going out next week, so if they want to follow that path, you'll want to let Bill know that the Spine Section dues will be going out later this month. You will want them to have to pay by the end of November so that they don't get billed for 2014 dues, if they are to be expelled.

From: Karen Yoshikawa
Sent: Friday, October 11, 2013 8:34 AM
To: Chris A. Philips
Subject: FW: Spine Section Fall report

Hi Chris,

Does this mean they want us to send out an email notice or a paper mailing for the outstanding dues? Is it a separate notice for those who owe for 2012 and 2013?

Kind regards,
Karen Yoshikawa • Section Member Services • AANS
5550 Meadowbrook Drive • Rolling Meadows, IL 60008
direct: 847.378-0554 • fax: 847.378.0654 • kny@aans.org • www.aans.org

From: Michael Groff [<mailto:mgroff@mac.com>]
Sent: Thursday, October 10, 2013 4:49 PM
To: vmum@aol.com
Cc: Karen Yoshikawa
Subject: Re: Spine Section Fall report

We should contact them twice and then delete them.

mike

Sent from my iPad

On Oct 9, 2013, at 5:42 PM, vmum@aol.com wrote:

thank you for this report.

Michael the missing dues from 138 people amounts to over \$13,000. shall we ask aans to contact them or delete them from the roster?

praveen

Praveen V. Mummaneni, M.D.
 Professor and Vice-Chairman
 Dept. of Neurosurgery, University of California at San Francisco
 Co-Director: UCSF Spine Center

Secretary: AANS-CNS Joint Section - Spine and Peripheral Nerves

Unpaid Spine Section 2013 Dues			
	Total: 137		October, 2013

Last Name	Description	Balance	Preferred Email Address	Display Name	City	State Code	Country Name
Abdullah	2012 Spine Section International Member Dues	\$50	deptneurosciencesppspusm@yahoo.com	Jafri Malin Abdullah, MD PhD	Kota Bharu Kelantan		Malaysia
Abdullah	2013 Spine Section International Member Dues	\$100	deptneurosciencesppspusm@yahoo.com	Jafri Malin Abdullah, MD PhD	Kota Bharu Kelantan		Malaysia
Ashkenazi	2012 Spine Section International Member Dues	\$50	ashkenazy@isc.co.il	Ely Ashkenazi, MD	Jerusalem		Israel
7Ashkenazi	2013 Spine Section International Member Dues	\$100	ashkenazy@isc.co.il	Ely Ashkenazi, MD	Jerusalem		Israel
Beck	2012 Spine Section Member Dues	\$50	neurosurg1801@yahoo.com	Mohamed Y. I. Beck, MD, FAANS	Houston	TX	United States of America
Beck	2013 Spine Section Member Dues	\$100	neurosurg1801@yahoo.com	Mohamed Y. I. Beck, MD, FAANS	Houston	TX	United States of America
Fazl	2012 Spine Section Member Dues	\$50		Mahmood Fazl, MD	Toronto	ON	Canada
Fazl	2013 Spine Section Member Dues	\$100		Mahmood Fazl, MD	Toronto	ON	Canada
Fuiks	2012 Spine Section Member Dues	\$50		Kimball S. Fuiks, MD, FAANS	Brookfield	WI	United States of America
Fuiks	2013 Spine Section Member Dues	\$100		Kimball S. Fuiks, MD, FAANS	Brookfield	WI	United States of America

Gammel	2012 Spine Section Member Dues	\$50		Edward O. Gammel, MD	Carmichael	CA	United States of America
Gammel	2013 Spine Section Member Dues	\$100		Edward O. Gammel, MD	Carmichael	CA	United States of America
Gartman	2012 Spine Section Member Dues	\$50	jgartman@stny.rr.com	John Joseph Gartman, Jr., MD FAANS	Johnson City	NY	United States of America
Gartman	2013 Spine Section Member Dues	\$100	jgartman@stny.rr.com	John Joseph Gartman, Jr., MD FAANS	Johnson City	NY	United States of America
Gryfinski	2012 Spine Section Member Dues	\$50	mgryfinski@aol.com	Martin E. Gryfinski, MD, FAANS	Saint Charles	IL	United States of America
Gryfinski	2013 Spine Section Member Dues	\$100	mgryfinski@aol.com	Martin E. Gryfinski, MD, FAANS	Saint Charles	IL	United States of America
Jimenez Sanchez	2012 Spine Section Member Dues	\$50	jjs_1808@yahoo.com.mx	Jesus Jimenez Sanchez, MD	Queretaro	QUE	Mexico
Jimenez Sanchez	2013 Spine Section Member Dues	\$100	jjs_1808@yahoo.com.mx	Jesus Jimenez Sanchez, MD	Queretaro	QUE	Mexico
Kuric	2012 Spine Section Member Dues	\$50	spkdoc@msn.com	Steven P. Kuric, MD, FAANS, FACS	Louisville	KY	United States of America
Kuric	2013 Spine Section Member Dues	\$100	spkdoc@msn.com	Steven P. Kuric, MD, FAANS, FACS	Louisville	KY	United States of America
Laurysen	2012 Spine Section Member Dues	\$50	trysten@thespinaldoctor.com	Carl Laurysen, MD, FAANS	Los Angeles	CA	United States of America
Laurysen	2013 Spine Section Member Dues	\$100	trysten@thespinaldoctor.com	Carl Laurysen, MD, FAANS	Los Angeles	CA	United States of America
Lovely	2012 Spine Section Member Dues	\$50	tlovely711@aol.com	Thomas John Lovely, MD, FAANS, FACS	Latham	NY	United States of America
Lovely	2013 Spine Section Member Dues	\$100	tlovely711@aol.com	Thomas John Lovely, MD, FAANS, FACS	Latham	NY	United States of America
Michael	2012 Spine Section Member Dues	\$50	insn@msn.com	Ronald Michael, MD, FAANS	Hammond	IN	United States of America
Michael	2013 Spine Section Member Dues	\$100	insn@msn.com	Ronald Michael, MD, FAANS	Hammond	IN	United States of America

Molleston	2012 Spine Section Member Dues	\$50	neurhatt1@comcast.net	Michael C. Molleston, MD, FAANS	Hattiesburg	MS	United States of America
Molleston	2013 Spine Section Member Dues	\$100	neurhatt1@comcast.net	Michael C. Molleston, MD, FAANS	Hattiesburg	MS	United States of America
Robinson	2012 Spine Section Member Dues	\$50	jim@brainexpert.com	James C. Robinson, MD, FAANS	Atlanta	GA	United States of America
Robinson	2013 Spine Section Member Dues	\$100	jim@brainexpert.com	James C. Robinson, MD, FAANS	Atlanta	GA	United States of America
Salloum	2012 Spine Section International Member Dues	\$50	asalloum@emirates.net.ae	Antoine Salloum, MD	Abu Dhabi		United Arab Emirates
Salloum	2013 Spine Section International Member Dues	\$100	asalloum@emirates.net.ae	Antoine Salloum, MD	Abu Dhabi		United Arab Emirates
Tacconi	2012 Spine Section International Member Dues	\$50	ltacconi@yahoo.com	Leonello Tacconi, MD FRCS	Trieste		Italy
Tacconi	2013 Spine Section International Member Dues	\$100	ltacconi@yahoo.com	Leonello Tacconi, MD FRCS	Trieste		Italy
Zimmerman	2012 Spine Section Member Dues	\$50	kris_zimmerman@yahoo.com	J. Eric Zimmerman, MD, FAANS	Traverse City	MI	United States of America
Zimmerman	2013 Spine Section Member Dues	\$100	kris_zimmerman@yahoo.com	J. Eric Zimmerman, MD, FAANS	Traverse City	MI	United States of America

AANS/CNS SECTION ON DISORDERS OF THE SPINE AND PERIPHERAL NERVES



American
Association of
Neurological
Surgeons

A Section of the
American Association of Neurological Surgeons
and
Congress of Neurological Surgeons



CHAIRPERSON

Michael W. Groff, MD
Beth Israel Deaconess Med. Ctr.
Phone: 617.632.9911
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University of Cincinnati
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R. John Hurlbert, MD
Foothills Med. Ctr./Clinical Neuroscience
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Vanderbilt University Med. Ctr.
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Fax: 434.343.6948
E-mail: joseph.chang@vanderbilt.edu

MEMBERS-AT-LARGE

Charles Kuntz, IV MD
E-mail:
charleskuntz@yahoo.com

Mark R. McLaughlin, MD
E-mail:
m.mclaughlin@princetonbrainandspine.com

Eric L. Zager, MD
E-mail: Eric.Zager@uphs.upenn.edu

Spine Section Rules and Regulations

ARTICLE I

Name

This section shall be named, known and styled as:

The Joint Section on Disorders of the Spine and Peripheral Nerves of the American Association of Neurological Surgeons and the Congress of Neurological Surgeons.

It is an affiliate Section of the parent organizations, the American Association of Neurological Surgeons and Congress of Neurological Surgeons, and as such, members are also bound by the Rules and Regulations of the parent organizations.

ARTICLE II

Objectives & Functions

Section 2.01

The objectives of this Section shall be:

1. To foster the use of spinal neurosurgical methods for the treatment of diseases of the spinal neural elements, the spine and peripheral nerves.
2. To advance spinal neurosurgery and related sciences, to improve patient care, to support meaningful basic and clinical research, to provide leadership in undergraduate and graduate continuing education, and to promote administrative facilities necessary to achieve these goals.

Section 2.02

The function of this Section shall be:

1. To provide a forum for education and research on basic form and function of the spinal neural elements and spine toward the improvement of spinal neurosurgical procedures that alleviate human disease and suffering through treatment of the spinal disorders. Within such consideration will be the surgical procedures used in the treatment of congenital-developmental, traumatic, neoplastic, degenerative, vascular, infectious-inflammatory, and toxic metabolic diseases of the spinal neural elements, the spine and peripheral nerves.
2. To cultivate and provide leadership in promoting excellence in the quality of spinal and peripheral nerve neurosurgery.
3. To coordinate activities and programs relating to the spinal neural elements, the spine and peripheral nerves for the parent organizations and other societies, committees, and agencies.
4. To represent the parent organizations, at their discretion, at any organizations or group on matters relating to the spinal neural elements, the spine and peripheral nerves.

5. To advise the parent organizations of activities which relate to diseases and surgery of the spinal neural elements, the spine and peripheral nerves by other individuals, groups, and/or agencies.

ARTICLE III

Membership

Section 3.01

There shall be seven classes of membership:

1. Active: Active members of the American Association of Neurological Surgeons or Congress of Neurological Surgeons who have a special interest in disorders of the spine and peripheral nerves.
2. Associate: Individuals who qualify as associate members of the American Association of Neurological Surgeons or Congress of Neurological Surgeons.
3. Honorary: The Executive Committee may grant honorary membership to such qualified physicians or scientists who in their opinion, merit such recognition. They shall not be required to pay dues and shall not have the privilege of voting or holding office or serving on committees.
4. Corresponding: Corresponding members shall reside beyond the limits of the United States of America and Canada, and they shall be chosen because of their devotion and contributions to spinal neurosurgery. They shall be required to pay dues. They shall not have the privilege of voting and holding elective office. However, they may serve as members of special committees. They need not be corresponding members or the equivalent of the American Association of Neurological Surgeons or the Congress of Neurological Surgeons.
5. Adjunct: Adjunct members shall be physicians or scientists of other collateral or related fields who are active in the area of spinal disorders but are not members of the American Association of Neurological Surgeons or Congress of Neurological Surgeons. Each adjunct member must be sponsored by two active members and must be approved by unanimous vote of the Joint Section on Disorders of the Spine and Peripheral Nerves Executive Committee. They shall be required to pay dues. They shall not have the privilege of voting or holding elective office.
6. Resident: Resident members of the American Association of Neurological Surgeons or Congress of Neurological Surgeons who have a special interest in disorders of the spine and peripheral nerves.
7. Senior: Senior membership may be granted to any Active member 60 years of age or older who applies to the Secretary in writing, or to any Active member who retires from active practice. Senior members shall be exempt from payment of annual dues. Senior members may be reinstated to Active membership on request, subject to approval of the Executive Committee.

Section 3.02 Responsibilities and Privileges

Only active members shall vote and hold elective office.

Section 3.03 Disclaimer

No form of membership in this section should be interpreted as endorsing the qualifications of the respective member to perform operations on human patients. Members who use their membership in the Joint Section for advertising purposes implying that they have special skills or training endorsed by the Joint Section shall forfeit this membership.

Section 3.04 Applications for Membership

Applications for membership should be made in writing to the Secretary of the Joint Section. Complete applications for each membership category shall be reviewed by the Executive Committee. Applications for Active membership will be presented to the membership for review in the Joint Section Newsletter. Ratification of Active membership applications will occur at the first Joint Section Annual meeting 60 or more days thereafter. The Executive Committee may confer all other membership status categories without vote of the Active membership of the Joint Section at the Annual meeting.

Section 3.05 Dues and Assessments

Dues and assessments shall be heard and reviewed by the Executive Committee of the Joint Section on Disorders of the Spine and Peripheral Nerves. Recommendations by the Executive Committee will be presented to the membership in the Joint Section Newsletter. Ratification of dues and assessments shall be determined by majority vote of the Active membership at the first Joint Section Annual meeting occurring 60 days or more thereafter.

Section 3.06 Termination of Membership:

1. Membership shall terminate if any member, (other than Honorary, Corresponding, Adjunct or Senior) ceases to maintain membership in either one or the other of the parent organizations (AANS or CNS).
2. Membership shall be terminated if dues or assessments be delinquent by one or more years and no response is received within 30 days following a reminder.
3. Membership shall terminate upon receipt by the Secretary of a letter of resignation.
4. Honorary, Corresponding, Adjunct or Senior membership may be terminated by a majority vote of the Joint Section Executive Committee, without vote of the Active membership.

ARTICLE IV

Officers & Executive Committee

Section 4.01

The control of the Joint Section on Disorders of the Spine and Peripheral Nerves shall be vested in the Executive Committee, who shall manage the affairs of the Section in conformity with the Rules and Regulations of the American Association of Neurological Surgeons and Congress of Neurological Surgeons. Only active members who are active members of both the American Association of Neurological Surgeons and Congress of Neurological Surgeons shall be officers or members of the Executive Committee.

Section 4.02 Officers

The officers of this Section shall be the Chairperson, Chairperson-Elect, Immediate Past-Chairperson, Secretary, and Treasurer.

Section 4.03 Executive Committee

The Executive Committee shall consist of the five officers, three Members at large, the Newsletter Editor, the Exhibits Chairperson, the Annual Meeting Chairperson and the Scientific Program Chairperson. Ex-officio members may be appointed at the discretion of the Chairperson.

Section 4.04 Tenure of Office

The Chairperson shall serve a term of one year. The Secretary and Treasurer shall serve a term of 3 years and may not serve more than two consecutive terms. The Members at Large of the Executive Committee shall assume a term of 3 years and may not serve more than two consecutive terms. All officers and members of the Executive Committee shall assume office immediately following the Annual Joint Section Meeting.

Section 4.05 Duties:

1. Chairperson: The Chairperson shall preside at all meetings of the Section. The Chairperson shall appoint all committees not otherwise provided for, and shall perform all such other duties as appertain to the office of Chairperson. The Chairperson shall be an ex officio member of all committees with the right to vote only in the case of a tie vote. The Chairperson shall supervise the execution of all rules.
2. Chairperson-elect: The Chairperson- Elect shall be a voting member of the Executive Committee and shall assume the responsibility of the Chairperson in the case of absence, death, resignation or inability to act of the Chairperson.
3. Secretary: The Secretary shall keep an accurate record of the proceedings of meetings of the Section and the Executive Committee and shall conduct all correspondence for the Executive Committee. The Secretary shall issue printed or written notice of all meetings of the Section and The Executive Committee, and shall perform such other duties pertaining to this office, as may be required from time to time by the Executive Committee. The Secretary, in conjunction with the AANS-CNS office, shall be responsible for maintaining a current roster of the membership. It is the duty of the Secretary to bring forth membership applications for review. The Secretary will maintain a current complete copy of the Rules and Regulations of the Joint Section on Disorders of the Spine and Peripheral Nerves. The Secretary will maintain an active roster of the make-up of the Executive Committee of the Joint Section. The Secretary will serve as the liaison between AANS National Office representatives and the Executive Committee in assisting with the identification of future meeting sites.
4. Treasurer: The Treasurer shall keep an accurate record of the Collections and disbursements of funds, shall pay all financial obligations incurred by the Joint Section.
5. Executive Committee: The Executive Committee shall supervise and effect an efficient management of the Joint Section, review applications for membership, and recommend, challenge or reject the applications, and report annually, or when requested to the parent organizations on all activities of the Joint Section.

6. The officers and Executive Committee shall be held blameless for all activities of this Joint Section or for activities done in its name, except for any theft from the organization or for willful and malicious conduct.
1. Election of Officers and Executive Committee. It shall be the duty of the immediate past Chairperson of the Joint Section to convene the nominating Committee each year prior to the AANS Annual Meeting. The slate of nominees for officers of the Joint Section will be presented to the Executive Committee in April when the Joint Section Executive Committee convenes at the AANS Annual Meeting. Following Executive Committee approval, the slate of candidates will be presented to the membership in the Joint Section Newsletter. The membership may nominate additional candidates and will vote on the candidates at the next Joint Section Annual Meeting.

ARTICLE V

Standing Committees

Section 5.01 Education Committee

The Education Committee shall serve to coordinate and assist the American Association of Neurological Surgeons and the Congress of Neurological Surgeons in selecting scientific papers and developing programs. Additional subcommittees may be formed as necessary to coordinate, and/or develop scientific and educational programs for other organizations. The Chairperson of the Education Committee shall be appointed by the Chairperson of the Joint Section.

Section 5.02 Nominating Committee

The Nominating Committee shall consist of three (3) members appointed by the Joint Section Executive Committee and the Committee Chairperson. The immediate past Joint Section Chairperson shall serve as chairperson of the Nominating Committee. One member shall be appointed each year to replace the member rotating off of the committee. Each member's appointment shall last three years. This committee shall present candidates for the officer positions within the Joint Section to the Executive Committee at the time of the CNS Annual Meeting. In February, the slate is presented and nominations are taken from the floor. Fifteen days after presentation, the full ballot will be circulated to the full voting membership. The balloting shall be conducted by mail and only the ballots received on or before March 15th of the year of the election shall be counted. A simple majority of those voting shall be necessary to elect an officer.

Section 5.03 Annual Meeting Committee

The Annual Meeting Committee shall consist of five (5) members, two (2) to be appointed each year by the Executive Committee. One experienced member shall be appointed to serve as the Annual meeting Chairperson. One senior member will be the Exhibits Chairperson, who will serve a three year term. The other senior member shall be appointed to serve as the Scientific Program Chairperson. The two newly appointed members shall be appointed to serve as Assistant Annual Meeting Chairperson, and Assistant Scientific Program Chairperson, and shall assume their respective responsibilities for the annual meeting the subsequent year.

The Exhibits Chairperson will serve as the liaison between the Executive Committee and vendors who wish to exhibit at the Joint Section Annual meetings.

Section 5.04 Newsletter Committee

The Newsletter Committee shall consist of two (2) members, one member appointed every two years. Their appointment shall last four (4) years. The senior member shall be Newsletter Editor for two (2) years. The junior member shall serve as Assistant Newsletter Editor.

Section 5.05 Research and Awards Committee

The Research and Awards Committee shall consist of seven members, each serving a three year term. The Executive Committee shall appoint 2 new members each year. The current Chairpersons of the Awards Committee and the Research Committee will serve as Co-Chairpersons of this Committee until the next Annual Meeting of the Combined Section, at which time a new Chairperson or Co-Chairpersons will be appointed by the Chairperson of the Section. Every three years thereafter, the Section Chairperson shall appoint a new Committee Chairperson(s), subject to ratification by the Executive Committee, who shall serve an additional three year term. This Committee shall conduct and coordinate the scientific and research activities of the Joint Section, at the will of the Joint Section Executive Committee. The Committee shall be responsible for soliciting applications for and selecting finalists and awardees for the Research Awards, Fellowship Awards, the International Fellowship Awards, and the Mayfield Award(s). The nomination and selection of candidates for the Meritorious Service Medal will not be the responsibility of this Committee, but will be the responsibility of the Past-Chairperson, the current Chairperson, and the Chairperson-Elect of the Joint Section.

These Awards may be awarded each year at the Joint Section Annual Meeting and are intended to establish funding for clinically relevant research related to the spine and peripheral nerves, and to provide a means of peer review for clinical research projects to help improve the quality of the proposal and therefore enhance competitiveness for N.I.H. funding. A secondary goal of the Awards is to create an annual funding mechanism aimed at answering questions pertaining to the treatment of disorders of the spine and peripheral nerves.

Two Fellowship Awards may each be awarded annually at the Joint Section Annual Meeting, each to a U.S. or Canadian neurosurgical resident to provide supplemental funding for advanced education and research in disorders of the spine or peripheral nerves. This funding is to be provided for post-graduate or residency fellowship training away from the parent institution.

Two International Fellowship Awards may each be awarded annually at the Joint Section Annual Meeting, each to a neurosurgical resident or a neurosurgeon from outside of the U.S. or Canada to provide supplemental funding for advanced education and research in disorders of the spine in the form of fellowship experience in the United States or Canada.

The Mayfield Award may be awarded annually at the Joint Section Annual Meeting to a neurosurgical resident or fellow who authors an outstanding manuscript detailing a laboratory or clinical investigation in the area of spinal or peripheral nerve disorders. The intent of the Award(s) is to recognize and promote research among residents and fellows in training in the surgical subspecialty of Neurological Surgery. Two Awards are available, one for clinical research and one for basic science research

Section 5.06 Rules and Regulations Committee

The Rules and Regulations Committee shall consist of three (3) members, one member appointed by the Joint Section Executive Committee each year. Their appointment shall last three years with the senior member acting as Chairperson. This Committee shall review the Joint Section's Rules and Regulations and make written recommendations to the Executive Committee. Changes in the Rules

and Regulations approved by the Executive Committee must be ratified by the AANS Board of Directors and the CNS Executive Committee. Approved changes or amendments must be presented and explained to the membership in the Joint Section Newsletter. Rules and Regulations thus presented will be voted upon by the membership at the next Joint Section Annual Meeting. A two-thirds majority is required for ratification.

ARTICLE VI

Meetings

Section 6.01

The Joint Section shall meet with the American Association of Neurological Surgeons and the Congress of Neurological Surgeons at their respective annual meetings. At these meetings, the Joint Section's Executive Committee may call special Business Meetings when required to conduct the activities of the Section. The Joint Section shall hold an Annual Scientific and Educational Meeting at a time that does not conflict with the annual meetings of the American Association of Neurological Surgeons and Congress of Neurological Surgeons, and shall hold the Joint Section's Regular Annual Business Meeting at that time.

Section 6.02 Quorum

At all Business Meetings of the Joint Section called by the Executive Committee, both regular and special, the majority of Active members present and voting at the time of the meeting shall constitute a quorum for the purposes of transacting the business of the Joint Section.

Section 6.03 Items Requiring Vote

Actions that require a vote of the Active membership of the Joint Section will be presented to the membership in the Joint Section Newsletter, or by separate mailing. Voting will occur at the next Joint Section Annual meeting.

In the event of an action that the Executive Committee believes requires membership consideration before and distinct from the Joint Section Annual meeting, the action may be presented to the Active membership by special mailing. Returned ballots will be counted by the Secretary no earlier than sixty (60) days after they are sent to the members. Unless otherwise specified in the Rules and Regulations, a mail vote shall be determined by a simple majority of those who cast votes.

Section 6.04

Robert's Rules of Order shall govern the conduct of Executive Sessions of the Joint Section unless otherwise specified.

Section 6.05

The order of the Procedure of the Executive Session of the Joint Section shall be as follows:

1. The Call to Order
2. The Reading of the Minutes

3. Unfinished Business
4. Reports of the Executive Committee and Committees
5. Election of New Members
6. Appointment of Committees
7. New Business

ARTICLE VII

Amendments to Rules & Regulations

Section 7.01

New or revised Rules and Regulations may be proposed by any active member. The proposed change or addition shall be mailed to the Chairman of the Rules and Regulations Committee. Within 30 days of receipt of the proposed revision, the proposed change or addition and the recommendations of the Rules and Regulations Committee regarding such proposal shall be submitted to the Secretary for consideration at the next Joint Section Executive Committee meeting.

Upon approval by the Joint Section Executive Committee, the proposed changes will be presented to the AANS Board of Directors and the CNS Executive Committee for ratification.

Rules and Regulation changes or amendments thus approved will be presented to the membership in the Joint Section Newsletter.

Discussion and ratification of proposed Rules and Regulations changes shall occur at the next Joint Section Annual meeting, 60 days or more thereafter.

Any change in the Joint Section Rules and Regulations shall require a two-thirds majority of the Active members present at the annual Joint Section business meeting.

Unpaid Spine Section 2013 Dues

Total: 137

October, 2013

Last Name	Description	Balance	Preferred Email Address	Display Name	City	State	Country Name
Abdullah	2012 Spine Section International Member D	\$50	deptneurosciencesppsum@yahoo.com	Jahf Main Abdullah, MD PhD	Kota Bharu Kelantan		Malaysia
Abdullah	2013 Spine Section International Member D	\$100	deptneurosciencesppsum@yahoo.com	Jahf Main Abdullah, MD PhD	Kota Bharu Kelantan		Malaysia
Acosta	2013 Spine Section Member Dues	\$100	acostaf@post.harvard.edu	Frank L. Acosta, Jr., MD	Los Angeles	CA	United States of America
Al-Sulati	2013 Spine Section International Member D	\$100	dralsulati@yahoo.ca	Ghanem Al-Sulati, MD	Doha		Qatar
Alvis	2013 Spine Section Member Dues	\$100	mike@mikealvis.com	James Michael Alvis, MD, FAANS, FACS	Norman	OK	United States of America
Anderson	2013 Spine Section Adjunct Member Dues	\$100	anderson@orthorehab.wisc.edu	Paul A. Anderson, MD	Madison	WI	United States of America
Arkins	2013 Spine Section Member Dues	\$100	thomasarkins@aol.com	Thomas J. Arkins, MD, FAANS	New Haven	CT	United States of America
Ashkenazi	2012 Spine Section International Member D	\$50	ashkenazy@isc.co.il	Ely Ashkenazi, MD	Jerusalem		Israel
Ashkenazi	2013 Spine Section International Member D	\$100	ashkenazy@isc.co.il	Ely Ashkenazi, MD	Jerusalem		Israel
Avellanosa	2013 Spine Section Member Dues	\$100		Anthony M. Avellanosa, MD	Buffalo	NY	United States of America
Baldwin	2013 Spine Section Member Dues	\$100	hillelbaldwin@comcast.net	Hillel Baldwin, MD, FAANS	Tucson	AZ	United States of America
Barakat	2013 Spine Section Member Dues	\$100		Salwan Barakat, MD, FAANS, FACS	Elgin	IL	United States of America
Barolat	2013 Spine Section Member Dues	\$100	gbarolat@verizon.net	Giancarlo Barolat, MD, FAANS	Golden	CO	United States of America
Bechtel	2013 Spine Section Member Dues	\$100	htbs@yahoo.com	Philip C. Bechtel, MD	Fort Worth	TX	United States of America
Beck	2012 Spine Section Member Dues	\$50	neurosurg1801@yahoo.com	Mohamed Y. I. Beck, MD, FAANS	Houston	TX	United States of America
Beck	2013 Spine Section Member Dues	\$100	neurosurg1801@yahoo.com	Mohamed Y. I. Beck, MD, FAANS	Houston	TX	United States of America
Bellotte	2013 Spine Section Member Dues	\$100	bradbellotte@gmail.com	J. Bradley Bellotte, MD, FAANS	Erie	PA	United States of America
Benjamin	2013 Spine Section Member Dues	\$100	vallo.benjamin@med.nyu.edu	Vallo Benjamin, MD, FAANS(L)	New York	NY	United States of America
Beringer	2013 Spine Section Associate Member Dues	\$100	beringer1@hotmail.com	William F. Beringer, DO	Johnson City	TN	United States of America
Blumenkopf	2013 Spine Section Member Dues	\$100	bennett52453@earthlink.net	Bennett Blumenkopf, MD, FAANS, FACS	Sewickley	PA	United States of America
Boscherini	2013 Spine Section International Member D	\$100	boscherini@bluewin.ch	Ducolo Boscherini, MD PhD	Lugano		Switzerland
Brown	2013 Spine Section Member Dues	\$100	jmbrown@uic.edu	Justin M. Brown, MD FAANS	La Jolla	CA	United States of America
Cardenas	2013 Spine Section Member Dues	\$100	Raul.Cardenas@memorialhermann.org	Raul Jose Cardenas III, MD	Houston	TX	United States of America
Caron	2013 Spine Section Member Dues	\$100	caron@uthscsa.edu	Jean-Louis R. Caron, MD, FAANS, FACS	San Antonio	TX	United States of America
Cauthen	2013 Spine Section Member Dues	\$100	jcauthenmd@aol.com	Joseph C. Cauthen, MD, FAANS(L)	Gainesville	FL	United States of America
Clark	2013 Spine Section Member Dues	\$100	cmclt@aol.com	Charles B. Clark III, MD	Beaumont	TX	United States of America
Coccia	2013 Spine Section Member Dues	\$100	ctcoccia@gmail.com	Craig T. Coccia, MD, FAANS	Gwin	MI	United States of America
Collins	2013 Spine Section Member Dues	\$100		Eugene Collins, MD	Davenport	IA	United States of America
Cuddy	2013 Spine Section Member Dues	\$100	Brangcuddy@aol.com	Brian G. Cuddy, MD, FAANS, FACS	Charleston	SC	United States of America
Dean	2013 Spine Section Member Dues	\$100	david.f.dean@gmail.com	David F. Dean, MD, FAANS(L)	San Antonio	TX	United States of America
Dillon	2013 Spine Section Member Dues	\$100	jdmsg@gmail.com	James D. Dillon, MD, FAANS	Aiken	SC	United States of America
Dorovan	2013 Spine Section Member Dues	\$100		Daniel Joseph Dorovan, MD, FAANS	Honolulu	HI	United States of America
Douglas	2013 Spine Section Member Dues	\$100	rdouglasmd@yahoo.com	Richard A. Douglas, MD, FAANS, FACS	Bridgeport	WV	United States of America
Dull	2013 Spine Section Member Dues	\$100	stdull@uic.edu	Scott T. Dull, MD, FAANS, FACS	Tulsa	OK	United States of America
El-Ghandour	2013 Spine Section International Member D	\$100	elghandour@yahoo.com	Nasser M. F. El-Ghandour, MD	Cairo		Egypt
Fazi	2012 Spine Section Member Dues	\$50		Mahmoud Fazi, MD	Toronto	ON	Canada
Fazi	2013 Spine Section Member Dues	\$100		Mahmoud Fazi, MD	Toronto	ON	Canada
Feigenbaum	2013 Spine Section Member Dues	\$100	frankf43@aol.com	Frank Feigenbaum, MD, FAANS	Dallas	TX	United States of America
Flandaca	2013 Spine Section Member Dues	\$100	flandacamd@aol.com	Massimo S. Flandaca, MD, MBA, FAANS(L)	Columbia	MD	United States of America
Flore	2013 Spine Section Member Dues	\$100	amoryflore@hotmail.com	Amory J. Flore, MD, FAANS	Greenwich	CT	United States of America
Fredericks	2013 Spine Section Member Dues	\$100	polocraig@gmail.com	Craig A. Fredericks, MD, FAANS	Thomasville	GA	United States of America
Freeman	2013 Spine Section Member Dues	\$100	seahorsemd@mac.com	Richard E. Freeman, MD, FAANS(L)	Rockford	IL	United States of America
Fulks	2012 Spine Section Member Dues	\$50		Kimball S. Fulks, MD, FAANS	Brookfield	WI	United States of America
Fulks	2013 Spine Section Member Dues	\$100		Kimball S. Fulks, MD, FAANS	Brookfield	WI	United States of America
Gammel	2012 Spine Section Member Dues	\$50		Edward O. Gammel, MD	Carmichael	CA	United States of America

Gammel	2013 Spine Section Member Dues	\$100	Edward O. Gammel, MD	Carmichael	CA	United States of America
Garber	2013 Spine Section Member Dues	\$100	Jason E. Garber, MD, FAANS	Las Vegas	NV	United States of America
Gartman	2012 Spine Section Member Dues	\$50	John Joseph Gartman, Jr., MD FAANS	Johnson City	NY	United States of America
Gartman	2013 Spine Section Member Dues	\$100	John Joseph Gartman, Jr., MD FAANS	Johnson City	NY	United States of America
Gehling	2013 Spine Section Member Dues	\$100	Guy Frank Gehling, MD	Walla Walla	WA	United States of America
Gibbs	2013 Spine Section Member Dues	\$100	Scott Randall Gibbs, MD, FAANS, FACS	Cape Girardeau	MO	United States of America
Gieseke	2013 Spine Section Member Dues	\$100	F. Gary Gieseke, MD FACS	Fort Lauderdale	FL	United States of America
Glasser	2013 Spine Section Member Dues	\$100	Ryan S. Glasser, MD, FAANS	Sarasota	FL	United States of America
Goodman	2013 Spine Section Member Dues	\$100	Jack Goodman, MD, FAANS(L)	Poughkeepsie	NY	United States of America
Gryfinski	2012 Spine Section Member Dues	\$50	Martin E. Gryfinski, MD, FAANS	Saint Charles	IL	United States of America
Gryfinski	2013 Spine Section Member Dues	\$100	Martin E. Gryfinski, MD, FAANS	Saint Charles	IL	United States of America
Herman	2013 Spine Section Member Dues	\$100	James M. Herman, MD, FAANS	Ventura	CA	United States of America
Hopkins	2013 Spine Section Member Dues	\$100	Timothy Edward Hopkins, MD, FAANS	San Angelo	TX	United States of America
Hsu	2013 Spine Section Member Dues	\$100	Wesley Hsu, MD	Winston Salem	NC	United States of America
Javed	2013 Spine Section Member Dues	\$100	Tariq Javed, MD, FAANS	Manetta	GA	United States of America
Javedan	2013 Spine Section Member Dues	\$100	Sam P. Javedan, MD, FAANS	Fort Myers	FL	United States of America
Jho	2013 Spine Section Member Dues	\$100	Hae-Dong Jho, MD, PhD, FAANS	Pittsburgh	PA	United States of America
Jimenez Sanchez	2012 Spine Section Member Dues	\$50	Jesus Jimenez Sanchez, MD	Queretaro	QUE	Mexico
Jimenez Sanchez	2013 Spine Section Member Dues	\$100	Jesus Jimenez Sanchez, MD	Queretaro	QUE	Mexico
Joy	2013 Spine Section Member Dues	\$100	Jose L. Joy, MD, FAANS	Coral Gables	FL	United States of America
Kaplan	2013 Spine Section Member Dues	\$100	Stuart S. Kaplan, MD, FAANS	Las Vegas	NV	United States of America
Khajavi	2013 Spine Section Member Dues	\$100	Kaveh Khajavi, MD, FAANS, FACS	Atlanta	GA	United States of America
Kim	2013 Spine Section Adjunct Member Dues	\$100	Se-Hoon Kim, MD PhD	Ansan-Si		Republic of Korea
Kim	2013 Spine Section Adjunct Member Dues	\$100	Hyun Sung Kim, MD	Daejeon City		Republic of Korea
Kim	2013 Spine Section Member Dues	\$100	Stanley H. Kim, MD, FAANS	Austin	TX	United States of America
Kim	2013 Spine Section Member Dues	\$100	Daniel H. Kim, MD, FAANS, FACS	Houston	TX	United States of America
Krollier	2013 Spine Section International Member D	\$100	Nachshon Krollier, MD	Tel Hashomer		Israel
Kurio	2012 Spine Section Member Dues	\$50	Steven P. Kurio, MD, FAANS, FACS	Louisville	KY	United States of America
Kurio	2013 Spine Section Member Dues	\$100	Steven P. Kurio, MD, FAANS, FACS	Louisville	KY	United States of America
Lamond	2013 Spine Section Member Dues	\$100	Roderick G. Lamond, MD, FAANS	Wheat Ridge	CO	United States of America
Lauryssen	2012 Spine Section Member Dues	\$50	Carl Lauryssen, MD, FAANS	Los Angeles	CA	United States of America
Lauryssen	2013 Spine Section Member Dues	\$100	Carl Lauryssen, MD, FAANS	Los Angeles	CA	United States of America
Lipow	2013 Spine Section Member Dues	\$100	Kenneth I. Lipow, MD, FAANS	Bridgeport	CT	United States of America
Lopez	2013 Spine Section Adjunct Member Dues	\$100	Rafael A. Lopez, MD	Washington	DC	United States of America
Lovely	2012 Spine Section Member Dues	\$50	Thomas John Lovely, MD, FAANS, FACS	Latham	NY	United States of America
Lovely	2013 Spine Section Member Dues	\$100	Thomas John Lovely, MD, FAANS, FACS	Latham	NY	United States of America
Luzardo	2013 Spine Section Member Dues	\$100	Gustavo Daniel Luzardo, MD, FAANS	Jackson	MS	United States of America
Madsen	2013 Spine Section Member Dues	\$100	Parley William Madsen III, MD, PhD	Visalia	CA	United States of America
Makker	2013 Spine Section Member Dues	\$100	V. James Makker, MD, MBA	Estacada	OR	United States of America
Maniker	2013 Spine Section Member Dues	\$100	Allen H. Maniker, MD, FAANS	New York	NY	United States of America
Martin	2013 Spine Section Member Dues	\$100	Robert J. Martin, MD, FAANS	Daytona Beach	FL	United States of America
Masciopinto	2013 Spine Section Member Dues	\$100	Jeffrey E. Masciopinto, MD, FAANS	Madison	WI	United States of America
Massoud	2013 Spine Section Member Dues	\$100	Faraz Massoud, MD, FACS	Laguna Hills	CA	United States of America
McComack	2013 Spine Section Member Dues	\$100	Bruse M. McComack, MD, FAANS	San Francisco	CA	United States of America
Michael	2012 Spine Section Member Dues	\$50	Ronald Michael, MD, FAANS	Hammond	IN	United States of America
Michael	2013 Spine Section Member Dues	\$100	Ronald Michael, MD, FAANS	Hammond	IN	United States of America
Molleston	2012 Spine Section Member Dues	\$50	Michael C. Molleston, MD, FAANS	Hattiesburg	MS	United States of America
Molleston	2013 Spine Section Member Dues	\$100	Michael C. Molleston, MD, FAANS	Hattiesburg	MS	United States of America
Moore	2013 Spine Section Member Dues	\$100	Daniel W. Moore, MD, FACS	Manetta	GA	United States of America

Morris	2013 Spine Section Member Dues	\$100	emorrisi@gmail.com	Enoch Carter Morris III, MD, FAANS	Birmingham	AL	United States of America
Nagy	2013 Spine Section Member Dues	\$100		Aurangzeb Nafies Nagy, MD, FAANS	Las Vegas	NV	United States of America
Nahed	2013 Spine Section Member Dues	\$100	bnaheed@partners.org	Brian Nahed, MD	Boston	MA	United States of America
Nakkache	2013 Spine Section Member Dues	\$100	vbn50@aol.com	Victor B. Nakkache, MD, FAANS, FACS	Wilkes Barre	PA	United States of America
Narotzky	2013 Spine Section Member Dues	\$100	robertnarotzky@gmail.com	Robert A. Narotzky, MD, FAANS	Casper	WY	United States of America
Naso	2013 Spine Section Member Dues	\$100	wbn@sc.rr.com	William B. Naso, MD, FAANS	Florence	SC	United States of America
Nemecek	2013 Spine Section Member Dues	\$100		Andrew Nicholas Nemecek, MD, FAANS	Seattle	WA	United States of America
North	2013 Spine Section Member Dues	\$100	DrRNorth@hotmail.com	Richard B. North, MD, FAANS(L)	Baltimore	MD	United States of America
Oh	2013 Spine Section International Member D	\$100	osh8490@yahoo.co.kr	Seong-Hoon Oh, MD	Incheon		Republic of Korea
O'Leary	2013 Spine Section Member Dues	\$100	shaun.oleary@advocatehealth.com	Shaun Thomas O'Leary, MD, PhD, FAANS	Park Ridge	IL	United States of America
Ortega-Barnett	2013 Spine Section Member Dues	\$100	jortega@umc.edu	Juan Ramon Ortega-Barnett, MD	The Woodlands	TX	United States of America
Park	2013 Spine Section International Member D	\$100	jpark@kumc.or.kr	Jung Yul Park, MD PhD	Ansan Kyungki-do		Republic of Korea
Fisharodi	2013 Spine Section Member Dues	\$100	unmyetang@gmail.com	Madhavan Fisharodi, MD, FAANS	Brownsville	TX	United States of America
Pitts	2013 Spine Section Member Dues	\$100	fpittsmd@sierra-samaritan.com	Frederick W. Pitts, MD, FAANS(L), FACS	El Segundo	CA	United States of America
Rak	2013 Spine Section Member Dues	\$100	raminrak@aol.com	Ramin Rak, MD, FAANS	Conrack	NY	United States of America
Roberson	2013 Spine Section Member Dues	\$100	cliffroberson@hotmail.com	Clifford Roberson, MD, FAANS(L)	Corvallis	OR	United States of America
Robinson	2012 Spine Section Member Dues	\$50	jim@brainexpert.com	James C. Robinson, MD, FAANS	Atlanta	GA	United States of America
Robinson	2013 Spine Section Member Dues	\$100	jim@brainexpert.com	James C. Robinson, MD, FAANS	Atlanta	GA	United States of America
Ryu	2013 Spine Section Member Dues	\$100	seoulrainmd@gmail.com	Stephen I. Ryu, MD, FAANS	Palo Alto	CA	United States of America
Salloum	2012 Spine Section International Member D	\$50	asaloum@emirates.net.ae	Antoine Salloum, MD	Abu Dhabi		United Arab Emirates
Salloum	2013 Spine Section International Member D	\$100	asaloum@emirates.net.ae	Antoine Salloum, MD	Abu Dhabi		United Arab Emirates
Sandhu	2013 Spine Section Member Dues	\$100	fasandhu@aol.com	Faheem A. Sandhu, MD, PhD, FAANS	Clinton	MD	United States of America
Schnee	2013 Spine Section Member Dues	\$100	olschnee@comcast.net	Charles L. Schnee, MD, FAANS, FACS	Baltimore	MD	United States of America
Schwartz	2013 Spine Section Member Dues	\$100	rsf1@comcast.net	Richard Harrison Schwartz, MD, FAANS(L)	Salt Lake City	UT	United States of America
Sestokas	2013 Spine Section Adjunct Member Dues	\$100	aksstks@gmail.com	Anthony K. Sestokas, PhD	Springfield	PA	United States of America
Shin	2013 Spine Section International Member D	\$100	shinwh@schmc.ac.kr	Won-Han Shin, MD PhD	Gyeonggi-do		Republic of Korea
Shirzadi	2013 Spine Section Member Dues	\$100	alishirzadi1@gmail.com	Ali Shirzadi, MD	San Jose	CA	United States of America
Stephens	2013 Spine Section Member Dues	\$100	fredwrek@gmail.com	Frederick L. Stephens II, MD	Seattle	WA	United States of America
Taban	2013 Spine Section Member Dues	\$100		Asher H. Taban, MD, FAANS	Northridge	CA	United States of America
Tacconi	2012 Spine Section International Member D	\$50	ltacconi@yahoo.com	Leonello Tacconi, MD FRCS	Trieste		Italy
Tacconi	2013 Spine Section International Member D	\$100	ltacconi@yahoo.com	Leonello Tacconi, MD FRCS	Trieste		Italy
Takacka	2013 Spine Section Member Dues	\$100	yt2@po.owu.edu	Yoshio Takacka, MD PhD	Pepper Pike	OH	United States of America
Tabbs	2013 Spine Section Member Dues	\$100	patibbs@uky.edu	Philip A. Tabbs, MD, FAANS	Lexington	KY	United States of America
Toselli	2013 Spine Section Member Dues	\$100	toselling@yahoo.com	Richard M. Toselli, MD	Barrington	RI	United States of America
Vega	2013 Spine Section International Member D	\$100		Alfonso Vega, MD	Distrito Federal		Mexico
Vingan	2013 Spine Section Member Dues	\$100	endotheinocence@hotmail.com	Roy D. Vingan, MD, FAANS	Oradell	NJ	United States of America
Vitaz	2013 Spine Section Member Dues	\$100	todd.vitaz@spectrumhealth.org	Todd W. Vitaz, MD, FAANS	Grand Rapids	MI	United States of America
Walters	2013 Spine Section Member Dues	\$100	olwm4dog@cox.net	Carrie Lou Walters, MD, FAANS(L)	Phoenix	AZ	United States of America
Wascher	2013 Spine Section Member Dues	\$100	obond@rscwi.com	Thomas M. Wascher, MD, FAANS, FACS	Appleton	WI	United States of America
Wheeler	2013 Spine Section Member Dues	\$100	wheelers1@aol.com	Joe Ellis Wheeler, MD PA	Fort Worth	TX	United States of America
Yamamoto	2013 Spine Section International Member D	\$100	is02-yamamoto@city.yokohama.jp	Isao Yamamoto, MD	Yokohama		Japan
Zimmerman	2012 Spine Section Member Dues	\$50	kris_zimmerman@yahoo.com	J. Eric Zimmerman, MD, FAANS	Traverse City	MI	United States of America
Zimmerman	2013 Spine Section Member Dues	\$100	kris_zimmerman@yahoo.com	J. Eric Zimmerman, MD, FAANS	Traverse City	MI	United States of America

Spine Section 2013 Membership Statistics

October, 2013

Class	Status	2013 Dues	Subclass	# of Membe	Dues owed		
					2012	2013	TOTAL
ASSOCIATE	ACTIVE	\$ 100.00	15D	8		1	1
ADJUNCT	ACTIVE	\$ 100.00	60D	13		5	5
MEMBER	ACTIVE	\$ 100.00	01S	936	14	100	114
LIFETIME	ACTIVE	\$0.00	25S	299			
INTERNATIONAL	ACTIVE	\$ 100.00	40S	46	4	13	17
HONORARY	ACTIVE	\$0.00	45S	1			
RESIDENT/FELLOW	ACTIVE	\$0.00	50R	1,546			
			TOTAL	2,849			137

MEMBER SERVICES PROVIDED BY AANS FOR SECTIONS

SECTION	Dues Billing	Application Approval	Recruitment	Meeting Registration Processing	Database Maintenance/ address Changes	Process/Mail New Member Letters & Certificates	Letterhead Production	Prepare Semi-annual Membership reports before meeting
Cerebrovascular	X		X		X	X	X	X
History	X	X	X		X	X	X	X
Pediatrics	X		X	X	X	X	X	X
Pain	X	X	X	X	X	X	X	X
Spine	X		X		X	X	X	X
Trauma	X		X		X	X	X	X
Tumor	X		X	X	X	X	X	X
W/INS	X	X	X		X	X	X	X
Stereotactic	X	X			X	X	X	X

Agenda Item 3j:

-----Original Message-----

From: Cheng, Joseph <joseph.cheng@Vanderbilt.Edu>

To: vmum <vmum@aol.com>; Shaffrey, Chris I *HS <CIS8Z@hscmail.mcc.virginia.edu>; Smith, Justin S *HS (MD-NERS Admin) (MD-NERS Admin) <JSS7F@hscmail.mcc.virginia.edu>; Michael Groff <mgroff@mac.com>

Cc: Eric Potts <epotts@goodmancampbell.com>

Sent: Sat, May 4, 2013 8:17 am

Subject: RE: Spine section wrong level survey

Hi Guys,

I think we should also build on this work with an "official" protocol from the Spine Section to address wrong level spinal surgery. I do not think the JCAHO or other site marking protocols for time out really address the issue we face. I have attached a draft protocol for your review and comments. It may help out surgeons who had a wrong level surgery, such as being at T7-T8 instead of T6-T7, and showed that they went through this checklist, from being vilified and accused of negligence if they really did everything possible.

Thanks,

Joe

Joseph S. Cheng, M.D., M.S.
Associate Professor of Neurological Surgery
Director, Neurosurgery Spine Program
Vanderbilt University Medical Center
T-4224 Medical Center North
Nashville, TN 37232-2380
(615) 322-1883
(615) 343-6948 Fax

From: vmum@aol.com [vmum@aol.com]

Sent: Tuesday, March 12, 2013 9:06 AM

To: Cheng, Joseph; Shaffrey, Chris I *HS; Smith, Justin S *HS (MD-NERS Admin); Michael Groff

Cc: Eric Potts

Subject: Re: Spine section wrong level survey

I agree

Happy to help with this

You can pull the references from the paper I coauthored last year on placement of fiducial screws to avoid wrong level surgery. Most of the discussion from that paper is also applicable to this one.

Avoidance of wrong-level thoracic spine surgery: intraoperative localization with preoperative percutaneous fiducial screw placement.

Authors Upadhyaya CD, et al. Show all Journal
J Neurosurg Spine. 2012 Mar;16(3):280-4. doi: 10.3171/2011.3.SPINE10445. Epub 2011 Nov 4.

Tks

Pm

Sent from my Verizon Wireless BlackBerry

-----Original Message-----

From: "Cheng, Joseph" <joseph.cheng@Vanderbilt.Edu>
Date: Tue, 12 Mar 2013 13:07:11
To: Shaffrey, Chris I *HS<CIS8Z@hscmail.mcc.virginia.edu>; Smith, Justin S *HS (MD-NERS Admin)<JSS7F@hscmail.mcc.virginia.edu>; Michael Groff<mgroff@mac.com>
Cc: Eric Potts<EPotts@goodmancampbell.com>; vmum@aol.com<vmum@aol.com>
Subject: RE: Spine section wrong level survey

Thanks Chris, and great insight! I also agree that we should move forward and happy to help as directed by Eric.

Regards,
Joe

From: Shaffrey, Chris I *HS [CIS8Z@hscmail.mcc.virginia.edu]
Sent: Tuesday, March 12, 2013 7:39 AM
To: Smith, Justin S *HS (MD-NERS Admin); Michael Groff
Cc: Eric Potts; Cheng, Joseph; vmum@aol.com
Subject: RE: Spine section wrong level survey

As mentioned, there was a particular reviewer that led the charge against the article. We should include him and ease our path. I would really get this in quickly (before April if possible) before the Editorial Board changes.

From: Smith, Justin S *HS (MD-NERS Admin)
Sent: Tuesday, March 12, 2013 8:23 AM
To: Michael Groff; Shaffrey, Chris I *HS
Cc: Eric Potts; Cheng, Joseph; vmum@aol.com
Subject: RE: Spine section wrong level survey

Agree. Even though it's only a few more percentage points, it does cross the line of 50% which makes it sound better. Happy to help as needed. When preparing the analysis and report, we should keep in mind the somewhat brutal comments received from JNS reviewers from the previous submission.

Justin

From: Michael Groff [mgroff@mac.com]
Sent: Tuesday, March 12, 2013 8:19 AM
To: Shaffrey, Chris I *HS
Cc: Eric Potts; Cheng, Joseph; vmum@aol.com; Smith, Justin S *HS (MD-NERS Admin)
Subject: Re: Spine section wrong level survey

I agree; over 50% is very good.

Thanks,
mike

On Mar 12, 2013, at 8:04 AM, "Shaffrey, Chris I *HS"
<CIS8Z@hscmail.mcc.virginia.edu<<mailto:CIS8Z@hscmail.mcc.virginia.edu>>>
wrote:

That is not really too bad. I think with that response rate, we can get it published. Make sure you keep Hadley involved if you want to submit to JNS:Spine.

From: Eric Potts [EPotts@goodmancampbell.com<<mailto:EPotts@goodmancampbell.com>>]
Sent: Tuesday, March 12, 2013 7:58 AM
To: Michael Groff
Cc: Cheng, Joseph; Shaffrey, Chris I *HS; vmum@aol.com<<mailto:vmum@aol.com>>;
Smith, Justin S *HS (MD-NERS Admin)
Subject: Re: Spine section wrong level survey

469/905=51.8%

I will begin pulling the data later this week.

Eric

Sent from my iPhone

On Mar 11, 2013, at 4:13 PM, "Michael Groff"
<mgroff@mac.com<<mailto:mgroff@mac.com>><<mailto:mgroff@mac.com>>>>
wrote:

Eric,
Where did we get to with the response rate?
Thanks,
mike

PS: great to catch up at the meeting

On Mar 4, 2013, at 11:41 AM, "Cheng, Joseph"
<joseph.cheng@Vanderbilt.Edu<<mailto:joseph.cheng@Vanderbilt.Edu>><<mailto:joseph.cheng@Vanderbilt.Edu>>>>
wrote:

Great, thanks Eric!

-----Original Message-----

From: Eric Potts
[<mailto:EPotts@goodmancampbell.com><<http://goodmancampbell.com>><<http://goodmancampbell.com>>]
Sent: Monday, March 04, 2013 10:16 AM
To: Cheng, Joseph
Cc: Shaffrey, Chris I *HS; vmum@aol.com<<mailto:vmum@aol.com>><<mailto:vmum@aol.com>>;
Smith, Justin S *HS (MD-NERS Admin); Michael Groff
Subject: Re: Spine section wrong level survey

Joe I will send you a draft tonight. Great ideas to improve response.

Eric

Sent from my iPhone

On Mar 4, 2013, at 11:09 AM, "Cheng, Joseph"
<joseph.cheng@Vanderbilt.Edu<<mailto:joseph.cheng@Vanderbilt.Edu>><<mailto:joseph.cheng@Vanderbilt.Edu>>>>
wrote:

Sure, be happy to.

Eric,
Can you send me a draft of what you would like sent out?

Thanks,
Joe

-----Original Message-----

From: Shaffrey, Chris I *HS
[mailto:CIS8Z@hscmail.mcc.virginia.edu<<http://hscmail.mcc.virginia.edu>><<http://hscmail.mcc.virginia.edu>>]
Sent: Monday, March 04, 2013 10:07 AM
To: Cheng, Joseph; vmum@aol.com<<mailto:vmum@aol.com>><<mailto:vmum@aol.com>>; Eric Potts; Smith, Justin S *HS (MD-NERS Admin); Michael Groff
Subject: RE: Spine section wrong level survey

Maybe a note from Joe (as section chair) may get a bit more response?

From: Cheng, Joseph
[joseph.cheng@Vanderbilt.Edu<<mailto:joseph.cheng@Vanderbilt.Edu>><<mailto:joseph.cheng@Vanderbilt.Edu>>]
Sent: Monday, March 04, 2013 10:46 AM
To: vmum@aol.com<<mailto:vmum@aol.com>><<mailto:vmum@aol.com>>; Shaffrey, Chris I *HS; Eric Potts; Smith, Justin S *HS (MD-NERS Admin); Michael Groff
Subject: RE: Spine section wrong level survey

Eric,
I agree that it is worthwhile to send out one more time.
Regards,
Joe

Joseph S. Cheng, M.D., M.S.
Associate Professor of Neurological Surgery Director, Neurosurgery Spine Program
Vanderbilt University Medical Center
T-4224 Medical Center North
Nashville, TN 37232-2380
(615) 322-1883
(615) 343-6948 Fax

-----Original Message-----

From: vmum@aol.com<<mailto:vmum@aol.com>><<mailto:vmum@aol.com>>
[<mailto:vmum@aol.com><<http://aol.com>><<http://aol.com>>]
Sent: Monday, March 04, 2013 9:45 AM
To: Shaffrey, Chris I *HS; Eric Potts; Smith, Justin S *HS (MD-NERS Admin);
Cheng, Joseph; Michael Groff
Subject: Re: Spine section wrong level survey

Send out survey during spine section mtg to get more responses. Pm Sent from my
Verizon Wireless BlackBerry

-----Original Message-----

From: "Shaffrey, Chris I *HS"
<CIS8Z@hscmail.mcc.virginia.edu<<mailto:CIS8Z@hscmail.mcc.virginia.edu>><<mailto:CIS8Z@hscmail.mcc.virginia.edu>>>
Date: Mon, 4 Mar 2013 10:40:48
To: Eric Potts<EPotts@goodmancampbell.com<<mailto:EPotts@goodmancampbell.com>><<mailto:EPotts@goodmancampbell.com>>>;
Smith, Justin S *HS (MD-NERS Admin)<JSS7F@hscmail.mcc.virginia.edu<<mailto:JSS7F@hscmail.mcc.virginia.edu>><<mailto:JSS7F@hscmail.mcc.virginia.edu>>>;

'Cheng,
Joseph'<joseph.cheng@Vanderbilt.Edu<<mailto:joseph.cheng@Vanderbilt.Edu>><<mailto:joseph.cheng@Vanderbilt.Edu>>>>;
Michael Groff<mgroff@mac.com<<mailto:mgroff@mac.com>><<mailto:mgroff@mac.com>>>>;
vmum@aol.com<<mailto:vmum@aol.com>><<mailto:vmum@aol.com>><vmum@aol.com><vmum@aol.com><<mailto:vmum@aol.com>>>>
Subject: RE: Spine section wrong level survey

It would be really great to get over 50%. Hard to get published at 46%. How about one more try with a note stressing the importance of this data etc? Joe, Michael and Justin, what do you think?

From: Eric Potts
[EPotts@goodmancampbell.com<<mailto:EPotts@goodmancampbell.com>><<mailto:EPotts@goodmancampbell.com>>]
Sent: Monday, March 04, 2013 10:36 AM
To: Smith, Justin S *HS (MD-NERS Admin); 'Cheng, Joseph'; Shaffrey, Chris I *HS; Michael Groff; vmum@aol.com<<mailto:vmum@aol.com>><<mailto:vmum@aol.com>>
Subject: RE: Spine section wrong level survey

Our response rate is 46% (414/905). I have sent it out 4 times. Do you want to send it out again to try to get to 50%?

Eric

-----Original Message-----
From: Smith, Justin S *HS (MD-NERS Admin)
[<mailto:JSS7F@hscmail.mcc.virginia.edu><<http://hscmail.mcc.virginia.edu>><<http://hscmail.mcc.virginia.edu>>]
Sent: Wednesday, July 04, 2012 4:50 PM
To: Eric Potts; 'Cheng, Joseph'; Shaffrey, Chris I *HS; Michael Groff; vmum@aol.com<<mailto:vmum@aol.com>><<mailto:vmum@aol.com>>
Subject: RE: Spine section wrong level survey

Eric,

I don't think it is necessary to ask for each specific wrong-level case whether the surgeon was sued. I think it's plenty fine to ask whether they have been sued for wrong-level thoracic surgery and if so the number of times.

I agree with other comments that making the survey succinct is important, but it is important to make sure that we collect adequate details. I think the survey seems long because the pdf example you sent included several iterations of the series of questions that will be asked for each wrong-level surgery. I suspect that most surgeons will not have more than 1 or 2 wrong-level surgeries (if any), so the survey won't be as long as the example pdf you included.

Justin

Justin Smith, MD, PhD
Associate Professor
Department of Neurosurgery
University of Virginia

From: Eric Potts
[EPotts@goodmancampbell.com<<mailto:EPotts@goodmancampbell.com>><<mailto:EPotts@goodmancampbell.com>>]
Sent: Thursday, June 28, 2012 11:27 PM

To: 'Cheng, Joseph'; Shaffrey, Chris I *HS; Smith, Justin S *HS (MD-NERS Admin);
Michael Groff; vmum@aol.com <<mailto:vmum@aol.com>> <<mailto:vmum@aol.com>>
Cc: Eric Potts
Subject: Re: Spine section wrong level survey

Good Evening,

Here is another version of the survey with one minor tweak. I also have one question for everybody. I have changed the introductory verbiage to state that for the specific questions about localization we would like the respondents to consider a case where the pathology is NOT visible on plain films. Most would agree that finding a T11-12 fracture dislocation is not difficult, but finding the T6-7 soft disc herniation presents different challenges. For the specific questions about the respondent's personal experience with wrong level thoracic surgery, I have asked them to report ALL cases. I agree with the others that we would like to know of all wrong level surgery, regardless of pathology.

Please look at the question that asks about the number of malpractice suits regarding wrong level thoracic surgery. Would it be better to ask a question linked with each wrong level case that is reported (such as "were you sued for wrong level surgery for this case?") or do you like the question as is when we ask for the aggregate number of times the surgeon was sued?

<http://www.surveymonkey.com/s/K69RG3D>

Thanks,

Eric

From: Eric Potts
<epotts@goodmancampbell.com> <<mailto:epotts@goodmancampbell.com>> <<mailto:epotts@goodmancampbell.com>>>
To: Joe Cheng
<joseph.cheng@vanderbilt.edu> <<mailto:joseph.cheng@vanderbilt.edu>> <<mailto:joseph.cheng@vanderbilt.edu>>>,
"Shaffrey, Chris I *HS"
<CIS8Z@hscmail.mcc.virginia.edu> <<mailto:CIS8Z@hscmail.mcc.virginia.edu>> <<mailto:CIS8Z@hscmail.mcc.virginia.edu>>>,
Justin Smith
<JSS7F@hscmail.mcc.virginia.edu> <<mailto:JSS7F@hscmail.mcc.virginia.edu>> <<mailto:JSS7F@hscmail.mcc.virginia.edu>>>,
Michael Groff <mgroff@mac.com> <<mailto:mgroff@mac.com>> <<mailto:mgroff@mac.com>>>
Cc: Praveen Mummaneni <vmum@aol.com> <<mailto:vmum@aol.com>> <<mailto:vmum@aol.com>>>,
Michael Groff <mgroff@me.com> <<mailto:mgroff@me.com>> <<mailto:mgroff@me.com>>>,
Chris Shaffrey <cis8z@virginia.edu> <<mailto:cis8z@virginia.edu>> <<mailto:cis8z@virginia.edu>>>,
Eric Potts
<epotts@goodmancampbell.com> <<mailto:epotts@goodmancampbell.com>> <<mailto:epotts@goodmancampbell.com>>>
Subject: RE: Spine section wrong level survey

Greetings,

Here is the survey with the latest revisions. The beginning of the survey has the following sentence:

"For this survey on localization for thoracic procedures, please consider the case to be a soft disc herniation or bone lesion that is not visible on conventional X-ray."

Is that enough to help frame this case? I think we want to consider all thoracic surgeries, but want to paint the worst case scenario with something that is not easily visible on plain films. I hope that surgeons are the most careful on these type cases, however wrong level surgery can happen even when there is something obvious. It would be nice to get the scope of the entire problem. I have included a pdf as well, but the survey works better on the survey monkey link below. Let me know your thoughts.

<http://www.surveymonkey.com/s/K69RG3D>

Eric

From: Cheng, Joseph [<mailto:joseph.cheng@Vanderbilt.Edu>]
Sent: Monday, June 18, 2012 3:31 PM
To: Shaffrey, Chris I *HS; Smith, Justin S *HS (MD-NERS Admin); Eric Potts; Michael Groff
Cc: vmum@aol.com <<mailto:vmum@aol.com>> <<mailto:vmum@aol.com>>; Michael Groff; Shaffrey
Subject: RE: Spine section wrong level survey

I agree with Chris. The variables related to wrong level thoracic, and the problems with imaging and counting, are distinct than that of lumbar and upper cervical. Otherwise I think this has been a tremendous effort and thanks to Eric for leading this!
Regards,
Joe

From: Shaffrey, Chris I *HS
[<mailto:CIS8Z@hscmail.mcc.virginia.edu>] <[mailto:\[mailto:CIS8Z@hscmail.mcc.virginia.edu\]](mailto:[mailto:CIS8Z@hscmail.mcc.virginia.edu])>
Sent: Sunday, June 17, 2012 2:52 PM
To: Smith, Justin S *HS (MD-NERS Admin); Eric Potts; Michael Groff
Cc: vmum@aol.com <<mailto:vmum@aol.com>> <<mailto:vmum@aol.com>>; Michael Groff; Shaffrey; Cheng, Joseph
Subject: RE: Spine section wrong level survey

Agree with some of Justin's points
(1) Should add: How many spinal procedures do you perform a year.
(2) Would say before the patient enters the operating room. You want to check for this correct? Reports of using bone cement, fiducials etc.

(4) we should look at all wrong level thoracic.

From: Smith, Justin S *HS (MD-NERS Admin)
Sent: Sunday, June 17, 2012 1:51 PM
To: Eric Potts; Shaffrey, Chris I *HS; Michael Groff
Cc: vmum@aol.com <<mailto:vmum@aol.com>> <<mailto:vmum@aol.com>>; Michael Groff; Shaffrey; Joe Cheng
Subject: RE: Spine section wrong level survey Eric,

Thanks for continuing to push this along. I have gone through the survey again and have a few suggestions as detailed below. My biggest concern is making sure that the surgeon taking the survey understands that for all of the questions, we are focusing on focused thoracic pathology that is not readily visible on conventional x-ray. I think this is what we want- right?

Justin

(1) For the two questions below, these won't capture estimates of the

denominators for the representative case- a soft disc herniation or bone lesion not visible on conventional x-ray. The questions below will elicit answers that include all thoracic cases- including T10-pelvis, T2-L2 or T3-pelvis for scoli, Scheuermann's, and trauma. Typically for these cases, there isn't as much of an issue for localization. Should we reword the questions below to reflect single-level thoracic pathology that is not readily apparent on conventional x-ray? This would elicit the true denominator for the wrong-level calculations that we anticipate doing; otherwise, the rate of wrong-level thoracic surgery for single-level pathology not visible on conventional x-ray will be artificially low, since it will be diluted out by an inflated denominator that includes all thoracic procedures.

Do you perform thoracic procedures as part of your practice?

Approximately how many thoracic procedures do you perform in a year?

(2) For the following question, we should consider adding a few additional choices, instead of making it a yes/no question:

Do you have the level localized preoperatively by placement of a marker (e.g. by a radiologist)?

-Yes, essentially every time.

-Yes, sometimes

-Yes, but rarely

-No

(3) For the following questions, consider changing the second choice from "Yes- count from the twelfth rib" to "Yes- count based on ribs", since the surgeon may primarily count from the first rib if the lesion is in the upper thoracic spine.

Do you use fluoro intraoperatively in a "live fashion" to count from a known landmark, for example the sacrum, to plan your incision?

Do you use fluoro intraoperatively, after the incision, in a "live fashion" to count from a known landmark, for example the sacrum?

(4) For the following question, do we want to again remind the surgeon that we are asking about pathology that is not readily visible on conventional x-ray? Or do we want to capture all wrong-level thoracic surgery?

Have you ever performed a thoracic procedure at the wrong level?

From: Eric Potts

[EPotts@goodmancampbell.com <<mailto:EPotts@goodmancampbell.com>> <<mailto:EPotts@goodmancampbell.com>>]

Sent: Friday, June 15, 2012 10:46 AM

To: Shaffrey, Chris I *HS; Michael Groff

Cc: Smith, Justin S *HS (MD-NERS Admin);

vmum@aol.com <<mailto:vmum@aol.com>> <<mailto:vmum@aol.com>>;

Michael Groff; Shaffrey; Joe Cheng

Subject: RE: Spine section wrong level survey

Gentlemen,

Here is a version of the survey that has been updated. Please review this. I have added two questions below as Mark Hadley suggested. It looks long, but it is only long if you have a number of wrong level cases to report. If you have none, then you skip all of these questions. Please let me know your thoughts. Hopefully we can send this out soon.

<http://www.surveymonkey.com/s/K69RG3D>

Eric

-----Original Message-----

From: Mark N. Hadley [<mailto:mhadley@uabmc.edu>] <[mailto:\[mailto:mhadley@uabmc.edu\]](mailto:[mailto:mhadley@uabmc.edu])>
Sent: Friday, May 25, 2012 5:43 AM
To: Shaffrey, Chris I *HS; Michael Groff; Eric Potts
Cc: Smith, Justin S *HS (MD-NERS Admin);
vmum@aol.com <<mailto:vmum@aol.com>> <<mailto:vmum@aol.com>>;
Michael Groff; Shaffrey; Joe Cheng
Subject: RE: Spine section wrong level survey

Dear all:

Thanks for asking me to review your survey. No insightful comments. In this survey you are collecting facts from the respondents, not asking about colleague activity or a actions/events of others, committed by others (which can be considered hearsay). This survey looks fine.

Two suggestions:

1). After questioning about wrong level thoracic surgery, might you ask: What did you do/was done to rectify the wrong level localization? *Recount and treat the intended level during the original procedure? *Re-operate at the intended level in a second procedure? *Other surgeon/surgical team treated the intended level at a second procedure? *No further treatment to your knowledge? (something like that).

2). Has any consideration been given to a few questions about localization of the thoracic vertebral levels and position...(ie: dorsal, far-lateral, ventral). Do surgeons have more problems one way or another, or different localization strategies for different approaches?

My best,

MNH

Mark N. Hadley, MD, FACS
Charles A. and Patsy W. Collat Professor of Neurological Surgery
Program Director, UAB Residency Training Program
UAB Division of Neurological Surgery
510 - 20th Street South, FOT 1030
Birmingham, AL 35294-3410
205.934.1439
205.975.6081 fax

From: Shaffrey, Chris I *HS
[CIS8Z@hscmail.mcc.virginia.edu <<mailto:CIS8Z@hscmail.mcc.virginia.edu>> <<mailto:CIS8Z@hscmail.mcc.virginia.edu>>]

Sent: Thursday, May 10, 2012 8:27 AM

To: Michael Groff; Eric Potts

Cc: Smith, Justin S *HS (MD-NERS Admin);
vmum@aol.com<<mailto:vmum@aol.com>><<mailto:vmum@aol.com>>;
Michael Groff; Shaffrey; Joe Cheng; Mark N. Hadley

Subject: RE: Spine section wrong level survey

Have we heard back from Mark Hadley about the survey. I am sure he will make some insightful comments.

Christopher I Shaffrey, MD, FACS

Harrison Distinguished Professor

Neurological and Orthopaedic Surgery

University of Virginia

Phone: (434) 243-9714

From: Michael Groff [mgroff@mac.com<<mailto:mgroff@mac.com>><<mailto:mgroff@mac.com>>]

Sent: Thursday, May 10, 2012 8:52 AM

To: Eric Potts

Cc: Smith, Justin S *HS (MD-NERS Admin); Shaffrey, Chris I *HS;
vmum@aol.com<<mailto:vmum@aol.com>><<mailto:vmum@aol.com>>; Michael Groff; Shaffrey;
Joe Cheng

Subject: Re: Spine section wrong level survey

Eric,

My only suggestion is with the following question:

* what method of localization did you use when you had the error? Include "live fluoro" as a possible answer

I am trying to find someone here with expertise in survey design to review as well so that we won't have the same regrets we had last time when we were reviewing the data.

Hope all is well.

Thanks,

mike

**AANS/CNS Joint Spine Section: Checklist Protocol for Prevention
of Wrong Level Spine Surgery**

Pre-Operative Identification Process

- ☐ Spinal levels for planned surgery clearly identified in the surgeons clinic note when decision for surgery was made.
- ☐ Review radiology reports and associated clinical notes in patients chart related to surgery (e.g., PT notes, 2nd opinions, pain management, chiropractors, etc.) and amend directly on notes if discrepancy in level of spinal pathology.
- ☐ Review surgery scheduling and consent form and amend directly on forms if discrepancy in level of spinal pathology.
- ☐ Have X-ray, MRI, or CT scan preoperatively that shows the pathology and includes a landmark such as sacrum, rib, or other structure to allow counting from.
- ☐ Obtain a chest X-ray or other study preoperatively to confirm twelve ribs in thoracic levels localizations.
- ☐ In difficult cases of localization, request radiology to localize preoperatively with vertebroplasty/kyphoplasty, radio-opaque marker, or other identification.
- ☐ Confirm spinal levels for surgery with the patient during the consent process.
- ☐ Confirm spinal levels for surgery at the time of pre-admission and testing.
- ☐ Confirm spinal levels for surgery at the time of admission for surgery.
- ☐ Confirm spinal levels for surgery before the patient leaves the preoperative area or enters the procedure/surgical room.
- ☐ Mark the operative site at or near the incision site with the spinal levels to be operated on, including laterality if any, using the JACHO protocol for surgical site marking.

Intra-Operative Identification Process

- ☐ "Time out" immediately before starting the procedure as per standard hospital protocol to include correct patient identity, correct side and site, and agreement on the procedure to be done.
- ☐ Used pre-incision intraoperative imaging, including fluoro intraoperatively in a "live fashion", to count from a known landmark such as the sacrum to identify the correct spinal level.
- ☐ Confirm with intraoperative imaging, including fluoro intraoperatively in a "live fashion", to count from a known landmark such as the sacrum to identify the correct spinal level prior to bone removal.

Agenda Item 3k:

-----Original Message-----

From: Michael Groff <mgroff@mac.com>

To: Praveen Mummaneni <vmum@aol.com>; Kuntz Charlie <charleskuntz@yahoo.com>; R. Hurlbert <jhurlber@ucalgary.ca>

Sent: Fri, Sep 20, 2013 10:18 am

Subject: Fwd: NASS effort to advocate on your behalf for fair coverage policies

We need to do stuff like this to keep the membership aware.

Thanks,

mike

Begin forwarded message:

From: NASS Board of Directors <nassboard@spine.org>

Subject: NASS effort to advocate on your behalf for fair coverage policies

Date: September 20, 2013 1:14:43 PM EDT

To: mgroff@mac.com

To view this email as a web page, go [here](#).

North American Spine Society



September 20, 2013

Dear Fellow NASS Members,

I am writing to let you know about a recent NASS effort to advocate on your behalf for fair coverage policies.

As you may know, Aetna has recently revised their coverage policy (policy# 0016) on Back Pain-Invasive Procedures, indicating that the spine cages are only considered medically necessary for use with autogenous bone graft in patients who meet criteria for lumbar spinal fusion and for thoracic fusion. They also state that "[Spine cages are considered NOT medically necessary for cervical fusion.](#)" Aetna states that they consider cages experimental and investigational for all other indications because their effectiveness for indications other than the one listed above has not been established.

http://www.aetna.com/cpb/medical/data/1_99/0016.html

NASS's Professional, Economic and Regulatory Committee (PERC) reviewed this coverage policy and had some concerns about Aetna's position on anterior cervical discectomy, fusion and the use of cages. NASS submitted a formal response to Aetna addressing issues with lumbar degenerative disc disease. Once we have a response from Aetna we will post our comments and Aetna's response on our website, www.spine.org.

On September 18, 2013 four NASS board members, including me, participated in a conference

call with Aetna leadership to advocate on behalf of NASS members and their patients. We shared our experiences on the utility and appropriateness of the use of cervical cages based on clinical outcomes and evidence-based literature. I'd like to thank the following Board members for their assistance:

- Christopher Standaert, MD-Director, Health Policy Council
- Christopher Bono, MD-Chair, Coverage Task Force
- Christopher Kauffman, MD-Chair, Professional, Economic and Regulatory Committee

We appreciated the opportunity to talk with Aetna leadership and feel that it was a very productive meeting. Aetna leaders were encouraged to reconsider their policy in light of the fact that multiple studies report the same clinical outcome regardless of graft type and/or use of cages when performing Anterior Cervical Discectomy Fusion (ACDF). NASS strongly believes that a blanket denial of this technology does not allow physicians to practice optimal surgical care, nor does it allow appropriate patients to receive the best care possible.

We will continue our efforts to advocate on behalf of our members and their patients while promoting evidence-based practice.

Sincerely,



Charles Mick, MD
President, North American Spine Society

Agenda Item 4a:

AUC PROJECT for Adult Deformity

From: Steve Glassman [sdg12345@aol.com]

Sent: Monday, October 14, 2013 3:43 PM

To: Mummaneni, Praveen

Subject: Fwd: AUC project

Hi Praveen

In response to your other email, this is the interchange that I had with Teryl a few weeks ago.

SDG

-----Original Message-----

From: Nuckols, Teryl, M.D., M.D. <TNuckols@mednet.ucla.edu>

To: 'Steve Glassman' <sdg12345@aol.com>; Daubs, Michael D. <MDaubs@mednet.ucla.edu>

Cc: Chen, Peggy <pchen@rand.org>

Sent: Thu, Oct 3, 2013 12:35 pm
Subject: RE: AUC project

Hi Steve,

Nice to hear from you, sorry for the delay, was out at a conference yesterday.

I am glad to hear that Mike is going to give an update. We have been making steady progress on all fronts. The lineup of potential panelists is just amazing, all highly qualified. Interest in the project is also very high, not just among the surgeons. It has been hard to choose but we are in the final stretch of the selection process now. We will share the list of panelists after it has been confirmed (all I's dotted and T's crossed). After that, we will choose a panel date.

We have a very comprehensive list of "indications" (factors that may influence the decision to operate), thanks to Mike and the various potential panelists we have interviewed. We have created a collection of relevant literature.

We have also figured out the process we will use to address the novel aspect of the project, comparing the different basic types of procedures. I can prepare some slides or material for Mike explaining that in more detail as well as put it in our next update, since it is a little complicated.

Currently, Mike and our team are working on drafting definitions for each indication and identifying which literature in our collection pertains to each one.

Thanks.
-Teryl

From: Steve Glassman [<mailto:sdg12345@aol.com>]
Sent: Tuesday, October 01, 2013 1:19 PM
To: Nuckols, Teryl, M.D.; Daubs, Michael D.
Subject: AUC project

Hi Teryl

Hope you are doing well.

I was curious on the progress of the AUC project.

My understanding is that Mike is going to give us an update at our Cabinet meeting at the end of October. This would obviously not include any real data, but rather some detail on the methodology and the rationale for pursuing this in general.

Look forward to hearing from you.

Regards

Steve Glassman

Agenda Item 4b:

N2QOD

From: Shaffrey, Chris I *HS [CIS8Z@hscmail.mcc.virginia.edu]
Sent: Sunday, October 13, 2013 3:34 PM
To: vmum@aol.com; Mummaneni, Praveen; matthewmcgirt@gmail.com; Zoher.Ghogawala@lahey.org; seldenn@ohsu.edu
Cc: Tony.Asher@cnsa.com; icz@aans.org; CIS8Z@virginia.edu; sdg12345@aol.com; Walters, Jacqueline
Subject: RE: N2QOD deformity module for SC meeting

See my attached comments.

From: vmum@aol.com [vmum@aol.com]
Sent: Sunday, October 13, 2013 12:34 PM
To: MummaneniP@neurosurg.ucsf.edu; Shaffrey, Chris I *HS; matthewmcgirt@gmail.com; Zoher.Ghogawala@lahey.org; seldenn@ohsu.edu
Cc: Tony.Asher@cnsa.com; icz@aans.org; CIS8Z@virginia.edu; sdg12345@aol.com; waltersj@neurosurg.ucsf.edu
Subject: Re: N2QOD deformity module for SC meeting

Dear all,
The n2qod deformity module will be presented on Saturday Oct. 19 at 11am to the N2QOD cmte during the CNS meeting.
Here is the draft that I will present.
There are a few minor queries left.
Since some of you won't be at the meeting, please let me know any last minute thoughts you may have and I will present them there.

Also, I want to thank Chris Shaffrey, Steve Glassman, and the SRS cmte (Jeff Coe and Sig Berven) for their input and help with the development of this module.

Praveen
Praveen V. Mummaneni, M.D.
Professor and Vice-Chairman
Dept. of Neurosurgery, University of California at San Francisco
Co-Director: UCSF Spine Center
Secretary: AANS-CNS Joint Section - Spine and Peripheral Nerves -----Original Message-----
From: Mummaneni, Praveen <MummaneniP@neurosurg.ucsf.edu>
To: Shaffrey, Chris I *HS <CIS8Z@hscmail.mcc.virginia.edu>; matthewmcgirt@gmail.com; Zoher Ghogawala <Zoher.Ghogawala@lahey.org>; Nathan Selden <seldenn@ohsu.edu>
Cc: Tony Asher <Tony.Asher@cnsa.com>; Irene N2QOD <icz@aans.org>; Chris Shafrey <CIS8Z@virginia.edu>; sdg12345@aol.com; vmum@aol.com
Sent: Thu, Aug 22, 2013 4:57 am
Subject: RE: N2QOD deformity module for SC meeting

Chris and Matt and all,
A brief reminder of where we are:

I organized a conf call on this on june 11 with the SRS folks (glassman and coe) to clear up the final small issues with this deformity simple and advanced module.
Steve Glassman and Jeff Coe made the conf call, but shaffrey did not make it as I think he had an urgent case.

after the conf call, I met with sig berven in person and made the attached updated draft.
I had emailed that to jeff coe, steve glassman, sig berven, tony asher, matt mcgirt, and chris shaffrey.

Jeff coe is heading the SRS cmte that oversees this and he had no further edits.
He emailed me.

////////////////////////////////////
Steve Glassman made the following comments on June 12:

.Praveen et.al.

At this point we are very close, and I would be happy with whatever the group elects on the remaining details. For whatever they are worth, my comments are as follows.

With regard to the advanced module, all of the proposed components seem reasonable to me. I agree with collecting back and leg pain scores pre and post-op, and agree that we should collect digital XRs if possible. Actually, for the pilot I would probably suggest collecting the measured data that you have outlined and storing the XRs too. We will then be able to determine which is more reliable. We will have to figure out the cost of having the digital XRs measured (probably with grant funding), but if it is prohibitive we will still have the data from measurement at each site. Given the amount of data that we are trying to collect, we need to talk about how many patients each center will be allowed to enroll in the pilot study.

For the simple module, I don't have our existing form to compare with your proposed elements, but I don't necessarily favor adding anything other than diagnosis (with curve magnitude > 30 degrees and sagittal imbalance as exclusions) to the clinical variables. I agree with the additions to the surgical procedure section. This would make the "module" pretty easily accessible to all presently enrolling surgeons.

Thanks for moving this forward.

Steve

////////////////////////////////////

I was hoping to meet with Glassman and Shaffrey together on this at IMAST last month re this n2qod deformity project but that did not materialize as we were all quite busy at IMAST.

I am attaching the june 12 latest simple and complex deformity modules draft to this email.
Please look it over and keep Steve's comments above in mind.

If we all agree on this then let's move forward. Issues to address is how to store Xrays for the advanced module and how to pay for that.
If there are still other issues and we need another conf call or an in person discussion during the CNS in San Francisco in October then let me know.

I look forward to hearing from you. I called Matt McGirt earlier this week to get this project back on everyone's radar. i copied Steve Glassman on this email as well.

thanks
Praveen

From: Shaffrey, Chris I *HS [CIS8Z@hscmail.mcc.virginia.edu<<mailto:CIS8Z@hscmail.mcc.virginia.edu>>]
Sent: Tuesday, August 20, 2013 9:07 AM
To: matthewmcgirt@gmail.com<<mailto:matthewmcgirt@gmail.com>>; Mummaneni, Praveen; Zoher Ghogawala; Nathan Selden
Cc: Tony Asher; Irene N2QOD; Chris Shafrey
Subject: RE: N2QOD deformity module for SC meeting

It will be great to get this moving forward. I do not think I have seen the "finalized" form sets for this.

From: matthewmcgirt@gmail.com<<mailto:matthewmcgirt@gmail.com>>
[matthewmcgirt@gmail.com<<mailto:matthewmcgirt@gmail.com>>]
Sent: Tuesday, August 20, 2013 11:29 AM
To: Praveen Mummaneni; Zoher Ghogawala; Nathan Selden
Cc: Tony Asher; Irene N2QOD; Chris Shafrey
Subject: N2QOD deformity module for SC meeting

Praveen
First, thank you for all of your work on developing the variable set for the adult degenerative deformity module for the national Registry. I understand it has multiple society stakeholders input.

Zo and Nate are now the co-Chairs of the Scientific Committee and will be running the SC meeting in October at CNS meeting.

Could you send them the progress to date as I suspect review and discussion of the deformity module will be one of the action items for the SC meeting.
Hopefully we can get final sign off from SC and bump it upwards for sign off on development and implementation.

Thanks
Matt

Spinal Deformity Module

Basic Data Form and **Advanced Data Form**

Patient Variables	Clinical Variables
Social Security Number MR#	Dominant Symptom: Back Pain, Leg pain, Back equal to Leg Pain, Motor Deficit)
DOB Gender (M/F) Race (White, Black or African American, Asian, Hispanic or Latino, American Indian, Other)	Duration of Sx (<3mo, >3mo) ADD: Preop ODI ADD: Preop EQ5D VAS back and leg pain score
Height (cm) Weight (kg)	Prior Thoracolumbar Surgery at any time in the past? (Yes/No)
Employed (yes/ no)	Disc Collapse (Yes/No) <i>*level of surgery only</i>
Smoker (yes/no) DM (yes/no) CAD	Listhesis (Yes/No) <i>*level of surgery only</i> Modic endplate changes (Yes/No) <i>*level of surgery only</i>

Comment [CS1]: Agree with the VAS for back and leg. Probably the easiest and most consistent measure to obtain.

Comment [V2]: Sig and Glassman suggests we add VAS back and leg preop as well. Thoughts? We are getting this data postop but we did not see it in the preop area of the module. praveen

Comment [V3]: Sig pointed out that in the postop slot we ask if they are working full time or part time, but we don't ask that in the preop profile. Shall we match this to the postop format and add that? Praveen

Depression and/or Anxiety Disorder	Disc herniation (Yes/No) <i>*level of surgery only</i>
ADD: Hypertension ADD: Movement Disorder (i.e. Parkinson's)	
Osteoporosis (yes/no) (optional-for fusion patients) FOR ADVANCED MODULE: ADD: T Score from DEXA of the Hip or Wrist	Simple Module: No Xray measurements needed. No Xrays saved as JPEG's. Include only mild clinical sagittal imbalance and curves under 30 degrees Advanced Module and Pilot Study: Radiographic Variables to be measured by surgeon and the Xrays to be stored as JPEG to be measured by independent reviewer for the following parameters. Surgeons need to submit 36 inch xrays that capture the femoral heads Mild Scoliosis <20 degrees Moderate Scoliosis 20-40 degrees Severe Scoliosis > 40 degrees SVA <4 cm SVA 5-9 cm SVA > 9 cm PI LL PT
Condition caused by work related or motor vehicle injury (yes/no) (optional)	Surgical Variables
Structural Variables*	Date of Surgery
Hospital, Practice, Surgeon	Laminectomy Levels (0,1,2,3,4, 5 or more)
Urban, Suburban, Rural	Arthrodesis Levels (0,1,2,3, 4-7, 5-11, >11)
Private vs. Public Hospital	Posterior instrumentation (N, Y-name) Anterior Instrumentation (N, Y-name)
Annual Volume (Hospital, Practice, Surgeon)	Interbody Graft (Yes/No)

Comment [V4]: Sig suggests we add RA/inflamm arthritis yes or no

And to add steroid use yes or no
We have a slot for osteoporosis currently.

What do you think? praveen

Comment [V5]: Per Glassman, we will not require 36 inch xrays for the simple module. We will ask surgeons to exclude pts with severe sagittal imbalance based on clinical appearance from enrolling in the simple module for deformity. We only intend to capture coronal curves under 30 degrees without sagittal imbalance for the simple module.

What do you think? praveen

	<i>PLIF</i> <i>TLIF</i> <i>ALIF</i> <i>XLIF/DLIF</i>
Neurosurgery Residency	EBL (cc) Length of surgery (minutes)
U.S. Region, State	ASA Grade
<i>*entered once</i>	<i>Osteotomies performed?</i> <i>Type?</i> <i>Levels?</i>
	<i>Type of Bone Graft Material</i> <i>Dural tear?</i>

Comment [CS6]: Praveen, almost none of the comments line up with the appropriate cell in the form. Dural tear should be in the complications section.

Comment [V7]: Sig suggests we add dural tear in this surgical data area as well as at 30 days. Agree? praveen

<u>30-day Quality</u>	<u>3-month Quality</u>	<u>12-month Quality</u>
Length of hospital stay	ODI (10 questions)*	ODI (10 questions)*
DC to In-Patient Rehab (yes/no)	EQ-5D (5 questions)*	EQ-5D (5 questions)*
Readmission to Hospital (yes/no)-reason in pull-down menu	VAS (Back & Leg)*	VAS (Back & Leg)*
Return to OR (spine related) (yes/no)-reason in pull-down menu <i>ADD: Instrumentation Failure</i> <i>ADD: Proximal Junctional Kyphosis/Fx</i> <i>ADD: Dural Tear +/-CSF Leak</i>	NASS Patient Satisfaction Index (PSI)	NASS Patient Satisfaction Index (PSI)
Surgical Site Infection (yes/no)	Work Status [No, Yes-part (mo), Yes-full (mo)] *	Work Status [No, Yes-part (mo), Yes-full (mo)] *
DVT/PE (yes/no)	Revision Surgery – [No, Yes-same level, Yes- adj level]	Revision Surgery – [No, Yes-same level, Yes- adj level]
MI/CVA (yes/no)		
New Neuro Deficit (yes/no)		

Comment [CS8]: Here is the appropriate section for the work status. Should have preop work status.

Spinal Cord Deficit?		
Nerve Root Deficit?		
Mortality (yes/no)		<i>*also recorded at enrollment</i>

ADD: 2 year outcomes: EQ5D and ODI and VAS back and leg pain scores

ADD: POSTOP RADIOGRAPHIC VARIABLES

3 or 6 months

SVA

PI

LL

PT

Fusion Status

12 months

SVA

PI

LL

PT

Fusion Status/implant failure

24 months

SVA

PI

Comment [V9]: sig pointed out that the follow up time is 3 months and one year for gathering clinical info but the xrays are six months, that is a mismatch with the columns above. Shall we change the 6 months xray to 3 months to stay consistent?
praveen

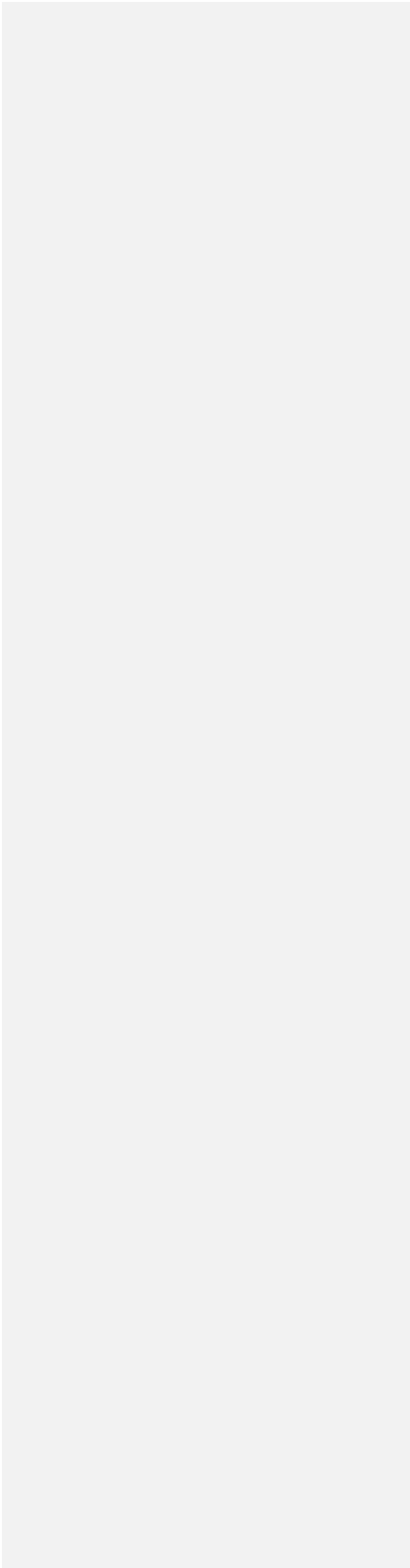
Comment [CS10]: I would recommend 1 year radiographs. Even could to 3 months and 1 year. If no clinical follow-up required at 6 months, then should match.

LL

PT

Fusion *Status**/implant*

failure



Agenda Item 5a:



**Congress of
Neurological
Surgeons**

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

Overview Analysis 2007-Current

CNS Meeting Management



CNS

CNS provides meeting management services to the Spine Section including:

- Logistics
- Registration and Housing Services
- Budgeting and General Meeting accounting
- Marketing
- Service to our corporate partners
- Faculty and scientific program management
- Abstract management for scientific program and for journal
- ACCME accreditation service
- Future sites research and contracting

CNS Meeting Management



CNS

CNS does NOT currently service:

- Committee Coordination
- Governance oversight
- Spine Section website
- Fellowship funding or grant follow-up
- General Financial services
- Membership recruitment, retention or service

Any of these services could be provided if the spine section is interested.

Attendance History



**C
N
S**

	2007 Phoenix	2008 Orlando	2009 Phoenix	2010 Orlando	2011 Phoenix	2012 Orlando	As of 4/23/13 Phoenix
Subtotal Medical	392	460	470	451	435	449	475
Subtotal Other (sp/gst)	134	171	119	105	73	121	54
Subtotal Exhibitors	478	471	508	512	492	411	372
Grand Total	1004	1102	1097	1068	1000	1011	901

International Attendance



CNS

Year	Location	Int'l Medical	Total Medical	Partner Society Attendance
2013	Phoenix	55*	475*	Ireland = 12
2012	Orlando	84	449	Brazil = 25
2011	Phoenix	92	435	Turkey = 35
2010	Orlando	83	451	Taiwan = 15

*as of 4/23/13

Annual Meeting Fiscal History



CNS

	Revenue	Expenses	Net
2007	\$915,425	\$495,835	\$419,590
2008	\$961,534	\$538,406	\$423,128
2009	\$1,043,635	\$546,647	\$496,988
2010	\$1,037,804	\$558,582	\$479,222
2011	\$959,225	\$574,039	\$385,186
2012	\$951,575	\$570,445	\$381,130
2013	\$944,155	\$596,241	\$347,915

Corporate & Exhibits Summary



ACNS

	Companies	Exhibit Revenue	Corporate Support Revenue
2007	64	\$407,800	\$274,500
2008	65	\$382,200	\$302,000
2009	70	\$427,225	\$337,500
2010	63	\$372,240	\$389,159
2011	59	\$360,155	\$342,500
2012	60	\$329,700	\$347,500
2013	58	\$301,000	\$367,500

Exhibits History Detail



CNS

	Square Feet	New Exhibitors	Total Companies	Islands	Total Revenue
2013	8,400	12	58	3	\$301,000
2012	9,000	15	60	4	\$329,700
2011	9,800	14	59	6	\$365,200
2010	10,100	14	63	6	\$371,100
2009	11,900	23	72	6	\$427,225
2008	10,200	17	64	7	\$382,200
2007	12,500	*	64	8	\$407,800

* New exhibitor data not recorded in 2007

Exhibits History Detail



CNS

Retention Rate	2009 Exhibitors	2010 Exhibitors	2011 Exhibitors	2012 Exhibitors	2013 Exhibitors
1 Year	62.9%	65.1%	67.8%	74.8%	70.0%
2 Year	48.6%	52.4%	64.4%	72.8%	
3 Year	44.3%	50.8%	61.0%		
4 Year	40.0%	48.4%			
5 Year	41.6%				

Note: One-year, two-year and three-year retention rates are increasing. This positive trend may indicate that efforts over recent years may be helping improve exhibitor satisfaction.

There is some fluctuation due to companies choosing to exhibit in one city over the other, therefore only exhibiting at the meeting every other year.

Corporate Support/ Advertising History Detail



CNS

	Companies	Corporate Support Revenue
2007	12	\$274,500
2008	15	\$302,000
2009	13	\$337,500
2010	7	\$389,159
2011	11	\$342,500
2012	13	\$347,500
2013	12	\$367,500

CME Hours



CNS

	General CME	Elective CME	Max CME to be Claimed
2007	17.25	12	29.25
2008	18.75	10	26.75
2009	18.5	10	26.5
2010	18.25	10	26.25
2011	19	10	27
2012	18.75	8	26.75
2013	16.5	9.0	25.5

In 2008-2012 a maximum of 8 Elective CME could be claimed based on session overlap.

Sessions



CNS

	Special Courses	Lunch Symposia	Committee Meetings	Total (Not including GSS/Exhibit Hall)
2007	9	0	2	11
2008	9	6	2	17
2009	8	3	4	15
2010	9	5	8	22
2011	9	5	8	22
2012	10	5	7	22
2013	9	5	8	22

COMMITTEE MEETINGS:

DSPN Scientific Program Committee
 DSPN EC Meeting
 Corporate Demo
 Corporate Summit

SANS MOC Author's Meeting

DSPN Guidelines Committee Meeting
 DSPN Officers Meeting
 Journal of Neurosurgery: Spine Editorial Board meeting

2012 Annual Meeting Evaluation Findings



CNS

- 57% of Attendees state the primary reasons for attending the meeting is for the Scientific Sessions.
- 42.1% of Attendees state their ROI for attending the meeting is Excellent.
- 89.5% of Attendees state they visited the exhibit hall and the majority said they spent an hour in the hall each day.
- Educational Content is an extremely important criteria for attending the meeting, whereas Entertainment Appeal, Distance from Home, Length of Meeting, Fees and Sleeping Room Rates are Somewhat Important.

2012 Annual Meeting Evaluation Findings cont.



CNS

- 92% feel that a 2-3 day meeting is the ideal duration for this section meeting.
- The following are Extremely Unimportant when deciding to attend the meeting: Golf, Spa, Disney Access and Family Friendly Activities.
- 66% feel that Easy Flight Access is Extremely Important when deciding to attend.
- Over 40% of attendees surveyed feel that this section meeting is more valuable than the CNS and the AANS larger meetings.
- Orlando Medical Attendees count has been fairly consistent whereas Phoenix fluctuates by 35-70 attendees

Summary of Data



ACNS

- Since 2010, Exhibit Revenue has been declining
 - Overall Reduction in Island Space
 - Globus & NuVasive reduced from island to inline in 2011
 - Depuy/Synthes merger (Loss of 1 booth)
 - Medtronic (20x30 usually in Phoenix – this year only 20x20)
 - Alphatec Spine declined in 2013 (20x20 in 2012)
 - Low retention rate – Only 30% over 5 years.
 - Year over year retention has shown slight increases annually since 2010
 - Exhibitor evaluations site lack of ROI, lack of traffic and attendee interest/interaction.

Summary of Data



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- Function space has been increased
 - Added Society Meetings beginning in 2011
 - 2013 Divided Platform and Poster Presentations more prominently (using more meeting space)
 - Beginning in 2010, Committee meetings have grown, from 4-10 (actual count varies per year)
- Social Event expenses have grown significantly, partially due to:
 - Past Chairs' Dinner attendance increased by 76%
 - Young Neurosurgeons Dinner attendance fluctuates by 50% for some years
 - Chairman's Dinner expenses and attendance has increased by over 15% consistently.

Future Sites Summary



CNS

Year	AANS/CNS Section on DSPN	AANS	AAOS
2013	March 6-9 Phoenix JW Marriott	April 27-May 2 New Orleans	March 19-23 Chicago
2014	March 5-8 Orlando Disney Swan/Dolphin	April 5-9 San Francisco	March 12 – 15 New Orleans
2015	March 4-7 Phoenix JW Marriott	May 2-9 Washington DC	March 24-28 Las Vegas

Future Sites Summary



CNS

2014: Orlando, Florida

Walt Disney World Swan & Dolphin

March 5-8, 2014

Cancellation Risk: Cancellation a year prior to the meeting requires responsibility for 100% of the contracted sleeping rooms at profit rate only of 80%. (1700 sleeping room nights x \$215.20 = \$365,840)

Reduction Risk: Prior to March 30 we can reduce the room block by 15% without penalty. Recommend proceeding as we've already seen a reduction in exhibitor registration. Came close this year at the JW with not meeting our room block requirements.

2014 Attrition Policy: Must utilize 1275 of the contracted 1700 nights. (75%)

Food and Beverage Minimum: \$205,000 (10% slippage allowable) = \$184,500

Future Sites Summary



CNS

2015: Phoenix, Arizona
JW Marriott Desert Ridge
March 4-7, 2015

Cancellation Risk: Cancel by September 3, 2013, we would owe **\$102,432.**

Cancel between Sept. 4, 2013 and March 3, 2014, we would owe \$204,864.

Cancel between March 4, 2014 and arrival, we would owe \$409,728.

Reduction Risk: One year out we can reduce without penalty. One year out we can adjust function space needs. May require negotiation. Suggest any adjustments for 2015 be handled within 30 days of the 2013 meeting to optimize negotiation power.

2014 Attrition Policy: Must utilize 1232 of the contracted 1760 room nights (70%) or attrition damages would apply. If not met, damages are figured on profit at 75% of sleeping room rate.

Food and Beverage Minimum: Based on a schedule provided within agreement, estimated at \$163,611 with allowable slippage of 20% and based on profit at a total liability of **\$98,166.**

For your consideration



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- Releasing exhibit hall function space does not eliminate expense in existing agreements.
- Function space is complimentary based on utilizing contracted sleeping rooms & reaching F&B minimums.
- F&B spend ranges from \$175k - \$245k.
- 50% of the contracted sleeping room nights are currently utilized by exhibitor representatives.
- Finalizing your future site needs is important.

Availability should be reserved at minimum five years out. Your choices will be limited for 2016/2017.

For your consideration



CNS

Recommendations:

- 2014: Reduce hotel room nights as allowable within agreement to minimize possibility of attrition damages. Exhibit floor and associated representatives have decreased in recent years.
- 2015: Negotiate with JW Marriott based on future plans for Spine Section Meeting. Reduce function space (if desired), Reduce room block (if desired), may reduce food and beverage minimum.
- 2016 and beyond: Send RFP's (non-Disney properties for maximum flexibility) to venues based on desired new meeting format and space needs within the next 30 days to establish a measurement of proposals for current meeting format vs. new meeting format.
- In New Orleans at the next Spine Section EC Meeting, review variables between the two meeting formats.
- Proceed to secure 2016 and beyond based on this review and associated decision.

For your consideration



CNS

- If the exhibit hall is eliminated:
 - It eliminates only approximately \$19,000 in expenses.
 - How will the remaining \$300,000 in revenue be secured to support the rest of the meeting expenses?
 - Is there a chance that corporate will come up with an additional \$300,000 in support annually on top of the \$350,000 already being provided in corporate support?



**Congress of
Neurological
Surgeons**

Thank You!

Agenda Item 5b:

From: Hoh, Daniel J <Daniel.Hoh@neurosurgery.ufl.edu>
To: Thomas M. Heneghan <tmh@1CNS.ORG>; mgroff <mgroff@partners.org>; Mike Wang (MWang2@med.miami.edu) <mwang2@med.miami.edu>; vmum <vmum@aol.com>; Jack Knightly <jknightly@atlanticneurosurgical.com>
Cc: Michele L. Lengerman <ml@1CNS.ORG>; Hoh, Daniel J <Daniel.Hoh@neurosurgery.ufl.edu>; Ray, Zack <RayZ@wudosis.wustl.edu>; Hoh, Daniel J <Daniel.Hoh@neurosurgery.ufl.edu>
Sent: Sun, Jun 9, 2013 4:30 pm
Subject: RE: 2014 AANS/CNS Section on Disorders of the Spine and Peripheral Nerves Exhibitor Prospectus

Section leadership, Michele/ Tom (CNS office),

The 2014 Exhibitor Prospectus draft looks fine to me.

For the Section Leadership -- key changes to the prospectus for 2014 (as discussed at last EC meeting) are:

1. 5 - 6% increase in exhibit booth price compared to last year
2. 10% increase in What's New Session price compared to last year

Michele/ Tom: the only other changes I might suggest for the prospectus, is that I would like to have my contact information (email address: daniel.hoh@neurosurgery.ufl.edu, office phone: 352-273-9000) included on the prospectus -- so that companies can contact me directly for any inquiries.

If the Section leadership approves of the prospectus -- this will be finalized ASAP.

Wilson Ray (Wash. U), who has volunteered to be part of the exhibits committee, and I are going to personally call the 2013 exhibitors to re-commit for 2014.

Thanks! Dan

From: Thomas M. Heneghan [tmh@1CNS.ORG]
Sent: Thursday, June 06, 2013 5:59 PM
To: Hoh, Daniel J
Cc: Michele L. Lengerman
Subject: 2014 AANS/CNS Section on Disorders of the Spine and Peripheral Nerves Exhibitor Prospectus

Hi Dr. Hoh,

Attached is the 2014 AANS/CNS Section on Disorders of the Spine and Peripheral Nerves Exhibitor Prospectus. Also attached is last year's exhibitors and their point of contact. There's a chance some of these people may have changed roles in the company or jobs since I last touch base with them, 3 months ago.

As well, when the rest of the committee approves the prospectus, can you let us know so we can post it online and send out eblasts?

Please let me know if you have any questions.

Thank you,
Tom Heneghan
 Fundraising & Development Coordinator
Congress of Neurological Surgeons
 10 Martingale Road, Suite 190
 Schaumburg, IL 60173
 Office: 847.240.2500 | Direct: 847.805.4454
 Fax: 847.240.0804
tmh@1cns.org | www.cns.org

Organiz ation	First Nam e	Last Name	Addre ss	City	St ate	Zip	Cou ntry	Phone	Fa x	Email	Canc elled	Bo oth #1
Advance d Biologic s	Scott	Cadotte	555 Corpor ate Drive, Suite 260	Ladera Ranch	CA	926 94	USA	800- 272- 0267	48 0- 28 7- 93 91	sjcadotte@advancedbi ologics.com		21 2
Aescula p Implant Systems , LLC	Kristi	Klemmer	3773 Corpor ate Parkw ay	Center Valley	PA	180 34	USA	508- 528- 2330	50 8- 59 0- 61 46	kristi.klemmer@aescul ap.com		50 7
Amedica Corpora tion	Julie	Johnson	1885 West 2100 South	Salt Lake City	UT	841 19	USA	801- 839- 3536	80 1- 83 9- 36 05	JJohnson@amedicacor p.com		30 4
AOSpine North America	Kelly	McCormick	P.O. Box 1755	Paoli	PA	193 01	USA	610- 993- 5131	61 0- 96 5- 24 20	kmccormick@aospine. org		10 2
Aurora Spine	Mich elle	Hartley	1920 Palom ar Point Way	Carlsba d	CA	920 08	USA	760- 424- 2004		mhartley@auroraspine. us		10 8
Baxano, Inc.	Staci e	Hrabal , CMP	655 River Oaks Parkw ay	San Jose	CA	951 34	USA	408- 514- 2248	40 8- 51 4- 22 01	shrabal@baxano.com		51 1
Baxter Healthc are	Randi	LeBoyer, CMP	One Baxter Parkw	Deerfie ld	IL	600 15- 462	USA	224- 948- 4738	84 7- 94	randi_leboyer@baxter. com		20 1

			ay Mailst op DF3- 2W			5			0- 66 22			
Biomet Spine & Bone Healing Technol ogies	Karrie	Nelson	100 Interp ace Parkw ay	Parsipp any	NJ	705 4	USA	973- 299- 9300 x3078	97 3- 29 9- 03 91	karrie.nelson@biomet. com		30 0
BSN medical, Inc.	Matt	Federi co	5825 Carneg ie Boulev ard	Charlot te	NC	282 09	USA	704- 731- 1133	70 4- 33 1- 87 85	Matt.Federico@bsnmedical.com		20 4
Centinel Spine, Inc.	Jame s	May	145 Misty Lane	Eatont on	GA	310 24	USA	612- 735 8056	64 6- 30 4- 38 00	j.may@centinelspine.c om		50 2
Covidien	Tracy	Weidn er	555 Long Wharf Drive	New Haven	CT	651 1	USA	203- 845- 1000		Tracy.Weidner@Covidi en.com		51 7
CSRF	Wen dy	Nelson	6300 North River Road, Suite 700	Rosem ont	IL	600 18		(847) 384- 4358		nelson@oref.org		70 4
DePuy Synthes Spine	Moir a	Turpel, CMP	325 Param ount Drive	Raynha m	M A	276 7	USA	508- 828- 2820	50 8- 82 8- 30 27	mturpel@its.jnj.com		30 7
Elsevier Inc.	Carrie	Isard	1600 JFK Boulev ard, Suite 1800	Philade lphia	PA	191 03	USA	215- 239- 3493	21 5- 23 9- 34 94	c.isard@elsevier.com		11 3
Gauthie r Biomedi cal	Katie	Kelley	1235 Dakota Drive, Suite G	Grafton	WI	530 24- 947 7	USA	262- 546- 0010 x20	26 2- 45 6- 00 11	kyle.kelley@gauthierbi omedical.com		50 3
Globus Medical	Katie	Gifford	2560 Gener	Audub on	PA	194 03	USA	610- 930-	61 0-	kgifford@globusmedica l.com		21 3

			al Armistead Avenue					1800 x 1866	93 0- 20 42			
Integra	Kristen	Fahrman	311 Enterprise Drive	Plainsboro	NJ	8536	USA	609-936-5565	609-750-4297	Kristen.Fahrman@integralife.com		200
InVivoLink	Tim	Kinner	1905 21st Avenue	Nashville	TN	37212	USA	866-474-8981		tkinner@invivolink.com		111
K2M, Inc.	Kelly	Smith	751 Miller Drive SE	Leesburg	VA	20175	USA	703.777.3155 ext 290	703-777-4338	ksmith@k2m.com		601
Karl Storz Endoscopy-America, Inc.	Nicole	Marinello	2151 East Grand Avenue	El Segundo	CA	90245	USA	800-421-0837 x8323	310-218-8537	nmarinello@ksea.com		616
Lanx, Inc.	Kim	St. Martin	310 Interlocken Parkway, Suite 120	Broomfield	CO	80021	USA	303-501-8477	303-501-8444	Kim.StMartin@lanx.com		208
LDR	Patsy	Peterson	13785 Research Boulevard, Suite 200	Austin	TX	78750	USA	512-344-3325	512-795-8306	patsypeterson@ldrspin.com		207
Leica Microsystems, Inc.	Vickie	Bibierian	4 Adam Place	New City	NY	10956	USA	847-405-7039/845-634-0048	847-405-2075	vickie.biberiantmp@leica-microsystems.com		318
Life Instrument Corporation	Joanne	Luca	91 French Avenue	Braintree	MA	2184	USA	781-849-0109	781-849-0128	jluca@lifeinstruments.com		501

Lilly USA, LLC	Laci	Hasenour	Lilly Corporate Center	Indianapolis	IN	46285	USA	317-276-1022	317-276-1118	hasenourlk@lilly.com		700
Lippincott Williams and Wilkins - WKH	Joey-Rose	Jester	Two Commerce Square, 2001 Market Street	Philadelphia	PA	19103	USA	612-259-8114	612-677-3059	Joey-Rose.Jester@wolterskluwer.com		101
Medacta USA, Inc.	Gregg	May	4725 Calle Quetzal B	Camarillo	CA	93012	USA	503-819-0212		gmay@medacta.us.com		608
Medtronic	Shaun	LeBlanc	2600 Sofamor Danek Drive	Memphis	TN	38132	USA	901-399-2186	901-399-2012	Shaun.LeBlanc@medtronic.com		407
MiMedx Group, Inc.	Margaret	Martin	60 Chastain Center Boulevard, Suite 60	Kennesaw	GA	30144	USA	678-384-6725	770-218-6195	mmartin@mimedx.com		610
Neuro Alert Monitoring Services	Steve	Goldstein	244 Westchester Avenue, Suite 316	White Plains	NY	10604	USA	917-613-8899		sgoldstein@neuroalert.com		618
New World Rarities, Ltd.	Kenneth	Flynn	670 Old Willets Path	Hauppauge	NY	11788	USA	800-431-1018	631-273-8486	kenny-nwrarities@hotmail.com		218
NovaBone Products LLC	Sandra	Allen	13631 Progress Boulevard, Suite 600	Alachua	FL	32615	USA	386-462-7660	386-418-1636	sallen@novabone.com		500
NSI	Ray	White	6767	Centennial	CO	801		720-		rwhite@nsi-		70

			South Spruce Street, Suite 220	nial		12		308-6886		healthsystems.com		2
NuTech Medical	Laur el	Graha m	2641 Rocky Ridge Lane	Birming ham	AL	352 16	USA	205-290-2158	20 5-29 0-94 29	Lgraham@nutechmedical.com		60 0
NuVasive	Lara	Delbo	7475 Lusk Boulevard	San Diego	CA	921 21	USA	858-320-4575	85 8-32 0-46 75	ldelbo@nuvasive.com		40 0
OPTEC USA, Inc.	Malis se	Haarl	975 Progress Circle	Lawrenceville	GA	300 43-464 4	USA	770-513-7380	77 0-51 3-43 65	Malisse@optecusa.com		60 5
Orthofix, Inc.	Kimberly	Smith	3451 Plano Parkway	Lewisville	TX	750 56	USA	214-937-2205	21 4-24 2-33 05	kimberlysmith@orthofix.com		40 1
Osteomed	Amanda	Warren	3885 Arapaho Road	Addison	TX	750 01	USA	972-677-4748	97 2-67 7-46 31	awarren@osteomed.com		61 4
Paradigm Spine, LLC	Gitela	Gandelman	505 Park Avenue, 14th Floor	New York	NY	100 22	USA	212-367-7272 x2121	21 2-82 6-95 09	Gitela.Gandelman@paradigmspine.de		11 2
Pioneer Surgical	Latoria	Booth, CMP	9600 Great Hills Trail, #160-E	Austin	TX	787 59	USA	512-372-4355	51 2-34 0-14 81	toniabooth@pioneersurgical.com		11 7
Precision Spine Inc.	George	Jankowski	2050 Executive Drive	Pearl	MS	392 08	USA	484-678-0324		george.jankowski@precisionspineinc.com		10 3
Richard Wolf	Todd	Maika	353 Corpor	Vernon Hills	IL	600 61	USA	847-913-	84 7-	tmaika@richardwolfusa.com		10 9

Medical Instruments Corp.			ate Woods Parkway					1113	913-6959			
Rosman Search, Inc.	Beth	Dery	30799 Pinetree Road, Suite 250	Pepper Pike	OH	44124	USA	216-287-2302	440-247-2434	bdery@rosmansearch.com		219
RTI Biologicals, Inc.	Laura	Francis	11621 Research Circle	Alachua	FL	32615	USA	386-418-8888 x4135		lfjohnson@rtix.com		105
Science Care	Katherine	Haga	21410 N. 19th Avenue, Suite 126	Phoenix	AZ	85027		602-288-0080		Katherine.Haga@sciencecare.com		317
SI-BONE, Inc.	Toan	Nguyen	3055 Olin Avenue, Suite 2200	San Jose	CA	95128	USA	408-207-0700	408-557-8312	tnguyen@si-bone.com		100
Spinal Elements, Inc.	Niki	Crawford	2744 Loker Avenue West, Suite 100	Carlsbad	CA	92010	USA	760-607-1827	760-607-0125	ncrawford@spinalements.com		602
Spine Wave	Ginny	Corraro	3 Enterprise Drive, Suite 210	Shelton	CT	6484	USA	203-712-1898	203-944-9493	gcorraro@spinewave.com		306
SpineGuard	Kristi	Vita	1388 Sutter Street, Suite 510	San Francisco	CA	94109	USA	415-512-2500	415-512-8004	k.vita@spineguard.com		216
Spineology Inc.	Shari	Boeckman	7800 3rd Street North, Suite 600	St. Paul	MN	55128	USA	651-256-8509	651-256-8505	sboeckman@spineology.com		414
Stryker	Amy	Mumby	4100	Kalama	MI	490	USA	269-	26	amy.mumby@stryker.com		30

		y	East Milham Avenue	zoo		01		323- 7700 x3592	9- 32 4- 54 84	om		1
TeDan Surgical Innovati ons	Terry	Herna ndez	11333 Chimney Rock Road, Suite 180	Houston	TX	770 35	USA	713- 726- 0886	71 3- 72 6- 08 46	thernandez@tedansurg ical.com		60 7
Titan Spine	Andr ew	Sheph erd	6140A West Executive Drive	Mequon	WI	530 92		(734) 213- 2181		ashepherd@titanspine. com		31 9
Transcor p Spine	Chris tine	Moley	1000 100th Street, Suite F	Byron Center	MI	493 15		616- 855- 5375		christine@transcorpspi ne.com		51 9
ulrich medical ® USA	Erik	Pille	612 Trade Center Boulev ard	Chester field	MO	630 05	USA	636- 519- 0268	63 6- 51 9- 02 71	e.pille@ulrichmedicalu sa.com		20 5
Vertebr al Technol ogies, Inc.	JaNa hn	Willia ms	5909 Baker Road, Suite 550	Minnet onka	MN	553 45	USA	952- 979- 9353	95 2- 91 2- 54 10	jwilliams@vti- spine.com		51 5
Zimmer Spine	Meg an	Radem acher	7375 Bush Lake Road	Minnea polis	MN	554 39	USA	952- 830- 6259	95 2- 83 7- 68 59	megan.rademacher@zi mmer.com		31 5
Zyga Technol ogy, Inc.	Susa n	Vnouc ek	700 10th Avenue South, Suite 20	Minnea polis	MN	554 15		612- 455- 1061x1 11		svnoucek@zygatech.co m		60 6

From: Hoh, Daniel J <Daniel.Hoh@neurosurgery.ufl.edu>
To: Mike Groff (mgroff@mac.com) <mgroff@mac.com>; mgroff <mgroff@partners.org>; vmum <vmum@aol.com>; joseph.cheng <joseph.cheng@Vanderbilt.Edu>; Charleskuntz <Charleskuntz@yahoo.com>; jhurlber <jhurlber@ucalgary.ca>; Jack Knightly <jknightly@atlanticneurosurgical.com>; Shaffrey, Chris I *HS (<CIS8Z@hscmail.mcc.virginia.edu> (<CIS8Z@hscmail.mcc.virginia.edu>); rhaid <rhaid@atlantabrainandspine.com>; Mike Wang (<MWang2@med.miami.edu> (<MWang2@med.miami.edu>); Shaffrey (<cis8z@virginia.edu> (<cis8z@virginia.edu>
Cc: Hoh, Daniel J <Daniel.Hoh@neurosurgery.ufl.edu>
Sent: Thu, Oct 10, 2013 11:58 am
Subject: Spine Section Exhibits update

Gentleman,

I wanted to give an update before the EC meeting in SF.

Positively, we are tracking on target compared to last year at 5 months before the annual meeting. We have yet to receive any payment for exhibits from Medtronic and Globus. If they purchase the same island booths they consistently have in past years, we will be slightly ahead of where we were at this point last year. (see table below -- the 2014 numbers do not include Medtronic or Globus). I have reached out to both of them today re: this -- and would appreciate any additional push from any senior members.

With regards to educational grants -- the requests have been submitted at the roughly 5% increase compared to previous years as we had discussed, and are under committee review by the companies. In previous years, we have heard back on educational grants in November and December -- and we are awaiting their response. The CNS development office did say though that they received their ed grants even later than usual this year (for example, they are still waiting on DepuySynthes' grant for the CNS meeting).

All in all, we are more or less tracking on target with about 5 months before the meeting. We should target to have our exhibit sales and ed grants shored up at least 1 - 2 months before the meeting.

If any have further suggestions or recommendations please let me know. I won't be at NASS but I'll be at CNS. Thanks, Dan

	21 Weeks Out	21 Weeks Out	21 Weeks Out
2014 DSPN Weeks Out Sales Report	2014	2013	2012
Meeting Dates	March 5-8	March 6-9	March 7-10
Total Booth Space Sold	\$98,000	\$126,000	\$157,800
Total Payment Received	\$98,000	\$126,000	\$157,800
Total Square Feet	2600	3500	4300
Total NEW Exhibitors	1	0	3
Total Exhibitors	17	20	26
Total Island Exhibitors	1	2	2
Total Exhibit Revenue + Cancellations and Reductions	\$98,000	\$126,000	\$157,800

Agenda Item 5e:

Scientific Program

-----Original Message-----

From: Lisa J. O'Brien <ljo@1CNS.ORG>

To: Michael Y. Wang <mwang2@med.miami.edu>

Cc: Michael Groff (mgroff@mac.com) <mgroff@mac.com>; vmum <vmum@aol.com>; Deanne L. Starr <dls@1CNS.ORG>; Regina N. Shupak <rns@1CNS.ORG>; Julie Ducey <jad@1CNS.ORG>

Sent: Mon, Sep 30, 2013 7:46 am

Subject: DSPN Abstract Update

Dear Dr. Wang,

As of this morning, we have 294 abstract submissions. This compares to 258 last year and 299 in 2012. If it is OK with you, we will close the abstract center today at 12:00pm Central Time.

Attached is the email that we intend to send to the SPC members that you have identified as graders. We plan to open grading on October 2nd and close it on October 11th. We will then be able to send you the grading data prior to your scheduled SPC/Selection Meeting on Sunday, October 20th at 1:30 pm in Sierra I at the Marriott Marquis.

Can you let me know if you would like all reviewers to grade all abstracts or would you would like to split the committee into groups? Last year Dr. Knightly split the group in ½ and divided the abstracts among the two groups.

Thanks,

Lisa

Lisa O'Brien
Senior Meeting Planner
Congress of Neurological Surgeons
10 North Martingale Road, Suite 190
Schaumburg, IL 60173
Phone: 847-240-2500
Fax: 847-240-0804
Mail to: ljo@1cns.org
Visit us on line at: www.cns.org

Dear Dr. **LAST NAME:**

On behalf of Dr. Michael Wang, Scientific Program Chairperson, you have been invited to participate in the grading of the abstracts submitted for the 2014 AANS/CNS Section on Disorders of the Spine and Peripheral Nerves Annual Meeting, March 5-8, 2014.

Please confirm your acceptance or let us know if you are unable to accept this invitation by logging into the CNS Faculty Services Center, no later than **Wednesday, October 2** at <http://faculty.cns.org>. Your username is **USERNAME** and password is **PASSWORD**. For your participation as an abstract reviewer, we require that you complete the conflict of interest disclosure.

The abstracts will become available for review on **Wednesday, October 2**. When they are ready, we will send you instructions on how to access the Abstract Reviewer site. The review must be complete by **Friday, October 11** so that the results can be tabulated prior to the Scientific Planning Committee Meeting in San Francisco, California on **Sunday, October 20**.

If you have any questions or concerns, please let us know.

Thank you.

ABSTRACT REVIEWS

From: vmum@aol.com [mailto:vmum@aol.com]
Sent: Saturday, October 12, 2013 11:03 AM
To: las@aans.org; mgroff@mac.com; jhurlber@ucalgary.ca; charleskuntz@yahoo.com
Cc: amandapacia@sbcglobal.net; waltersj@neurosurg.ucsf.edu
Subject: Re: AANS - Selecting Abstract Reviewers for Spine/Peripheral Nerve abstracts

Leslie

last year we had a great group

probably many from the prior list will return this year to volunteer

I will put on our section meeting agenda and discuss with mike groff

thanks

praveen

Praveen V. Mummaneni, M.D.
Professor and Vice-Chairman
Dept. of Neurosurgery, University of California at San Francisco
Co-Director: UCSF Spine Center

Secretary: AANS-CNS Joint Section - Spine and Peripheral Nerves

-----Original Message-----

From: Leslie A. Smith <las@aans.org>
To: Dr. Groff <mgroff@mac.com>; jhurlber <jhurlber@ucalgary.ca>; Pm <vmum@aol.com>;
charleskuntz <charleskuntz@yahoo.com>
Sent: Fri, Oct 11, 2013 2:36 pm
Subject: AANS - Selecting Abstract Reviewers for Spine/Peripheral Nerve abstracts

Good afternoon everyone.

I hope all is going well. The 2013 AANS Annual Scientific Meeting abstract collection process is well underway and we are hoping for another record breaking year. The 2013 Scientific Program Committee would like each Section Chair to submit a list of members from your section to review the Spine/Peripheral Nerve abstracts.

For the Spine/Peripheral Nerve Section we expect to receive about 200 abstracts and we will need a total of 20-25 reviewers. We will set up the review system this year so one person will not review more than 80 abstracts. Below you will find members who have either reviewed abstracts in 2012 and/or 2013. I have also attached the Spine/Peripheral Nerve Section membership listing so you have more options.

If at all possible, please have this as an agenda item to discuss during your Executive Committee during CNS and submit the names to me no later than Wednesday, October 23rd.

Please let me know if you have any questions. Have a great day.

[Spine/Peripheral Nerve Abstract Reviewers from 2012 and/or 2013](#)

Peter Angevine

Joseph Cheng

John Chi

Zoher Ghogawala

Michael Groff

Pat Jacobs

Adam Kanter

Frank LaMarca

Allen Maniker

Matthew McGirt

Praveen Mummaneni

Charles Sansur
Dan Scuibba
Christopher Shaffrey
Robert Spinner
Michael Steinmetz
Karin Swartz
Luis Tumialan
Juan Uribe
Michael Wang
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**Spine/Peripheral
Nerve Section
Roster**

Join Date	Name
9/10/2004	Oran S. Aaronson, MD, FAANS
1/1/2009	Khalid Mohmud Abbed, MD FAANS
2/1/1999	M. Samy Abdou, MD, FAANS
6/1/1998	Jafri Malin Abdullah, MD PhD
1/1/2013	Saad R. Hamdan Abdullah, MD
5/1/2012	Georges Abi Lahoud, MD MS MSc
1/1/1990	Adnan Adib Abila, MD, FAANS
1/1/1999	Daniel J. Abrams, MD, FAANS(L)
8/1/1995	Alberto Abreu-Rivera, MD, FAANS(L)
2/14/2001	Bret B. Abshire, MD, FAANS

1/1/1995	Alfredo Vasquez Abundo, Jr., MD
1/1/1999	Pablo J. Acebal, MD, FAANS
1/1/2009	Carlos Acosta, MD, FAANS(L), FACS
6/27/2006	Frank L. Acosta, Jr., MD
5/1/1995	Mark S. Adams, MD, FAANS
4/30/2001	David E. Adler, MD, FAANS
1/1/1998	Cynthia Zane Africk, MD, FAANS, FACS
1/1/1994	Charles B. Agbi, MD, FAANS, FRCSC
1/1/2009	Jose A. Aguilar, MD, FAANS(L)
1/1/2013	Eissa Ahmed, MD
2/1/1999	Edward W. Akeyson, MD, PhD, FAANS
1/1/2013	Masahiko Akiyama, MD
1/21/2011	Jacob Daniel Alant, MD, FAANS, FRCSC
5/1/1994	Faisal J. Albanna, MD, FAANS, FACS
11/1/1993	Anthony M. Alberico, MD, FAANS
1/1/1998	Tord D. Alden, MD, FAANS
3/1/1995	E. Francois Aldrich, MBChB MMED FCS
11/1/1993	Joseph T. Alexander, MD, FAANS
12/1/1998	Todd D. Alexander, MD, FAANS
2/1/1996	L. Willis Allen, MD
6/23/2008	Ghanem Al-Sulaiti, MD
1/1/1996	Eric M. Altschuler, MD, FAANS, FACS
2/1/1999	Jaime A. Alvarez, MD, FAANS
9/1/1991	Antonio Alvarez-Berdecia, MD, FAANS(L), FACS
1/1/1996	James Michael Alvis, MD, FAANS, FACS
1/1/1992	Michael Albert Amaral, MD, FAANS, FACS
6/1/1997	Victor T. Ambruso, MD, FAANS(L), FACS
3/23/2006	Shapur A. Ameri, MD, FAANS
2/12/2007	Beejal Y. Amin, MD
3/23/2006	Constantino Y. Amores, MD, FAANS(L)
1/1/2009	Lloyd S. Anderson, MD, FAANS(L), FACS
1/1/2009	Jim D. Anderson, MD, FAANS(L)
3/7/2002	Mark E. Anderson, MD, FAANS
3/1/1997	James S. Anderson, MD, FAANS
6/1/1994	Jorge Angel, MD, FAANS(L)
12/1/1989	Lee V. Ansell, MD, FAANS
2/1/1999	Rein Anton, MD, PhD, FAANS
1/1/2009	Ronald I. Apfelbaum, MD, FAANS(L)

1/1/1997	Paul J. Apostolides, MD, FAANS
7/1/1999	Arthur G. Arand, MD, FAANS
7/1/1991	Roberto J. Aranibar, MD, FAANS
1/1/1994	Carlos A. Arce, MD, FAANS
1/1/1996	Rex E. H. Arendall II, MD, FAANS, FACS
1/5/2000	Perry Argires, MD, FACS
1/1/2009	Thomas J. Arkins, MD, FAANS
10/1/1993	Paul M. Arnold, MD, FAANS, FACS
3/1/1990	Elaine J. Arpin, MD, FAANS(L)
7/21/2004	Gustavo J. Arriola, MD, FAANS
2/8/2010	Farbod Asgarzadie, MD FAANS
4/1/1991	Richard H. Ashby, MD, FAANS(L)
2/1/1999	Ely Ashkenazi, MD
12/1/1998	Augusto G. Asinas, MD
3/30/2004	Donald P. Atkins, MD, FAANS, FACS
1/1/1994	Anthony M. Avellanosa, MD
8/28/2008	Jose Avila-Ramirez, MD, FAANS
3/17/2008	Deepak Awasthi, MD, FAANS, FACS
1/1/1996	Charles Jules Azzam, MD, FAANS
1/1/1996	Parviz Baghai, MD, FAANS
2/8/2010	Carlos A. Bagley, MD, FAANS
1/1/2009	Roger Calingo Baisas, MD, FAANS(L)
1/1/1994	Jamie L. Baisden, MD, FAANS
11/1/1991	Roy Powell Baker, MD, FAANS
1/1/2009	Robert L. Baker, MD, FAANS(L)
1/1/2009	Hillel Baldwin, MD, FAANS
3/1/1993	Nevan G. Baldwin, MD, FAANS, FACS
10/1/1993	Gene A. Balis, MD, FAANS, FACS
2/1/1997	Perry A. Ball, MD, FAANS, FACS
1/1/2009	Timir Banerjee, MD, FAANS(L)
1/1/1999	Kurt D. Bangerter, MD
1/1/2009	Safwan Barakat, MD, FAANS, FACS
1/1/2009	James E. Barnes, MD, FAANS(L)
1/1/2009	H. Glenn Barnett II, MD, FAANS(L), FACS
3/23/2006	Giancarlo Barolat, MD, FAANS
1/17/2008	Christopher J. Barry, MD
1/1/1995	Adib H. Barsoum, MD, FAANS(L)
2/28/2007	Ronald H. M. A. Bartels, MD PhD

7/1/1999	Lynn Margaret Bartl, MD, FAANS
5/5/2000	Juan C. Bartolomei, MD, FAANS
2/1/1997	David S. Baskin, MD, FAANS, FACS
1/1/2009	Ulrich Batzdorf, MD, FAANS(L)
2/1/1997	Jerry Bauer, MD, FAANS
1/1/2009	Robert A. Beatty, MD, FAANS(L), FACS
6/1/1997	Philip C. Bechtel, MD
1/1/1995	David W. Beck, MD, FAANS
1/1/1994	Mohamed Y. I. Beck, MD, FAANS
1/1/2013	Steven Joseph Beer, MD, FAANS
1/1/1996	Donald L. Behrmann, MD, PhD, FAANS
3/1/1996	Carl J. Belber, MD, FAANS(L)
1/1/2009	Herbert S. Bell, MD, FAANS(L)
1/1/1990	Roberto B. Bellegarrigue, MD, FAANS(L), FACS
3/10/2008	J. Bradley Bellotte, MD, FAANS
3/1/1995	Allan J. Belzberg, MD, FAANS
1/1/2009	Vallo Benjamin, MD, FAANS(L)
1/1/2009	Benjamin G. Benner, MD, FAANS
12/1/1989	Gregory J. Bennett, MD, FAANS
1/1/2009	Edward C. Benzel, MD, FAANS
1/6/2000	Thomas A. Bergman, MD, FAANS
1/1/1995	Richard Alan Berkman, MD
12/1/1994	Lee Berlad, MD
2/1/1995	Robert J. Bernardi, MD
2/1/1995	Aldo Francisco Berti, MD, FAANS, FACS
4/14/2010	Bryan Bertoglio, MD
1/31/2000	William B. Betts, MD, FAANS
1/1/1998	William J. Beutler, MD, FAANS, FACS
1/1/2009	Yashwant Bhandari, MD
1/1/1998	Mark H. Bilsky, MD, FAANS
5/10/2006	Rajesh K. Bindal, MD, FAANS
12/1/1993	Nancy E. Binter, MD, FAANS(L)
1/1/1997	Barry D. Birch, MD
1/1/2009	Ronald Birkenfeld, MD, FAANS(L)
1/1/2009	Erica F. Bisson, MD, FAANS
12/1/1995	Roy W. Black
3/1/1996	James Blair Blankenship, MD, FAANS, FACS
3/11/2009	David R. Blatt, MD, FAANS

1/1/2009	Gary M. Bloomgarden, MD, FAANS, FACS
1/1/2009	Horst G. Blume, MD
1/1/2009	Bennett Blumenkopf, MD, FAANS, FACS
1/1/2013	Maxwell Boakye, MD, FAANS
10/14/2002	Robert J. Bohinski, MD, PhD, FAANS
1/14/2000	Michael F. Boland, MD, FAANS
1/1/2009	Eugene A. Bonaroti, MD, FAANS, FACS
12/1/1994	John T. Bonner, MD, FAANS(L)
1/1/2013	Jonathan A. Borden, MD, FAANS, FACS
1/1/2009	Lawrence F. Borges, MD, FAANS
8/7/2008	Duccio Boscherini, MD PhD
1/1/2009	Bikash Bose, MD, FAANS, FACS
1/1/1994	Magdy I. Boulos, MD, FAANS
1/1/1996	Thomas R. Boulter, MD, FAANS(L)
4/1/1998	Samuel R. Bowen II, MD, FAANS
1/1/2009	Charles L. Branch, Jr., MD, FAANS
4/1/1998	Gregory A. Brandenburg, MD PhD
9/1/1995	Jimmy C. Brasfield, MD, FAANS
2/1/1994	Robert S. Bray, Jr., MD, FAANS
1/26/2000	Kerry E. Brega, MD
1/24/2000	James J. Brennan, MD, FAANS
1/22/2000	Rudy P. Briner, MD, FAANS
1/1/2009	Anthony L. Brittis, MD, FAANS(L)
1/1/2009	Mario Brock, MD
1/22/2001	Richard W. Broderick, MD, FAANS
6/27/2006	Nathaniel P. Brooks, MD
1/1/2009	Frederick D. Brown, MD, FAANS(L)
1/1/2009	Willis E. Brown, Jr., MD, FAANS(L)
9/30/2009	Justin M. Brown, MD FAANS
2/1/1995	Neil Brown, MD, PhD, FAANS
12/1/1993	Michael Naldo Bucci, MD, FAANS, FACS
1/1/1999	Martin J. Buckingham, MD, FAANS
1/26/2000	James P. Burke, MD, PhD, FAANS
2/10/2004	Mark G. Burnett, MD, FAANS
3/1/1993	Daniel Bursick, MD, FAANS, FACS
1/18/2001	George T. Burson, MD, FAANS
1/1/2009	Stephen D. Burstein, MD, FAANS(L)
6/27/2006	John Bennett Butler, MD

2/1/1999	David B. Bybee, MD, FAANS, FACS
2/8/2010	Ali Bydon, MD, FAANS
1/1/1994	Robert J. Bye, MD, FAANS(L)
2/1/1996	Edward B. Byrd, MD, FAANS(L)
1/1/2009	Manuel A. Cacdac, MD
10/1/1996	J. Michael Calhoun, MD, FAANS, FACS
12/1/1993	Arnold B. Calica, MD, PhD, FAANS(L)
1/1/1999	James D. Callahan, MD, FAANS
3/1/1993	Travis H. Calvin, Jr., MD, FAANS(L)
3/1/1996	James N. Campbell, MD, FAANS(L)
1/1/2009	D. J. Canale, MD, FAANS(L)
1/1/1995	Isa S. Canavati, MD, FAANS
3/1/1997	Mario Pineda Canlas, MD, FAANS(L)
1/1/1999	Gregory W. Canute, MD, FAANS
1/1/2013	Raul Jose Cardenas III, MD
2/12/2007	Jean-Louis R. Caron, MD, FAANS, FACS
6/23/2008	Larry Van Carson, MD, MBA, FACS, FAANS
4/1/1995	Richard L. Carter, MD, FAANS, FACS
1/1/1997	John R. Caruso, MD, FAANS, FACS
12/1/1993	Ernesto Carvallo-Cruz, MD FACS
1/1/1999	Joseph C. Cauthen, MD, FAANS(L)
9/1/2011	David Cavanaugh, MD, FAANS
2/4/2000	Luis A. Cervantes, MD, FAANS, FACS
1/1/1995	Augusto R. Chavez, MD, FAANS
1/10/2000	Mokbel K. Chedid, MD, FAANS, FACS
1/1/1997	Thomas C. Chen, MD, PhD, FAANS
11/1/1998	Leo W. Cheng, MD
3/1/1993	Randall M. Chesnut, MD, FACS
11/1/1998	Bennie W. Chiles III, MD, FAANS, FACS
3/1/1998	John C. Chiu, MD, FAANS(L)
4/1/1999	Anthony Alfred Chiurco, MD, FAANS(L)
2/1/1994	Paul H. Chodroff, MD, FAANS(L)
5/11/2007	Iqroop Chopra, MD
4/30/2001	Dean Chou, MD FAANS
5/3/2000	Sean D. Christie, MD, FAANS
1/24/2000	Richard V. Chua, MD, FAANS, FACS
12/1/1994	Jonathan S. Citow, MD, FAANS, FACS
12/1/1998	Charles H. Clark III, MD, FAANS

1/1/2009	Ronald D. Clark, MD, FAANS(L)
1/1/2009	Charles B. Clark III, MD
5/15/2000	W. Craig Clark, MD, PhD, FAANS
1/1/1997	Lawrence E. Clark, MD
1/1/2009	Michelle J. Clarke, MD FAANS
1/1/1998	Richard Alan Close, MD, FAANS, FACS
3/1/1993	Craig T. Coccia, MD, FAANS
5/10/2002	Benjamin R. Cohen, MD, FAANS
8/4/2008	Arthur Neil Cole, MD, FAANS, FACS
12/15/2005	Chaim B. Colen, MD, PhD
2/1/1997	Eugene Collins, MD
2/1/1999	Benedict Joseph Colombi, MD, FAANS(L)
1/1/1996	Christopher H. Comey, MD, FAANS
1/1/2012	Enrique Concha-Julio, MD
1/1/2009	Edward S. Connolly, MD, FAANS(L)
6/1/1993	Louis W. Conway, MD, FAANS(L)
7/1/1999	Judson H. Cook, MD, FAANS, FACS
1/1/2009	Wesley A. Cook, Jr., MD, FAANS(L)
1/1/2009	Paul R. Cooper, MD, FAANS(L)
7/12/2006	Domagoj Coric, MD, FAANS
1/5/2000	Gregory Corradino, MD, FAANS
1/1/2009	Walter C. Cotter, MD, FAANS(L)
1/20/2002	Jean-Valery C. E. Coumans, MD, FAANS
1/10/2003	George J. Counelis, MD
2/1/1993	Christopher Covington, MD, FAANS
1/1/1995	Lansing Smith Cowles, MSc, MD, FAANS(L)
6/1/1990	George F. Cravens III, MD, FAANS
1/1/2009	Jeffrey L. Crecelius, MD, FAANS
1/1/2009	John R. Crockarell, MD, FAANS(L)
1/1/2009	Paul D. Croissant, MD, FAANS(L)
1/1/1994	Brian G. Cuddy, MD, FAANS, FACS
2/1/1999	John T. Cummings, Jr., MD, FAANS
1/1/2009	David L. Cunningham, MD, FAANS(L)
5/1/1994	O. Del Curling, Jr., MD, MBA, FAANS(L)
1/1/2009	Joseph F. Cusick, MD, FAANS(L)
11/24/2004	Scott G. Cutler, MD, FAANS
1/1/2009	George R. Cybulski, MD, FAANS, FACS
4/1/1991	Ralph G. Dacey, Jr., MD, FAANS

1/27/2001	Andrew T. Dailey, MD, FAANS
1/1/1996	Mark D. D'Alise, MD, FAANS, FACS
5/1/1995	Stephen J. Dante, MD, FAANS
2/1/1999	Kaushik Das, MD, FAANS
6/1/1992	Arthur Steven Daus, MD, FAANS(L)
7/1/1999	Larry S. Davidson, MD, FAANS
6/1/1991	Jordan K. Davis, MD, FAANS(L)
1/1/2009	Arthur L. Day, MD, FAANS, FACS
1/1/2009	David F. Dean, MD, FAANS(L)
1/1/2009	H. Gordon Deen, Jr., MD, FAANS
3/1/1994	Stephen O. Dell, MD, FAANS(L)
6/1/1997	Alain C. J. de Lotbiniere, MD, FAANS, FACS
10/4/2007	Jesus Ramiro Del Valle Robles, MD, FAANS
10/1/1993	Peter K. Dempsey, MD, FAANS
1/1/2009	Ryan P. Den Haese, MD, FAANS
1/4/2008	Vinay Deshmukh, MD, FAANS
2/1/1997	Alonso Luis De Sousa, MD
1/1/1998	Paul W. Detwiler, MD, FAANS
2/8/2010	Ara Jason Deukmedjian, MD, FAANS
1/1/2013	Sheri Dewan, MD
10/1/1990	Fernando G. Diaz, MD, PhD, FAANS
11/1/1991	Phillip S. Dickey, MD, FAANS
3/1/1993	Curtis A. Dickman, MD, FAANS
1/1/1995	Robert E. Dicks III, MD, FAANS(L)
1/1/1994	Donald D. Dietze, MD, FAANS
1/1/2009	James D. Dillon, MD, FAANS
7/1/1991	Dzung H Dinh, MD, FAANS, FACS
3/30/2004	Arthur J. DiPatri, Jr., MD, FAANS
2/1/1999	Darryl J. Dirisio, MD, FAANS
1/1/1991	David A. Ditsworth, MD
1/1/1996	A. Allan Dixon, MD, FAANS
12/1/1993	William R. Dobkin, MD, FAANS
1/1/2009	George J. Dohrmann, MD, PhD, FAANS
1/23/2004	Devanand A. Dominique, MD, FAANS
1/1/2009	Ronald J. Donaldson, MD
2/26/2003	Jose Dones-Vazquez, MD, FAANS
1/5/2000	Daniel Joseph Donovan, MD, FAANS
1/1/1990	Terence Peter Doorly, MD, FAANS, FACS

6/27/2006	Andrea F. Douglas, MD, FAANS
3/1/1993	Richard A. Douglas, MD, FAANS, FACS
1/1/2009	Aiden J. Doyle, MD, FAANS(L)
3/9/2004	James M. Drake, MD, FAANS, MSc, FRCS
1/1/2009	Jose G. Duarte, MD
1/1/1998	Luis E. Duarte, MD, FACS
1/1/2009	Thomas B. Ducker, MD, FAANS(L)
1/1/1992	Kent R. Duffy, MD, FAANS
10/20/2005	Scott C. Dulebohn, MD, FAANS
1/1/1996	Scott T. Dull, MD, FAANS, FACS
2/15/2001	Jack Hibbard Dunn, MD, FAANS
1/1/1995	Robert J. Dunn, MD
1/1/2009	Stewart B. Dunsker, MD, FAANS(L)
2/1/1994	James Frederick Dupre, MD, FAANS(L)
6/7/2007	Catalino D. Dureza, MD, FAANS
3/1/1993	Andrievs J. Dzenitis, MD, FAANS(L)
1/1/1997	Calvin B. Early, MD, PhD, FAANS(L)
1/1/1995	James M. Ecklund, MD, FAANS, FACS
1/1/2009	Fredric L. Edelman, MD, FAANS(L)
1/1/1998	Alan Stewart Edelman, MD, FAANS
1/1/2009	James Egnatchik, MD, FAANS, FACS
12/1/1998	Eldan B. Eichbaum, MD, FAANS
1/29/2007	Kurt M. Eichholz, MD, FAANS
6/20/2006	Marc E. Eichler, MD, FAANS
2/1/1999	Nasser M. F. El-Ghandour, MD
10/30/2005	Sam Eljamel, MD FRCS
10/1/1993	Richard G. Ellenbogen, MD, FAANS, FACS
10/2/2000	J. Paul Elliott, MD, FAANS
5/16/2007	Eric H. Elowitz, MD, FAANS
1/1/1997	Henry J. Elsner, MD, FAANS, FACS
1/1/2009	Harry P. Engel, MD, FAANS(L)
10/1/1992	Jerry Engelberg, MD, FAANS(L)
1/1/1995	David J. Engle, MD, FAANS, FACS
10/1/1990	Douglas M. Enoch, MD, FAANS(L)
1/1/2009	Nancy Epstein, MD, FAANS, FACS
1/1/2009	Marco T. Eugenio, MD, FAANS(L)
12/1/1993	Bruce A. Everett, MD, FAANS(L)
1/1/2009	Charles A. Fager, MD, FAANS(L)

6/1/2012	Daniel K. Fahim, MD
5/23/2009	Walter J. Faillace, MD, FAANS, FACS
1/1/1994	William Brenton Faircloth, MD, FAANS
1/1/2009	Asdrubal Falavigna, MD PhD
1/26/2000	Thomas B. Falloon, MD, FAANS
2/1/1994	Jacques N. Farkas, MD, FAANS, FACS
1/1/2009	Albert W. Farley, MD, FAANS(L)
2/1/1997	Nasrollah Fatehi, MD, FAANS
4/1/1993	Mahmood Fazl, MD
5/1/1992	Michael G. Fehlings, MD, PhD, FAANS, FRCS
3/1/2001	Frank Feigenbaum, MD, FAANS
1/1/1995	Joel A. Feigenbaum, MD, FAANS(L)
12/1/1998	James R. Feild, MD, FAANS
4/1/1991	John A. Feldenzer, MD FACS
1/1/1998	Francis M. Fennegan, MD, FAANS(L), FACS
8/4/2008	Francis T. Ferraro, MD, FAANS, FACS
6/1/1990	Richard G. Fessler, MD, PhD, FAANS
1/1/2009	Henry Feuer, MD, FAANS(L)
5/23/2009	Massimo S. Fiandaca, MD, MBA, FAANS(L)
2/1/1992	E. Malcolm Field, MD, FAANS(L)
5/11/2007	Santiago De Jesus Figuereo, MD, FAANS
2/1/1999	Aaron G. Filler, MD, PhD, FAANS
3/1/1992	Frederick E. Finger III, MD, FAANS
12/1/1993	James E. Finn, MD, FAANS(L)
1/1/2009	Michael A. Finn, MD
1/1/2009	Howard Lee Finney, MD
2/19/2002	Amory J. Fiore, MD, FAANS
1/1/2009	Robert T. Fitzgerald, MD, FAANS(L)
2/15/2001	Brian C. Fitzpatrick, MD, FAANS
1/3/2000	Robert E. Flandry, Jr., MD, FAANS(L)
1/1/2009	Thomas B. Flynn, MD, FAANS(L)
1/1/1992	Kevin T. Foley, MD, FAANS
5/27/2003	Mina Foroohar, MD, FAANS, FACS
5/1/2005	Daryl R. Fourney, MD, FAANS, FRCSC
9/21/2001	Wesley C. Fowler III, MD, FAANS
3/7/2008	Douglas John Fox, Jr., MD, FAANS
4/30/2001	Andrew Fox, MD
2/1/1997	Robert H. Fox, MD

1/1/1995	Mark W. Fox, MD, FAANS, FACS
1/1/1996	Paul C. Francel, MD, PhD, FAANS(L)
10/31/2008	Todd Brendon Francis, MD PhD
12/1/1995	Joel Ira Franck, MD, FAANS
7/14/2009	Patrick Peter Alexandre Fransen, MD
2/8/2010	Dirk G. Franzen, MD, FAANS
12/1/1992	Lawrence J. Frazin, MD, FAANS(L), FACS
2/2/2006	Craig A. Fredericks, MD, FAANS
4/1/1990	Richard E. Freeman, MD, FAANS(L)
1/1/2009	Stephen R. Freidberg, MD, FAANS(L)
7/13/2004	Anthony K. Frempong-Boadu, MD, FAANS
1/1/2009	Barry N. French, MD, FAANS(L)
5/1/1999	Kathleen B. French, MD, FAANS
8/1/1998	Marc H. Friedberg, MD, PhD, FAANS
12/1/1994	Allan H. Friedman, MD, FAANS, FACS
7/1/1996	Phillip Friedman, MD, FAANS, FACS
1/1/1998	Michael D. Fromke, MD, FAANS
1/1/1998	Stanley W. Fronczak, MD, JD, FAANS, FACS
11/28/2007	Kai-Ming Fu, MD
1/1/1994	Kimball S. Fuiks, MD, FAANS
1/1/1994	Thomas Duane Fulbright, MD, FAANS
1/1/1997	Michael R. Gallagher, MD, FAANS
1/1/1991	Daniel D. Galyon, MD, FAANS, FACS
1/1/2009	Edward O. Gammel, MD
5/1/1992	Yogesh N. Gandhi, MD
1/26/2000	Aruna Ganju, MD, FAANS
2/1/1996	William F. Ganz, MD, FAANS, FACS
2/1/1999	Jason E. Garber, MD, FAANS
1/1/1999	Javier Garcia-Bengochea, MD, FAANS
7/13/2004	Stephen R. Gardner, MD, FAANS, FACS
7/1/1999	Lloyd M. Garland, MD, FAANS(L)
1/1/1999	Wallace K. Garner, MD, FAANS(L)
1/1/1996	John Joseph Gartman, Jr., MD FAANS
4/15/2002	Marilyn L. G. Gates, MD, FAANS
1/1/2009	Lynn M. Gaufin, MD, FAANS
1/1/1996	Guy Frank Gehling, MD
1/1/2009	Fred H. Geisler, MD, PhD, FAANS
7/8/2010	Mikhail S. Gelfenbeyn, MD PhD

1/20/2002	Mark B. Gerber, MD, FAANS
3/9/2004	Mark S. Gerber, MD FAANS
2/23/2007	John W. German, MD, FAANS
2/1/1999	Peter C. Gerszten, MD, MPH, FAANS
2/1/1999	Ramsis F. Ghaly, MD, FAANS, FACS
2/1/1999	Abdi S. Ghodsi, MD, FAANS
1/26/2000	Sanjay Ghosh, MD, FAANS
1/1/2012	Samer S. Ghostine, MD
2/1/1992	Peter G. Gianaris, MD, FAANS
10/1/1993	Kevin J. Gibbons, MD, FAANS, FACS
3/13/2000	Scott Randall Gibbs, MD, FAANS, FACS
1/1/1997	Michael Gieger, MD, FAANS
12/1/1993	F. Gary Gieseke, MD FACS
1/1/2009	Philip L. Gildenberg, MD, PhD, FAANS(L)
1/1/2009	Garrett G. Gillespie, MD, FAANS(L)
1/27/2001	Arthur M. Gilman, MD, FAANS
2/1/1999	Holly S. Gilmer, MD, FAANS
1/1/2009	Arun R. Ginde, MD
2/1/1994	Narni R. Giri, MD, FAANS(L)
1/1/2009	Franz E. Glasauer, MD, FAANS(L)
12/1/1993	Andrew S. Glass, MD, FAANS, FACS
1/1/1998	Ryan S. Glasser, MD, FAANS
2/7/2006	P. Langham Gleason, MD, FAANS
5/23/2009	Wayne M. Gluf, MD, FAANS
1/1/2009	John C. Godersky, MD, FAANS(L)
1/1/1998	Ziya L. Gokaslan, MD, FAANS, FACS
4/1/1991	Gerald Nathan Gold, MD, FAANS(L)
12/1/1998	Mark A. Gold, MD, FAANS, FACS
2/1/1994	Robert P. Goldfarb, MD, FAANS(L), FACS
2/1/1994	Marc S. Goldman, MD, FAANS
2/12/2007	Ira M. Goldstein, MD, FAANS
1/1/2009	Stephen I. Goldware, MD, FAANS(L), FACS
2/1/1997	Francisco Bras Gomes, MD
1/1/1994	Heldo Gomez, Jr., MD, FAANS
7/1/1999	Gabriel A. Gonzales-Portillo, MD, FAANS, FACS
1/1/2009	Salvador Gonzalez-Cornejo, MD, FAANS(L)
1/1/1998	Jack Goodman, MD, FAANS(L)
1/1/2009	James T. Goodrich, MD, PhD, FAANS

6/1/1990	Isaac Goodrich, MD, FAANS(L)
3/1/1996	Camilo A. Gopez, MD
3/1/1997	Paul L. Gorsuch, Jr., MD, FAANS
1/1/2009	C. Thomas Gott, MD, FAANS(L)
2/1/1997	Ravindra N. Goyal, MD, FAANS(L), FACS,FRCS(Eng),
2/1/1992	M. Sean Grady, MD, FAANS
1/1/2009	Robert Scott Graham, MD, FAANS
4/24/2007	Lance Eugene Gravely, MD, FAANS
1/1/2009	Jonathan Greenberg, MD, FAANS
1/1/2009	Richard P. Greenberg, MD, PhD, FAANS(L)
1/1/2009	Jerry H. Greenhoot, MD, FAANS(L)
1/1/1991	Kent Grewe, MD
3/23/2006	Peter J. Grillo, MD, FAANS(L), FACS
1/1/2009	Oliver D. W. Grin, MD, FAANS(L)
1/14/2000	Jeffrey D. Gross, MD, FAANS
8/21/2001	Robert L. Grubb, Jr., MD, FAANS(L)
11/5/2007	David P. Gruber, MD, FAANS
1/1/2009	Robert Arthur Gruesen, MD
1/10/2003	George Gruner, MD, FAANS(L)
2/1/1994	Martin E. Gryfinski, MD, FAANS
1/1/2009	Cesar E. Guerrero, MD, FAANS
1/12/2000	Bernard H. Guiot, MD, FAANS
2/12/2007	William C. Gump, MD
3/1/2004	Kern H. Guppy, MD, PhD, FAANS
12/1/1994	Gustavo A. Gutnisky, MD, FAANS(L)
6/25/2008	Stephen Matthew Gutting, MD, FAANS
3/1/1994	Mehdi Habibi, MD
1/1/2009	John E. Hackman, MD, FAANS(L)
11/1/1993	Souheil F. Haddad, MD, FAANS
2/1/1992	Mark N. Hadley, MD, FAANS, FACS
3/30/2004	Harold Bruce Hamilton, MD, FAANS
5/30/2001	Fadi Hanbali, MD
1/1/2013	Amgad Saddik Hanna, MD FAANS
1/1/2009	Robert R. Hansebout, MD, FAANS(L)
6/1/1999	Ernest Jerome Hanson, MD, FAANS(L)
1/1/1998	Kimberly S. Harbaugh, MD, FAANS
1/1/2009	Russell W. Hardy, Jr., MD, FAANS(L)
9/1/1999	Ira May Hardy II, MD, FAANS(L)

4/1/1991	Haynes Louis Harkey III, MD, FAANS
1/26/2000	Raymond I. Haroun, MD, FAANS
1/1/2009	Timothy Harrington, MD, FAANS(L)
8/1/1994	J. Frederick Harrington, Jr., MD, FAANS
1/1/2013	Frederick Bernard Harris, MD FAANS
2/1/1999	James S. Harrop, MD, FAANS
2/17/2005	David J. Hart, MD, FAANS
5/1/2005	Roger Hartl, MD, FAANS
4/1/1995	Charles S. Haworth, MD, FAANS
1/1/1994	Shaukat Hayat, MD
7/1/1991	Gale Hazen, MD, FAANS
7/1/1997	Michael A. Healy, MD, FAANS
11/1/1995	Robert F. Heary, MD, FAANS
1/21/2011	Marie-Noelle Hebert-Blouin, MD
2/1/1999	Ian M. Heger, MD, FAANS
3/1/1993	John D. Heiss, MD, FAANS
1/1/1995	Jeffrey Heitkamp, MD, FAANS
1/1/2009	Javad Hekmatpanah, MD, FAANS(L)
1/1/2013	Joshua E. Heller, MD
1/1/1995	Fredric A. Helmer, MD, FAANS(L)
1/1/2009	John P. Henderson, MD, FAANS(L)
3/1/1993	Fraser C. Henderson, MD, FAANS
2/28/2002	Jeffrey S. Henn, MD, FAANS
1/1/2009	Robert G. Hennessy, MD, FAANS(L)
1/1/1997	Deborah C. Henry, MD, FAANS
12/1/1994	James M. Herman, MD, FAANS
3/1/1996	Martin D. Herman, MD, PhD, FAANS
11/1/2011	Diego Aldo Hernandez, MD
1/1/1996	T. William Hill, MD, FAANS
3/26/2003	Donald L. Hilton, Jr., MD, FAANS
1/1/2013	Yoshitaka Hirano, MD
1/1/1999	James R. Hirsch, MD, FAANS
1/1/1995	Leonard F. Hirsh, MD, FAANS(L)
4/1/1994	Michael H. Hitchcock, MD, FAANS(L)
1/1/2009	Patrick W. Hitchon, MD, FAANS
8/26/2004	Philip J. Hlavac, MD, FAANS
2/3/2000	Hector W. Ho, MD, FAANS
1/1/1999	William F. Hoffman, MD, FAANS(L)

6/27/2006	Daniel Jin Hoh, MD
8/28/2008	Peter O. Holliday III, MD, FAANS
2/8/2006	Peter H. Hollis, MD, FAANS
1/1/2009	Weems O. Hollowell, MD, FAANS(L)
2/1/1994	James P. Hollowell, MD
2/20/2002	Langston T. Holly, MD, FAANS
3/1/1993	Eric K. Holm, MD, FAANS(L), FACS
1/1/2009	Robert S. Hood, MD, FAANS
2/17/2005	Timothy Edward Hopkins, MD, FAANS
1/1/2013	Eric M. Horn, MD, FAANS
1/1/2009	Edgar M. Housepian, MD, FAANS(L)
3/11/2009	Patrick C. Hsieh, MD FAANS
9/1/2012	Wesley Hsu, MD
10/7/2002	Jason H. Huang, MD, FAANS
1/26/2000	Jerry L. Hubbard, MD, FAANS
1/1/2009	William S. Huestis, MD, FAANS(L)
1/1/1995	Matthew K. Hummell, MD, FAANS
1/1/2009	Alan T. Hunstock, MD, FAANS, FACS
1/1/1996	R. John Hurlbert, MD PhD FRCSC FACS
2/1/1995	Gary C. Hutchison, MD, FAANS(L)
2/8/2010	Steven W. Hwang, MD
10/31/2004	Tatsushi Inoue, MD
1/5/2004	Robert E. Isaacs, MD, FAANS
11/23/2004	Dennis M. S. Izukawa, MD
1/26/2000	Avery M. Jackson III, MD, FAANS
2/12/2007	Paul S. Jackson, MD, PhD, FAANS
3/23/2006	Kevin Morgan Jackson, MD, FAANS
1/21/2011	Eric M. Jackson, MD
1/1/2009	Richard Henry Jackson, MD, FAANS
10/1/1993	George B. Jacobs, MD, FAANS(L), FACS
11/1/1997	Line Jacques, MD, FAANS
1/1/1997	Steven M. James, MD, FAANS
1/1/1995	Saied Jamshidi, MD, FAANS
1/1/2009	John A. Jane, Sr., MD, PhD, FAANS(L)
2/1/1996	Tariq Javed, MD, FAANS
10/7/2002	Sam P. Javedan, MD, FAANS
10/3/2007	Andrew H. Jea, MD, FAANS
2/27/2003	Arthur L. Jenkins III, MD, FAANS

1/1/1996	Jeffrey D. Jenkins, MD, FAANS, FACS
1/21/2011	Joseph A. Jestus, MD, FAANS
1/1/2013	David H. Jho, MD
1/1/1994	Hae-Dong Jho, MD, PhD, FAANS
1/1/2012	Jesus Jimenez Sanchez, MD
2/1/1996	Dale K. Johns, MD
1/1/2013	Randall Roy Johnson, MD, PhD, FAANS
1/1/1997	Neil G. Johnson, MD, FAANS
5/1/1993	J. Patrick Johnson, MD, FAANS
3/11/2009	Keyne K. Johnson, MD FAANS
1/1/2009	Michele Marie Johnson, MD FAANS
1/1/2009	Martin Johnson, MD, FAANS(L)
1/1/2009	Robert M. Johnson, MD, FAANS(L)
1/1/1996	Richard William Johnson, MD, FAANS
1/1/1995	John K. Johnson, MD, FAANS(L), FACS
4/30/2001	Stephen H. Johnson, MD, FAANS, FACS
12/3/2003	Kim W. Johnston, MD, FAANS, FACS
12/27/2000	David S. Jones, MD, FAANS
1/1/2009	Ronald R. Jones, MD
1/22/2006	David M. Jones, MD, FAANS
1/1/1998	Mark W. Jones, MD, FAANS
2/1/1996	Jose L. Joy, MD, FAANS
10/1/1997	Terrence D. Julien, MD FAANS
12/1/1994	Patrick Alton Juneau III, MD, FAANS
2/2/2000	Wayel Kaakaji, MD, FAANS
5/1/1996	Christopher D. Kager, MD
5/1/1998	Michael G. Kaiser, MD, FAANS, FACS
6/1/1990	Iain H. Kalfas, MD, FAANS
12/1/1998	Kenneth S. Kammer, MD, FAANS
1/26/2000	Stuart S. Kaplan, MD, FAANS
2/1/1996	Barry J. Kaplan, MD, FAANS
5/1/1996	Dean G. Karahalios, MD, FAANS
6/1/1999	Jeffrey L. Karasick, MD, FAANS(L)
12/1/1998	Michael E. Karnasiewicz, MD, FAANS
1/1/1995	Donald B. Kelman, MD, FAANS(L)
2/1/1996	F. Donovan Kendrick, MD, FAANS
11/1/1990	David G. Kennedy, MD, FAANS
4/1/1991	W. Joseph Ketcherside, MD, FAANS(L)

3/10/2005	Kaveh Khajavi, MD, FAANS, FACS
2/17/2005	Larry T. Khoo, MD
9/1/1999	Houman H. Khosrovi, MD, FAANS
1/1/2013	Helene T. Khuong, MD FRCSC
1/1/1999	Michael P. B. Kilburn, MD, FAANS
3/9/2004	Keun Su Kim, MD
6/27/2006	Keun-Young Anthony Kim, MD, FAANS
1/1/1999	Daniel H. Kim, MD, FAANS, FACS
8/4/2008	Stanley H. Kim, MD, FAANS
2/1/1999	Kee D. Kim, MD, FAANS
1/1/2009	Glenn W. Kindt, MD, FAANS(L)
10/1/1993	Jerome Stovall King, MD, FAANS(L)
3/1/1996	Paul K. King, MD, FAANS
1/19/2000	Joseph T. King, Jr., MD
2/1/1991	Douglas B. Kirkpatrick, MD, FAANS(L)
3/1/1997	Daniel L. Kitchens, MD, FAANS, FACS
1/1/2009	Peter M. Klara, MD, PhD, FAANS
1/1/1994	Enrique Kleriga, MD, FAANS
1/1/2009	A. Bernhard Kliefoth III, MD, FAANS(L)
2/8/2010	Paul Klimo, Jr., MD, FAANS
1/1/2009	David G. Kline, MD, FAANS(L)
1/1/1991	Thomas Klump, MD, FAANS(L)
1/1/1995	John Joseph Knightly, MD, FAANS
11/1/1993	Nachshon Knoller, MD
4/1/1990	David Luke Knox, MD, FAANS
12/1/1993	Robin Frederick Koeleveld, MD, FAANS
12/1/1994	Akinori Kondo, MD
11/27/2007	Tyler Robert Koski, MD, FAANS
10/1/2004	Robert J. Kowalski, MD, FAANS
1/1/1995	Yakov U. Koyfman II, MD
5/1/1997	Louis L. Kralick, MD, FAANS
1/1/2009	Paul W. Kramer, MD, FAANS(L)
8/1/1994	William E. Krauss, MD, FAANS
12/1/1998	William Kraut, MD, FAANS(L), FACS
1/24/2000	M. Adam Kremer, MD
4/1/1996	Mark J. Krinock, MD, FAANS
2/12/2007	Ajit A. Krishnaney, MD, FAANS
10/1/1990	Mark J. Kubala, MD, FAANS(L)

1/1/1998	Yoshichika Kubo, MD DMSc
6/1/1992	Keith R. Kuhlengel, MD, FAANS, FACS
1/1/1997	William B. Kuhn, MD, FAANS
3/7/2006	Rakesh Kumar, MD, FAANS
1/26/2000	Charles Kuntz, MD, FAANS
1/5/2000	Steven P. Kuric, MD, FAANS, FACS
3/9/2004	Sagi M. Kuznits, MD, FAANS
1/1/2009	David A. Kvam, MD, FAANS
1/1/1997	Richard S. Kyle, MD, FAANS(L)
3/30/2004	Frank La Marca, MD, FAANS
1/1/2009	Roderick G. Lamond, MD, FAANS
1/1/2009	James R. La Morgese, MD, FAANS(L)
9/30/2009	John A. Lancon, MD, FAANS
8/1/1999	Michael K. Landi, MD, FAANS, FACS
8/28/2008	Stephan Charles Lange, MD, MS, FAANS, FACS
7/17/2000	Todd Hopkins Lanman, MD, FAANS
1/1/2009	Paul W. Laprade, Jr., MD, FAANS
10/4/2001	Jorge J. Lastra-Power, MD, FAANS, FACS
8/4/2008	John Pershing Latchaw, MD, FAANS
5/1/2012	Ilya Laufer, MD
1/1/1999	Henry E. Laurelli, MD, FAANS(L)
2/1/1996	Carl Lauryssen, MD, FAANS
1/1/2009	Michael H. Lavyne, MD, FAANS(L)
7/1/1999	Edmund P. Lawrence, Jr., MD, FAANS
1/10/2000	Roseanna M. Lechner, MD, FAANS
12/1/1994	Jon T. Ledlie, MD, FAANS
3/1/1996	Sang-Ho Lee, MD PhD
2/12/2007	Sun-ho Lee, MD
1/1/1999	Chin Tai Lee, MD, FAANS(L)
1/1/2009	Bothwell Graves Lee, MD, FAANS
1/5/2001	Sun H. Lee, MD, PhD, FAANS
2/7/2002	Michael A. Lefkowitz, MD, FAANS
1/1/1999	Thomas J. Leipzig, MD, FAANS
4/1/1998	Steven P. Leon, MD, FAANS, FACS
1/26/2000	Michael A. Leonard, MD, FAANS
1/1/2009	Mark C. Lester, MD, FAANS
4/1/1990	Frank Scott Letcher, MD, FAANS(L), FACS
1/1/1995	Marc A. Letellier, MD, FAANS

6/23/2008	Howard B. Levene, MD PhD
1/1/1996	Allan D. Levi, MD, PhD, FAANS, FACS
6/1/1990	Robert Levinthal, MD, FAANS, FACS
1/1/1995	Richard J. Lewin, MD, FAANS(L)
1/1/2009	Howard Lieberman, MD, FAANS(L)
6/1/2012	Peter George Liechty, MD FAANS
1/1/2009	Matt John Likavec, MD, FAANS
1/1/1999	Mark A. Liker, MD, FAANS
5/11/2007	Franklin Lin, MD FAANS
3/1/1990	Paul M. Lin, MD, FAANS(L)
1/1/1995	James G. Lindley, Jr., MD, FAANS
1/1/1996	Kenneth I. Lipow, MD, FAANS
1/1/2009	Philipp M. Lippe, MD, FAANS(L), FACS
3/30/2004	Caleb R. Lippman, MD, FAANS
4/14/2010	Adam C. Lipson, MD FAANS
3/15/2004	Kenneth M. Little, MD, FAANS
11/1/1993	Sella R. Littlepage II, MD, FAANS(L)
2/22/2000	John C. Liu, MD, FAANS
1/1/2009	James R. Lloyd, MD, FAANS
2/1/1999	George E. Locke, MD, FAANS(L)
1/10/2005	Keith Raman Lodhia, MD MS FAANS
2/1/1998	Daniel V. Loesch, MD, FAANS
1/1/2009	Morris D. Loffman, MD, FAANS(L)
12/1/1993	Bertil A. Loftman, MD, FAANS(L)
4/1/1994	Sean Raymond Logan, MD, FAANS
5/1/1996	George Y. Lohmann, Jr., MD, FAANS(L)
4/1/1990	Dean C. Lohse, MD, FAANS(L)
1/1/2009	Donlin M. Long, MD, PhD, FAANS(L)
1/1/1997	Ralph C. Loomis, MD, FAANS
10/31/2008	John A. Lopez, MD, FAANS
1/1/2009	Juan de Dios Lora, MD FACS
10/1/1993	Kenneth M. Louis, MD, FAANS, FACS
3/1/1990	Lucy Carole Love, MD, FAANS
12/1/1994	Thomas John Lovely, MD, FAANS, FACS
3/1/1998	James G. Lowe, MD, FAANS
2/1/1995	Walter X. Loyola, MD, FAANS, FACS
6/27/2006	Daniel C. Lu, MD PhD
11/1/1998	William Y. Lu, MD, FAANS

1/1/1995	John T. Lucas, MD, FAANS(L)
6/1/1997	Jonathan H. Lustgarten, MD, FAANS
11/5/2007	Gustavo Daniel Luzardo, MD, FAANS
3/11/2009	Chris A. Lycette, MD, FAANS
1/1/2009	Mark A. Lyerly, MD, FAANS
1/1/2009	Thomas A. Lyons, MD, FAANS(L)
5/1/1997	Mark K. Lyons, MD, FAANS, FACS
6/1/1991	Nelson T. Macedo, MD, FAANS(L)
1/1/2009	John Richard Macfarlane, Jr., MD, FAANS
3/1/1993	Parley William Madsen III, MD, PhD
1/1/2009	Subu N. Magge, MD, FAANS
2/17/2005	Philip Colburn Maher, MD
1/1/1992	Farhad S. Mahjouri, MD
1/1/2009	Dennis J. Maiman, MD, PhD, FAANS
1/1/2009	V. James Makker, MD, MBA
1/1/2009	Ghaus M. Malik, MD, FAANS
1/1/1999	Lloyd I. Maliner, MD, FAANS
1/1/1997	Gunwant S. Mallik, MD, FAANS
2/1/1995	David Gerald Malone, MD, FAANS
6/1/1996	Stavros N. Maltezos, MD, FAANS
1/1/1995	Robert F. Mann, MD, FAANS
5/11/2007	Thomas C. Manning, MD PhD FAANS
2/1/2012	Glen R. Manzano, MD
3/27/2008	J. Nozipo Maraire, MD
6/1/1996	J. Alexander Marchosky, MD, FAANS(L)
8/4/2008	Frederick F. Marciano, MD, PhD, FAANS
1/1/1998	Paul J. Marcotte, MD, FAANS
2/1/1998	Michael J. Markham, MD, FAANS(L)
1/1/2013	Jared Joseph Marks, MD
3/1/1993	Jerry V. Marlin, MD, FAANS
1/1/1995	George F. Martin, MD, FAANS(L)
12/1/1994	Boston F. Martin, MD
3/1/1992	Robert J. Martin, MD, FAANS
6/1/1992	Lucas J. Martinez, MD, FAANS(L)
1/1/1999	Jeffrey E. Masciopinto, MD, FAANS
1/1/2009	Marcos Masini, MD
9/18/2000	Eric M. Massicotte, MD, MSc, FAANS
2/1/2001	Farzad Massoudi, MD, FACS

12/1/1993	George J. Mathews, MD, FAANS(L)
1/1/2009	Marshall I. Matz, MD, FAANS(L)
12/3/2002	Paul G. Matz, MD, FAANS
5/1/1997	Paul K. Maurer, MD, FAANS
3/6/2000	Peter L. Mayer, MD, FAANS
6/1/1999	Matthew Thomas Mayr, MD, FAANS
1/1/1994	Phillip V. McAllister, MD, FAANS, FACS
1/1/1995	Duncan Q. McBride, MD, FAANS
7/1/1999	Randall R. McCafferty, MD, FAANS
1/1/1999	Dennis E. McClure, MD, FAANS(L)
3/1/1999	Paul R. McCombs III, MD, FAANS
1/1/2009	Cavert Keith McCorkle, MD, FAANS(L)
4/1/1998	Bruce M. McCormack, MD, FAANS
6/1/1991	Paul C. McCormick, MD, FAANS
1/1/2009	Dennis E. McDonnell, MD, FAANS
12/1/1998	David M. McGee, MD, FAANS(L), FACS
4/1/1992	John E. McGillicuddy, MD, FAANS(L)
7/1/1999	Gerald T. McGillicuddy, MD, FAANS, FACS
11/5/2007	Kevin M. McGrail, MD, FAANS
1/1/2009	Natasha M. McKay, MD FAANS
1/1/1996	Rick L. McKenzie, MD, FAANS
3/1/1993	Daniel L. McKinney, MD, FAANS(L)
2/17/2001	Mark R. McLaughlin, MD, FACS, FAANS
1/1/2009	Fred G. McMurry, MD, FAANS(L)
1/1/2009	John A. McRae, MD, FAANS(L)
1/1/1995	Thomas F. Mehalic, MD, FAANS(L)
1/1/2012	Donald L. Mellman, MD, MPH, FAANS(L)
1/5/2000	Muhammed Y. Memon, MD
1/1/1998	Ehud Mendel, MD, FAANS, FACS
4/1/2012	Jose A. Menendez, MD FAANS
1/1/2009	Arnold H. Menezes, MD, FAANS(L)
1/1/2009	Robert C. Meredith, MD, FAANS(L), FACS
1/1/1996	Michael W. Meriwether, MD, FAANS(L)
10/1/2012	Fassil B. Mesfin, MD PhD
1/1/1997	Ronald Michael, MD, FAANS
2/1/1994	W. Jost Michelsen, MD, FAANS(L)
1/1/1996	Rajiv Midha, MD, MS, FAANS, FRCSC
5/1/1992	Luis A. Mignucci, MD, FAANS

2/12/2007	Joshua A. Miller, MD, FAANS
1/1/2009	Carole A. Miller, MD, FAANS
1/1/2009	Joseph H. Miller, MD, FAANS(L)
1/1/2009	Thomas I. Miller, MD, FAANS(L)
1/1/1997	David W. Miller, MD, FAANS
1/1/1996	John I. Miller, MD, FAANS, FACS
3/1/1999	Charles J. Miller, MD, FAANS
9/21/2001	Ronnie I. Mimran, MD, FAANS
11/7/2006	Manabu Minami, MD PhD
12/1/1994	Philip Arthur Minella, MD, FAANS
1/1/1995	Abraham Mintz, MD, FAANS
3/24/2003	Sanjay N. Misra, MBA, MD, FAANS, FACS
4/1/1999	William Mitchell, MD, FAANS
1/1/1996	Junichi Mizuno, MD PhD
1/26/2000	Lloyd W. Mobley III, MD, FAANS
1/1/1998	Michael C. Molleston, MD, FAANS
2/1/1999	H. Dennis Mollman, MD, PhD, FAANS
2/6/2005	Daniel W. Moore, MD, FACS
7/1/1998	John J. Moossy, MD, FAANS
6/27/2006	Ross R. Moquin, MD, FAANS
1/1/1994	Jay More, MD, FAANS
1/26/2000	Douglas B. Moreland, MD
6/1/1993	Howard Morgan, MD, FAANS, FACS
1/1/1998	Michael A. Morone, MD, PhD, FAANS
7/1/1999	Kevin C. Morrill, MD, FAANS
4/1/1999	David Lawrence Morris, MD, FAANS
1/1/1995	Enoch Carter Morris III, MD, FAANS
1/1/2009	Richard H. Mortara, MD, FAANS(L), FACS
12/1/1994	John Innis Moseley, MD, FAANS(L)
1/1/2013	Yaron Moshel, MD
5/30/2001	Harrison T. M. Mu, MD, FAANS
10/1/1991	Wade M. Mueller, MD, FAANS
1/26/2000	John C. Mullan, MD, FAANS
1/1/1995	Bradford B. Mullin, MD, FAANS, FACS
1/1/1999	Kevin J. Mullins, MD, FAANS
2/17/2001	Jenny Jasbir Multani, MD, FAANS
1/1/2009	Raj Murali, MD, FAANS
2/1/1999	Karin M. Muraszko, MD, FAANS

1/1/2009	Daniel J. Murphy, MD, FAANS(L)
1/1/2009	Kenneth J. Murray, MD, PhD, FAANS(L)
1/21/2011	Michael Joseph Musacchio, Jr., MD, FAANS
1/1/1995	Chikao Nagashima, MD
1/1/1995	Mahmoud G. Nagib, MD, FAANS
1/5/2001	Aurangzeb Nafees Nagy, MD, FAANS
2/12/2007	Brian Nahed, MD
3/1/1995	Hiroshi Nakagawa, MD
5/1/1998	Victor B. Nakkache, MD, FAANS, FACS
1/1/2009	Robert A. Narotzky, MD, FAANS
1/1/1999	William B. Naso, MD, FAANS
1/1/2009	Stephen E. Natelson, MD, FAANS(L)
2/8/2010	Christopher J. Neal, MD FAANS
10/1/2012	Stephen R. Neece, MD, FAANS, FACS
1/1/1999	Charles W. Needham, MD, FAANS(L)
3/1/1993	Daniel G. Nehls, MD, FAANS, FACS
1/1/2009	Paul B. Nelson, MD, FAANS(L)
8/25/2000	Andrew Nicholas Nemecek, MD, FAANS
8/1/1999	Fariborz Nobandegani, MD, FAANS
1/1/1992	Russ P. Nockels, MD, FAANS
3/1/1990	Richard B. North, MD, FAANS(L)
10/18/2007	Eric W. Nottmeier, MD, FAANS
6/1/1997	Leslie Ann Nussbaum, MD, FAANS
2/7/2002	Serge K. Obukhoff, MD, PhD, FAANS
1/1/2009	Herbert M. Oestreich, MD, FAANS(L)
1/5/2000	Stephen K. Ofori-Kwakye, MD, FAANS
2/1/1995	Seong-Hoon Oh, MD
3/23/2006	Chima Osiris Ohaegbulam, MD FAANS
8/4/2008	David O. Okonkwo, MD, PhD FAANS
1/1/2009	John Bramley Oldershaw, MD, FAANS(L)
1/21/2011	Shaun Thomas O'Leary, MD, PhD, FAANS
3/9/2004	John P. Olson, MD, PhD, FAANS
2/1/1997	Neil P. O'Malley, MD, FAANS
1/1/1997	Stephen L. Ondra, MD, FAANS(L)
2/1/1998	Bernardo J. Ordonez, MD, FAANS
7/14/2009	Juan Ramon Ortega-Barnett, MD
2/1/1994	Humberto J. Ortiz-Suarez, MD, PhD, FAANS(L)
4/1/1993	Richard K. Osenbach, MD

1/1/1996	Joan Frances O'Shea, MD, FAANS
1/1/2009	Roger Harold Ostdahl, MD, FAANS(L), FACS
1/1/2009	Jewell L. Osterholm, MD, FAANS(L)
1/1/1994	Richard C. Ostrup, MD, FAANS
1/17/2001	John E. O'Toole, MD, FAANS
1/1/2009	Kenneth H. Ott, MD, FAANS
1/1/1996	M. Chris Overby, MD, FAANS
11/7/2006	Burak M. Ozgur, MD, FAANS
3/1/1993	David Michael Pagnanelli, MD, FAANS, FACS
4/14/2010	Jonathan T. Paine, MD, FAANS, FACS
10/1/1990	T. Glenn Pait, MD, FAANS
2/1/1995	Sylvain Palmer, MD FAANS
7/16/2002	Jeff Pan, MD
5/1/2012	Evangelos Papadopoulos, MD
6/1/1993	Stephen M. Papadopoulos, MD, FAANS(L)
12/1/1993	Christopher G. Paramore, MD FAANS
2/17/2005	Michel C. Pare, MD
1/1/2009	Laura S. Pare, MD
5/25/2004	Paul Park, MD FAANS
1/1/1998	Jung Yul Park, MD PhD
1/1/2009	Ann M. Parr, MD, FAANS, FRCSC
9/1/1993	Fereidoon Parsioon, MD
10/1/1993	Guillermo A. Pasarin, MD FAANS
8/31/2000	Naresh P. Patel, MD FAANS
1/1/2009	Wayne S. Paullus, Jr., MD, FAANS(L)
1/1/1996	William F. Peach, MD, FAANS(L)
1/14/2000	Stan Pelofsky, MD, FAANS(L)
12/1/1994	Richard E. Pelosi, MD, FAANS(L)
3/1/1997	Terrence L. Pencek, MD, PhD, FAANS
3/11/2009	Frederik Anthonius Pennings, MD PhD
2/1/1997	Mick J. Perez-Cruet, MD, FAANS
2/1/1994	Noel I. Perin, MD, FAANS, FACS
1/1/1995	Srinivasan Periyamayagam, MD FAANS
12/1/1993	Thomas P. Perone, MD, FAANS(L)
1/1/1995	Daniel L. Peterson, MD, FAANS
2/1/1999	Matthew F. Philips, MD, FAANS
3/1/1993	John G. Phillips, MD, FAANS(L)
4/14/2010	Gautam Phookan, MD, FAANS

5/1/1997	Prem K. Pillay, MBBS FACS
2/1/1996	Anselmo Pineda, MD, FAANS(L), FACS
1/1/2009	Cesar A. Pinilla Chiari, MD
1/1/1995	Madhavan Pisharodi, MD, FAANS
10/1/1990	Frederick W. Pitts, MD, FAANS(L), FACS
1/1/1994	Francis J. Pizzi, MD, FAANS(L)
12/1/1993	Howard A. Platt, MD
1/1/1994	Ian F. Pollack, MD, FAANS
3/9/2004	Alfredo Pompili, MD
12/1/1998	Randall W. Porter, MD, FAANS
1/1/2009	John B. Posey, MD, FAANS(L)
2/22/2001	Elisabeth M. Post, MD, FAANS(L)
1/1/2009	Kalmon D. Post, MD, FAANS
2/17/2005	Eric A. Potts, MD, FAANS
1/1/2013	Srinivas K. Prasad, MD
5/23/2009	Praveen G. Prasad, MD, FAANS
1/14/2001	Kimball N. Pratt, MD, FAANS, FACS
1/1/1995	William T. Price, MD, FAANS(L)
2/1/1999	Patrick R. Pritchard, MD
1/1/2009	Donald J. Prolo, MD, FAANS(L), FACS
1/1/1994	Melvin E. Prostkoff, MD, FAANS(L)
1/1/2009	Morris Wade Pulliam, MD, FAANS(L)
3/1/1992	Matthew R. Quigley, MD, FAANS
5/1/1995	Alejandra Teresa Rabadan, MD
1/16/2007	Craig H. Rabb, MD, FAANS, FACS
1/1/1996	Majid Rahimifar, MD, FAANS
6/27/2006	Sharad Rajpal, MD
2/12/2007	Ramin Rak, MD FAANS
2/1/1996	Richard A. Rak, MD, FAANS
1/1/2012	William M. Rambo, Jr., MD, FAANS
1/1/2009	Rafael M. Ramirez, MD
1/1/2009	Archimedes Ramirez, MD, FAANS
6/1/1990	Gustavo Ramos, MD, FAANS
5/1/1994	Jeffrey B. Randall, MD, FAANS
12/1/1998	Sanjay C. Rao, MD, FAANS
10/1/1996	George H. Raque, Jr., MD, FAANS
2/15/2001	John Kevin Ratliff, MD, FAANS, FACS
1/1/1995	Stephen E. Rawe, MD, PhD, FAANS(L)

6/8/2005	Raymond Blaine Rawson, MD
1/1/2009	Morris William Ray, MD, FAANS(L)
2/12/2007	Wilson Zachray Ray, MD
2/1/1995	Joel West Ray, MD FACS
1/1/1998	Roger A. Ray, MD, FAANS
1/1/2009	Richard B. Raynor III, MD, FAANS(L)
1/1/1995	Nizam Razack, MD, FAANS
1/1/1998	Mark P. Redding, MD, FAANS
2/1/1999	John D. Reeves, MD FAANS
4/1/2012	Daniel Refai, MD FAANS
1/1/1997	Mark V. Reichman, MD, FAANS
2/21/2007	William S. Reid, MD, FAANS(L)
2/1/1994	Steven A. Reid, MD, FAANS
1/1/1990	Edward Reifel, MD, FAANS(L)
2/1/1992	Ronald Reimer, MD, FAANS
10/1/2003	George Timothy Reiter, MD, FAANS
1/1/2009	Justin W. Renaudin, MD, FAANS(L), FACS
4/1/1991	Kenneth L. Renkens, MD, FAANS
1/1/1999	Daniel K. Resnick, MD, FAANS
1/1/2009	Arden F. Reynolds, Jr., MD, FAANS(L)
6/1/1999	Laurence D. Rhines, MD, FAANS
1/1/1997	R. L. Patrick Rhoten, MD, FAANS
1/1/2009	Albert L. Rhoton, Jr., MD, FAANS(L)
1/1/1997	Eric Loren Rhoton, MD, FAANS
1/1/2009	Michael T. Richard, MD, FAANS(L)
1/1/2009	Donald E. Richardson, MD, FAANS(L)
1/1/2009	Robert Ronald Richardson, MD, FAANS
1/1/2009	Isabelle L. Richmond, MD, FAANS(L)
3/1/1993	Todd R. Ridenour, MD, FAANS, FACS
2/23/2000	Charles Jess Riedel, MD, FAANS
1/1/2012	Ron Irving Riesenburger, MD FAANS
2/1/1999	Stephen Ritland, MD, FAANS
1/1/2009	Raul V. Rivet, MD, FAANS(L)
3/30/2004	Clifford Roberson, MD, FAANS(L)
1/1/2009	Cavett M. Robert, Jr., MD, FAANS, FACS
1/1/2009	Melville P. Roberts, MD
4/13/2000	Daniel Payne Robertson, MD, FAANS
1/1/1994	Bernard Robinson, MD, FAANS

3/1/1996	John R. Robinson, Jr., MD, FAANS
1/1/1995	James C. Robinson, MD, FAANS
1/1/2009	Gaylan L. Rockswold, MD, FAANS(L)
11/7/2006	Richard B. Rodgers, MD, FAANS
1/1/2009	Luis F. Rodriguez, MD, FAANS
4/1/1992	Jose L. Rodriguez, MD, FAANS, FACS
1/1/1995	Gerald E. Rodts, Jr., MD, FAANS
2/28/2002	Ben Z. Roitberg, MD, FAANS
1/1/2012	Armando Romero-Perez, MD FAANS
2/1/1995	Juan F. Ronderos, MD, FAANS
1/2/2006	Norbert Roosen, MD, FAANS
8/1/1998	William S. Rosenberg, MD, FAANS
3/1/1992	Jacob Rosenstein, MD, FAANS
1/1/2009	Alan D. Rosenthal, MD, FAANS(L), FACS
6/24/2004	Michael K. Rosner, MD, FAANS
6/1/1996	Michael J. Rosner, MD
1/1/1998	Matthew J. Ross, MD, FAANS
1/1/2009	David A. Roth, MD, FAANS(L), FACS
3/1/1990	George Ryan Roth, Jr., MD, FAANS(L)
1/6/2001	Allen S. Rothman, MD, FAANS(L), FACS
1/6/2000	Norman J. Rotter, MD, FAANS(L)
10/1/2011	Dmitry S. Ruban, MD
5/23/2009	Henry Ruiz, MD, FAANS
1/1/1999	Vincent B. Runnels, MD, FAANS(L)
1/16/2001	Michael J. Rutigliano, MD, MBA, FAANS
2/1/1994	Patrick G. Ryan, MD, FAANS
1/1/1996	Timothy C. Ryken, MD, FAANS
2/1/2012	Kyoungsoo Ryou, MD
1/19/2004	Stephen I. Ryu, MD, FAANS
3/11/2009	Donna A. Saatman, MD, FAANS
4/1/1991	Bernardo Saavedra, MD
3/1/1998	Robert A. Sabo, MD, FAANS, FACS
11/1/1997	David P. Sachs, MD, FAANS, FACS
12/1/1994	Donald J. Sage, MD, FAANS(L)
1/1/1992	Pritam S. Sahni, MD
4/1/1994	Romualdas Sakalas, MD, FAANS(L)
1/1/1993	Anthony A. Salerni, MD
3/1/1993	Julio E. Salinas, MD, FAANS(L), FACS

5/1/2012	Antoine Salloum, MD
3/1/1997	Srinath Samudrala, MD, FAANS
1/1/2009	Gonzalo M. Sanchez, MD, FAANS(L)
1/1/1995	Thomas E. Sanchez, MD, FACS, FICS, FAANS
2/1/1999	James Leonard Sanders, Jr., MD, FAANS(L)
5/5/2000	Faheem A. Sandhu, MD, PhD, FAANS
7/8/2010	Jose Manuel Sandoval Rivera, MD, FAANS
3/9/2004	Paul Santiago, MD, FAANS
2/8/2010	Jose A. Santiago, MD, FAANS
2/20/2002	Theodore Sarafoglu, MD, FAANS(L)
10/1/1993	Stephen C. Saris, MD, FAANS
1/1/1996	John Sarris, MD, FAANS
1/1/2009	Raymond Louis Sattler, MD, FAANS(L), FACS
1/1/2009	Richard L. Saunders, MD, FAANS(L)
2/28/2002	Douglas F. Savage, MD, FAANS
12/1/1998	Paul D. Sawin, MD, FAANS
12/1/1993	Robert H. Saxton, MD, FAANS(L)
12/1/1993	Irving Bernard Schacter, MD, FAANS(L)
2/28/2000	Dale M. Schaefer, MD, FAANS
1/1/2009	David George Scheetz, MD
11/1/1993	Gerald R. Schell, MD, FAANS
8/12/2003	Thomas C. Schermerhorn, MD, FAANS
1/26/2000	Stanton Schiffer, MD, FAANS(L)
3/1/1990	Lawrence B. Schlachter, MD, JD, FAANS(L)
1/26/2000	Meic H. Schmidt, MD, MBA, FAANS
3/9/2004	James F. Schmidt, MD
1/1/2009	Karl Michael Schmitt, Jr., MD, FAANS
3/1/1996	Charles L. Schnee, MD, FAANS, FACS
12/1/1993	Steven J. Schneider, MD, FAANS, FACS
1/1/1997	John H. Schneider, Jr., MD, FAANS
2/1/1997	Michael Schneier, MD, FAANS
3/1/1998	Joseph B. Schnittker, MD
1/1/1995	Daria D. Schooler, MD, FAANS
1/1/2013	Eric B. Schubert, MD, FAANS
4/1/1998	Lary A. Schulhof, MD, FAANS(L)
1/1/2009	Hart Schutz, MD
1/1/1995	Richard Harbison Schwartz, MD, FAANS(L)
1/1/2009	Frederic T. Schwartz, MD, FAANS(L), FACS

2/1/1996	P. Robert Schwetschenau, MD, FAANS
1/1/2009	Charles J. Scibetta, MD, FAANS(L)
1/1/1995	Daniel J. Scodary, MD, FAANS, FACS
10/1/1998	Eric W. Scott, MD, FAANS
12/1/1994	Brett Andrew Scott, MD, FAANS
2/4/2000	Thomas B. Scully, MD, FAANS
1/1/2009	Ricardo Segal, MD
1/1/2009	Saul William Seidman, MD, FAANS(L), FACS
10/1/1998	Lali H. S. Sekhon, MD PhD
1/1/2009	Edward L. Seljeskog, MD, PhD, FAANS(L)
1/1/2009	David Louis Semenoff, MD, FAANS
4/1/1991	Moris Senegor, MD, FAANS
10/1/2003	Khalid A. Sethi, MD, FAANS
6/1/1991	Syed Javed Shahid, MD, FAANS
3/1/1992	Scott A. Shapiro, MD, FAANS
2/1/1999	Ashwini D. Sharan, MD, FAANS
1/1/2009	Donald Sheffel, MD, FAANS(L)
1/1/1994	Peter E. Sheptak, MD, FAANS(L)
8/1/1999	Jonathan D. Sherman, MD, FAANS
1/1/2009	Andrew George Shetter II, MD, FAANS, FACS
1/1/2009	Christopher B. Shields, MD, FAANS(L), FRCSC
4/1/1996	Won-Han Shin, MD PhD
2/8/2010	John H. Shin, MD
1/1/2013	Ali Shirzadi, MD
11/1/1998	Grant H. Shumaker, MD, FAANS
2/8/2010	John M. Shutack, MD, FAANS
1/1/1995	Donald P. Sickler, MD, FAANS(L)
6/1/1992	Tariq Sifat Siddiqi, MD, FAANS
8/1/1999	Javed Siddiqi, MD, FAANS
3/1/1994	Shah N. Siddiqi, MD, FAANS, FACS
11/23/2004	Khawar M. Siddique, MD, FAANS
1/1/1995	Jon M. Silver, MD, FAANS
1/1/2009	James W. Silverthorn, DO
3/2/2002	Scott L. Simon, MD, FAANS
1/1/2013	Gary Robert Simonds, MD, FAANS
1/1/2009	Charles W. Simpson, MD, FAANS(L)
1/1/1994	Donald Slaughter, MD
12/1/1993	Andrew E. Sloan, MD, FAANS

4/7/2003	Hugh F. Smisson, MD, FAANS, FACS
2/1/1999	Mark D. Smith, MD, FAANS
3/10/2008	Justin S. Smith, MD, PhD, FAANS
1/1/1992	Stewart C. Smith, MD, FAANS
9/1/1994	Donald A. Smith, MD, FAANS
2/11/2000	Brian E. Snell, MD, FAANS
10/1/1990	Lewis S. Snitzer, MD, FAANS(L)
1/1/1999	Robert B. Snow, MD, FAANS
5/6/2005	William E. Snyder, Jr., MD, FAANS
3/1/1998	William W. S. So, MD, FAANS
1/1/1996	Donald Soloniuk, MD, FAANS
1/1/2009	Volker K. H. Sonntag, MD, FAANS(L)
1/1/1995	Peter M. Sorini, MD, FAANS
7/1/1994	Mark A. Spatola, MD, FAANS
3/24/2003	Caple A. Spence, MD, FAANS
1/1/2009	Theodore James Spinks, MD, FAANS
12/1/1993	William W. Sprich, MD, FAANS, FACS
12/1/1994	Paul Edward Spurgas, MD, FAANS
2/1/1996	Noam Y. Stadlan, MD, FAANS
8/1/1991	J. Michael Standefer, MD, FAANS, FACS
3/23/2006	Michael I. Stanley, MD, FAANS
11/1/1993	Samuel K. St. Clair, MD, FAANS
1/1/2009	Karl Stecher, Jr., MD
2/8/2010	George S. Stefanis, MD, FAANS
1/1/2009	Bennett M. Stein, MD, FAANS(L)
12/1/1994	Alfred Steinberger, MD
12/1/1994	Erick Stephanian, MD, FAANS
1/1/2013	Frederick L. Stephens II, MD
10/1/1994	Sigurdur A. Stephensen, MD, FAANS(L)
1/1/1994	Mark Stern, MD, FAANS
8/4/2008	Max R. Steuer, MD, FAANS
1/3/2000	Mark Kenneth Stevens, MD, PhD, FAANS
3/25/2004	Kevin L. Stevenson, MD, FAANS
1/1/2009	George C. Stevenson, MD, FAANS(L)
1/1/1998	John C. Stevenson, MD, FAANS
2/9/2005	Todd J. Stewart, MD, FAANS
1/1/1993	Charles B. Stillerman, MD, FAANS
6/1/2012	Martina Stippler, MD FAANS

1/1/1997	Paul E. Stohr, MD, FAANS(L)
1/1/2009	Jim L. Story, MD, FAANS(L)
2/7/2006	Steven M. Stranges, MD, FAANS(L)
12/1/1993	Scott W. Strenger, MD, FAANS, FACS
4/1/1991	Merle Preston Stringer, MD, FAANS
6/1/1991	Douglas L. Stringer, MD, FAANS(L)
2/1/1999	Brian R. Subach, MD, FAANS, FACS
1/1/1999	Loubert Steven Suddaby, MD, FAANS
3/8/2004	Michael G. Sugarman, MD, FAANS
2/18/2001	Daniel Y. Suh, MD, PhD, FAANS
1/1/2009	Narayan Sundaresan, MD, FAANS
7/1/1999	Mitchell L. Supler, MD, FAANS
1/1/2009	Leonardo Svarzbein, MD
1/1/1994	Karl W. Swann, MD, FAANS
11/1/1998	Thomas A. Sweasey, MD, FAANS
4/1/1991	David W. Swingle, MD, FAANS(L)
1/1/2009	George Walter Syptert, MD, FAANS(L)
4/1/1991	Asher H. Taban, MD, FAANS
1/21/2000	Leonello Tacconi, MD FRCS
1/1/1997	Tomoko Takahashi, MD
1/1/1998	Yoshiro Takaoka, MD PhD
1/1/1998	Masakazu Takayasu, MD
1/1/1998	Gordon Tang, MD, FAANS
1/1/2009	Charles H. Tator, MD, PhD, MA, FAANS(L)
5/1/1994	Robert W. Taylor, MD, FAANS(L)
1/1/1994	William R. Taylor, MD, FAANS
7/1/1995	Mark A. Testaiuti, MD, FAANS
2/1/1996	Nicholas Theodore, MD, FAANS
1/1/1998	Charles S. Theofilos, MD, FAANS
1/1/1995	Phudhiphorn Thienprasit, MD, FAANS(L)
2/1/1996	Geoffrey M. Thomas, MD, FAANS
12/1/1993	B. Gregory Thompson, Jr., MD, FAANS
7/1/1999	Mark K. Thompson, MD, FAANS, FACS
3/30/2004	Gregory Errol Thompson, MD, FAANS
1/26/2000	William E. Thorell, MD, FAANS
1/1/1999	Robert E. Tibbs, Jr., MD, FAANS
1/1/2009	Phillip A. Tibbs, MD, FAANS
1/1/2009	Stephen L. Tillim, MD, FAANS(L)

1/1/2009	George T. Tindall, MD, FAANS(L)
5/1/1993	Richard H. Tippetts, MD, FAANS
3/31/2000	Troy M. Tippetts, MD, FAANS, FACS
4/1/1994	Frederick D. Todd II, MD, FAANS
1/1/2009	Sidney Tolchin, MD, FAANS(L)
10/1/1999	Roland A. Torres, MD, FAANS
5/1/1992	Richard M. Toselli, MD
1/1/2009	Russell L. Travis, MD, FAANS(L)
4/1/1991	Vincent C. Traynelis, MD, FAANS
3/7/2006	Trent L. Tredway, MD, FAANS
1/1/1999	Steven J. Tresser, MD, FAANS
2/1/1997	Gregory R. Trost, MD, FAANS
3/3/2000	Eve C. Tsai, MD, PhD, FAANS
1/1/1996	Gerald F. Tuite, Jr., MD, FAANS
2/1/1995	Donn Martin Turner, MD, FAANS
3/1/1990	Clyde G. Tweed, MD
8/6/2008	Rachana Tyagi, MD, FAANS
12/1/1994	William A. Tyler, Jr., MD, FAANS(L)
12/1/1998	Christopher Uchiyama, MD, PhD, FAANS
10/1/2001	David D. Udehn, MD, FAANS, FACS
3/1/2012	Cheerag Dipakkumar Upadhyaya, MD
4/1/1991	Prabhundha Vanasupa, MD, FAANS(L)
3/1/1996	Arnold B. Vardiman, MD, FAANS
1/10/2008	Artem Y. Vaynman, MD, FAANS
10/1/2012	Alfonso Vega, MD
1/1/2009	Alfredo C. Velasquez, MD
1/1/1995	Frank T. Vertosick, Jr., MD, FAANS(L)
3/17/2005	Alan T. Villavicencio, MD, FAANS
1/31/2000	Federico C. Vinas, MD, FAANS
1/1/2013	Roy D. Vingan, MD, FAANS
12/1/1998	A. Giancarlo Vishteh, MD, FAANS
1/1/1998	Todd W. Vitaz, MD, FAANS
2/1/1999	Amir A. Vokshoor, MD, FAANS
4/1/1991	Dennis G. Vollmer, MD, FAANS
6/5/2000	Edward von der Schmidt III, DVM MD FAANS
1/1/1995	Arbha Vongsvivut, MD
2/28/2001	Rand M. Voorhies, MD, FAANS
2/10/2004	Nicholas F. Voss, MD, FAANS

2/19/2008	Scott Patrick Wachhorst, MD, FAANS
1/1/2009	Franklin C. Wagner, Jr., MD, FAANS(L)
7/30/2001	John B. Wahlig, Jr., MD, FAANS
1/1/1996	Michael D. Walker, MD, FAANS(L)
1/1/2009	Patrick R. Walsh, MD, PhD, FAANS
2/1/1995	Carrie Lou Walters, MD, FAANS(L)
6/27/2006	Joseph M. Waltz, MD PhD
1/3/2008	Marjorie C. Wang, MD, MPH, FAANS
9/28/2000	Jeremy C. Wang, MD, FAANS
2/8/2010	W. Lee Warren, MD, FAANS
8/1/1997	Thomas M. Wascher, MD, FAANS, FACS
1/1/1996	Tim J. Watt, MD, FAANS
1/1/2009	Jason Andrew Weaver, MD, FAANS
3/1/1994	John P. Weaver, MD, FAANS
12/1/1993	Stuart M. Weil, MD, FAANS
2/1/1995	Monte B. Weinberger, MD
1/1/2009	Philip R. Weinstein, MD, FAANS(L)
2/1/1999	David Leslie Weinsweig, MD, FAANS
1/1/1999	Harry Carl Weiser, MD, FAANS, FACS
2/1/1996	Richard Elliott Weiss, MD, FAANS(L)
10/1/1993	William C. Welch, MD, FAANS, FACS
2/11/2003	Bryan J. Wellman, MD, FAANS
1/30/2001	G. Alexander West, MD, PhD, FAANS
3/1/1999	Richard M. Westmark, MD, FAANS
4/1/1992	Robert E. Wharen, Jr., MD, FAANS
11/1/1991	Joe Ellis Wheeler, MD PA
1/1/2009	Walter Whisler, MD, PhD, FAANS(L)
3/18/2003	Benjamin T. White, MD, FAANS
3/1/1993	John Deason White, MD, FAANS(L)
2/1/1995	William L. White, MD, FAANS
5/1/1994	Donald M. Whiting, MD, FAANS
2/1/1999	Timothy Mitchell Wiebe, MD, FAANS
8/10/2007	Robert J. Wienecke, MD, FAANS
1/1/2009	Jack E. Wilberger, Jr., MD, FAANS
2/1/1999	David A. Wiles, MD, FAANS
1/1/2009	Harold A. Wilkinson, MD, PhD, FAANS(L)
1/1/2009	Steven F. Will, MD, FAANS
10/1/1990	Richard C. Williams, MD, FAANS(L)

1/1/1998	Richard Boyd Williams, MD, FAANS
2/12/2007	Byron H. Willis, Jr., MD, FAANS
3/1/1995	Diana E. Wilson, MD, FAANS, FACS
1/1/1994	John A. Wilson, MD, FAANS, FACS
2/8/2010	Christopher J. Winfree, MD, FAANS
1/1/2009	Fremont P. Wirth, Jr., MD, FAANS(L)
2/23/2000	Aizik L. Wolf, MD, FAANS
1/1/2009	Jean-Paul Wolinsky, MD, FAANS
7/1/1991	James H. Wood, MD, FAANS(L)
12/1/1993	Matthew W. Wood, Jr., MD, FAANS
12/1/1994	Eric J. Woodard, MD, FAANS
2/10/2004	David Bruce Woodham, MD, FAANS
1/22/2001	Steven D. Wray, MD, FAANS
9/1/1997	Neill M. Wright, MD, FAANS
1/1/2009	Isao Yamamoto, MD
10/31/2008	Daniel S. Yanni, MD
6/20/2004	Kevin C. Yao, MD, FAANS
1/1/1996	Wesley Yamil Yapor, MD, FAANS
10/1/1995	Philip A. Yazbak, MD, FAANS, FACS
1/1/1997	David Allan Yazdan, MD, FAANS(L)
1/1/1994	Kenneth S. Yonemura, MD, FAANS
1/12/2000	Bo H. Yoo, MD, FAANS
2/8/2010	Ann-Marie Yost, MD, FAANS
1/1/2009	A. Byron Young, MD, FAANS(L)
1/1/2009	Harold F. Young, MD, FAANS(L)
3/1/1995	William F. Young, MD, FAANS
8/10/2007	Igor Richard Yusupov, MD
2/7/2001	Eric L. Zager, MD, FAANS
3/1/1996	Ahmad Zakeri, MD, FAANS
2/14/2001	Seth M. Zeidman, MD, FAANS
2/1/1995	William R. Zerick, MD FAANS
2/15/2001	Mehmet Zileli, MD
4/1/1991	J. Eric Zimmerman, MD, FAANS
3/1/1993	Christian G. Zimmerman, MD, FAANS, FACS
1/1/2009	Greg Zorman, MD, FAANS, FACS
10/1/1993	Lloyd Zucker, MD, FAANS

Agenda Item 6a:

1. Survey data presented to the RUC in January 2013 to defend the current values of 63047 and 63048. We made the point at the RUC that the work and intensity of these codes may actually be increasing as insurers implement barriers to surgery and the patient population may be becoming more difficult. The RUC accepted our recommendation; we will find out when the final 2014 Medicare Physician Fee Schedule Final Rule is published on or about November 1, 2013 whether CMS has agreed. We plan to monitor this issue.

2. NCCI has proposed to bundle CPT codes 22630 (Arthrodesis, posterior interbody technique, including laminectomy and/or discectomy to prepare interspace (other than for decompression), single interspace; lumbar) and 22633 (Arthrodesis, combined posterior or posterolateral technique with posterior interbody technique including laminectomy and/or discectomy sufficient to prepare interspace (other than for decompression), single interspace and segment; lumbar) with CPT code 63042 (Laminotomy (hemilaminectomy), with decompression of nerve root(s), including partial facetectomy, foraminotomy and/or excision of herniated intervertebral disc, reexploration, single interspace; lumbar). We have vigorously objected to this bundling and are awaiting a reply to our letter. Interestingly, NASS did not object to this edit.

Agenda Item 6b: see attachments from 3i (pages 35-103)

Agenda Item 6i: see attachments from 3e (pages 40-65)

Agenda Item 7d: see attachments from 4b (pages 118-124)

Agenda Item 7e:

Spine Outcomes Committee Report

10/15/2013

Michael Steinmetz, MD

Committee members:

Zoher Ghogawala, zoher.ghogawala@yale.edu

Daniel Hoh, daniel.hoh@neurosurgery.ufl.edu (vice-chair)

Subu N.Magge, subu.n.magge@lahey.org

John O'Toole, John_Otoole@rush.edu

Jean-Valery Coumans, jcoumans@partners.org

A. Clinical Trials Proposal Awards 3 Finalists

1. We received 3 clinical trial proposals from 3 different institutions that met all requirements. All competitive trial proposals were reviewed by at least 3 reviewers from the committee and NIH scoring criteria were followed. Proposals were reviewed according to:

- a) significance

b) design and approach

c) innovation

d) overall potential to have impact on clinical care

The scores of all three reviewers were averaged and placed into a grid. All proposals were reviewed by 3 separate reviewers and the scores averaged.

The top three

Wilson Z. Ray, M.D. (Faculty)

Washington University

The efficacy of nerve transfer surgery in the treatment of patients with complete cervical spinal cord injuries with no hand function

Design- prospective single institution non-randomized single arm design, 20 subjects

Outcome-pre-and post operative hand strength (dynamometry), Disabilities of the Arm, Shoulder, and Hand (DASH) and Short Form 36 (SF-36)

Scientific principle- Peripheral nerve transfers in patients with cervical SCI will improve hand function, functional independence and patient quality of life.

Rory KJ Murphy MD (Resident)

Washington University

Determination of the DTI parameters predictive of acute and chronic neurologic function in Cervical Spinal Cord Injury

Design-prospective single institution non-randomized , 40 subjects

Outcomes-brain and spine DTI, ASIA scores

Scientific Principle- The validation of DTI parameters as non-invasive biomarkers that are predictive of acute and long-term neurological function.

Doniel Drazen, MD (Resident)

Vitamin D in Multi-Level Cervical Fusion: A Multi-Center Comparative Effectiveness Clinical Trial

Design-prospective, non-randomized comparative effectiveness clinical study, 160-200 subjects

Outcome-fusion status, blood level vitamin D, NDI, VAS, SF-36, EQ5D

Scientific Principle- subnormal vitamin D levels before and after surgery will be associated with a decreased rate of successful fusion following multi-level cervical spine surgery.

B. Clinical Trials Award – \$ 50,000

The Outcomes Committee will reviewed all three revised clinical trial proposals and score each of them.

The three proposal winners will have 3 months to work with the Outcomes committee to improve their proposal. All will submit their proposal for consideration for the \$50,000 clinical trials award and for the NREF award. The clinical trials award will be given in 2 parts: \$25,000 initially once a satisfactory

letter from a biostatistician has been received. The second \$25,000 will be awarded once a progress report has been received summarizing progress on each of the specific aims listed in the grant proposal. The second \$25,000 will be awarded only if 50% of the proposal accrual has been reached.

Previous Clinical Trials Award Winners: (updates from each award winner will be presented at this meeting).

The 2013 Winner is Doniel Drazen, MD. He has sent his biostatistician letter and will be awarded his first \$25,000.

2012 Winner

Bradley Jacobs, MD (Faculty)

University of Calgary

"Mean arterial pressure in spinal cord injury (MAPS): Determination of non-inferiority of a mean arterial pressure goal of 65 mm Hg compared to a mean arterial pressure goal of 85mmHG in acute human traumatic cervical spinal cord injury."

Design – single center, RCT, 140 subjects

Outcome – ASIA motor score, FIM, SCIM, SF-36

Scientific Principle – Neurologic outcomes after acute traumatic spinal cord injury are equivalent whether treated with mean arterial pressure elevation > 85 mmHg or > 65 mm Hg.

2008 Winner

Khalid Abbed, MD, Yale University, Assistant Professor

Proposal: To compare minimally invasive T-LIF versus open T-LIF for grade I spondylolisthesis with symptomatic spinal stenosis.

Design: pilot study - 100 pts, 3 sites, non-randomized.

Outcome Instruments: SF-36 PCS and ODI

PROGRESS REPORT done at SPINE SECTION MEETING 2011 and 2012 –

34 patients enrolled. CLOSED

2009 Winner

Marjorie Wang, MD, MPH, Medical College of Wisconsin, Assistant Professor

Proposal: To determine if pre-operative diffusion tensor imaging might predict post-surgical outcome following surgery for CSM

Design: pilot study: 83 patients, single site, non-randomized

Outcome Instruments: mJOA (6 months) – MCID = 2 points

PROGRESS REPORT done at SPINE SECTION MEETING 2011 and 2012 –

PRESENTATION AT 2013 ANNUAL MEETING, 50% accrual now. Will give second 25K installment.

2010 Winner

Basheal Agrawal, MD (resident) – Daniel Resnick (faculty sponsor)

Medical College of Wisconsin (institution)

Proposal: "Development of a web-based registry for evaluating the comparative effectiveness of various treatments for low back pain in Wisconsin"

Design: Prospective Single Center Study to evaluate feasibility of comparative effectiveness study – Goal 100 patients

Outcome: Oswestry (ODI), Visual Analog Scale (VAS).

Scientific Principle – Development of a prospective outcomes database platform for measuring spine outcomes is feasible.

PROGRESS REPORT submitted at SPINE SECTION MEETING 2012 – It is excellent and will be submitted as a manuscript for publication.

100 patients enrolled.

Agenda Item 8c:

-----Original Message-----

From: Michael Groff <mgroff@mac.com>

To: Praveen Mummaneni <vmum@aol.com>

Sent: Mon, Aug 26, 2013 3:04 am

Subject: Fwd: AANS-CNS Lumbar Fusion Endorsement Letter

for our records.

Thanks,

mike

Begin forwarded message:

From: "Katie O. Orrico" <korrico@neurosurgery.org>

Subject: AANS-CNS Lumbar Fusion Endorsement Letter

Date: August 25, 2013 4:28:17 PM EDT

To: "mgk7@columbia.edu" <mgk7@columbia.edu>

Cc: "Tim Ryken (rykent@me.com)" <rykent@me.com>, "Dr. Amin-Hanjani" <hanjani@uic.edu>, "Steven N. Kalkanis MD (skalkan1@hfhs.org)" <skalkan1@hfhs.org>, " (kcockroft@psu.edu)" <kcockroft@psu.edu>, "Dr. Groff" <mgroff@mac.com>, "Laura S. Mitchell" <lsm@1CNS.ORG>, John Wilson - Neurosurgery <jawilson@wakehealth.edu>, Koryn Rubin <krubin@neurosurgery.org>

Mike,

Attached please find the letter from the AANS and CNS officially endorsing the Lumbar Fusion guidelines. Please let me know if you need anything else from us.

In the meantime, I hope you are enjoying your summer.

Katie

Katie O. Orrico, Director
Washington Office
American Association of Neurological Surgeons/ Congress of Neurological Surgeons
725 15th Street, NW, Suite 500
Washington, DC 20005
Direct Dial: 202-446-2024
Fax: 202-628-5264
Cell: 703-362-4637
korrico@neurosurgery.org

AMERICAN ASSOCIATION OF
NEUROLOGICAL SURGEONS
THOMAS A. MARSHALL, *Executive Director*
5550 Meadowbrook Drive
Rolling Meadows, IL 60008
Phone: 888-566-AANS
Fax: 847-378-0600
info@aans.org



American
Association of
Neurological
Surgeons



CONGRESS OF
NEUROLOGICAL SURGEONS
DAVID A. WESTMAN, *Executive Director*
10 North Martingale Road, Suite 190
Schaumburg, IL 60173
Phone: 877-517-1CNS
FAX: 847-240-0804
info@1CNS.org

President
William T. Couldwell, MD, PhD
Salt Lake City, Utah

President
Ali R. Rezai, MD
Columbus, Ohio

August 26, 2013

Michael G. Kaiser, MD, FAANS, FACS
New York Neurological Institute
710 W 168th Street, Room 504
New York, NY 10032-3726

Re: AANS/CNS Endorsement of Joint Section of Spine Guideline on Lumbar Fusion

Dear Dr. Kaiser,

Upon the recommendation of the Joint Guidelines Committee (JGC), the American Association of Neurological Surgeons and Congress of Neurological Surgeons are pleased to endorse the AANS/CNS Joint Section on Spine and Peripheral Nerve's *Lumbar Fusion* guideline. We would also like to commend the author group for drafting the guidelines. Finally, we appreciate that the authors took the time to consider the JGC's feedback.

Thank you again for your important work on behalf of our specialty.

Sincerely,

William Couldwell, MD
American Association of Neurological Surgeons

Ali Rezai, MD
Congress of Neurological Surgeons

cc: Tim Ryken, MD Chair, AANS/CNS Joint Guidelines Committee
Sepi Amin-Hanjani, MD Vice-Chair, AANS/CNS Joint Guidelines Committee
Kevin Cockroft, MD Vice-Chair, AANS/CNS Joint Guidelines Committee
Steve Kalkanis, MD Vice-Chair, AANS/CNS Joint Guidelines Committee
John Wilson, MD, Chair, AANS/CNS Washington Committee
Laura S. Mitchel, Guidelines Project Manager

Staff Contact:

Katie Orrico, Director
AANS/CNS Washington Office
725 15th Street, NW, Suite 500
Washington, DC 20005
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WASHINGTON OFFICE
KATIE O. ORRICO, Director

725 Fifteenth Street, NW, Suite 500
Phone: 202-628-2072 Fax: 202-628-5264
Washington, DC 20005
E-mail: korrico@neurosurgery.org

Agenda Item 8d:

Fellowships and Awards Committee

For the fellowships and awards cmte, no major updates.

We are moving toward multi year commitments from all sponsors, Aesculap has increased their funding from 15k to 20k, and the committee will have 1-2 additional members to help with grading submissions.

Tx.

Jchi

Research and Awards

From: Ghogawala, Zoher <Zoher.Ghogawala@Lahey.org>

To: Pm <vmum@aol.com>; Mike Groff <mgroff@mac.com>; R.John Hurlbert <jhurlber@ucalgary.ca>;

Kuntz <charleskuntz@yahoo.com>

Cc: Michael Y. Wang <mwang2@med.miami.edu>; Groff <mgroff@partners.org>; Matthew McGirt <matt.mcgart@Vanderbilt.Edu>; Jack Knightly <jknightly@atlanticneurosurgical.com>; Jacqueline Walters <WaltersJ@neurosurg.ucsf.edu>; msteinmetz <msteinmetz@metrohealth.org>

Sent: Sun, Aug 25, 2013 11:44 am

Subject: Wallace Foundation Check for Clinical Trials Award Received by AANS

Mike, Praveen, Charlie, John, and Mike –

I have word from the AANS that the Wallace Foundation check to support the Spine Section Clinical Trials Award has been received on 8/16/13. We should be all set (see below). I have cc'd Mike Steinmetz as well.

Zo

Dear Dr. Ghogawala,

Kathleen Craig let me know that you were inquiring about the check for the Wallace Foundation for the Spine Section Clinical Trials Award. Our accounting office informed me that it was received on Friday 8/16/13.

Thank you,
Kristen

Kristen Weber
Chief Development Officer
Neurosurgery Research and Education Foundation
5550 Meadowbrook Dr.
Rolling Meadows, IL 60008
847-378-0540

Zoher Ghogawala MD FACS
Charles A. Fager Chairman, Department of Neurosurgery
Associate Professor, Tufts University School of Medicine
Lahey Clinic Medical Center
41 Mall Road

Burlington, Massachusetts 01805

Clinical Stephanie Paone: 781-744-3180

Research Susan Christopher: 781-744-7904

Administrative Melissa Morse: 781-744-3448

From: Pm [<mailto:vmum@aol.com>]

Sent: Monday, August 12, 2013 2:23 PM

To: Katie A. Jenkins

Cc: Michael Y. Wang; Deanne L. Starr; Regina N. Shupak; Groff; Mike Groff; Kuntz; R.John Hurlbert; Ghogawala, Zoher; Matthew McGirt; Jack Knightly; Jacqueline Walters

Subject: Re: DSPN EC and SPC Meetings in October

Yes this is fine

I copied the officers so they can note the meeting time

Pls email me your latest ex cmte list so I can update it and then we can email the rest of the EC after I confirm the current roster with you.

Pm

Sent from my iPhone

On Aug 12, 2013, at 8:43 AM, "Katie A. Jenkins" <kaj@1CNS.ORG> wrote:

Dear Dr. Mummaneni,

I'm confirming the Disorders of the Spine and Peripheral Nerves Executive Committee Meeting is taking place on Saturday, October 19 from 11:30 am – 4:00 pm. Can you please confirm the food and beverage and audio visual requirements listed below?

DSPN EC Meeting

Saturday, October 19, 11:30 am – 4:00 pm

Setup: Conference for 40 people

A/V: (1) LCD projector, (1) Screen, (5) Power strips

Food and Beverage: Lunch buffet at 11:30 am; afternoon break at 2:30 pm with (2) dozen cookies and sliced fruit

Dr. Wang,

I currently have the Disorders of the Spine and Peripheral Nerves Scientific Program Committee meeting taking place on Saturday from 1:00 pm – 3:00 pm, which overlaps with the DSPN EC meeting. Can you let me know what time you would like to reschedule the DSPN Scientific Program Committee meeting?

Please let me know if you have any questions.

Thank you,

Katie

Katie Jenkins
Meetings Manager
Congress of Neurological Surgeons
10 North Martingale Road, Suite 190
Schaumburg, IL 60173
Phone: 847-240-2500
Fax: 847-240-0804
Mail to: kaj@1cns.org
Visit us on line at: www.cns.org

Agenda Item 9e:

Website

-----Original Message-----

From: Eric Potts <EPotts@goodmancampbell.com>
To: vmum <vmum@aol.com>; mgroff <mgroff@mac.com>
Sent: Mon, May 6, 2013 12:03 pm
Subject: RE: Website updates

Gentlemen,

I have made the updates. I reworked the officer/committees page to show less names. The historic grid was getting overwhelming. Please review http://www.spinesection.org/officers_committees.php.

I continued Gokaslan as Section Rep, PAC.; Benzil as AANS Board Liaison; Trost as AMA Impairment; and Gokaslan, Haid and Shaffrey as NREF advisory board. I listed John Wilson as the Washington Committee chair. Please let me know if any of those need correcting.

The historic committee membership grid is available as a pdf at the bottom of the page (<http://www.spinesection.org/files/pdfs/Officers%20and%20Committees%20historic.pdf>).

Finally, we need an updated version of <http://www.spinesection.org/files/pdfs/2012%20Spine%20section%20EC.pdf>. I have attached the original in case you do not have it.

Eric

From: vmum@aol.com [<mailto:vmum@aol.com>]
Sent: Sunday, May 05, 2013 2:21 AM
To: Eric Potts; mgroff@mac.com
Subject: Re: Website updates

Eric,

I just looked at your link.

corrections,

Marjorie wang replaces daryl fourney and is now the ex officio

adam kanter replaces mike Kaiser as fellowships chair

john chi replaces adam kanter as the awards cmte chair

tk

pm

Praveen V. Mummaneni, M.D.
Professor and Vice-Chairman
Dept. of Neurosurgery, University of California at San Francisco
Co-Director: UCSF Spine Center

Secretary: AANS-CNS Joint Section - Spine and Peripheral Nerves

-----Original Message-----

From: Eric Potts <EPotts@goodmancampbell.com>

To: Michael Groff <mgroff@mac.com>

Cc: vmum <vmum@aol.com>

Sent: Sat, May 4, 2013 8:16 pm

Subject: Re: Website updates

I will make the changes.

Eric

Sent from my iPhone

On May 4, 2013, at 11:00 PM, "Michael Groff" <mgroff@mac.com> wrote:

For the committees the new names are

- Payor Response
- ASTM & FDA drugs and devices
- Outcomes
- AANS Board Liason
- Education
- Intersociety Liason

All chairs under the old names will be co-chairs under the new names except for Rick Fessler who will be dropped (I spoke with him).

The other questions will come from PM and the grid.

Thanks,

mike

On May 2, 2013, at 3:40 PM, Eric Potts <EPotts@goodmancampbell.com> wrote:

I have updated the website. I have a few questions. First, do we plan to have a pdf like we generated last year with all the committees and to whom they report

(<http://www.spinesection.org/files/pdfs/2012%20Spine%20section%20EC.pdf>).

The new combined committees:

- i. Propose to combine CPT and Payor Response

- ii. Propose to combine ASTM and FDA Drugs and Devices
- iii. Propose to combine Outcomes, NPA, and N2QOD (remove S2QOD)
- iv. Propose to combine AANS PDP and AANS Board Liason
- v. Propose to combine CME and Education
- vi. Propose to combine Joint Tumor Liason with Intersociety Liason

What are the names of the new committees and who are the chairs?

I need names for some other positions: Member at large (are these the people listed as "invite per Mummaneni"? Do we just have on ex officio this year? Washington Committee, Section Rep PAC, NREF, AMA impairment all need to be added as they are not on the minutes from the last meeting.

Are we creating a new committee "Spinal Deformity Training" with Meic Schmidt as Chair?

Please see http://www.spinesection.org/officers_committees.php to see how this is all displayed.

Thanks,

Eric

AANS/CNS Section on Disorders of the Spine and Peripheral Nerves Executive Committee

Updated
3/11/2013

	<u>First</u>	<u>Last</u>	<u>E-Mail (Duplicate positions not listed)</u>	<u>EC Meeting</u>	<u>Term End Date</u>
Officers					
Chair	Joseph	Cheng	joseph.cheng@vanderbilt.edu	X	2013
Chair Elect	Michael	Groff	mgroff@mac.com	X	2013
Chair Past	Chris	Wolfla	cwolfla@mcw.edu	X	2013
Secretary	Praveen	Mummaneni	vmum@aol.com	X	2014
Treasurer	Charles	Kuntz	charleskuntz@yahoo.com	X	2015
Executive Committee					
Annual Meeting Chair	Marjorie	Wang	mwang@mcw.edu	X	2013
Scientific Program Chair	Jack	Knightley	jknightly@atlanticneurosurgical.com	X	2013
Exhibits Chairperson	Mike	Wang	mwang2@med.miami.edu	X	2013
Newsletter Editor	John	Ratliff	jratliff@stanford.edu	X	2014
Member-at-Large	Pat	Jacob	jacob@neurosurgery.u	X	2015

Member-at-Large	Matt	McGirt	fl.edu matt.mcgart@Vanderbilt.Edu	X	2015 (Not filled)
Member-at-Large					
Ex-Officio	Daryl	Fourney	daryl.fourney@usask.ca	X	2013
Ex-Officio	John	Hurlbert	jhurlber@ucalgary.ca	X	2013
Ex-Officio	Zo	Ghogawala	zoher.ghogawala@lahey.org	X	2013
Past-Chair Advisors	Dan	Resnick	resnick@neurosurgery.wisc.edu		2013 (Not Filled)
Past-Chair Advisors			-		

Standing Committees	First	Last	E-Mail	EC Meeting	Term End Date	Current Role	Possible Future Role
Oversight By Chair	Joseph	Cheng	-				
Annual Meeting Chair	Marjorie	Wang	-	X	2013	Chair	Ex-Officio
Exhibits	Mike	Wang	-	X	2013	Chair	MOL Chair- Exhibits
	Dan	Hoh	daniel.hoh@neurosurgery.ufl.edu	X	2013		
	Dan	Scuibba	dscuibb1@jhmi.edu	X	2013		
Nominating	Chris	Wolfla	-	X	2015	Chair	
	Ziya	Gokaslan	zgokas1@jhmi.edu		2014		
	Chris	Shaffrey	CIS8Z@virginia.edu		2013		
Scientific Program Chair	Jack	Knightley	-	X	2013	Chair	AMC
Oversight By Chair Elect	Michael	Groff					
CPT	Peter	Angevine	pda9@columbia.edu	X		Chair	
Membership	Kurt	Eichholz	kurt@eichholzmd.com	X		Chair	
Newsletter	John	Ratliff	jratliff@stanford.edu	X	2014	Editor	
	Charley	Sansur	csansur@gmail.com	X	2013	Assistant Editor	
Payor Response	Joseph	Cheng	-	X	2015	Director	
	Charley	Sansur	-	X		Associate Director	
	Peter	Angevine	-			Northeast Quadrant	
	Karin	Swartz	karin.swartz@uky.edu			Southeast Quadrant	
	John	Ratliff	-			Northwest	

	Lou Tumialan	Luis.Tumialan@bnaneuro.net			Quadrant Southwest Quadrant	
	Kurt Kai-Ming Fu	-				
	Kojo Hamilton	kaimingfu@gmail.com Khamilton@smail.umaryland.edu				
	Dan Hoh	-				
	David Okonkwo	okonkwodo@upmc.edu				
	Dan Sciubba	-				
Rules and Regulations	Justin Smith	jss7f@virginia.edu	X		Chair	
Oversight by MOL	Matt McGirt					
ASTM	Jean Coumans	jcoumans@partners.org	X		Chair	
FDA Drugs and Devices	Joseph Alexander	jtalexan59@yahoo.com	X		FDA Liasion	
NeuroPoint Alliance (Ad Hoc)	Eric Praveen	ewoodard@caregroup.harvard.edu	X		NPA Liasion	
	Peter Mummameni	-				
	Angevine	-				
S2QOD Modules (Ad Hoc)	Than Brooks	n.brooks@neurosurgery.wisc.edu	X		NPA Modules	
	Paul Matz	-				
	Justin Smith	-				
	Dan Sciubba	-				
Outcomes	Mike Steinmetz	msteinmetz@metrohealth.org	X		Chair	
Reporting to MOL	Pat Jacob					
Education	Frank LaMarca	flamarca@med.umich.edu	X		Chair	
Fellowships	Mike Kaiser	mgk7@columbia.edu	X		Chair	
	David Okonkwo	okonkwodo@upmc.edu	X			
Guidelines	John O'Toole	john_otoole@rush.edu	X		Chair	
	John Shin	Shin.John@mgh.harvard.edu				
Research and Awards	John Chi	jchi@partners.org	X		Chair	
	Adam Kanter	kanteras@upmc.edu				
	Dan Lu	Daniel.C.Lu@gmail.com				
Reporting to Ex-Officio	John Hurlbert					

AANS PDP	Rick	Fessler	rfessler@nmff.org	X		Chair	
AANS Board Liasion	Deb	Benzil	benzilneurosurg@aol.com	X		Appointed by AANS President	
Future sites	Ian	Kalfas	kalfasi@ccf.org	X		Chair	
Publications	Langston	Holly	lholly@mednet.ucla.edu	X		Chair	
Web Site	Eric	Potts	epotts@goodmancampbell.com	X		Chair	
Reporting to Ex-Officio	Zo	Ghoga wala					
CME	Greg Ahmed	Trost Shakir	trost@neurosurgery.wisc.edu ahmed.r.shakir@Vanderbilt.Edu	X		Chair	
NREF	Ziya Reggie Chris	Gokaslan Haid Shaffrey	rhaid@atlantabrainandspine.com	X		NREF Liasion	
Spinal Deformity Training *Ask Praveen *Curriculum and MOC ?s	Meic Randy Chris Mike	Schmidt Chestnut Ames Rosner	meic.schmidt@hsc.uth.edu - - -	X		Chair	
Washington Committee	Bob	Heary	heary@umdnj.edu	X		WC Liasion	
Reporting to Ex-Officio	Daryl	Fournier					
Inter-Society Liaison	Mike	Rosner	michael.rosner@us.army.mil	X		Chair	
Peripheral nerve TF	Allan	Belzberg	belzberg@jhu.edu	X		Chair	
Public Relations	Sanjay Mike	Dhall Steinmetz	sanjaydhall@yahoo.com -	X		Chair	
Young Neurosurgeons	Cheerag	Upadhyaya	cheerag.upadhyaya@gmail.com	X		Chair	

Agenda Item 10d:

Washington Committee

Washington Update

October 2013





Healthcare Reform Update

Congressional Activities

AANS and CNS continue to lead efforts to “reform the reform”. Neurosurgery’s priority issues remain:

- **Repeal/Modification**
 - Independent Payment Advisory Board (IPAB)
 - PQRS penalties
 - Value-based purchasing modifier
 - Public reporting of physician performance data
 - Repeal of the medical device tax
- **Implementation**
 - Funding for pediatric specialist loan forgiveness
 - Funding for emergency care regionalization projects
 - Funding for trauma-EMS program
- **Additional Legislation**
 - SGR reform
 - Medicare private contracting
 - Medical liability reform
 - Eliminating GME funding caps (and preserving current GME Medicare funding)

Note: Details related to all but the IPAB are included in other topic-specific updates elsewhere in the agenda book.

IPAB Repeal Legislation Moving Forward

Repealing the IPAB is one of organized neurosurgery’s top legislative priorities. To this end, the AANS and CNS, along with the American Society of Anesthesiologists, are leading a physician coalition dedicated to repealing the IPAB. The coalition represents more than 450,000 physicians across 26 specialty physician groups. The IPAB was created by the Patient Protection and Affordable Care Act and is a government board whose primary purpose is to cut Medicare spending.

On Jan. 23, 2013, Reps. Phil Roe, MD (R-TN) and Allyson Schwartz (D-PA) introduced H.R. 351, the Protecting Seniors' Access to Medicare Act of 2013, which would repeal the Independent Payment Advisory Board (IPAB). The bill currently has 194 bipartisan cosponsors. On Feb. 14, 2013, Sen. John Cornyn (R-TX) introduced the companion bill, which has the same name and bill number (S. 351). The senate bill has 36 bipartisan cosponsors. In early January, the House of Representatives adopted rules for the 113th Congress that included a provision limiting IPAB’s authority.

House Votes Repealing ACA

On May 16, 2013, the House voted to repeal the Affordable Care Act. The vote was 229 to 195, with two Democrats crossing party lines to vote with Republicans for the repeal effort. The two Democrats who voted to repeal the law were Rep. Jim Matheson of Utah and Rep. Mike McIntyre of North Carolina, both of whom represent very Republican-leaning districts. It marked the 37th time the House has voted to repeal all or part of the law, but the vote allowed new members elected last November to take a symbolic stand on the law. The bill stands no chance of passage in the Democratic-controlled Senate.

On July 17, the House held two additional votes. The first was H.R. 2667, the Authority for Mandate Delay Act, which would delay enforcement of the employer mandate until Jan. 2015. This passed the house by a vote of 264-161 and followed the announcement by the Obama Administration to postpone enforcement of the employer mandate penalties. The second was a vote to repeal the individual mandate, H.R. 2668, the Fairness for American Families Act, which passed by a margin of 251-174. Neither measure has been taken up by the Senate.

Elected officials are also maneuvering to thwart implementation of the ACA by defunding all or part of the law. In early July, efforts to defund all or part of the ACA failed in the Senate Appropriations Committee. On Sept. 20, the House passed by a vote of 230-189 a continuing resolution to temporarily extend funding of the federal government. Included in that bill was a section that would:

- Prohibits the use of federal funds to carry out:
 - the Patient Protection and Affordable Care Act (PPACA),
 - certain PPACA-related requirements in the Health Care and Education Reconciliation Act of 2010 (HCERA), or
 - amendments made by either such Act
- Declares that no entitlement to benefits under any provision of PPACA, the PPACA-related requirements in HCERA, or the amendments made by either such Act, shall remain in effect on and after enactment of this joint resolution.
- Prohibits any payment from being awarded, owed, or made to any state, district, or territory under any such provision.
- Rescinds all unobligated balances available under such laws.

Despite an attempt by Sen. Ted Cruz to filibuster the bill, the Senate passed a temporary funding bill, sending it back to the House for further consideration. At the time of the writing of this report, it was

unclear what would happen next, but further plans to delay, defund and/or repeal parts of the ACA are likely to be included in various budget-related bills, including legislation to raise the debt ceiling.

AANS/CNS Join Effort to Repeal Medical Device Tax

On Sept. 28, 2013, the AANS and CNS joined 975 organizations in writing a letter to congressional leaders, urging Congress to repeal the medical device excise tax, which was included in the Affordable Care Act. Repealing this tax is a top legislative priority for organized neurosurgery, as we believe it is adversely impacting patient care and medical innovation. Along with this effort, the AANS and CNS joined AdvaMed in sponsoring an advertisement (<http://bit.ly/14VNzZp>) in *Politico*.

On the legislative front, on Sept. 29, the House of Representatives adopted, by a margin of 248-174, an amendment repealing the medical device tax to H.J.Res. 59. This stopgap spending measure would temporarily continue to fund the federal government through Dec. 15, 2013. Senate Majority Leader **Harry Reid** (D-NV) has vowed to oppose attempts to use this government spending legislation as a vehicle for repealing this tax.

Regulatory Activities

The Obama Administration continues to issue implementing regulations, including those related to Medicaid expansion, health insurance exchanges, insurance market and rate rules, and others. To date the following states have made decisions regarding health insurance exchanges:

- **State --** The state plans to run its own exchange: CA, CO, CT, DC, HI, ID, KY, MD, MA, MN, NV, NM, NY, OR, RI, VT, WA
- **Federal --** The state will not set up an exchange, and the federal government will run a fallback exchange instead: AL, AK, AZ, FL, GA, IN, KS, LA, ME, MS, MO, MT, NE, NH, NJ, NC, ND, OH, OK, PA, SC, SD, TN, TX, VA, WI, WY
- **Partnership --** The state will run some functions of the exchange but will leave certain ones to the federal government: AR, DE, IL, IA, MI, UT, WV

In terms of expanding Medicaid coverage, AL, FL, GA, ID, IA, LA, MS, MO, MT, NE, NC, OK, SC, SD, TX, and WI will not be expanding Medicaid coverage to those individuals making under 133% of federal

poverty level. AK, AZ, AR, IN, KS, ME, MI, NH, NY, OH, PA, TN, UT, VA and WY have not yet decided. All others have announced plans to expand Medicaid coverage.

The following outlines key elements of the law that have been implemented (or authorized to be implemented, though some have not been put into effect yet – e.g., IPAB) so far and those scheduled to come on-line in 2013:

2010

- Review of health plan premium increases
- Creation of Medicaid and CHIP Payment Advisory Commission
- Establishment of Comparative Effectiveness Research Institute
- Establishment of Prevention and Public Health Fund
- Medicare Beneficiary Drug Rebate
- Small Business Tax Credits to expand insurance coverage
- Adult Dependent Coverage to Age 26
- Consumer Protections in Insurance
- Insurance Plan Appeals Process
- Coverage of Preventive Benefits
- Health Care Workforce Commission

2011

- Minimum Medical Loss Ratio for Insurers
- Closing the Medicare Drug Coverage Gap
- Increasing Medicare Payments for Primary Care and Rural General Surgeons
- Establishing Center for Medicare and Medicaid Innovation
- Implementing a National Quality Strategy
- Medical Malpractice Grants
- Funding Health Insurance Exchanges
- Reduced Medicaid Payments for Hospital-Acquired Infections
- Establishment of Medicare Independent Payment Advisory Board

2012

- Accountable Care Organizations in Medicare
- Uniform Coverage Summaries for Consumers
- Fraud and Abuse Prevention
- Medicare Value-Based Purchasing
- Reduced Medicare Payments for Hospital Readmissions

2013

- State Notification Regarding Exchanges
- Closing the Medicare Drug Coverage Gap
- Medicare Bundled Payment Pilot Program
- Medicaid Coverage of Preventive Services
- Increased Medicaid Payments for Primary Care
- Limits on Itemized Deductions for Medical Expenses
- Flexible Spending Account Limits
- Medicare Tax Increase
- Tax on Medical Devices
- Extension of CHIP
- Reductions in Disproportionate Share Hospital Payments

2014

- Expanded Medicaid Coverage
- Presumptive Eligibility for Medicaid
- Individual Requirement to Have Insurance
- Health Insurance Exchanges
- Health Insurance Premium and Cost Sharing Subsidies
- Guaranteed Availability of Insurance
- No Annual Limits on Coverage
- Essential Health Benefits
- Multi-State Health Plans
- Temporary Reinsurance Program for Health Plans
- Basic Health Plan
- Employer Requirements (employer mandate delayed for one-year)
- Medicare Advantage Plan Loss Ratios
- Wellness Programs in Insurance
- Fees on Health Insurance Sector
- Medicare Payments for Hospital-Acquired Infections

While full implementation of the law is not scheduled to be completed until 2019, the Oct. 1, 2013 start of the exchange enrollment process is looming large, demonstrating that implementation will not be smooth. Several exchanges have announced delays, hiccups are expected with the federal exchange, reports of premiums appear to be all over the map, but for the most part individuals will be facing higher premiums and/or out-of-pocket costs than originally anticipated.

For more information about the overview of the law and the implementation timeline go to: <http://bit.ly/18VYVzi> and <http://bit.ly/14w3Dgi>. To view a premium calculator, go to: <http://bit.ly/1935Gjo>

ACA Collapsing of its Own Weight

In early July, the Obama Administration (quietly through a Treasury Department blog posting) announced that it was going to delay by one year the enforcement of the employer mandate to offer health insurance (for those companies with 50 or more full-time employees). This came on the heels of complaints by the business community about the costs associated with compliance and due to threats that many companies were going to reduce their workforce to part-time so as to be exempt from the law's insurance mandate. This decision falls on the heels of several other challenges, including decisions by several states not to expand their Medicaid coverage or establish insurance exchanges (now called insurance "market places").

Public opinion favoring the law remains relatively low, and a Sept. Pew Research Center poll showed that more Americans disapprove than approve of the law by a 53 to 42 percent margin – although nearly two-thirds don't believe that the government should be shut down over the effort to defund the law.

This is not good news for the Obama Administration, as a recent report of all 50 states and the District of Columbia found that employer sponsored insurance coverage is down from 69.7 percent in 1999/2000 to

59.5 percent in 2010/2011. At the same time, premiums continue to rise. Nationally, the average total annual premium for single coverage more than doubled from 1999/2000 to 2010/2011, increasing from \$2,490 to \$5,081. The average total premium for family coverage increased even more dramatically, jumping 125 percent, from \$6,415 to \$14,447. The full report is available at: <http://bit.ly/10XxHks>.

Pressing forward with Implementation

Notwithstanding the current challenges, as noted above, the Obama Administration is moving forward to pave the way for enrollment into health exchange plans. Enrollment opens on October 1, 2013, for coverage that will begin on Jan. 1, 2014. The Administration is pursuing a number of options to spread the word, including reaching out to the professional sports leagues (who have thus far rejected pleas to get involved in promoting enrollment), advertising enrollment on porta-potties, a beer-and-bourbon tour (in Kentucky), banners on airplanes advertising at beaches and other creative outreach programs.

Several sources of information on enrollment sponsored by the Administration include:

- HealthCare.gov, which has a 24/7 live chat and call center 1-800-318-2596
- CMS site for organizations: <http://marketplace.cms.gov>

Enroll America (<http://www.enrollamerica.org/>), which is utilizing the president's campaign machine, is taking a lead role in the private sector. And Doctors for America (<http://www.drsforamerica.org/>) is trying to rally physician organizations to help get out the word.

Given all the glitches, it is difficult to predict how implementation will continue to unfold, and whether and how this will continue to be a political issue to be decided at the Nov. 2014 ballot box. The AANS and CNS will continue to monitor implementation, and weigh-in as determined appropriate by leadership.

Judicial Activities

Several years ago, the Goldwater Institute filed a lawsuit (*Coons v. Geithner*) challenging, among other things, the constitutionality of the Independent Payment Advisory Board (IPAB) on separation-of-powers

grounds. The federal district court had dismissed the suit, and on February 19, 2013, the Goldwater Institute filed an appeal with the 9th Circuit Court of Appeals. The suit is pending action by the Court of Appeals.



Modernizing the Medicare Payment System

Budget Proposals

Medicare Trustees Report

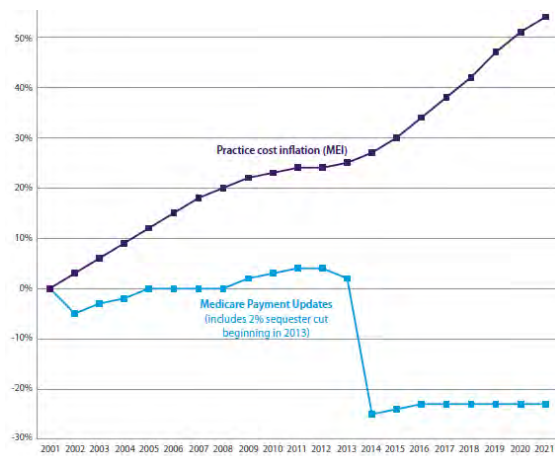
On May 31, 2013, the Board of Trustees for Medicare released its annual report. The report continues to paint a bleak picture for the program's future, although the trustees are projecting that the Medicare trust fund won't be exhausted until 2026, two years later than they projected last year. The trustees point out that Medicare cost projections are highly uncertain, especially when looking out more than several decades and because some provisions of current law that are designed to reduce expenditures may be difficult to sustain. The clearest example of this is the sustainable growth rate (SGR) formula, under which payments to physicians are set. If Congress passes legislation preventing the 24.4-percent Medicare physician pay cut scheduled to begin in 2014, Medicare's financial situation is even worse.

The AANS and CNS continue to advocate for comprehensive reform to modernize the program and ensure its sustainability well into the future.

The full report is available here: <http://1.usa.gov/12YCXZZ>

Medicare SGR Reform

Every year for more than a decade, physicians have faced a significant Medicare payment cut -- the result of a flawed sustainable growth rate (SGR) formula. Now, once again, physicians face an SGR-driven pay cut of nearly 25 percent effective Jan. 1, 2014. In addition to the SGR-related cuts, physicians face an additional 2 percent budget sequestration cut per year for the next 9 years.



As if these cuts weren't bad enough, physicians also face a host of penalties stemming from the Affordable Care Act (ACA), including those related to PQRS, eRx, EHR, IPAB and others. Under a worst case scenario situation, neurosurgeons could face cuts in excess of 85 percent over the next decade.

Year	SGR	Deficit Reduction Sequester	PQRS	e-Rx	EHR	Value Based Payment Modifier
2013		-2		-1.5		
2014	-24.7	-2		-2		
2015	3.6	-2	-1.5		-1	-1
2016	2.6	-2	-2		-2	?
2017	2.0	-2	-2		-3	?
2018	1.5	-2	-2		-3	?
2019	1.0	-2	-2		-4	?
2020	0.9	-2	-2		-5	?
2021	1.0	-2	-2		-5	?
2022	1.3	-2	-2		-5	?

CBO lowers estimate of SGR

On Tuesday, Feb. 5, the Congressional Budget Office (CBO) released its updated Budget and Economic Projections for 2013-2023 (<http://1.usa.gov/12keyFI>). Under the projections, the cost of repealing the SGR has dropped dramatically due to lower than expected growth in Medicare physician spending. The new cost of freezing payments for ten years is \$138 billion, more than \$100 billion less than the previous projection. In an updated report, in May the CBO largely reconfirmed this, although the cost of repeal inched up to \$139.1 billion (<http://1.usa.gov/12y7Jox>). It should be noted, however, that this cost assumes a 10-year freeze. The price tag goes up to as high as \$224.8 billion, if physicians also receive an medical inflation increase as well.

Options for Repeal the SGR Under Consideration

Given the reduction in the cost of repealing the SGR, policymakers and stakeholders are cautiously optimistic that Congress will be able to repeal the SGR this year. As a result, there are several serious proposals now floating around on Capitol Hill. The AANS and CNS, along with our colleagues in other medical groups – including the Alliance of Specialty Medicine – have been advocating for the following general SGR principles:

- Repeal the SGR, followed by at least 5-year period of payment stability and annual updates based on MEI

- No payment differentials between primary care physicians and all other doctors (note that primary care is lobbying to be paid at a higher rate than others)
- Maintain a viable fee-for-service option
- Payments based on quality improvement should be based on positive incentives, rather than penalties
- Physicians should not be evaluated based on flawed ranking systems or head-to-head comparisons
- Any new quality-based physician payment system must replace the current PQRS, EHR, VBPM programs
- Physicians, rather than the government, should determine the most appropriate and clinically relevant quality improvement metrics
- Legal protections should be provided to physicians who follow clinical practice guidelines and quality improvement program requirements
- IPAB should be repealed
- Patients and physicians should be allowed to privately contract on case-by-case basis, with beneficiaries receiving the Medicare allowable

The following proposals are currently under consideration:

- **House Energy & Commerce Committee.** On July 31, 2013, by a vote of 51 to zero, the House Energy and Commerce Committee unanimously passed H.R. 2810, the Medicare Patient Access and Quality Improvement Act. This bipartisan legislation to repeal and replace Medicare's sustainable growth rate (SGR) payment system is sponsored by committee leaders Reps. Michael Burgess, MD (R-TX); Frank Pallone (D-NJ); Fred Upton (R-MI); Henry Waxman (D-CA); Joe Pitts (R-PA); and John Dingell (D-MI). The basic framework of the bill is as follows:
 - Phase I:
 - o Repeals SGR; 5 year payment stability: 2014-18
 - o Annual update each year of 0.5%
 - Phase II: New Quality Update Incentive Program (UIP)
 - o Annual update each year of 0.5%
 - o Quality measure sets and clinical practice improvement activities for each "peer cohort" (e.g., neurosurgeons); Developed by specialty societies
 - o Coordinated with PQRS (although it appears to inadvertently sunset the new qualified clinical data registry program
 - o Future potential integration w/EHR-meaningful use program
 - o Quality rating system based on a 0 to 100 scoring scale
 - o Methodology must be risk-adjusted
 - o Payments based on composite score:
 - Score of 67 or higher: +1% bonus
 - Score of 34-66: zero payment adjustment
 - Score below 34: -1% penalty
 - o No PQRS penalty applies if the physician participates in UIP; however EHR program penalties (-5%) and VBPM adjustments (-2%) still apply
 - o 5% pay cut for physicians who do not participate in UIP
 - New Payment Model Choice Program: Physicians can participate in Alternative Payment Models (APMs) in lieu of UIP
 - Miscellaneous provisions:
 - o Development of episodes of care and bundled payments for high volume services
 - o Physicians must report data (volume & time) on the accuracy of RVUs
 - o In 2016-2018, CMS will identify misvalued services and Medicare spending may be cut by up to 1% per year

- Medical liability protections: Federal healthcare guidelines & quality standards do not establish a standard of care in medical malpractice claim

Note that in previous outlines, Phase Three was to include additional payment adjustments based on compliance with efficiency measures. Although, this new version does not incorporate this concept, it still may be included as the legislation moves through the legislative process. This is particularly true given the fact that on Sept. 13, 2013, the Congressional Budget Office (CBO) estimates that H.R. 2810 would increase direct spending by about \$175 billion. The estimate is available at: <http://1.usa.gov/19UTsX5>.

The AANS and CNS have been actively involved in developing this bill, and while the bill is not perfect, the committee has been remarkably responsive and addressed many of our ongoing concerns. The current version of the bill is a vast improvement over previous iterations and reflects many of neurosurgery's core principles, including:

- Repeals the SGR and includes a five-year period of stability in Medicare physician payments, with positive updates during the transition period and each year thereafter;
- Encourages physician-led quality improvement that allows the medical specialty societies to determine the most appropriate and clinically relevant quality improvement metrics and strategies for use in future quality initiatives;
- Adopts flexible criteria that allow physician participation and engagement in delivery and payment models that are meaningful to their practices and patient populations, including preserving a viable fee-for-service option and recognizing the value of clinical data registries for improving quality; and
- Establishes legal protections making it clear that the development, recognition, or implementation of any guideline, quality improvement program or other payment standard under Federal healthcare law does not establish a new standard of care in any medical malpractice claim.

The AANS and CNS do have several outstanding concerns, however, which we hope to address as the legislative process continues. These include:

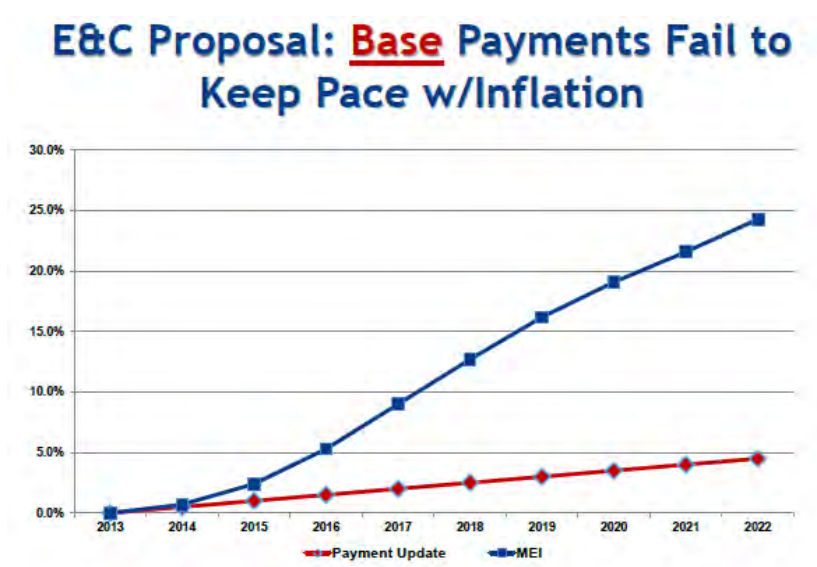
- Payment updates should keep pace with medical practice cost inflation to allow physicians to support their practices, including quality improvement infrastructure such as electronic health records (EHR) and clinical data registry participation;
- Any new quality update incentive program should replace the current Physician Quality Reporting System (PQRS), EHR, and Value-Based Payment Modifier (VBPM) programs and penalties;
- It is unnecessary and duplicative to include provisions related to misvalued codes, as the mechanisms in current law adequately address this issue; and
- Patients and physicians should be allowed to privately contract on a case-by-case basis, with beneficiaries receiving the Medicare allowable fee.

The following chart provides a quick snapshot of how the legislation stacks-up against neurosurgery's principles:

Principles vs. House E&C Bill

Reform Principle	Yes	No	So So
Repeal SGR	X		
5-year period of payment stability	X		
Payments based on MEI		X	
No pay differentials for specialists & PCPs	X		
Choice of payment models	X		
Viable fee-for-service option			X
Private contracting		X	
Positive incentives for quality improvement		X	
Replace current PQRS, EHR, VBPM		X	
Quality measures developed by physicians			X
Legal protections for physicians			X
IPAB Repeal		X	

We are continuing to press for annual payment updates based on the Medicare Economic Index. Without taking into consideration existing penalties and possible bonus payments, it is clear that this new payment model fails to keep up with medical inflation, and down the road, physicians will be facing a fairly significant gap between payments and the cost of practice. This gap widens, when all the penalties are added:



AANS and CNS Washington Office staff have met with committee staff, and with the individual members of Congress who serve on these committees, to promote our principles for reform. In addition, neurosurgery recently led an effort to send a letter to the Senate Finance and House Ways and Means Committees (<http://bit.ly/16IzXON>). In this letter, signed by 23 state medical and national specialty societies, we called for the repeal of the SGR, physician driven quality measurement, patient-shared billing, and medical liability reform. Finally, on Sept. 19, 2013, the AANS and CNS teamed up with the Alliance of Specialty Medicine in sending a letter (<http://bit.ly/15tdY3g>) to House and Senate leaders stressing the importance of fixing the current Medicare payment system by eliminating the SGR. In the letter, we urged that replacement of

Medicare's flawed SGR reimbursement formula needs to remain a top priority for action this year as physicians face significant cuts which could impede patient access to care.

As the SGR developments continue to evolve, the AANS and CNS will continue to advocate aggressively on behalf of neurosurgeons to ensure that they can continue to provide timely, compassionate, high quality and state of the art treatment for patients in need of neurosurgical care.

- **Small Group Practice Preservation Act.** Rep. Bill Cassidy is drafting legislation that would establish a process allowing all physicians to participate in accountable care organizations – regardless of the size of the practice. Under his plan, physicians may opt to be reimbursed as part of an ACO structure or they can participate in a new structure that uses an Independent Risk Manager (IRM). The IRM will assist smaller groups of physicians to contract global payments with CMS.
- **Medicare Private Contracting.** The AANS and CNS have been working with the Coalition of State Medical and National Specialty Societies to promote legislation to allow private contracting in Medicare without penalty to either patient or physician. Under current law, physicians who wish to privately contract must opt out of Medicare for 2 years and Medicare will not pay any portion of the physician's services. After gaining some limited momentum last year, the Medicare Patient Empowerment Act is again moving forward in the 113th Congress -- S. 236 is sponsored by Sen. Lisa Murkowski (R-AK) and has 3 cosponsors, and Rep. Tom Price, MD (R-GA) introduced H.R. 1310, which has 18 cosponsors. The MPEA would allow physicians and patients, on a case-by-case basis, enter into private contracts. The physician would not be forced out of Medicare and the beneficiary would be reimbursed for those services in the amount that Medicare would have otherwise paid.

The AANS and CNS have endorsed both bills. Neurosurgeons are encouraged to go to the My Medicare-My Choice website (<http://bit.ly/Xv1Xno>) to sign the petition supporting the MPEA.
- **American College of Surgeons Value Based Update Proposal.** The ACS is in the process of developing a proposal to repeal and replace the SGR with a Value Based Update. The proposal currently has many holes and the AANS and CNS have registered our skepticism and concerns about this as it is currently outlined, as it builds into the system currently flawed PQRS, e-RX, EHR, and value based payment modifier programs. Additionally, the system appears to be overly complicated and based on principles and ideas that are not tested and hence not ready for prime time. The ACS recently contracted with outside experts to further developing the VBU proposal and will reportedly engage the surgical societies in the upcoming months.



CODING AND REIMBURSEMENT UPDATE

Medicare Physician Fee Schedule

Refinement Panel for Cervico-cerebral Angiography Codes

In the 2013 Medicare Physician Fee Schedule (MPFS) final rule published in the *Federal Register* on November 16, 2012, CMS reduced the RUC-passed value of new bundled codes for Cervico-cerebral Angiography, CPT Codes 36221 through 36227, by about 10%. The AANS and CNS requested that CMS convene a “Refinement Panel” to review the codes. However, CMS denied the request without explanation. For the first time, CMS has required additional evidence beyond what was presented at the RUC in order to agree to send disputed codes to a refinement panel. On September 11, 2013, the AANS and CNS joined the American College of Cardiology (ACC), the American College of Radiology (ACR), the American Society of Neuroradiology (ASNR), the Society for Cardiovascular Angiography and Intervention (SCAI), the Society for Vascular Surgery (SVS), the Society of Interventional Radiology (SIR), and the Society of Neurointerventional Surgery (SNIS) in sending a letter to CMS repeating and clarifying additional information to be presented to refute reduction of the work RVUs for the codes. CMS has acknowledged receipt of the letter but not yet answered it.

2014 MPFS Proposed Rule

On September 6, 2013, the AANS and CNS sent a letter responding to a several reimbursement provisions included in the 2014 MPFS proposed rule published in the *Federal Register* on July 19, 2013. We also sent a letter responding to a few issues included in the Hospital Outpatient Prospective Payment System proposed rule. Finally, we sent separate letters regarding quality provisions of the final rule (see Quality Section).

Total payments under the 2014 MPFS will be approximately \$87 billion. In March 2013, CMS estimated that the statutory formula used to determine the MPFS Conversion Factor (CF) would result in a CY 2014 CF of \$25.7109, which represents a change of -24.4 percent from the 2013 conversion factor of \$34.0320. However, over the past 12 years, with one exception, Congress has acted to avoid a negative update. The overall impact of the changes for neurosurgery in 2014, not taking into consideration a change in the conversion factor, is predicted to be a 1 percent increase, due in part to a rebasing of the Medicare Economic Index (MEI) increasing weight given to physician work and decreasing weight for practice expense.

A summary prepared by the AANS/CNS Washington Office of the reimbursement relevant provisions of the MPFS is available at: <http://bit.ly/167bVCD>. Copies of the AANS and CNS letters are on the web at: <http://bit.ly/15gWJA4> and <http://bit.ly/14CQYOU>.

CPT Coding

May 2013 CPT Meeting

The CPT Panel met May 16-18, 2013. Patrick Jacob, MD, AANS Advisor to CPT, Henry Woo, AANS Alternate Advisor, and Washington office staff attended. The AMA publishes a summary following each meeting which is available at: <http://bit.ly/15jiazu>.

Thrombolysis Codes

CPT Code 37201 was a non-coronary thrombolysis code that had been used by endovascular surgeons for stroke thrombolysis. The code was eliminated through the bundling initiative for unrelated renal angiography codes at the RUC and the neurosurgeon use of the code was inadvertently overlooked, requiring neurosurgeons to report the service as an unlisted procedure code. Henry Woo, MD, drafted a CPT Code Change Proposal to create 6 new CPT codes that describe thrombolytic and non-thrombolytic intracranial infusions. The proposal was reviewed by two panel members at the February 2013 panel who made suggestions for further development and a multi-specialty society meeting was held May 16, 2013, to refine the proposal, which was submitted on July 10, 2013 for consideration at the CPT Editorial Panel in October 2013. Subsequently, SIR and ACR stated that they could not support the proposal because they believed that the codes for non-coronary thrombolysis developed as part of the renal angiography code revisions could be used for intra-cranial procedures. The AANS and CNS have pulled the proposal from the agenda for the October meeting, will meet with ACR and SIR advisors in October, and submit a further refined version by the November 6, 2013, deadline for the February 2014 CPT Editorial Panel meeting.

October 2013 CPT Meeting

In addition to activities surrounding thrombolysis codes described above, the AANS and CNS will join a multi-specialty group in presenting an editorial change to make two clarifications to the cervico-cerebral codes. The first proposed editorial change will allow reporting of CPT code 36228 with CPT code 36223 or 36225, in addition to CPT codes 36224 or 36226, and the second will allow reporting of CPT code 36218 with CPT codes 36225 and 36226.

Minimally Invasive Sacroiliac Joint Fusion

The AANS and CNS have been contacted to consider additional information regarding CPT Code category I status for minimally invasive sacroiliac joint fusion. A category I proposal was voted down at the February 2013 CPT panel meeting and the procedure is currently reported using a category III (new technology tracking) code. Supporters have provided additional literature which is being reviewed by the AANS/CNS Coding and Reimbursement Committee and the AANS/CNS Spine Section.

CPT Panel and Advisor Nominations

The AANS and CNS nominated R. Patrick Jacob, MD to the CPT Editorial Panel. The panel has one vacancy starting in October 2013, as Bradford Henley, MD, an orthopaedic surgeon has rotated rotating off the panel. The AANS and CNS also sent a letter to reappoint Joseph Cheng, MD as CNS CPT Advisor and to reappoint Dr. Jacob as AANS advisor. In addition, Henry Woo, MD was appointed as an alternate AANS advisor. Dr. Jacob received a letter dated April 26, 2013 informing him that Bernard Pfeifer, MD, nominated by the American Academy of Orthopaedic Surgeons, had been selected to fill the vacancy left by Dr. Henley.

RUC Issues

April RUC Meeting

At the RUC meeting April 25 through 28, AANS and CNS joined the Society of Interventional Radiologists, the Society of Vascular Surgeons, and several other societies in presenting survey data for a new code for transcatheter placement of an intravascular stent, intrathoracic common carotid artery or innominate artery by retrograde treatment, via open ipsilateral cervical carotid artery exposure. The new code includes access, selective catheterization and radiological supervision and interpretation. The RUC survey was sent to the AANS/CNS Section on Cerebrovascular Surgery.

McDermott Legislation to Override RUC

Rep. Jim McDermott (D-WA) introduced H.R. 2545, Accuracy in Medicare Physician Payment Act of 2013, on June 26, 2013. The bill would provide for a new advisory panel to review recommendations

from the AMA/Specialty Society Relative Value Update Committee (RUC) and has been referred to the House Committee on Energy and Commerce, and the Committee on Ways and Means. The proposed panel would include carrier medical directors, medical economists, private payer plan representatives, and a mix of physicians in different specialty areas, particularly physicians who are not directly affected by changes in the valuation of physicians' services (such as retired physicians and physicians who are employed by managed care organizations or academic medical centers), as well as Medicare beneficiary representatives. Interestingly, the bill would authorize up to \$10,000,000 for each fiscal year (beginning with fiscal year 2014) from the Federal Medical Supplementary Medical Insurance Trust Fund to establish, manage, and staff the new panel to duplicate activities currently provided to Medicare at no cost by the RUC. CMS already has the authority to, and often does, change recommendations from the RUC.

A copy of the legislation is available at: <http://1.usa.gov/15kmjDo>. While the bill only has two cosponsors, Rep. McDermott is pressing hard to have this (or components) legislation incorporated into the SGR replacement bill.

Press Coverage of the RUC

Over the last few months, a number of articles have appeared in the lay press regarding the RUC process, often inaccurately characterizing the panel as anti-primary care, secretive, and artificially price fixing fees for specialists. Examples from the Washington Post are available at: <http://wapo.st/1a17NHA> and <http://wapo.st/18tNp8S>

RUC Anti-lobbying Policy

On June 26, 2013, the AMA RUC sent out a written policy specifically prohibiting “lobbying” of RUC members, advisors, and staff. According to the policy, “lobbying” means unsolicited communications of any kind made at any time (including during meetings) for the purpose of attempting to improperly influence voting by members of the RUC on valuation of CPT codes or any other item that comes before the RUC, one of its workgroups or one of its subcommittees. Any communication that can reasonably be interpreted as inducement, coercion, intimidation or harassment is strictly prohibited. Violation of the prohibition on lobbying may result in sanctions, such as being suspended or barred from further participation in the RUC process.

A copy of the policy and other information about the RUC is available at: <http://bit.ly/16bWqm7> CPT has a similar policy available at: <http://bit.ly/10DVpol>

October 2013 RUC

CPT Code 22558 *Arthrodesis, anterior interbody technique, including minimal discectomy to prepare interspace (other than for decompression); lumbar* has been flagged by the CMS “fastest growing procedures” screen. The AANS, CNS, NASS, and AAOS submitted an Action Plan August 13, 2013 informing the RUC that the procedure itself has not changed and is appropriately valued. As physicians have incorporated anterior approaches to lumbar reconstructive procedures utilization has leveled off over the past two years and significant increases in volume are not expected. Therefore, a re-survey of the code is not needed. The code will be reviewed by the RUC Relativity Assessment Workgroup on October 3, 2013.

NCCI Edit for 22630, 22633, 63042

On July 25, 2013, the National Correct Coding Initiative (NCCI) Medical Director, Niles Rosen, sent a letter asking AANS and CNS for NCCI to review a proposed edit prohibiting the reporting of CPT codes 22630 (Arthrodesis, posterior interbody technique, including laminectomy and/or discectomy to prepare interspace (other than for decompression), single interspace; lumbar) and 22633 (Arthrodesis, combined posterior or posterolateral technique with posterior interbody technique including laminectomy and/or discectomy sufficient to prepare interspace (other than for decompression), single interspace and segment; lumbar) with CPT code 63042 (Laminotomy, hemilaminectomy, with decompression of nerve root(s),

including partial facetectomy, foraminotomy and/or excision of herniated intervertebral disc, re-exploration, single interspace; lumbar).

The AANS and CNS CPT Advisors prepared a letter disagreeing that the procedure described by CPT code 63042 is an inclusive component of CPT codes 22630 and 22633. Currently, both 22630 and 22633 have edits with 63030 (Laminotomy (hemilaminectomy), with decompression of nerve root(s), including partial facetectomy, foraminotomy and/or excision of herniated intervertebral disc; 1 interspace, lumbar). Washington Office staff reached out to NASS for a possible multispecialty letter and learned that NASS planned to agree with the proposed edit. The letter is available at: <http://bit.ly/1eVa3PY>.

Coverage Issues

The AANS/CNS Washington Office continues to receive requests for comment on coverage policy from Medicare, private payors, state neurosurgical societies, and individual neurosurgeons. The AANS/CNS Rapid Response Team (RRT), led by Joseph Cheng, MD, is working to improve processes to help neurosurgeons address these issues as they arise in their states and regions and has developed an outreach letter to send to payors to inform them of the clinical expertise available to them through organized neurosurgery. The AANS/CNS Section on Cerebrovascular Surgery has created an Rapid Response Team for CV issues headed by Henry Woo, MD. Some recent activity is highlighted below:

Blue Cross/Blue Shield

On September 10, 2013, the AANS and CNS received a letter from the Blue Cross Blue Shield Association Plans thanking them for comments submitted on coverage policies and restating their understanding that AANS and CNS have asked for feedback on the resolution of policies for which comments have been provided. Specifically, the letter states that the BCBS Association Plans would not be changing their policy regarding investigational designation for minimally invasive discectomies. The AANS and CNS submitted comments to Wellpoint disagreeing with their policy characterizing the procedures as investigational in January 2013. The September BCBS letter stated:

"Please find below the policy for which AANS/CNS provided clinical input early this year. The following determination was reached on this policy based upon review of the evidence and clinical input: Policy 7.01.18 - Minimally Invasive Discectomy (Percutaneous, Endoscopic, and Tubular). Based on results of clinical vetting, there were no changes made to the policy statements, which read as follows:

- *Automated percutaneous discectomy is considered investigational as a technique of intervertebral disc decompression in patients with back pain and/or radiculopathy related to disc herniation in the lumbar, thoracic, or cervical spine.*
- *Endoscopic discectomy is considered investigational as a technique of intervertebral disc decompression in patients with back pain and/or radiculopathy related to disc herniation in the lumbar, thoracic, or cervical spine."*

Blue Cross/Blue Shield of Minnesota

The CV Section RRT recently reviewed a policy put forth by Blue Cross/Blue Shield of Minnesota (BCBS MN) not to cover embolectomy, as they considered it investigative for the treatment of acute stroke due to a lack of clinical evidence demonstrating of an impact on improved health outcomes. The CV Section has been active on the issue on a number of fronts, supporting appropriate treatment of stroke with embolectomy, especially as an option for patients who are not candidates for IV tPA. At a May 22, 2013 BCBS MN Coverage Committee meeting, BCBS MN inactivated the policy, effective July 8, 2013. A copy of the original non-coverage policy is available at: <http://bit.ly/Z684zH>. A copy of the notice inactivating the policy is available at: <http://bit.ly/19ui4WP>

Aetna Intraoperative Monitoring Policy

Aetna has revised their Intraoperative Monitoring (IOM) coverage policy effective April 2013. Karin Swartz, MD, reviewed the policy for the Spine Section RRT and determined that the policy would continue to allow IOM to be used and the RRC did not feel further comment was necessary. More information is available at: <http://bit.ly/10EcFtM>

Aetna Thrombolysis Policy

Aetna currently has a non-coverage policy for thrombolysis and the policy is scheduled for review on October 10, 2013. Alexander Khalessi, MD, and the AANS/CNS Cerebrovascular RRT is preparing a letter on the subject in light of changes made recently by Blue Cross/Blue Shield of Minnesota. The Aetna policy is on the web at: <http://bit.ly/155Syne>

Aetna Issues Clinical Policy Bulletin Stating Cervical Cages Not Medically Necessary

In August 2013, Aetna issued a Clinical Policy Bulletin containing a recent update in policy scheduled to take effect in January 2014. Specifically they state, "Spine cages are considered not medically necessary for cervical fusion because they have not been proven more effective than bone graft for this indication. Spine cages are considered experimental and investigational for all other indications because their effectiveness for indications other than the one listed above has not been established." Joseph Cheng, MD, and the Spine Section RRT are reviewing the policy for comment. It does not appear that any other insurance carriers have adopted this policy. The policy bulletin is on the web at: <http://bit.ly/16eKLCU>

Priority Health Coverage on AxiaLIF

AANS/CNS Washington Office has been contacted by Trans-1, now Baxano Surgical, regarding coverage for AxiaLIF procedures. The information has been referred to the AANS/CNS Spine Section RRT.

Below is the link to Priority Health's coverage announcement on AxiaLIF (under the Sep. 3 changes, the 2nd and 4th bullets) and the specific coverage language: <http://bit.ly/15CAAwz>

Noridian/ISIS Interventional Pain LCD Workgroup

The AANS and CNS are participating in a multi-specialty pain care group to advise Noridian on coverage policy for pain procedures and intervention and to create model coverage policies. Daryl Fourney, MD, is the representative from organized neurosurgery. The group has held a number of conference calls and has established an active e-mail exchange to discuss issues of mutual interest. Currently the group is working on draft recommendations for medical record document for pain procedures.

State Coverage and Technology Assessment Activities

The states of Washington, Oregon, and California continue to be particularly active in health coverage policy and technology assessment. The RRC is working to identify and strengthen appropriate input from neurosurgeons for these activities. Below are some highlights from activity in the state of Washington:

- **Washington State Health Care Authority**

- Carotid Artery Stenting. The Washington State HCA Health Technology Clinical Committee will consider coverage of Carotid Artery Stenting at a meeting on Sept. 20, 2013. The AANS and CNS have worked closely with the Washington State Association of Neurological Surgeons (WSANS) to respond to the issue. Louis Kim, MD, neurosurgeon from the University of Washington made a presentation at the meeting on behalf of the AANS, CNS, and WSANS, which was the culmination of about nine months of activity by the AANS/CNS CV Section RRT.

On June 14, 2013, Spectrum Research, Inc., reached out to Joseph Cheng, MD for recommendation of a Washington State neurosurgeon cerebrovascular expert to review a draft technical assessment. Marc Mayberg, MD suggested forwarding the name of Stephen Monteith,

MD, who recently completed an endovascular fellowship and joined Swedish Neuroscience Institute on July 1, 2013. The draft technical assessment was released on July 2, 2013. The AANS and CNS submitted a letter to the Washington State HCA on Dec. 11, 2012 emphasizing that the key questions must separate consideration of extracranial and intracranial atherosclerotic disease, as blurring carotid disease, intracranial atherosclerotic disease (ICAD), and materially different catheter-based treatments will ultimately limit the HCA's ability to draw meaningful conclusions from the technical assessment. A copy of the draft technical assessment and more information is available at: <http://1.usa.gov/12WWnfP>.

Unfortunately, the committee decided not to cover intracranial stenting and to cover CAS with conditions. Specifically, for CAS they recommended:

Coverage for CAS for symptomatic carotid artery stenosis equal or greater than 50 percent. CAS coverage for asymptomatic carotid artery stenosis greater than or equal to 80 percent. Embolic protection would be required. Facility accreditation by ACC or the Intersocietal Accreditation Commission required.

- **Washington State Bree Collaborative**

- Spine Care. The Washington State Robert Bree Collaborative, a consortium of public and private health care purchasers, health carriers and providers appointed by the governor to identify concerns with quality and variation in health care and to recommend evidence-based strategies for improvement, met on September 25, 2013, to consider a number of issues, including an on-going review of spine care begun in the fall of 2012. Gary Franklin, MD, a neurologist and Medical Director for the Washington State Department of Labor and Industries, the agency that oversees the state workers' compensation program, heads the Bree Collaborative spine task force, and has proposed that hospitals be required to report spine care data to the Surgical Care Outcomes Assessment Program (SCOAP) as a condition of payment.

In January 2013, the Bree Collaborative recommended accepting SCOAP participation as the "community standard" for spine surgery performed in the hospital setting, with plans to later expand the recommendation to include spine procedures performed in the ambulatory surgery center and radiology suite settings. The Washington State Health Care Authority (HCA) was concerned that they did not have the authority to require participation in SCOAP and that the language of "community standard" was vague and may carry an unintended legal designation. The Bree Spine Task Force changed its wording to "strongly recommend participation in SCOAP" and they are awaiting a response from the HCA regarding the changed wording. More information is available at: <http://1.usa.gov/Xa08i9>

Wellpoint

Wellpoint continues to seek the opinion of the AANS and CNS on coverage issue, including the following:

- **Cranial Bands**. On July 2, 2013, Wellpoint contacted the AANS and CNS in response to comments submitted on Feb. 7, 2013 regarding Cranial Bands. The response was coordinated by David Gruber, MD in consultation with the AANS/CNS Pediatric Section and was generally supportive of Wellpoint's policy. Wellpoint indicated that they have decided not to make changes in their current policy.
- **BMP**. On August 30, 2013, Wellpoint contacted the AANS and CNS requesting input on the use of Recombinant Human Bone Morphogenetic Protein (rhBMP). In particular, they would like feedback regarding the use of rhBMP-2 for spinal indications in light of the recently released meta-analyses of patient-level clinical trial data from Medtronic, Inc. (Fu, 2013; Simmonds, 2013). Wellpoint has asked

for a response on or before September 27, 2013. Dr. Cheng and the Spine Section RRT are working on a response.

Medicare National Coverage

- **CMS Issues Decision on PET Scans.** On July 3, 2013, CMS posted a decision notice for coverage of Beta Amyloid Positron Emission Tomography in Dementia and Neurodegenerative Disease. The decision is available at: <http://go.cms.gov/13qgQgA>. CMS determined that the evidence is insufficient to conclude that the use of positron emission tomography (PET) amyloid-beta (A β) imaging improves health outcomes for Medicare beneficiaries with dementia or neurodegenerative disease, and thus PET A β imaging is not reasonable and necessary. However, there is sufficient evidence that the use of PET A β imaging could be promising in two scenarios: (1) to exclude Alzheimer's disease (AD) in narrowly defined and clinically difficult differential diagnoses, such as AD versus frontotemporal dementia (FTD); and (2) to enrich clinical trials seeking better treatments or prevention strategies for AD, by allowing for selection of patients on the basis of biological as well as clinical and epidemiological factors. Therefore, CMS proposes to cover one PET A β scan per patient through coverage with evidence development (CED), in clinical studies that meet certain criteria. Jeffrey Cozzens, MD, was selected to serve on the Medicare Evidence Development Coverage Advisory Committee (MEDCAC) which considered the issue. Details on the MEDCAC meeting are, including panel voting and a webcast, are available at: <http://go.cms.gov/WwW9IB>
- **Update to National Coverage Determination (NCD) Process.** On August 7, 2013, CMS published a notice in the *Federal Register* updating the processes that the agency uses for opening, deciding on, or reconsidering National Coverage Determinations (NCDs) for items and services under the Medicare program. The notice supersedes the 2003 Federal Register notice that had been utilized for almost ten years in which CMS announced the procedures for considering NCD requests and issuing NCDs. The 2013 notice does not alter or amend the regulations governing the administrative appeals of NCDs, however, it does establish an expedited administrative process for removing certain older NCDs, enabling local Medicare contractors to independently determine coverage for items and services addressed by NCDs rescinded under the new process. This opens the door for review of previous coverage determinations and to scrutiny of the clinical evidence upon which the coverage is based. The notice is available at: <http://1.usa.gov/152Ynr3>

Other Medicare Issues

2014 Medicare Hospital Inpatient Prospective Payment System (IPPS) Final Rule

On August 19, 2013, CMS published the 2014 Medicare Hospital IPPS final rule. The AANS and CNS sent a letter on June 25, 2013, with comments on the proposed rule published in the *Federal Register* on May 10, 2013. The AANS/CNS letter emphasized the need for flexibility in a new CMS plan to define hospital inpatient (Part A) admissions as those that span two midnights or more. In addition, the AANS and CNS supported new technology payments for the Responsive Neurostimulator System (RSN), which represents a significant clinical improvement for epilepsy patients who are refractory to medical or surgical treatment.

In the final rule, CMS stressed their intention to go forward with the clarifications for inpatient admissions (see below). In addition, CMS stated that they would not grant new technology add-on status to the RSN because it had not been cleared by the FDA in time to be eligible. A copy of the IPPS final rule is available at: <http://1.usa.gov/18yHPSr>. A copy of the AANS/CNS comment letter is available at: <http://bit.ly/17bE47V>.

CMS Guidance for Physician Certification for Inpatient Medical Necessity

On September 5, 2013, CMS issued guidance for physician certification of the medical necessity of inpatient services as a condition of Medicare Part A payment. Certifications must be signed by the

physician responsible for the case, or by another physician who has knowledge of the case and who is authorized to do so by the responsible physician or by the hospital's medical staff; although orders for inpatient services may be documented by an individual who is not a physician provided that the documentation is consistent with state law, hospital policies and medical staff bylaws and rules. A copy of the guidance is available at: <http://go.cms.gov/169DJq2>.

The AANS and CNS were contacted by the American Academy of Physicians' Assistants to express concern that the wording of the new rules for inpatient admissions may inadvertently prohibit a physician's ability in certain states to delegate duties for admission to a PA which were previously permitted. The AANS/CNS Coding and Reimbursement Committee is reviewing the issue.

Medicare Hospital Outpatient Prospective Payment System Proposed Rule

On July 19, 2013, CMS published the 2014 Medicare Hospital Outpatient Prospective Payment Systems (OPPS) proposed rule. The proposed rule contained several items of interest to neurosurgery including a change in bundling policy that could adversely impact facility payment for neurostimulator procedures and a significant increase in facility payment for delivery of Stereotactic Radiosurgery (SRS). However,

on August 28 2013, CMS published a recalculation of payment for SRS under the OPPTS which lowered by nearly \$3,000 reimbursement for both Cobalt-60 and linear accelerator SRS treatment. On September 6, 2013, AANS and CNS submitted comments to CMS recommending that CMS maintain the rates that it proposed in the original version of the OPPTS proposed rule, conduct a thorough review of the data and methodology used for setting SRS payment rates, and publish the results of this review for discussion and public comment in a future rulemaking. In addition, the AANS/CNS letter urged CMS not to implement the new proposal for bundling, stating that hospitals should not be penalized for being efficient and providing services on the same day. If, however, CMS moves forward with this proposal, any new bundled payment must account for all costs that were previously paid. A copy of the proposed rule is available at: <http://1.usa.gov/1bRnnmX> and our letter is available at: <http://bit.ly/14CQYOU>.

CMS and ASPE Projects

CMS and the HHS Office of Assistant Secretary for Health Policy (ASPE) are conducting separate but concurrent studies of primary care services in the Medicare Physician Fee Schedule (MPFS). The AMA hosted a briefing with CMS and ASPE staff to discuss the projects. Although the staff said that the purpose was to gather information to determine if primary care was disadvantaged, information that has been released about the projects clearly implies that the agency believes it to be a given. The AANS/CNS staff and other specialty society staff pointed this out. Below is a summary of the contracts.

- **CMS Projects.** CMS has issued two contracts to address requirements in the Affordable Care Act (ACA) to develop ways to “ensure” appropriate valuation of physician services. The projects will be on-going over the next two years and are still in the very preliminary stages. CMS promised a very robust public review of any proposals resulting from the projects. There can be no changes to payment without a formal rule-making notice and comment period. Details are below:
 - CMS Urban Institute Project. CMS has contracted with the Urban Institute (UI) which has subcontracted with Social and Scientific Systems, Inc. (SSS) and RTI International to develop a process to compare MPFS RVUs for 100 services with external data time and a method for validating work RVUs. The project will focus on observable time estimates and gather “clock time” through existing records such as operating logs, scheduling records, and direct observation to compare with time estimates in the MPFS. The contractor will convene clinical panels to review the data and recommend a method for adjusting work RVUs based on extrapolating the relationship between the MPFS and “observed” values. Robert Berenson, MD, will serve as Clinical Director and Peter Braun, MD, will serve as Project Director.
 - CMS Rand RBRVS Project. The Rand project will look at existing extent databases. During this two-year project, RAND will use available data to build a validation model to predict work RVUs and the individual components of work RVUs, time and intensity. The model design will be informed by the statistical methodologies and approach used to develop the initial work RVUs and to identify potentially misvalued procedures under current RUC and CMS processes. RAND will use a representative set of CMS-provided codes to test the model and will then consult with a technical expert panel on model design issues and test the results.
- **HHS ASPE Projects.** Has issued two contracts. HHS staff have said the projects are basic research to try to answer accusations that the MPFS systematically undervalues primary care. ASPE staff have stated that they will not prejudge the outcome but much of their written material certainly seems to imply that they assume there is a bias. The projects underway are:
 - HHS ASPE Contract 1: Urban Institute with SSS as subcontractor. In 2010 ASPE convened a Technical Panel (composed of all primary care representatives except for William Rich, MD, former RUC Chair and an ophthalmologist) to examine ways to justify paying more for primary care services. The panel initially recommended about 30 possible projects that were reviewed and ultimately 3 were chosen for study, all of which have already been or are being addressed by CMS and the RUC. It was unclear whether ASPE staff was unaware of RUC activity or just thought

there was more to squeeze out from the specialties. AMA RUC staff have suggested that ASPE staff work with RUC to be sure they are aware and that any surveys done use the same definitions, vignettes, etc. as the RUC, if reasonable comparisons are to be made.

- HHS ASPE Contract 2: SSS with Urban Institute as subcontractor. This contract to measure physician time will examine claims data from the integrated data systems (IDS) of two multi-specialty health care systems, the names and locations of which will not be revealed to the public or to HHS ASPE staff. They will only be known as Plan A and Plan B. The data will be compared to a survey of physician time for 30 codes in five specialties (cardiology, ophthalmology, orthopaedic surgery, radiology, and family medicine). The orthopaedic codes do not include any spine procedures.

Marilyn Tavenner Confirmed as CMS Administrator

On May 15, 2013, the Senate voted 91-7 to confirm Marilyn Tavenner as CMS Administrator. Those voting against her nomination were Senate Republican leader Mitch McConnell (R-KY), Senators Michael Crapo and Jim Risch (R-ID), Ted Cruz (R-TX), Ron Johnson (R-WI), Mike Lee (R-UT), and Rand Paul (R-KY). Ms. Tavenner had been the Acting Administrator for CMS and had previously served as the Principal Deputy Administrator. The agency has not had a confirmed administrator for nine years.

IOM Geographic Variation Report

On July 24, 2013, the Institute of Medicine (IOM) issued a report, *Variation in Health Care Spending: Target Decision Making, Not Geography*, which recommends that Congress eliminate geography as a factor in setting Medicare payments. The report said that, while geographic variation in spending and utilization is real, medical care decisions are made at the provider, not regional, level and result in varying degrees of quality care. It was also recommended that CMS continue to test payment reforms that provide incentives for the clinical and financial integration of health care delivery systems that encourage coordination of care, real-time sharing of data, receipt and distribution of provider payments and the assumption of some or all of the risk of managing the care continuum for their populations. The report is the most recent in a series of reports by the IOM on the subject requested by Congress in 2009. Previous studies were released in July 2012 and March 2013. More information and copies of the IOM reports are available at: <http://bit.ly/15COP4f>

MedPAC June 2013 Report

In addition to its annual March report on payment updates, MedPAC produces an annual report to Congress each June with recommendations for Medicare and the Health Care Delivery System. In addition, the June report includes an analysis of CMS' preliminary estimate of the 2014 payment updates. Of interest to neurosurgery is an analysis of the Medicare Physician Fee Schedule geographic work adjustment. Highlights of findings on the issue are below:

- Geographic practice cost indexes (GPCIs) adjust payments under the physician fee schedule to account for resource costs as they vary in different parts of the country. By law, one of GPCIs—the GPCI applied to the work of physicians and other health professionals, based on the earnings of professionals in certain reference occupations—is limited to one-quarter of its full impact. The resulting impact of the work GPCI generally ranges from reducing physician fees by 2.9 percent in places well below the national average cost index to increasing them by 3.8 percent in places well above the national average.
- Since 2003, the Congress has set a temporary floor suspending the work GPCI in localities with costs below the national average. As a result, geographic localities below the national average that would have received a negative GPCI adjustment are instead set to the national average.
- The report finds there is evidence of the need for some level of geographic adjustment of fee schedule payments for professional work because there is geographic variation in the cost of

living and the earnings of professionals in the reference occupations.

- However, the current index is flawed both conceptually and in implementation.
- Conceptually, the labor market for professionals in the reference occupations (lawyers, architects, etc.) may not resemble the labor market for physicians and other health professionals.
- Implementation of the work GPCI is flawed because there are no sources of data on the earnings of physicians and other professionals of sufficient quality to validate the GPCI.
- MedPAC is unable to determine whether the work GPCI has an effect on quality of care, but there is no evidence that the GPCI or the GPCI floor affect access. Moreover, any access concerns may be better addressed through other targeted policies.

Recommendation: Medicare payments for work under the fee schedule for physicians and other health professionals should be geographically adjusted. The adjustment should reflect geographic differences across labor markets for physicians and other health professionals. The Congress should allow the GPCI floor to expire per current law and, because of uncertainty in the data, should adjust payments for the work of physicians and other health professionals only by the current one-quarter GPCI, and direct the Secretary to develop an adjuster to replace it.

A copy of the June 2013 MedPAC report is at: <http://1.usa.gov/15lkRkj>
ICD-10-CM

The AANS and CNS continue to support repeal of ICD-10 but are also working to educate and prepare neurosurgeons for compliance should the October 1, 2014 ICD-10 conversion take place as scheduled. Some key recent developments are below:

- **Legislation to Halt ICD-10.** Representative Ted Poe (R-TX) and Senator Tom Coburn (R-OK) introduced the “Cutting Costly Codes Act of 2013, HR 1701 and S. 972. The legislation would stop HHS from implementing the new ICD-10 coding system on October 1, 2014 and requiring the General Accountability Office (GAO) to produce a study of the impact and cost of implementing the new system. The AANS and CNS support the bills. The bill text is available at: <http://1.usa.gov/13qMkTV>. The House version has 23 cosponsors and the senate bill has 4 cosponsors.
- **AMA Proposal for Advanced Payment Policy for ICD-10 Disruptions.** The AMA is developing a proposal for a Medicare “advanced payment policy” to allow a fair and flexible advanced payment specifically for situations where widespread cash flow interruptions are highly likely, such as during the transition to ICD-10. The payment would not be reimbursement for services already rendered. Presently, physicians’ ability to obtain a Medicare advanced payment is extremely limited and the criteria are very rigid making it difficult for physicians to obtain one.
- **CMS 1500 Claim Form Revised to Support ICD-10.** The CMS-1500 Claim Form has been recently revised with changes including those to more adequately support the use of the ICD-10 diagnosis code set. The revised CMS-1500 form (version 02/12) will replace version 08/05. The revised form will give providers the ability to indicate whether they are using ICD-9 or ICD-10 diagnosis codes, which is important as the October 1, 2014, transition approaches. ICD-9 codes must be used for services provided before October 1, 2014, while ICD-10 codes should be used for services provided on or after October 1, 2014. The revised form also allows for additional diagnosis codes, expanding from 4 possible codes to 12. More information is on the CMS ICD-10 website at: <http://go.cms.gov/18yALeD>

HHS Report on Access to Medicare Beneficiaries Access to Physician Services

HHS released a report, *Access to Physicians’ Services for Medicare Beneficiaries*, on August 22, 2013, which asserted that the percentage of physicians accepting new Medicare patients was similar to that of

physicians accepting new privately insured patients. The rate remained fairly steady over 2005-2012 with 90.7% of physicians accepting new Medicare patients in 2012. A copy of the report is available at: <http://1.usa.gov/1dp0qpe>

HHS Strategic Plan 2014-2019

On September 10, 2013, HHS released a document describing proposed program activities involving Medicare, Medicaid and other health-related department activities. Among other things, the strategic plan for 2014-2019 includes activities that would, “enhance Medicare and Medicaid payment accuracy by supporting ongoing initiatives that address the causes of improper payments to ensure that in every case Medicare and Medicaid programs pay the right amount, to the right party, for the right recipient in accordance with the law and agency and state policies; and Invest in health services research to identify the most effective ways to organize, manage, finance, and deliver high quality care, reduce medical errors, and improve outcomes.” Comments on the plan are due by October 15, 2013. A copy of the draft plan is available at: <http://1.usa.gov/1a424ut>



Quality Improvement Update

Agency for Healthcare Research and Quality



Administrative Issues

Quality Improvement Workgroup Members

Jack Knightly, MD, Chair John Ratliff, MD, Vice-Chair

Members:

David Adelson, MD	Zachary Litvack, MD
Peter Angevine, MD	Matt McGirt, MD
Tony Asher, MD	Paul Penar, MD
Hunt Batjer, MD	Ralph Reeder, MD
Maya Babu, MD	Dan Resnick, MD
Gary Bloomgarden, MD	Richard B. "Ben" Rodgers, MD
Kevin Cockroft, MD	Gail Rosseau, MD
Aaron Cohen-Gadol, MD	Karl Sillay, MD
Jeffrey Cozzens, MD	Mike Steinmetz, MD
Fernando Diaz, MD	Krystal Tomei, MD
Zoher Ghogawala, MD	Kevin Walter, MD
Robert Harbaugh, MD	Monica Wehby, MD
Odette Harris, MD	Philip Weinstein, MD
Bob Heary, MD	Richard Wohns, MD
Michael Kaiser, MD	Christopher Zacko, MD
Alexander A. Khalessi, MD, MS	Edie Zusman, MD

John A. Kusske, MD

Ex-Officio:

Staff Liaison: John Wilson, MD (WC,

Chair) Katie Orrico, Director, AANS/CNS

Washington Office

National Quality Initiatives in Neurosurgery

Pursuant to the discussions at the March 1, 2013 Washington Committee meeting, the AANS and CNS leadership have approved the establishment of a new Washington Committee task force, which will be charged with developing a proposed strategic plan/roadmap for organized neurosurgery's quality improvement activities, including the structure and membership of the Quality Improvement Workgroup. The goal is for organized neurosurgery to develop a comprehensive plan so we can ensure that all aspects

of our specialty are in sync as we move forward. Finding synergies among all these disparate programs is essential to minimize the burden on our members and maximize the benefits that can be derived by all stakeholders.

The members of the task force, chaired by Tony Asher, MD and Dan Resnick, MD, will represent a wide swath of organized neurosurgery, with many of its members wearing multiple hats so as to maximize representation, while at the same time keep the group to a manageable and functioning size. All the major players involved with quality improvement in neurosurgery would be represented, including the:

- American Association of Neurological Surgeons (AANS)
- American Board of Neurological Surgery (ABNS)
- AANS/CNS Coding and Reimbursement Committee
- Congress of Neurological Surgeons (CNS)
- Council of State Neurosurgical Societies (CSNS)
- AANS/CNS Joint Guidelines Committee (JGC)
- National Neurosurgery Quality Outcomes Database (N2QOD)
- NeuroPoint Alliance (NPA)
- Neurosurgery Residency Review Committee (RRC)
- AANS/CNS Quality Improvement Workgroup (QIW)
- Society of Neurological Surgeons (SNS)

A status report will be provided at the October QIW meeting.

Medicare Physician Quality Improvement System (PQRS)

Bonus/Penalties 2013-15

Under the PQRS program, physicians who successfully participate are entitled to 0.5% bonus payment in 2012; however under the Affordable Care Act (ACA), the bonus payment is phased out and beginning in 2016, physicians who do not participate will receive 2% payment cuts each year. Physicians who participate in qualified PQRS-MOC programs are eligible for an additional 0.5% bonus payment through 2014.

CMS recently released the 2011 PQRS Experience Report. The report includes comparative data from 2008-2011. In 2011, 17% of neurosurgeons received a PQRS Incentive. Within the report, CMS is claiming there were 4,476 eligible neurosurgeons who could have participated in PQRS in 2011. Of the eligible neurosurgeons in 2011, 21.4% participated in PQRS. The median incentive amount was \$1,601.85 and the maximum amount received by an individual neurosurgeon was \$9,461.25. Approximately, 82% of physicians who participated in 2011 PQRS via a registry received an incentive. Approximately, 1.1 million eligible professionals could have participated in 2011. The number one reported measures group was preventive care.

Applicable Measures

CMS maintained the measures that were applicable to neurosurgical practices, including perioperative measures, measures related to stroke and cancer care, and measure groups related to low back pain and ischemic vascular disease and several additional measures for 2013, including some epilepsy/seizure measures. In order to assist physicians with avoiding the payment cuts in 2015, CMS is allowing physicians to report one PQRS measure or measure group during the payment adjustment period. For 2015, the payment adjustment period is Jan. 1-Dec. 31, 2013. An additional option to avoid the penalty allows physicians to elect to use the administrative claims-based reporting for a set of administrative claims-based measures, but physicians must select and designate this option to CMS.

Registry Participation

The N²QOD is now a PQRS approved registry for 2013. N²QOD will have the capability of reporting the perioperative care measure group.

The recently passed American Taxpayer Relief Act included language to allow physicians to satisfy PQRS by participating in a qualified clinical data registry. To meet the mandate, CMS in February released a Request for Proposal (RFI) to solicit information on ways in which physicians might use clinical quality measures data reported to specialty boards, specialty societies, regional health care quality organizations or other non-federal reporting programs to also report under the Physician Quality Reporting System (PQRS), as well as the Electronic Health Record (EHR) Incentive Program. The RFI also sought input on ways by which the entities already collecting clinical data for other reporting programs can also submit this data on behalf of physicians and group practices for reporting under the PQRS and the EHR Incentive Program. Finally, CMS was requesting information regarding the above mentioned section of the American Taxpayer Relief Act. The agency was explicitly seeking information from medical specialty societies, boards, and registries, other third party registry vendors, and physicians using registries to report quality measures. The AANS and CNS submitted comments in response to the RFI. (<http://bit.ly/17n841q>) A formal proposal was included in the 2014 Medicare Physician Fee Schedule Proposed Rule published in early July, and in September, the AANS and CNS submitted two comment letters to the Centers for Medicare and Medicaid Services (CMS) regarding the quality-related provisions contained in the proposed 2014 Medicare physician fee schedule. Our letters addressed a variety of topics including issues related to the Physician Quality Reporting System (PQRS) and the new Quality Clinical Data Registry program, the Electronic Health Record (EHR) Incentive program, the Valued-Based Payment Modifier and the *Physician Compare* tool on the Medicare.gov website. Click here to read both letters: <http://bit.ly/17eYSgj> and <http://bit.ly/18gAbPT>.

The American Taxpayer Relief Act also includes language for the Government Accountability Office (GAO) to draft a study on what factors make clinical registries more or less effective in improving the quality and efficiency of care, and the use of clinical registry data. In addition, requesting information on the role of health information technology in facilitating the collection and analysis of registry data.

Neurosurgery reached out to the GAO and offered to provide input into their study, and they gladly accepted our offer and posed a number of questions to us addressing the above mentioned themes. The study is expected to be released by Nov. 15, 2013.

Public Reporting: Physician Compare

The ACA required CMS to establish a Physician Compare website by January 1, 2011. This website is intended to provide patients with basic data about physicians, including information about their participation status in the PQRS, e-prescribing and EHR incentive programs. Under the ACA, CMS is required to implement a plan by 2013 for making physician performance data (including quality, efficiency, and patient experience data) available to the public. Therefore, starting in 2013 CMS will publicly post performance data for a defined set of measures that apply to group practices participating in the PQRS Group Practice Reporting Option (GPRO) and ACOs participating in the Shared Savings Program. Over the next five years, CMS will expand public reporting to include patient experience data and actions taken to avoid preventable hospitalizations by group practices and ACOs, PQRS performance data for individual physicians, and information on physicians who qualified for the PQRS Maintenance of Certification incentive. Neurosurgery is against the expansion and believes that until CMS can work out the kinks with the website and provide an action plan that accurately assesses care, physician performance data should not be publicly reported.

CMS recently revamped the *Physician Compare* website and there are still issues with functionality. The new website has an intelligent search function, but when you search for a provider it automatically defaults to internal medicine, unless a user takes an additional step to search by specialty. Also, when you search for a neurosurgeon it displays information for neurologists along with neurosurgeons. The website only includes information on physicians who have submitted claims within the last 12 months. A physician's address is verified by PECOS and matching claims. If PECOS does not list a primary or secondary address then CMS will determine it based on what is listed on the claim. The re-vamped website plans to conduct on-going maintenance to update physician profiles only. CMS plans to conduct usability testing by the end of 2013. The plan is to have providers come into CMS to look at how the

information is displayed. Washington staff continues to be involved in the website revisions by providing feedback and meeting with CMS' contractor.

The proposed 2014 Physician Fee Schedule Rule includes CMS' proposed measures for public reporting on individual physicians. The measures will apply to CY 2014 and posted on *Physician Compare* no earlier than 2015. The measures selected will be based on input from purchasers, providers, health systems, physicians and consumers.

Availability of Medicare Data for Performance Measurement

The ACA also authorizes CMS to make Medicare data available to "qualified entities" for the evaluation of the performance of providers by Jan. 1, 2012. CMS did not make many of our requested changes.

However, the rule does make the change to allow for using claims data in addition to registry data and to partner with additional entities to meet the requirements. Additionally, last year, CMS formally launched a new office dedicated to the management, use and dissemination of health data. The new Office of Information Products and Data Analytics (OIPDA) will oversee CMS' portfolio of information and help make the development, use and dissemination of data a core function of the agency.

On Sept. 5, 2013, the AANS and CNS joined the American Medical Association and nearly 95 state medical and national specialty societies in writing a letter (<http://bit.ly/19Ovk6B>) to the Centers for Medicare and Medicaid Services (CMS) cautioning about the inappropriate release of Medicare physician claims data. In the letter, we noted that if not approached thoughtfully, the "public release of Medicare claims data can have unintentional adverse consequences for patients. Patient de-selection can occur for individuals at higher-risk for illness due to age, diagnosis, severity of illness, multiple co-morbidities, or economic and cultural characteristics that make them less adherent to established protocols." While Medicare data can help promote meaningful, accurate, and innovative ways to improve the overall quality of patient care, we believe that it is essential that CMS establish appropriate ways to utilize this data.

Physician Resource Use Reports and Value-Based Modifier

Under the ACA, Congress directed CMS to refine and expand its current efforts to provide confidential feedback reports comparing the cost and quality of care across physicians, known as the Physician Resource Use Feedback Program. The budget neutral Value-Based Payment Modifier (VBPM) will apply to payments of group of physicians of 100 or more starting in 2015 and to all physicians by 2017. Originally, CMS proposed the VBPM would apply to groups of physicians of 25 or more in 2015, but due to extensive advocacy they expanded the definition. Physician groups subject to the modifier can avoid all negative adjustments simply by participating in PQRS. In this case, physicians will receive neither a value-bonus nor pay cut under this new program. Physicians can, however, elect to be paid according to the measured cost and quality of services provided in 2013 and 2014. Any payment adjustment will be applied to 2015 and 2016 Medicare payments, respectively.

Setting the value-based bonuses and penalties

CMS has proposed a differential payment modifier to adjust Medicare physician pay in 2015. The agency would generate a report comparing an eligible doctor's quality of care and Medicare's costs for that care in the 2013 performance period to that of his or her peers. Large practices that successfully participate in the Medicare physician quality reporting system either can accept a 0% pay adjustment or vie for higher adjustments by accepting risk under a tiered modifier structure. Physicians assigned to a high-quality, low-cost category could receive bonuses of up to 2% in 2015, while the pay of doctors giving the costliest care at the lowest quality would be cut by up to 1%. Large practices that fail to meet PQRS requirements automatically would receive the full 1% cut.

Assessment	Low cost	Average cost	High cost
High quality	2.0%*	1.0%*	0.0%
Average quality	1.0%*	0.0%	-0.5%
Low quality	0.0%	-0.5%	-1.0%

* Physicians who score in these categories who treat high-risk beneficiaries could receive an additional one percentage point in bonus money.

The AANS and CNS have many concerns about this fee-adjuster, including questions related to per capita versus episode-based assessments of resource use; attribution methods; integration of cost and quality data; proper risk adjustment methodologies; appropriate sample sizes; and other statistical concerns. And these concerns remain, particularly after last year's release of prototype Quality and Research Use Reports (QRURs) to physicians in Iowa, Kansas, Missouri and Nebraska. The second round of reports were released last winter to California, Iowa, Illinois, Kansas, Michigan, Minnesota, Missouri, Nebraska and Wisconsin. The reports provide little value in regards to quality and cost information. In an effort to address issues, CMS has held focus sessions with specialty staff and a select group of physicians to learn how to improve the QRURs and to educate physicians on the reports.

The AANS and CNS 2013 have criticized the flawed methodology CMS intends to use for the value-modifier and QRURs. We have recommended that CMS re-evaluate its decision to use 2013 as the basis for applying the 2015 VBPM, due to CMS essentially instituted the provision two years before the statutory mandate and the numerous flaws with the pilot reports. Due to comments CMS received, the VBPM will only apply to groups of physicians of 100 or more, as opposed to 25 or more physicians in 2015. CMS also expanded the deadline for groups to elect how they want the VBPM to apply to the practice. Practices have until Oct. 15, 2013 to inform CMS of their status. In addition, concerns with CMS' proposal to calculate a total per capita cost measures for all beneficiaries and per capita cost measures for beneficiaries with four specific chronic conditions. A suggested alternative to CMS is for physicians to be compared to their specialty and not all of medicine. Through the Alliance, we have submitted detailed feedback and recommendations to CMS on improving the program, as well as met in person in December with a follow-up meeting held in March.

On Sept. 16, 2013, the Centers for Medicare and Medicaid Services (CMS) made available Quality and Resource Use Reports (QRURs) for group practices with 25 or more eligible professionals. These reports are made up of data from 2012 Medicare claims and the Physician Quality Reporting System (PQRS). Neurosurgeons are advised to carefully review the QRUR reports because they will serve as the basis for the value-based modifier, which will adjust Medicare payments to physicians. For additional information on how to obtain your 2012 QRUR click here: <http://go.cms.gov/1bGLgha>.

Finally, Tony Asher has been selected to serve on the CMS Episodes of Care project. The CMS grouper project is primarily being designed for the Physician QRUR reports. He has been appointed to the Cerebrovascular disease Clinical Working Group (which includes stroke). As Tony had been communicating with the HCI3 group (who are working on various grouper projects), they also supported his nomination. The AMA PCPI will oversee this project.

Episode Grouper/Bundled Payments

The Middle Class Tax Relief and Job Creations Act of 2012 mandates that DHHS conduct a study that examines options for bundled or episode-based payments, to cover physicians' services currently paid under the physician fee schedule for one or more prevalent chronic conditions (such as cancer, diabetes, and congestive heart failure) or episodes of care for one or more major procedures (such as medical device implantation). In conducting the study, the Secretary shall consult with medical professional societies and other relevant stakeholders. Ultimately the "vast majority" of services and patients will be included in

episodes and most likely will cover about 80% of Medicare costs. The term “bundling” can refer to a variety of ways by which payment units are broadened to include more services.

For services paid under the Medicare PFS, bundling has sometimes referred to either combining sets of codes that describe services usually furnished together or making explicit payment for coordination of care and care management. In the context of Congress’ mandate for a study that examines options for bundled or episode-based payments, bundling refers to possible ways to reduce the overall number of service units billed to encourage judicious use of services within a particular scope of services. CMS has chosen the AMA/Brandeis software to test bundles. For chronic conditions, the episode would be a calendar year. If the condition continued to the next year, a new episode would be started. For procedures, the episode would begin with a principal procedure being coded and the episode would include 3 days prior and 90 post-discharge. For acute medical events without a procedure (such as a heart attack without an associated procedure or pneumonia) the episode would be 30 days from the event. For post-acute care in a facility the episode would be the length of stay in the facility. For system- related failure the episode would be the length of stay—admission through discharge. System failure care is not included in other episodes.

AMA recently put out a call for workgroup members to define musculoskeletal episodes of care, which includes spine. Neurosurgery nominated John Ratliff, MD and he was selected. The work that comes out of this workgroup is important. It potentially will be the framework and foundation for future episodes of care definitions in CMS programs.

Included in the “Bucket”

In the prototype, an episode included all physician services and facility services that were considered “typical” for such an episode, as developed by the advisory panels. Part B and D Drugs were left out in the prototype. CMS intends to include them but has not worked out how to link them up.

Based on extensive conversations neurosurgery has had with CMS, they indicated that they would very much welcome the specialties input on what an appropriate bundle would look like and what are appropriate episodes of care. Neurosurgery recommended to CMS carotid stenosis and grade 1 single level Spondylolisthesis. In order to move forward beyond recommending the two conditions, a partner was needed in CMS. The development of episode groupers is not an easy task and requires methodological expertise outside our current capabilities. Thus, we have requested for CMS to work with us and put us in contact with its contractor, Brandeis. We have received little traction so far from CMS besides requesting the best way to define carotid stenosis or single level spondylolisthesis using data fields on administrative claims. John Ratliff, MD responded by recommending CMS define the treatment episodes by a CPT code linked to a specific diagnosis. He highlighted that there are limitations to ICD-9 based analysis; for instance 738.4 refers to nearly any acquired spondylolisthesis, regardless of grade or cause.

Health Care Improvement Institute (HCI3)

Neurosurgery was recently approached by Health Care Incentives Improvement Institute (HCI3) on assisting them with creating a bundle on laminectomy and back pain with radiculopathy. HCI3 is one of the subcontractor’s working with Brandeis. HCI3 has indicated the spine bundles will not be incorporated into the current CMS contract, but the second scope of work, which has yet to be awarded. Spine will not go to CMS for review until 2014. HCI3 also intends to pilot test the bundles with the commercial insurers first. Based on conversations we have had with HCI3 and the initial work they presented to neurosurgery, it is clear they are clueless with regard to anatomy, physiology of neurosurgical procedures, especially with laminectomy. They initially lumped all of laminectomy into the same episode. The positive is they have admitted they are unfamiliar with neurosurgical procedures so they are asking for organized neurosurgery’s help. Also, they are basing episode of care on procedure codes not DRG codes, which will help define procedures readily and help delineate back surgery from back procedures (pain management,

chiropractic, etc.). HCI3 is amendable to suggestions from neurosurgery and they understand for chronic conditions the bundle is different from something acute.

Of note, previously, the workgroup we put together to recommend clinical episodes to CMS chose symptomatic carotid stenosis and surgical treatment of degenerative spondylolisthesis with stenosis. Neither produced much interest from CMS. Similarly, HCI3 is looking for something broader than a single surgery for a single diagnosis. HCI3 wants “Laminectomy”, as in all laminectomies.

Brookings

The Brookings Institute is working on a project geared towards the development of payment models for specialty care, which will include the identification of clinical areas to establish episodes of care. The Brookings has reached agreement with the oncology community to look at cancer, and is interested in exploring a few surgical areas, including neurosurgery. While the details are fluid, it appears this would be an 18 month process. Once a clinical area is identified, they will convene an initial expert panel to hash out various issues related to the care bundle, etc. The AANS and CNS are considering providing input on the initial cancer care project — likely related to brain metastatic disease.

Bundled Payments for Care Improvement (BPCI) Initiative

On Jan. 31, 2013, the Centers for Medicare & Medicaid Services (CMS) through CMMI, announced the health care organizations selected to participate in the Bundled Payments for Care Improvement initiative (BPCI). This initiative is separate from the episode grouper project CMS is working on that will eventually influence the value based payment modifier. The BPCI is testing new models at a smaller scale and potentially inform the physician value modifier and other payment models (e.g., expanding bundling, ACOs).

Under the Bundled Payments for Care Improvement initiative, organizations will enter into payment arrangements that include financial and performance accountability for episodes of care. The initiative includes four bundled payment models covering various elements of hospital, physician and post-acute services and payments targeting 48 diseases and conditions. Spine and stroke are part of the 48 diseases and conditions. Based on conversations with participating sites, it does not appear risk- adjustment is involved and CMS will determine rates based on historic Medicare data so there is no room for negotiation. There is concern the models will lead to cherry picking and physicians will only enroll healthy patients and send sick patients to tertiary care or academic facilities. For more information visit: <http://1.usa.gov/XXmPzE>. For the list of facilities visit: <http://1.usa.gov/Tmiolq>.

Health Information Technology

e-Prescribing Program

The 2012 Medicare Physician Fee Schedule sets forth comprehensive requirements for the 2013 eRx incentive payments, additional requirements for the 2013 payment penalty, and requirements for the 2014 payment penalty. No eRx incentives or penalties are authorized beyond 2014. The current schedule for eRx incentives and penalties is as follows:

- Incentive payments for successful e-prescribers: 1.0 percent for 2012; 0.5 percent for 2013
- Penalties for those who are not successful e-prescribers: 1.0 percent for 2012; 1.5 percent for 2013; and 2.0 percent for 2014

In response to pressure from medicine, including the AANS and CNS, CMS released revisions to the program expanding qualified exemptions to the 2013 penalty, including situations where state or local law prohibits e-Rx. In addition, CMS has proposed two additional hardship exemptions in 2013 for physician practices participating in the EHR incentive program:

- Eligible Professionals or Group Practices Who Achieve Meaningful Use During Certain 2013 and 2014 eRx Payment Adjustment Reporting Periods
- Eligible Professionals or Group Practices Who Demonstrate Intent to Participate in the EHR Incentive Program and Adoption of Certified EHR Technology

Electronic Health Record-Meaningful Use

The American Recovery and Reinvestment Act (ARRA) included \$19 billion in federal grants to encourage physicians to adopt electronic health record (EHR) systems. Beginning in 2015, physicians who are not meaningful users of EHR will face penalties – up to 5% in later years. The stages of meaningful use are intended to take providers from a process oriented measure set in Stage 1, which requires providers to collect and report various measures, to using that collected information to make decisions about the delivery of healthcare by Stage 3.

- **Stage 1 and 2.** Stages 1 and 2 each require meeting 20 total objectives, but stage 2 makes mandatory some EHR measures that are optional for stage 1, such as whether the electronic systems can incorporate clinical laboratory test results. Other measures stay the same but have higher thresholds, such as a requirement that EHRs send more than 50 percent of applicable prescriptions electronically, up from more than 40 percent. The number of required core set measures goes up to 17 in stage 2 from 15 in stage 1. Physicians also must choose and comply with three out of six additional “menu” set measures, as well as report at least nine clinical quality measures.

The Stage 2 final rule mandates that doctors meet a larger number of core objectives — and stricter guidelines for some of those objectives already in place — during the next part of the three-stage program. Physicians also must adopt and demonstrate meaningful use of EHR systems by Oct. 1, 2014, or be assessed a 1% penalty from Medicare.

For a Summary of CMS Stage 2 EHR Incentive Program and Breakdown of Stage 1 versus Stage 2 go to: <http://bit.ly/RQMgWC> and <http://bit.ly/OWNb1n>. The Centers for Medicare and Medicaid Services (CMS) has released a new resource, An Eligible Professional’s Guide to Stage 2 of the EHR Incentive Programs, which provides a comprehensive overview of Stage 2 of Medicare’s Electronic Health Record (EHR) Incentive program (<http://go.cms.gov/1a3NUJP>). The guide outlines criteria for Stage 2 meaningful use, 2014 clinical quality measure reporting and 2014 EHR certification.

- **Stage 3.** Last December, the HIT Policy Committee released their pre-rulemaking proposal on Stage 3. The Stage 3 objectives, for the most part, reiterate the Stage 2 goals, with higher thresholds for demonstrating meaningful use. The proposed requirements will go into effect in 2016. The AANS and CNS submitted comments in response to this proposal, pointing out the unique challenges of specialty care and voicing our concerns that the proposed Stage 3 requirements would be overly burdensome for specialists, thereby preventing neurosurgeons from complying with the program’s requirements. The AANS and CNS also highlighted our concern that the Stage 3 recommendations are being made without considering how providers — especially neurosurgeons and other specialists — have fared with meeting the criteria used in Stages 1 and 2 of the EHR Incentive Program. Additionally, we cited the need for CMS to better align the agency’s various quality improvement programs, given the fact that these programs will become punitive in future years. Finally, we highlighted neurosurgery’s clinical data registry, the National Neurosurgery Quality and Outcomes Database (N²QOD), noting that comprehensive “registry data can be used to develop specialty specific quality and outcomes measures that will be more meaningful than current ‘check box’ measures contained in the EHR Incentive Program.” Click here for a copy of our comments: <http://bit.ly/X4iLxb>

In an effort to further accelerate and advance interoperability and health information exchange beyond what is currently being done through the Office of the National Coordinator (ONC) and the Electronic Health Record (EHR) Incentive Program, the Center for Medicare and Medicaid Services (CMS) has decided to delay any Stage 3 Meaningful Use rulemaking until next year. The Stage 3 delay is a request neurosurgery has made to CMS numerous times. In the interim, CMS reached out to stakeholders, through a request for information (RFI) for advice on how new payment models affect implementation of electronic health records. Neurosurgery signed onto a joint letter with the American College of Surgeons and other surgical specialties voicing our continued concerns with the EHR Incentive Program and its associated timelines.

Legislation

In an effort to try and address the impending penalties, specifically for small group practices, the AANS and CNS signed onto a letter asking Congress to delay the penalties. As a result, Rep. Diane Black re-introduced her bill in March. This legislation would make common sense reforms, including:

- Creating a hardship exemption for solo practitioners and physicians in and near retirement to avoid exacerbating workforce shortages;
- Shortening the gap between the performance period and the application of the penalty;
- Expanding options for participation in the incentive program and improving quality measures through incorporation of specialty-led registries;
- Increasing participation among rural health care providers;
- Tailoring requirements to meet specific needs of certain specialties; and
- Establishing an appeals process before application of penalties.

The AANS and CNS with the Alliance, also recently met with a key member of the HIT Policy Committee to discuss specialty specific issues and a possible specialty pipeline for achieving meaningful use.

Additional ACA Provisions Targeted Toward Quality and Efficiency

The ACA authorizes the creation of a new Center for Medicare and Medicaid Innovation (CMMI) to test new payment and treatment models that improve coordination, quality and efficiency. The ACA provides \$10 billion over 10 years for new demonstration projects and pilot programs to test payment models designed to catalyze transformation of the delivery system, moving it away from fee for service and toward care coordination. In a recent hiccup, the Congressional Budget Office released a briefing paper last January that concluded CMS' demonstrations aimed at enhancing the quality of health care and improving the efficiency of health care delivery in Medicare's fee-for-service programs have not reduced Medicare spending. In nearly every program involving disease management and care coordination, spending was either unchanged or increased relative to the spending that would have occurred in the absence of the program, when the fees paid to the participating organizations were considered. Despite these concerns, the program is moving forward full-speed-ahead, although some in Congress are pressing for more oversight and details about this program's funded projects.

CMMI recently announced nearly \$1 billion in awards to innovations that are focused on improving the quality and reducing the cost of specialty care. Building on other CMMI initiatives that cater to primary care, these awards will support innovations in 4 specific areas:

1. Rapidly reduce Medicare, Medicaid, and CHIP costs in outpatient and inpatient care (e.g., diagnostic radiology, physician administered drugs, acute and post-acute care services)
2. Improve care for patients with specialized care needs, such as HIV patients, high cost pediatric populations, and behavioral health patients.
3. Quickly transform clinician models for specific types of providers, including specialists. (e.g., oncologists, cardiologists, and pediatric providers who provide care to children with complex

medical needs)

4. Models that link clinical care delivery to preventive health and population health outcomes (cardiovascular diseases, hypertension, diabetes, and HIV/AIDS were singled out).

Preference will be given to proposals that are nationally scalable, engage multiple payers, and test new payment models in support of the desired care delivery model. Awards will be announced beginning in January 2014 and will be for a period of 3-years.

Shared Savings Program and Accountable Care Organizations

The ACA created the authority to establish ACOs — coordinated networks of providers that would be rewarded by Medicare for collaborating to redesign care processes that result in improved coordination, quality and cost-efficiency. Medicare ACOs became operational in 2012. Additionally, because of all the criticism levied on the Obama Administration for an overly restrictive ACO rule, CMS created the Pioneer ACO Model. The Pioneer ACO Model was designed specifically for organizations with experience offering coordinated, patient-centered care, and operating in ACO-like arrangements. CMS has selected 32 organizations selected to participate in the Pioneer ACO Model. The Pioneer ACO program has felt some growing pains, as nearly 10 of the 32 Pioneer ACOs either are dropping out of the demo or are considering doing so, and the four or five have said they will drop out and move to a separate CMS ACO program, called the Medicare Shared Saving Program (MSSP). The MSSP does not punish ACOs for failing to meet cost and performance goals. The AANS and CNS continue to support efforts to experiment with innovative models of healthcare delivery, but question the ability of the shared savings model to bring value to a system that is currently plagued by more fundamental problems, such as the flawed SGR. Finally, we are concerned that ACOs are nothing more than capitated managed care plans that ultimately will restrict patient access to vital medical services.

Hospital Quality Initiatives

The AANS and CNS continue to monitor various hospital quality initiatives as they apply to neurosurgeons. Topics include the hospital readmissions, payment reductions for hospital acquired conditions (e.g., surgical site infections), SCIP measures (e.g., clipping vs. shaving) and the application of quality requirements to outpatient departments. In April, CMS released the 2014 Proposed Inpatient Prospective Payment Rule. In addition to setting Medicare reimbursement rates for hospitals, the regulation includes additional proposed quality measures to strengthen the Hospital Value-Based Purchasing (VBP) Program and Inpatient Quality Reporting Program (IQR). In response to the proposal, the AANS and CNS submitted comments, which urged CMS to:

- Halt the expansion of the hospital readmission reduction program;
- Exclude patients with brain tumors or trauma from the postoperative pulmonary embolism/deep vein thrombosis quality measure requirements;
- Reconsider its proposal for including in 2017: *Hospital 30-day, All-Cause Risk-Standardized Rate of Mortality Following an Admission for Acute Ischemic Stroke (Stroke Mortality) Measure* and *Hospital 30-day, All-Cause Risk-Standardized Rate of Readmission Following Acute Ischemic Stroke (Stroke Readmission) Measures*.

Both of the stroke measures were developed by Yale New Haven Health Services Corporation/Center for Outcomes Research and Evaluation (YNHHSC/CORE) for CMS. CMS states in this rule that it plans to adopt both measures even though the measures are not endorsed by the National Quality Forum (NQF) and are not recommended by the Measures Application Partnership (MAP). Neurosurgery voiced its concerns with the measures when they were up for NQF review.

According to the rule, CMS believes it is imperative to adopt these measures as they aim to address a prevalent and costly health problem in the nation. In addition, CMS states the measures align with the Agency's priority objectives to promote quality improvements leading to successful transition of care for

patients from acute care to outpatient settings, and to reduce short term, preventable readmission and mortality rates. In addition, CMS states the measures align with the Agency's priority objectives to promote quality improvements leading to successful transition of care for patients from acute care to outpatient settings, and to reduce short term, preventable readmission and mortality rates.

The Washington Office worked in conjunction with the AHA/ASA to get the following organizations to comment on the CMS Inpatient stroke mortality and readmission measures proposed for 2017. The list of organizations who commented on the issue was multi-disciplinary and started a new AHA/ASA relationship in the quality area.

- American Association of Neurology (AAN)
- American College of Physicians (ACP)
- American College of Surgeons
- American Medical Association
- American Hospital Association
- Premier
- Highmark
- National Stroke Association
- American Association of Medical Colleges (AAMC)
- Federation of American Hospitals (FAH)
- Essential Hospitals

Comparative Effectiveness Research

CER was considerably expanded with the passage of ACA, which established the new Patient Centers Outcomes Research Institute (PCORI). The AANS and CNS continue to participate in high-level discussions related to CER and the PCORI by commenting on their reports/proposals and through our position on the steering committee of the Partnership to Improve Patient Care (PIPC).

Patient-Centered Outcomes Research Institute

In March, PCORI conducted a workgroup meeting to discuss, "Treatment Options for Back Pain". The aim of the multi-stakeholder group was to advise PCORI on highest priorities of funding within this topic. "Treatment Options for Back Pain" is one of five focused funding areas for which RFAs will be announced this Spring. Individuals at this roundtable meeting included representatives of osteopathic medicine, health services researcher, anesthesia pain management, employers, physical therapy, radiology, the NIH, occupational therapy, chiropractic care, and patient advocates. Matt McGirt, MD and Joseph Weistroffer, MD (AAOS) were the only surgeon representatives. The session was moderated by Paul Shekelle, MD, PhD, Director of RAND and Quality Improvement at UCLA.

After an all-day meeting, five areas emerged (which seemed almost predetermined by PCORI): 1. Methods for classifying patients for treatment planning; 2. Effectiveness of treatment options; 3. Relapse prevention and self-management; 4. Prioritizing Outcomes and; 5. Healthcare Systems

Dr. McGirt made a strong argument that it would be a mistake to ignore several areas surrounding lumbar surgery in PCORI low back pain funding priorities. He highlighted that despite the competing effectiveness and decision making that patients undergo for alternative treatments early during their presentation of back pain (which was most of the meetings focus), a substantial number receive and fail non-invasive medical treatments and present for consideration of surgical intervention. This surgical phase is the most costly, involves the most risk taking, is irreversible, and MUST be studied. He highlighted the feasibility and utility of longitudinal outcomes registries to capture the patient experience throughout an extended episode of back care, to identify prognostic patient-level factors to refine surgical indications and to develop informed and shared decision aids. He also highlighted the rapidly rising utilization of fusion and the need

to fund comparative effectiveness of this intervention, etc. Joseph Weistroffer (AAOS) was highly supportive.

In sum, neurosurgery was successful in narrowing category #2 (Effectiveness of treatment options) to three high focus treatments in: opioids, spinal injections, and surgery/fusion. In category #5 (Healthcare Systems), neurosurgery was successful in getting the use of outcomes registries to inform patient decision making listed as a priority. The PCORI board of governors will meet to vote and refine the list of priorities.

To date, the PCORI Board of Governors has approved funding for 51 new projects, totaling \$88.6 million, to study patient-centered comparative clinical effectiveness research (CER) under the first four areas of our National Priorities for Research and Research Agenda. The Board's action brings the total awarded for projects addressing these priorities to \$129.3 million. The Board approved nearly \$41 million in primary research projects in December 2012 and earlier committed \$30 million in funding for a series of pilot projects. The most recently approved projects, selected from more than 400 applications, address diseases and conditions that affect tens of millions of Americans, including studies of how to best care for people with kidney disease, certain cancers, obesity, asthma, diabetes, and various mental health conditions. Other projects will explore ways to support patient decision making, reduce specific health disparities, and improve healthcare delivery systems.

In May, PCORI announced two new funding opportunities totaling \$68 million to facilitate development of two data research networks by supporting the development of a National Patient-Centered Clinical Research Network. One is the Clinical Data Research Networks (CDRNs) and the second is the Patient-Powered Research Networks (PPRNs). Together, PCORI believes, these initiatives can unite patients, researchers and healthcare systems to support efficient, effective observational and interventional studies with active participation from broad patient populations. PCORI will fund up to \$56 million to support up to eight new or existing CDRNs that will develop the capacity to conduct randomized comparative effectiveness studies using data from clinical practice in large, defined populations. PCORI also will fund up to \$12 million to support up to 18 new or existing PPRNs and their progression toward a reusable, scalable, and sustainable research network. Drs. Asher and McGirt submitted a grant proposal and await word on whether or not they got funded.

Registry Regulatory Burdens

In an effort to address neurosurgery's ongoing concerns regarding the Privacy and Commons Rules and the need for further clarification on the ability to collect prospective patient data for quality improvement purposes, organized neurosurgery has begun to interact with HHS' Secretary's Advisory Committee on Human Research Protections (SACHRP). SACHRP is governed by the Federal Advisory Committee Act and provides expert advice and recommendations to the Secretary, Kathleen Sebelius on issues and topics pertaining to the protection of human research subjects. SACHRP submitted recommendations to the Secretary in October 2012, recommending the Secretary eliminate irrelevant non-research related information (e.g., standard surgical risks) from the informed consent document. However, SACHRP did not directly address exemptions that relate to research for quality improvement purposes, which continues to pose a significant challenge. Therefore, in response, the AANS and CNS submitted comments to the Secretary and provided oral comments at the March 2013 SACHRP meeting requesting they address informed consent for quality improvement purposes. Neurosurgery also has joined a coalition with other physician organizations that have registries to address common regulatory and legislative issues. The purpose is to work together to address common registry problems at the federal level. The coalition also recently drafted a White Paper on the issue and emailed it to OCR and OHRP staff.

In August, the coalition met with OCR/OHRP staff. It was very productive and a summary of the main points we discussed is as follows:

1. OCR and OHRP have addressed many of the issues raised in our White Paper (e.g., sites

submitting data to registries can rely on central IRB waivers obtained by registries), but, we believe it would be very helpful to consolidate and publish your guidance in one place (or one place for each agency). The NIH-published guidance on Research, Repositories, Databases, and the HIPAA Privacy Rule (<http://1.usa.gov/GAzmYK>) may be a good option for adding the clarifications we've requested. It does not currently address Common Rule issues, so it is not clear whether Common Rule guidance could be added to that document.

2. OCR confirmed that if a registry, acting as a business associate of its participating sites, collects PHI primarily for health care operations purposes (e.g., data aggregation and benchmarking), it may de-identify that PHI and use it for any purpose permitted by the business associate agreement, including the secondary purpose of research. This is consistent with OCR's FAQ on HIO's that we discussed (<http://1.usa.gov/17B3oFU>). We continue to believe it would be very helpful in explaining this issue prospective sites if OCR would add clinical data registries to this FAQ, in addition to HIOs, to make it crystal clear that the FAQ applies to registries acting as business associates of participating sites.
3. We discussed OHRP's guidance in its correspondence with Dr. Asher (AANS/CNS) that when a hospital, physician, or other health care provider supplies data collected in the course of clinical care to a clinical trial or clinical data outcomes registry, the data source is not engaged in research. This point is covered in a more general way in the OHRP "Guidance on Engagement of Institutions on Human Subjects Research" at: <http://1.usa.gov/19pwTXL>. We believe it would be very helpful if OHRP could add a specific reference to clinical registries in the guidance document. That would help registries persuade hospitals and other data sources that the Common Rule does not apply if they are simply submitting data to registries in the course of clinical care and not conducting research themselves.
4. We appreciate that OHRP is open to reconsidering its position that benchmarking constitutes research (as stated in correspondence with Dr. Asher). From our perspective, benchmarking consists of gathering PHI from multiple data sources, aggregating and analyzing the data to develop average or standard performance levels/metrics across all sources and then reporting back to each source how its performance compares to the group average. The benchmarks themselves do not necessarily contribute to generalizable knowledge. Registries may make secondary use of the data to perform research, but the purpose of the benchmarking itself is improve quality care at the participating sites.
5. In terms of follow-up options with OHRP, we believe guidance documents will be most useful in persuading hospitals and other data sources that the Common Rule does not apply to the submission of data to registries. But we understand that developing and issuing such guidance is a long-term proposition for OHRP. In the meantime, we would appreciate the opportunity to start a new chain of correspondence that applies to registries generally, but covers most of the same issues as the Asher correspondence. The only substantive difference is we would hope that OHRP would clarify that the benchmarking alone does not constitute research. We will provide you with an opening letter raising these issues as soon as we can.
6. We sensed there may be some willingness on OHRP's part to discuss further the idea of exempting registries or registry participants from the Common Rule (to the extent it would otherwise apply) if they are only collecting identifiable patient data (and have no direct contact with patients through clinical trials or otherwise) and are complying with the relevant HIPAA privacy and security rules. We continue to believe this would be enormously helpful in persuading hospitals and other data sources to participate in clinical data registries and would welcome further conversation on this issue.

Follow-up correspondence was sent to the OCR-OHRP folks reflecting the above.

NeuroPoint Alliance

The NPA has implemented a number of projects related to the collection, analysis and reporting of clinical data relevant to neurosurgical practice, including MOC, PQRS and the National Neurosurgery Quality and Outcomes Database (N²QOD). NPA has partnered with the Vanderbilt Institute for Medicine and Public Health (VIMPH) to provide an online data-entry system and to perform back-end statistical analysis of the data and provide individualized feedback reports to practices. To date, 39 groups have signed contracts to participate in the initial N²QOD spine module. Nearly 50 have gone through IRB review. Additional plans are in the works to develop more subspecialty modules including Spinal Deformity, Cerebrovascular and Tumor, and an “essentials” module to encourage more physicians to participate in this initiative. NPA leaders and Washington Office staff are working to position the NPA as a one-stop portal for purposes of MOC, PQRS and quality reporting. NPA is now a PQRS approved registry for 2013. We are developing a plan for interfacing with key stakeholders (i.e., third party payers, employers, government officials). To this end, we have met with representatives from HHS, CMS, ONC, OCRP, NQF, United Healthcare, Pacific Business Group and others. The hope is to broaden our efforts with other major insurance companies and purchasers.

ABIM Choosing Wisely Campaign

In an effort to address overuse of testing, the American Board of Internal Medicine Foundation launched the *Choosing Wisely* campaign in the spring of 2012. *Choosing Wisely* is part of a multi-year effort to help physicians be better stewards of finite health care resources. Originally conceived and piloted by the National Physicians Alliance through a Putting the Charter into Practice grant, nine medical specialty organizations, along with Consumer Reports, have identified five tests or procedures commonly used in their field, whose necessity should be questioned and discussed. The campaign is now going through a second phase and a total of 26 specialties have signed on and identified additional areas of overuse.

The AANS and CNS have been invited to participate in this campaign and we are currently developing a submission for this campaign.

For more information visit: <http://bit.ly/Kqr7j8>.

Quality Improvement Organizations

The AANS and CNS continue to actively participate in a number of quality improvement organizations, including the Physician Consortium for Performance Improvement, Surgical Quality Alliance, and National Quality Forum. It has been decided to terminate our participation with AQA, due to their lack of relevance and value. Projects include:

- Perioperative measure set
- Efficiency and overuse measures, including imaging
- Fostering use of clinical registries
- Regionalized emergency care
- Stroke measure set
- Measure Application Partnership (MAP)

- Measures for use by CMS in payment systems
- Consumer assessment of healthcare providers and systems (CAHPS) for surgery.
- Physician profiling and public reporting

We have also recently nominated a number of neurosurgeons to participate on several quality-related projects, including:

- Paul Penar, MD was nominated to Yale New Haven Health Services Corporation/Center for Outcomes Research and Evaluation's (CORE) Technical Advisory Panel (TEP). CMS has contracted with Yale/CORE to develop administrative claims-based, risk-adjusted measures of all-cause admissions for patients with chronic disease (heart failure, diabetes, and multiple chronic conditions). The purpose of the project is to develop admission measures that can be used to assess and improve the quality of care provided to Medicare beneficiaries.
- Shelly D. Timmons, MD was appointed to the NQF Phase II Regionalized Emergency Medical Care Services (REMCS) Taskforce. The taskforce is responsible for providing guidance to measure developers on the Office of Assistance Secretary for Preparedness and Response's prioritized areas of ED crowding, including a specific focus on boarding and diversion, emergency preparedness, and surge capacity.
- Michael G. Kaplitt, MD was appointed to the NQF Neurology Endorsement Project. He was the sole neurosurgeon on the panel. The panel is responsible for re-evaluating existing neurology measures and reviewing new measures. Measures reviewed related to stroke, Parkinson's, and epilepsy. CMS put forward two stroke readmission and mortality measures and due to weak evidence they were voted down. Neurosurgery was not supportive of the measures.
- Jeffrey W. Cozzens, M.D., FACS, was recently selected as an expert panelist to serve on an Agency for Healthcare Research and Quality (AHRQ) ICD-10-CM/PCS Quality Indicators (QI) Neurology Group. The workgroup process will lead to recommendations regarding how the existing AHRQ QIs should be re-specified using ICD-10-CM/PCS codes, retaining the original clinical intent of each indicator while taking advantage of the greater specificity of ICD-10-CM/PCS to improve the indicator's validity.
- Tony Asher, MD has been selected to serve on the CMS Episodes of Care project. The CMS grouper project is primarily being designed for the Physician QRUR reports. He has been appointed to the Cerebrovascular disease Clinical Working Group (which includes stroke). The AMA PCPI will oversee this project.

Joint Commission Stroke Certification

On Jan. 28, 2013, the American Academy of Neurology (AANS), American Association of Neurological Surgeons (AANS), American Board of Neurological Surgeons (ABNS), Congress of Neurological Surgeons (CNS), AANS/CNS Joint Cerebrovascular Section, Society of Neurointerventional Surgery (SNIS), Society of Neurological Surgeons (SNS), and the Society of Vascular and Interventional Neurology (SVIN) sent the Joint Commission an additional letter regarding the JC's standards for Comprehensive Stroke Centers (CSC). Updated requirements were released this summer and the Cerebrovascular Coalition (CVC) submitted a comment letter on Oct. 1.



GUIDELINES

Administrative Issues

Current Committee Members

Tim Ryken, MD, Chair

Sepideh Amin-Hanjani,

MD,

Co Vice-Chair Kevin Cockcroft, MD, Co Vice-Chair

Steven Kalkanis, MD, Co Vice-Chair

P. David Adelson, MD (Past JGC Co-Chair)
Peter Angevine, MD (CV Section)
Than Brooks, MD (Spine)
Jeff Bruce, MD (Tumor Section)
Steve Casha, MD (Tumor Section)
Sean Christie, MD (Spine Section)

Todd McCall, MD
J. Mocco (CV Section)
Jeffrey Olson (Tumor Section)
John O'Toole (Spine Section)
Chirag Patil (Tumor Section)
Julie Pilitsis, MD (Pain/Stereotactic Section)

Jeff Cozzens, MD (CRC)

J. Adair Prall, MD (Trauma Section)

Aaron Filler, MD (Peripheral Nerve)

Patricia B. Raksin, MD (Trauma Section)

Ann Marie Flannery, MD (Pediatric Section)

Daniel K. Resnick, MD (Spine Section)

Isabelle Germano, MD (Tumor Section)

Josh Rosenow, MD (Pain/Stereotactic Section)

Gregory Hawryluk, MD (Trauma Section)

John Shin, MD (Spine)

Dan Hoh, MD (Spine)
Brian Hoh, MD (CS Section)

Konstantin Slavin, MD (Stereotactic Section)
Martina Stippler, MD (Trauma Section)

Kathryn Holloway, MD (Stereotactic Section)

Krystal Tomei, MD (CNS Appointee)

Steve Hwang, MD (Spine)

Marjorie Wang, MD (Spine Section)

Jack Jallo, MD (Trauma Section)

Monica Wehby, MD (CSNS Appointee)

Terrence Julien, MD (Tumor Section)

Chris Winfree, MD (Pain Section)

John Kestle, MD (AANS Appointee/Peds)

Christopher Zacko, MD (Trauma Section)

Alex Khalessi, MD (CV Section)

Gabriel Zada, MD (Tumor Section)

Abhaya Kulkarni, MD (AANS Appointee/Peds)

Gregory Zipfel, MD (CV Section)

Sean Lavine, MD (CV Section)
Elad Levy, MD (CV Section)
Mark Linskey, MD (Past JGC Chair)

Consultant:
Beverly Walters, MD

Zachary Litvack, MD

William Mack, MD (CV Section)

Staff Liaisons:

Christopher Madden, MD (Trauma)

Laura Mitchell

Cathy Mazzola, MD (Pediatric Section)

Katie Orrico

The JGC also now has its own CNS-hosted website at: <http://www.cns.org/advocacy/jgc/default.aspx>.

CNS Guidelines Committee

In April, 2012, the CNS created a Guidelines Committee and appointed Steven Kalkanis as the Guidelines Committee Chair. This committee will facilitate interaction with the AANS/CNS Joint Sections and CNS Guidelines personnel to continue creating high quality evidence-based guidelines.

The CNS Guidelines Committee provides varying levels of support to sponsoring sections such as refining an initial guideline topic, creating a multidisciplinary taskforce group, evidence tables development, librarian and methodological support, grading criteria for levels of evidence and recommendation, assistance with writing, peer review by the AANS/CNS Joint Guidelines Committee, publication logistics/liaison with Neurosurgery®. Additional information regarding initial planning and development of evidence-based guidelines can be located at: <http://www.cns.org/guidelines/>

National Guideline Clearinghouse

On June 3, AHRQ's National Guideline Clearinghouse (NGC) announced its revised criteria for inclusion of clinical practice guidelines. The new criteria reflect the Institute of Medicine's definition of a clinical practice guideline provided in its 2011 standards-setting publication, *Clinical Practice Guidelines We Can Trust*. The two main changes to the NGC inclusion criteria are that the guideline:

- be based on a systematic review of the evidence, through a literature review that summarizes evidence by identifying, selecting, assessing, and synthesizing the findings of similar but separate studies, and
- contains an assessment of the benefits and harms of the recommended care and alternative care options.

The revised criteria will become effective June 2014.

Current and Completed Projects

Cerebrovascular

- AHA Stroke Projects. There are several AHA guidelines and scientific statements of interest to neurosurgery that recently have been, or soon will be, updated.

The Scientific Statements include:

- Secondary Stroke Prevention
- Intracerebral Hemorrhage
- Subarachnoid Hemorrhage
- Management of Acute Stroke and Primary Stroke Prevention
- Cervical Arterial Dissection Related to Cervical Manipulation

Currently there are two AHA/ASA guidelines under review:

- Prevention of Stroke in Patients with Stroke or Transient Ischemic Attack (Secondary Prevention)
- Prevention of Stroke in Women
- Primary Prevention of Stroke

- The following guidelines have recently undergone review:
 - Early Management of Patients With Acute Ischemic Stroke
 - Cerebral Venous Thrombosis
 - Definition of Stroke
 - Palliative and End of Live Care in Stroke (Scientific Statement)
 - Evaluation and Management of Malignant Infarcts
 - Risk of Cervical Arterial Dissection after Chiropractic manipulation (Scientific Statement)

- Management of Cerebral & Cerebellar Infarction with Swelling
- Cervical Dissection and Palliative Care (Scientific Statement)

Spine/Peripheral Nerve

- Guidelines for the Surgical Management of Cervical Degenerative Disease
- Position Statement on Percutaneous Vertebral Augmentation
- Treatment of Osteoporotic Spinal Compression Fractures
- Cervical and Thoracic Spine Disorders Guideline
- AAOS/ADA Antibiotic Prophylaxis for Bacteremia in Patients with Total Joint Replacements Guideline
- Lumbar Fusion Guideline
- Cervical Spine Trauma Guideline
- AAOS Guideline on Diagnosis of Carpal Tunnel Syndrome

In recognition of September as Spinal Cord Injury Awareness Month, on Sept. 27, 2013, Rep. Jim Langevin (D-RI), took the opportunity to acknowledge the leadership of several neurosurgeons who authored the updated AANS/CNS Guidelines for the Management of Acute Cervical Spine and Spinal Cord Injuries. Rep. Langevin was joined by several other members of Congress in recognizing neurosurgery's effort, including Reps. Terri Sewell (D-AL), Elijah Cummings (D-MD), John Lewis (D-GA), Bruce Braley (D-IA) and Ed Pastor (D-AZ). A tribute was published in the *Congressional Record*, which commended the authors of the guidelines, and noted that due to their commitment, "numerous lives are improved daily through the increased understanding and treatment of spinal cord injuries." Click here to see the statement: <http://1.usa.gov/19ORAgH>.

Trauma

- Thoraco-Lumbar Trauma Guideline
- Traumatic Brain Injury
- Management of Coagulopathy and DVT Prophylaxis in TBI Patients
- American College of Occupational and Environmental Medicine (ACOEM) chapter on traumatic brain injury within its evidence-based Occupational Medicine Practice Guideline

Tumor

- Guidelines for the Treatment of Newly Diagnosed Glioblastoma
- Metastatic Brain Tumor Guidelines
- ASTRO Guideline on Radiotherapeutic and Surgical Management for Brain Metastases
- Metastatic Spinal Tumor Guideline
- Management of Progressive Glioblastoma
- Non-Functioning Pituitary Adenoma Guideline
- Low-Grade Glioma

Stereotactic/Functional

- Deep Brain Stimulation for Patients with Obsessive Compulsive Disorder

Pediatrics

- Hydrocephalus

Pain

- The American Association of Occupational and Environmental Medicine (ACOEM) request to review chapter on “Opioids”
- ACOEM request to review chapter on “Low Back and Neck Pain”

Cross-Sectional Projects

- Appropriateness Criteria for Diagnostic Imaging
- CSNS Brain Death Guidelines



Emergency Neurosurgical Services Update

Rep. Bobby Rush (D-IL) to Introduce Trauma Reauthorization & Funding Bills

Working with Rep. Bobby Rush (D-IL-1) and other Trauma Coalition members, AANS/CNS is hopeful that two trauma services bills will be introduced in early October. The first bill would extend authorization of all trauma service related programs under the Affordable Care Act to 2018 and maintain each programs authorized funding level for each fiscal year, and the second bill would appropriate funds for all programs at their authorized levels for each fiscal year (FY) 2014 – 2018.

EMTALA-Related Medical Liability Protection Legislation

Working with other Trauma Coalition members, AANS/CNS was once again successful in having legislation introduced that would provide medical liability protections to all physicians that provide EMTALA-related emergency care. H.R. 36, the Health Care Safety Net Enhancement Act of 2013, was introduced by Reps. Charlie Dent (R-PA) and Pete Sessions (R-TX) on the first day of the 113th Congress, January 3, 2013. The bill currently has 64 co-sponsors, including four democrats.

In addition, AANS/CNS was successful in having companion legislation introduced in the U.S. Senate. S. 961 was introduced on May 15 by Sen. Roy Blunt (R-MO).

Good Samaritan Health Professionals Act

On April 25, Reps. Marsha Blackburn (R-TN) and Jim Matheson (D-UT) introduced the Good Samaritan Health Professionals Act (H.R. 1733). The bill currently has 16 co-sponsors, including one democrat.

Sen. Lisa Murkowski (R-AK) has agreed to introduce a Senate companion bill. Staff is currently working to secure a democratic lead sponsor.

Fiscal Year 2014 Trauma Funding Request

In early April, the AANS and CNS, along with several other emergency and trauma coalition organizations, signed onto a Fiscal Year (FY) 2014 funding request for \$28 million for trauma and EMS programs authorized under the Public Health Service Act. Along with other Trauma Coalition members, AANS/CNS met with House and Senate appropriation staff outlining our FY 2014 request.

Unfortunately, once again, the appropriations process has bogged down. The House and Senate are expected to take up a short-term Continuing Resolution (CR) bill and if successful, it is likely that congressional appropriators will abandon any further effort to pass individual fiscal year (FY) 2014 appropriations bills in this session and proceed to negotiate an omnibus spending bill for consideration in December.

Other

IOM Firearms Report

In 2010, more than 105,000 people were injured or killed in the United States as the result of a firearm-related incident. Recent, highly publicized, tragic mass shootings in Newtown, CT; Aurora, CO; Oak Creek, WI; and Tucson, AZ, have sharpened the American public's interest in protecting our children and communities from the harmful effects of firearm violence. While many Americans legally use firearms for a variety of activities, fatal and nonfatal firearm violence poses a serious threat to public safety and welfare.

The Institute of Medicine (IOM), in collaboration with the National Research Council, was asked to develop a potential research agenda that focuses on the causes of, possible interventions to, and strategies to minimize the burden of firearm-related violence. The proposed research agenda examines the characteristics of firearm violence, risk and protective factors, interventions and strategies, the impact of gun safety technology, and the influence of video games and other media.

In January 2013, President Barack Obama issued 23 executive orders directing federal agencies to improve knowledge of the causes of firearm violence, what might help prevent it, and how to minimize its burden on public health. One of these orders directed the Centers for Disease Control and Prevention (CDC) to, along with other federal agencies, immediately begin identifying the most pressing problems in firearm violence research. The CDC and the CDC Foundation asked the IOM, in collaboration with the National Research Council, to convene a committee tasked with developing a potential research agenda that focuses on the causes of, possible interventions to, and strategies to minimize the burden of firearm-related violence. The committee's proposed research agenda focuses on the characteristics of firearm violence, risk and protective factors, interventions and strategies, the impact of gun safety technology, and the influence of video games and other media.

For more information or to purchase a copy of the report, entitled *Priorities for Research to Reduce the Threat of Firearm-Related Violence* please go <http://bit.ly/11XVNez>.

Injury and Violence Prevention Network Holds Hill Briefing

On June 25, the Injury and Violence Prevention Network (IVPN) hosted a Congressional Briefing to discuss "Violence Prevention Throughout the Lifespan" and brief Hill staff on the importance of increased funding for the Center for Injury and Violence Prevention of the Centers for Disease Control (CDC).

Currently funded at \$3.5 million, the IVPN is requesting \$23.5 million for FY 2014, which is equal to the President's request.

The IVPN is requesting this large increase in funding in order to expand the National Violent Death Reporting System (NVDRS) to cover all 50 states. Created in 2002, the NVDRS is a surveillance system that pulls together data on violent deaths in 18 states, including information about child maltreatment (or child abuse) fatalities, intimate partner homicides, other homicides, suicides, deaths where individuals are killed by law enforcement in the line of duty, unintentional firearm injury deaths, and deaths of undetermined intent. It is the goal of the NVDRS to help provide states and communities with a clearer understanding of violent deaths so they can be prevented.

Moderated by Amber Williams, Executive Director of Safe States Alliance, speakers at this briefing included: Oxiris Barbot, MD, Commissioner of Health, Baltimore City Health Department; Deborah Gorman-Smith, PhD, Director, Chicago Center for Youth Violence Prevention and Professor, University of Chicago School of Social Service Administration; Clarence Lam, MD, MPH, Assistant Director, Prevention Medicine Residency Program, John Hopkins Bloomberg School of Public Affairs; and Thomas R. Simon, PhD, Deputy Associate Director for Science, Division of Violence Prevention, National Center for Injury Prevention and Control, CDC.

For more information, please visit: <http://www.cdc.gov/violenceprevention/nvdrs/>

NIH Brain Research Advisory Group Reports

An NIH advisory working group to the President's Brain Research Through Advancing Innovative Neurotechnologies (BRAIN) initiative made recommendations that the initiative's first objectives should be to create new tools to investigate animal and human brains to achieve several basic goals, such as determining the number of types of neurons, what neurons do and the best way to study them. The interim report, released on September 16, recommended nine high-priority areas for research that could take

multiple years and require collaboration with other agencies and institutions. In general, it is hoped that the research will help develop new treatments for Alzheimer's, Parkinson's and mental illnesses.

For more information or a copy of the report, please visit <http://www.nih.gov/science/brain/>.



Medical Liability Reform Update

Health Coalition on Liability and Access

The Health Coalition on Liability and Access, of which Katie Orrico is Vice Chair and Chair of its Legislative Committee, has planned for an active year. Information about HCLA and the *Protect Patients Now* initiative is available at <http://bit.ly/114rbdH>. HCLA's Legislative Agenda includes the following:

- Maintaining support for the HEALTH Act as the fundamental basis of proven medical liability reform. The HEALTH Act has a hard \$250,000 cap.
- Adopting additional reforms -- liability protections for volunteers, pretrial screening, certificate of merit, expert witness, protection for physicians following practice guidelines -- to complement the HEALTH Act and which may garner bipartisan support.
- Promoting modifications to the ACA including: Amending the medical liability reform demonstration project language and adding new language stating that nothing in the Act shall create new causes of action.
- Monitoring efforts to repeal the antitrust exemption for medical liability insurers.

Congressional Activities

Efforts to reform the medical legal system have gotten off to a slow start in the 113th Congress. Rep. Phil Gingrey, MD (R-GA) is expected to reintroduce the HEALTH Act later this year (hopefully before December). Once this occurs, Sen. Roy Blunt (R-MO) plans to do likewise. Other bills that have been introduced so far this year include:

• **House.**

- H.R. 36, the Health Care Safety Net Enhancement Act of 2013, was introduced by Reps. Charlie Dent (R-PA) and Pete Sessions (R-TX) on Jan. 3, 2013. The bill currently has 64 co-sponsors, including four democrats. This bill provides medical liability protections to all physicians that provide EMTALA-related emergency care. This would include physicians who initially see the patient upon arrival at an emergency department to physicians who provide stabilization and post-stabilization services, including surgery. The bill would provide protection by moving these physicians under the protection of the Federal Tort Claims Act.
- H.R. 1473, the Standard of Care Protection Act, was introduced by Reps. Phil Gingrey (R-GA) and Henry Cuellar (D-TX) on April 30, 2013. The bill has 11 cosponsors, but the language has been included in the House Energy and Commerce Committee's SGR replacement legislation. Medicare, the Patient Protection and Affordable Care Act and other federal healthcare programs create quality measures and payment methodologies, which may have the potential for expanding the risk of lawsuits against medical providers – despite the fact that these guidelines were never intended to measure negligence. This legislation would help ensure laws regarding federal healthcare programs are not used, outside their intended purpose, to create new standards of care for medical liability lawsuits.
- H.R. 1733, Good Samaritan Health Professionals Act, was introduced by Rep. Marsha Blackburn (R-TN) on April 25, 2013. It has 16 cosponsors. This bill would provide medical liability protections for physicians who provide volunteer medical services during a disaster.

- **Senate.**

- S. 44, the Medical Care Access Protection Act of 2013, was introduced by Sen. Rob Portman (R-OH). This bill adopts a “stacked cap” approach, similar to that in place in Texas. It has 2 cosponsors.
- S. 961 the Health Care Safety Net Enhancement Act of 2013, was introduced by Reps. Charlie Dent (R-PA) and Pete Sessions (R-TX) on May 15, 2013. The bill currently has one co-sponsor. This bill provides medical liability protections to all physicians that provide EMTALA-related emergency care. This would include physicians who initially see the patient upon arrival at an emergency department to physicians who provide stabilization and post-stabilization services, including surgery. The bill would provide protection by moving these physicians under the protection of the Federal Tort Claims Act.

Federal Rules Initiative

The AANS and CNS, along with the AMA and a handful of other medical specialties, have been working with Professors Kenneth Lazarus and Paul Rothstein of Georgetown University Law Center on the Federal Rules Initiative Group. This initiative is an effort to protect the litigating interests of physicians. Amendments to the Federal Rules impact federal court cases and also generally serve as a model for state rule enactments. Recent changes were made governing the discovery of expert testimony and the utilization of summary judgment remedies.

State Activities

- **Georgia.** In May, Governor Nathan Deal (R-GA) signed into law HB 499, the Provider Shield Act. Like the federal bill, this new law makes it clear that payor guidelines and criteria under federal law shall not establish legal basis for negligence or standard of care for medical malpractice. The bill was also supported by the trial bar.
- **Florida.** On June 5, 2013, Gov. Rick Scott signed SB 1792 into law. This bill sets forth further requirements for expert witnesses, including:
 - Requiring an expert medical witness to be in the same specialty as the defendant physician;
 - Ensuring a physician’s constitutional right to counsel; and
 - Giving parties equal access to medical fact witnesses
- **Oklahoma.** Governor Mary Fallin recently signed 23 separate liability reform bills, including an affidavit of merit requirement, expert testimony standards, and emergency and volunteer liability protections. To read more about Oklahoma’s re-adoption of medical liability reform legislation go to: <http://bit.ly/16bLBfF>.



DRUGS AND DEVICES UPDATE

Physician Industry Relations

On July 31, 2013, the Government Accounting Office (GAO) released a report examining substandard manufacturing problems with compounding pharmacies. The report, which was requested by Reps. Elijah Cummings (D-MD) and John Tierney (D-MA), is entitled *Drug Compounding: Clear Authority and More Reliable Data Needed to Strengthen FDA Oversight*, and concluded that the FDA's authority over such pharmacies should be clarified given the differing federal circuit court decisions on the extent of the agency's current authority and the resulting gap in oversight of compounding pharmacies. Specifically, the GAO said, "while FDA and national pharmacy organization officials generally agreed that states regulate the practice of pharmacy and FDA regulates drug manufacturing, there was no consensus on whether compounding drugs in large quantities, in anticipation of individual prescriptions or without prescriptions, and selling those drugs across state lines falls within the practice of pharmacy or is a type of drug manufacturing that should be overseen by FDA." HHS responded that the findings in the report support the need for legislation to allow FDA to appropriately regulate the evolving industry.

On Saturday, Sept. 28, the House passed a compromise bicameral, bipartisan drug compounding and distribution security bill under suspension of the rules. H.R. 3204, the Drug Quality and Security Act, would protect traditional pharmacies and clarify FDA's authority over the compounding of human drugs, while requiring the agency to engage and coordinate with states to ensure the safety of compounded drugs. To date, the CDC has linked 64 deaths and 750 cases in 20 states to contaminated drugs from NECC. This legislation would also create a uniform national standard for drug supply chain security to protect Americans against counterfeit drugs while eliminating needless government red tape. It would help prevent increases in drug prices, avoid additional drug shortages and eliminate hundreds of millions of dollars' worth of duplicative government regulations.

The bill is now pending before the Senate. More information is also on the FDA website at: <http://1.usa.gov/18fENq8>

Food and Drug Administration Activities

FDA Issues Unique Device Identifier Final Rule

On September 20, 2013, the FDA released the Unique Device Identifier Final Rule, which establishes a system to mark and identify devices through distribution and use to be phased in over the course of seven years. The rule requires the label of medical devices to include a unique device identifier (UDI), except where the rule provides for an exception or alternative placement. The labeler must submit product information concerning devices to FDA's Global Unique Device Identification Database (GUDID), unless subject to an exception or alternative. The system established by this rule requires the label and device package of each medical device to include a UDI and requires that each UDI be provided in a plain-text version and in a form that uses automatic identification and data capture (AIDC) technology.

The UDI will be required to be directly marked on the device itself if the device is intended to be used more than once and intended to be reprocessed before each use, but provides for exceptions and alternatives for some devices.

The final rule is scheduled to be printed in the Federal Register on September 24, 2013. The AANS and CNS have commented on the development of UDIs many times over the last ten years. Although generally supportive of the concept, organized neurosurgery has expressed a number of concerns, including those surrounding devices for which marking is infeasible or could potentially hurt the integrity of the material use. Washington Office staff is studying the document and will prepare a summary of point pertinent to neurosurgery. A copy of the final rule is available at: <http://1.usa.gov/16e6xh3> and a press release is available at: <http://1.usa.gov/18fJQoQ>

Network of Experts

On June 4, 2013, the AANS and CNS received an invitation to participate in the FDA CDRH Network of Experts Open House on October 24th, 2013. Washington Office Staff followed up with FDA to let them

know we would participate. The open house is in conjunction with the FDA Health Professional Organizations (HPO) Annual Conference: <http://1.usa.gov/158YYaF>.

Since entering into a “Network of Experts” agreement with the FDA in the fall of 2012, the AANS and CNS have been called on by the agency many times to provide neurosurgical expertise. Recent requests have included clot retrievers, shunts, spinal fusion devices, and BMP. Specific details are covered by a confidentiality agreement. More information on the program is available on the FDA website at: <http://1.usa.gov/TX2Z1a>.

Nomination to Orthopaedic Panel

FDA staff asked the AANS/CNS Washington Office for a recommendation for a neurosurgeon spine expert to serve on the Orthopaedic and Rehabilitation Devices Panel of the FDA CDRH. They have an opening for a voting member beginning a four year term starting September 1, 2013. Consideration of neurosurgical issues are split between the FDA CDRH Orthopaedic Devices Panel, which includes consideration of spinal devices, and the FDA CDRH Neurological Devices Panel, which considers all the other devices that are used by neurosurgeons. A number of years ago, the AANS and CNS requested that the FDA CDRH add a voting member neurosurgeon to the Orthopaedic Devices Panel. Before that time, all of the permanent voting spine surgeon members of the Orthopaedic Panel were orthopaedic surgeons. Dr. McCormick was added at our request but he rotated off several years ago and a neurosurgeon has not yet been replaced on the panel. The AANS and CNS nominated Marjorie Wang, MD.

Orthopaedic Panel Meeting, Pedicle Screws

On May 22, 2013 the FDA Orthopaedic Devices Panel met to discuss and make recommendations for remaining pre-amendments class III devices, pedicle screw spinal systems, intended to treat degenerative disc disease and spondylolisthesis other than either severe spondylolisthesis (grades 3 and 4) at L5-S1, or degenerative spondylolisthesis with objective evidence of neurologic impairment. William Welch, MD, presented comments on behalf of the AANS, CNS, and the Spine Section supporting Class II designation for the pedicle screws when used for these indications. The panel agreed and recommended Class II. FDA will consider the panel recommendation but is not required to follow it. A copy of a letter submitted to FDA from the AANS, CNS, and the Spine Section is available at: <http://bit.ly/14NBWCK>

Orthopaedic Panel Meeting, Artificial Spinal Discs Cancelled

FDA cancelled a scheduled Orthopaedic Devices Advisory Panel to discuss, make recommendations, and vote on information related to the premarket approval application for the Kineflex/C Cervical Artificial Disc and the Kineflex Lumbar Artificial Disc sponsored by SpinalMotion. The meetings were scheduled for July 24 and July 25, 2013. More information is at: <http://1.usa.gov/Zc2JJv>

Workshop on Women's Device Issues

The FDA CDRH hosted a workshop on device issues for women on June 24 and 25, 2013 at the FDA Headquarters in White Oak, Maryland. The program brought together clinicians, researchers, academics, government specialists, industry, and patient advocacy groups in an effort to 1) Develop Device-Specific Clinical Study Recruitment & Retention Strategies; 2) Improve Analysis and Communication of Sex-Specific Findings to Providers and Patients; 3) Develop a Priority Research Guidelines for Devices for Women Patients. More information is available on the FDA website: <http://1.usa.gov/12Oo22Z>

FDA Issues New Opioid Safety Labeling

On September 10, 2013, FDA issued new safety labeling and postmarket study requirements for all extended-release and long-acting opioid analgesics intended to treat pain (such as morphine and

oxycodone). The agency said the move is designed to combat the crisis of misuse, abuse, addiction, overdose and death from such drugs. More information is available at: <http://1.usa.gov/1du3TTA>

AANS and CNS Approve Position Statement on Hydrocodone Prescribing Policy

On Oct. 1, 2013, the AANS and CNS approved a new position statement on hydrocodone prescribing, which was developed by the AANS/CNS Section on Pain. (<http://bit.ly/1fGb7lO>) Organized neurosurgery is concerned about reclassifying hydrocodone combination drugs — including those that contain medications such as Tylenol® — from Schedule III to Schedule II, which includes such drugs as hydromorphone, methadone, morphine, oxycodone, fentanyl, methylphenidate and barbiturates. The position is as follows:

Neurosurgeons believe that patient safety considerations need to be balanced with the need for patients to have appropriate and ready access to pain relief medications.

Reclassifying hydrocodone combination drugs would create an unreasonable burden on providers and patient care. It would require more frequent office and emergency room visits, unnecessarily increasing the time and resources allocated to refilling these medication prescriptions, which are often used in modest amounts for peri-operative pain management. A change from Schedule III where they now reside, to Schedule II would also eliminate the ability of providers to prescribe up to 5 refills on a single prescription. Classifying hydrocodone combination drugs is a further burdensome and insufficient solution.

FDA Issues Guidance on Device Laboratory Practices

On August 29, 2013, FDA issued a draft guidance to answer commonly asked questions about the applicability of the Good Laboratory Practice (GLP) regulations for laboratory studies conducted to support research and marketing applications for medical devices. FDA's guidance documents, including this guidance, do not establish legally enforceable responsibilities. Instead, the guidance describes the Agency's current thinking on a topic and should be viewed only as recommendations, unless specific regulatory or statutory requirements are cited. The practices are suggested or recommended, but not required. A copy of the document is available at: <http://1.usa.gov/16sWAq7>

Other Drug and Device Issues

CNS Technology and Innovation Symposium

On October 19, 2013, the CNS is hosting a full day symposium on technology and innovation in neurosurgery. The workshop will include presentations by neurosurgeons, entrepreneurs, industry stakeholders, and engineers to discuss the cutting-edge technologies in cerebrovascular/endovascular, spine, and brain tumor neurosurgery. A draft program is available at: <http://bit.ly/16dchYv>

Neurosurgery Off-Label Article

The June 2013 issue of *Neurosurgery* featured an article on off-label use of FDA approved drugs and devices. The article proposes a new system that would encourage specialty societies to review and make recommendations regarding off-label use of devices. The article highlights the history of off-label use of bone morphogenetic proteins in anterior cervical fusions. James Bean, MD provided a comment to the article, questioning the value of creating an entire new system for review and stating, “Evidence based *treatment guidelines have precedent, multicenter outcome studies have been coordinated, and conclusions* have been published in peer reviewed journals and disseminated at professional society meetings. Using currently available means, off-label uses of devices or drugs can be investigated, the

evidence assessed, guidelines for use recommended, and the information disseminated.” More information is at: <http://bit.ly/16dcD14>

ASTM Meeting

Jean Coumans, MD, attended the F04 Medical and Surgical Materials Committee of the American Society for Testing and Materials May 21 to 23, 2013 on behalf of the AANS and CNS. An on-going issue has been uniform box labeling for implantable devices. On May 24, 2013, ASTM announced a new standard from the F04 Medical and Surgical Materials Committee for orthopedic implant labeling. The standard, ASTM F2943, *Guide for Presentation of End User Labeling Information for Orthopedic Implants Used in Joint Arthroplasty* does not apply to spine but there is some interest in expanding the standard to other devices that are sized in the operating room, including spine arthroplasty devices. The goal of the standard is to make labels for implants easier to identify when a patient-specific implant is selected from an inventory of different sizes of implants. Currently the identification labels for these implants are variably formatted and organized not only across different manufacturers but also across different brands from the same manufacturer. ASTM F2943 presents a universal label format of content and relative location of information necessary for final implant selection within an implant's overall package labeling. The guide identifies high priority label content and indicates a specific section of an implant's labeling where this crucial information is to be placed. Examples of the labeling format are presented in the standard. More information is available at: <http://bit.ly/12Nufb3>



Neurosurgical Education and Training

Regulatory Activity

IOM Study on Governance and Financing of Graduate Medical Education

Pursuant to a Congressional request in December 2011, the Institute of Medicine has embarked on a review of the GME system. An IOM committee will: (1) assess current regulation, financing, content, governance, and organization of U.S. graduate medical education (GME) and (2) recommend how to modify GME to produce a physician workforce for a 21st century U.S. health care system that provides high quality preventive, acute, and chronic care, and meets the needs of an aging and more diverse population. The study began June 1, 2012 and will conclude 16 months from this date.

The IOM has held a number of meetings, and Ralph Dacey, MD testified on behalf of organized neurosurgery testified at a December public hearing, and the AANS, CNS, ABNS and SNS submitted a detailed paper to the IOM. A copy of the statement is available here: <http://bit.ly/UjqyqZ>. In our statement we recommended the following:

- Need more primary care **and** specialists
- Expand GME funding to fully cover all years of training
- Eliminate GME funding caps
- Establish an all-payer fund for GME
- Maintain funding for children's hospital GME
- Maintain the ACGME as entity overseeing GME

The report should be released in late 2013/early 2014. Information about the study is available at:

<http://bit.ly/HMpyZf>.

Government Accountability Office (GAO) Studies

Requested by Sens. Tom Coburn (R-OK), Michael Enzi (R-WY) and Richard Burr (R-NC), the GAO is conducting two studies related to GME and workforce. The objectives of the workforce report include:

- Recent supply trends, including info on training and demographics
- Projections of future supply and factors affecting projections
- How provisions in ACA may affect future workforce needs

The other report is evaluating current GME funding and will include:

- Complete list of federally funded GME and loan forgiveness programs
- Evaluation of return on investment and possible duplication

The latter report was released on August 15, 2013 and is entitled: *Health Care Workforce: Federally Funded Training Programs in Fiscal Year 2012*. The report catalogues all the federally funded training programs for health care providers for FY 2012. It is available at: <http://1.usa.gov/1bno1IN>

COGME releases New GME Report

In August, the Council on Graduate Medical Education (COGME) issued its 21st report, entitled "Improving Value in Graduate Medical Education" (<http://1.usa.gov/12k3P57>) Authorized by Congress in 1986, COGME is tasked with providing an ongoing assessment of physician workforce trends, training issues, and financing policies and to recommend appropriate Federal and private-sector efforts to address identified needs.

Consistent with neurosurgery's general views, COGME is calling for increased funding for 3,000 new residency positions per year, continued support for Children's Hospital GME, and support for an all payer

GME fund. On the downside, however, it calls for directing most of the new funding to primary care (although priority specialties do include pediatric subspecialties). Additionally, the report is deficient in tackling the overall shortage of physicians, and merely expanding funding for 3,000 new slots will not make a real dent in addressing the 130,600 shortfall predicted by 2025. Furthermore, COGME completely fails to recognize the need for a well-trained surgical workforce, which is certainly shortsighted.

Legislation

Legislation to Provide Additional Residency Slots Gains Co-Sponsors

On March 14, Reps. Aaron Schock (R-IL) and Allyson Schwartz (D-PA) re-introduced H.R. 1201, the Training Tomorrow's Doctors Today Act. The bill currently has 45 co-sponsors. Additionally, S. 577, the Resident Physician Shortage Reduction Act, was also introduced on March 14 in the Senate by Sens. Bill Nelson (D-FL) and Charles Schumer (D-NY) and has ten co-sponsors. The companion bill, H.R. 1180, was introduced in the House by Reps. Joseph Crowley (D-NY) and Michael Grimm (R-NY) and has 67 co-sponsors.

Capped in 1997 by the Balance Budget Act, this legislation would increase the number of Medicare supported residency positions by 3,000 each year for the next five years for a total of 15,000 new residency slots. One-half of these positions are required to be used for shortage specialty residency programs, of which neurosurgery qualifies.

The AANS and CNS, along with the Society of Neurological Surgeons, launched a grassroots effort in August urging members of Congress to cosponsor these bills. This effort resulted in about 150 letters to Congress.

Workforce Grant Program Legislation Introduced

On June 12, 2013, Sens. Jack Reed (D-RI) and Roy Blunt (R-MO) introduced S. 1152, the Building a Health Care Workforce for the Future Act. The bill has two cosponsors. This legislation would strengthen the healthcare workforce through improving core competencies and providing grants to states for medical scholarship programs to encourage health professionals to stay and practice in the state. Importantly, the legislation recognizes the shortage of specialty physicians (as well as primary care physicians). For this reason, the AANS and CNS, through our participation in the Alliance of Specialty Medicine, supported this legislation. A copy of the letter is available at: <http://bit.ly/17ITE2g>.

Senate Appropriations Committee Approves Funds for Pediatric Loan Repayment Program

On July 11, 2013, the Senate Appropriations Committee approved \$5 million to fund the pediatric loan repayment program that was included in the Affordable Care Act. While this is a first positive step in the process for obtaining funds for this program, unfortunately the appropriations process continues to drag out. The House and Senate are expected to take up a short-term Continuing Resolution (CR) bill and if successful, it is likely that congressional appropriators will abandon any further effort to pass individual fiscal year (FY) 2014 appropriations bills in this session and proceed to negotiate an omnibus spending bill for consideration in December.



AMA Update

AMA Annual Meeting

The June 2013 Annual Meeting of the AMA House of Delegates (HOD) marked a number of achievements for neurosurgery, including the election of Dr. Maya Babu as the new resident member of the AMA Board of Trustees (BOT). Dr. Babu joins Dr. Monica Wehby, who is now moving into her third year on the BOT. Regrettably, this meeting was Dr. Peter Carmel's last one as a member of the BOT, as his term as AMA past-president came to a conclusion. Additionally, Dr. Mark Kubala stepped down as one of the AANS Delegates. Fortunately, Dr. John Ratliff moved into this position, serving on the Medical Practices Reference Committee at this meeting.

Our Delegation

Monica C. Wehby, MD, AMA Board of Trustees
Maya Babu, MD, AMA Board of Trustees
Philip W. Tally, MD, CNS Delegate (neurosurgery delegation chair)
Ann R. Stroink, MD AANS Delegate
Krystal L. Tomei, MD, AANS Delegate (Resident Fellow Section)
Zachary N. Litvack, MD, CNS Alternate Delegate

Currently, we have two vacant slots for AANS Alternate Delegates. The AANS will go through the so-called "five year review" in September, at which time we will ascertain whether or not we will maintain or lose our current number of delegates. Once the outcome of this review is known, we will know if additional appointments are possible.

Policy Recommendations

In addition to the changes in leadership and representation, your neurosurgical delegation was actively involved in shaping a number of policy matters that were discussed and debated at this meeting. Full details are available at: <http://bit.ly/12yIYwH>.

Highlights include:

- **BOT Report 16 – Invasive Pain Management Procedures for the Treatment of Chronic Pain, Including Procedures Using Fluoroscopy.** The House of Delegates (HOD) adopted guidelines for the invasive treatment of chronic pain, as follows:

Interventional chronic pain management means the diagnosis and treatment of pain-related disorders with the application of interventional techniques in managing sub-acute, chronic, persistent, and intractable pain. The practice of pain management includes comprehensive assessment of the patient, diagnosis of the cause of the patient's pain, evaluation of alternative treatment options, selection of appropriate treatment options, termination of prescribed treatment options when appropriate, follow-up care, the diagnosis and management of complications, and collaboration with other health care providers.

Invasive pain management procedures include interventions throughout the course of diagnosing or treating pain which is chronic, persistent and intractable, or occurs outside of a surgical, obstetrical, or post-operative course of care. Invasive pain management techniques include:

1. ablation of targeted nerves;
2. procedures involving any portion of the spine, spinal cord, sympathetic nerves or block of major peripheral nerves, including percutaneous precision needle placement within the spinal column with placement of drugs such as local anesthetics, steroids, and analgesics, in the spinal column under fluoroscopic guidance or any other radiographic or imaging modality; and
3. surgical techniques, such as laser or endoscopic disectomy, or placement of intrathecal infusion pumps, and/or spinal cord stimulators.

At present, invasive pain management procedures do not include major joint injections (except sacroiliac injections), soft tissue injections or epidurals for surgical anesthesia or labor analgesia.

When used for interventional pain management purposes such invasive pain management procedures do not consist solely of administration of anesthesia; rather, they are interactive procedures in which the physician is called upon to make continuing adjustments based on medical inference and judgments. In such instances, it is not the procedure itself, but the purpose and manner in which such procedures are utilized, that demand the ongoing application of direct and immediate medical judgment. These procedures are therefore within the practice of medicine, and should be performed only by physicians with appropriate training and credentialing.

- **Council on Ethical and Judicial Affairs Report – Amendment to E-8.061 “Gifts to Physicians from Industry.”** Once again, the AMA CEJA endeavored to add additional restrictions on physician-industry interactions. The amendments were rejected and the matter was referred back to CEJA for reconsideration.
- **Council on Ethical and Judicial Affairs Report – Amendment to E.9.011 “Continuing Medical Education.”** CEJA offered an amendment to the CME ethical policy, which was adopted as follows:

Physicians should strive to further their medical education throughout their careers, to ensure that they serve patients to the best of their abilities and live up to professional standards of excellence.

Participating in certified continuing medical education (CME) activities is critical to fulfilling this professional commitment to lifelong learning. As attendees of CME activities, physicians should:

- (a) Select activities that are of high quality and are appropriate for the physician’s educational needs.
- (b) Choose activities that are carried out in keeping with ethical guidelines and applicable professional standards.
- (c) Claim only the credit commensurate with the extent of participation in the CME activity.
- (d) Decline any subsidy offered by a commercial entity other than the physician’s employer to compensate the physician for time spent or expenses of participating in a CME activity.

- **Resolution 102 - Patient Satisfaction Surveys and Quality Parameters as Criteria for Physician Reimbursement.** The HOD adopted the following policy:

RESOLVED, That our American Medical Association work with the Centers for Medicare & Medicaid Services (CMS) and non-government payers to ensure that subjective criteria, such as patient satisfaction surveys, be used only as an adjunctive and not a determinative measure of physician quality for the purpose of physician payment (Directive to Take Action); and be it further

RESOLVED, That our AMA work with CMS and non-government payers to ensure that physician payment determination, when incorporating quality parameters, only consider measures that are under the direct control of the physician. (Directive to Take Action)

- **Board of Trustees Report 16 – Invasive Procedures.** The HOD approved of policy regarding invasive pain management procedures as follows:

That our AMA adopt the following guidelines on Invasive Pain Management Procedures for the Treatment of Chronic Pain, Including Procedures Using Fluoroscopy:

Interventional chronic pain management means the diagnosis and treatment of pain-related disorders with the application of interventional techniques in managing sub-acute, chronic, persistent, and intractable pain. The practice of pain management includes comprehensive assessment of the patient, diagnosis of the cause of the patient's pain, evaluation of alternative treatment options, selection of appropriate treatment options, termination of prescribed treatment options when appropriate, follow-up care, the diagnosis and management of complications, and collaboration with other health care providers.

Invasive pain management procedures include interventions throughout the course of diagnosing or treating pain which is chronic, persistent and intractable, or occurs outside of a surgical, obstetrical, or post-operative course of care. Invasive pain management techniques include:

1. ablation of targeted nerves;
2. procedures involving any portion of the spine, spinal cord, sympathetic nerves or block of major peripheral nerves, including percutaneous precision needle placement within the spinal column with placement of drugs such as local anesthetics, steroids, and analgesics, in the spinal column under fluoroscopic guidance or any other radiographic or imaging modality; and
3. surgical techniques, such as laser or endoscopic disectomy, or placement of intrathecal infusion pumps, and/or spinal cord stimulators.

At present, invasive pain management procedures do not include major joint injections (except sacroiliac injections), soft tissue injections or epidurals for surgical anesthesia or labor analgesia.

When used for interventional pain management purposes such invasive pain management procedures do not consist solely of administration of anesthesia; rather, they are interactive procedures in which the physician is called upon to make continuing adjustments based on medical inference and judgments. In such instances, it is not the procedure itself, but the purpose and manner in which such procedures are utilized, that demand the ongoing application of direct and immediate medical judgment. These procedures are therefore within the practice of medicine, and should be performed only by physicians with appropriate training and credentialing. (New HOD Policy)

Invasive pain management procedures require physician-level training. However, certain technical aspects of invasive pain management procedures may be delegated to appropriately trained, licensed or certified, credentialed non-physicians under direct and/or personal supervision of a physician who possesses appropriate training and privileges in the performance of the procedure being supervised, and in compliance with local, state, and federal regulations. Invasive pain management procedures employing radiologic imaging are within the practice of medicine and should be performed only by physicians with appropriate training and credentialing.

- **Resolution 216 – Recognizing the Diversity of Practice Models in the Transition from the SGR to a Higher Performing Medicare Program.** The HOD considered a number of resolutions regarding Medicare physician payment and ultimately adopted the following policy:

RESOLVED, That our American Medical Association continue to advocate for a transition from the sustainable growth rate payment formula to new payment models that:

1. Emphasize the importance of physician leadership and accountability to deliver high quality and value to our patients;
2. Reflect and preserve the diversity of physician-led practice models (including, for example, integrated systems of care, patient-centered medical homes, regional health collaboratives, and other practice models, including private practice); and
3. Provide opportunities for physicians to determine payment models that work best for their patients, their practices, their specialties, and their regions (Directive to Take Action); and be it further

RESOLVED, That our AMA, while working to help implement new payment models, continue to advocate that:

1. fee-for-service, as well as private practice medicine, be included as continued options that can provide efficient, ethical, high quality, high value, patient-centered care;
2. the viability of a private practice option be preserved for the benefit of patients and our members; and
3. physicians should be free to determine the basic method of payment for their services, and have the right to establish their compensation arrangements at a level which they believe fairly reflects the value of their professional judgment and services (Directive to Take Action); and be it further

RESOLVED, That our AMA continue to educate members on Medicare payment and delivery issues as they develop.

- **Resolution 320, Support for Quality in Graduate Medical Education.** The HOD passed a resolution calling on the AMA to collaborate with other organizations to explore evidence-based approaches to quality and accountability in residency education to support enhanced funding of GME.
- **Recommendations of CME Report 4, An Update on Maintenance of Certification, Osteopathic Continuous Certification, and Maintenance of Licensure.** A number of resolutions and reports regarding Maintenance of Certification and Maintenance of Licensure, and the HOD adopted the following policy:

1. That our American Medical Association (AMA) Reaffirm Policy H-275.923, Maintenance of Certification/Maintenance of Licensure, to reinforce that our AMA encourages rigorous evaluation of the impact on physicians of future proposed changes to the MOC and MOL processes including cost, staffing, and time. (Reaffirm HOD Policy)
2. That our AMA Reaffirm Policy H-275.924, Maintenance of Certification, to reinforce that any changes in the MOC process should not result in significantly increased cost or burden to physician participants (such as systems that mandate continuous documentation or require annual milestones). (Reaffirm HOD Policy)
3. That our AMA Rescind Policy D-275.960 (2), An Update on Maintenance of Certification, Osteopathic Continuous Certification, and Maintenance of Licensure, since that has been accomplished through this report. (Rescind HOD Policy)
4. That our AMA will continue to monitor the evolution of Maintenance of Certification (MOC), Osteopathic Continuous Certification (OCC), and Maintenance of Licensure (MOL), continue its

active engagement in the discussions regarding their implementation, and report back to the House of Delegates on these issues. (Directive to Take Action)

5. That our AMA will 1) work with the American Board of Medical Specialties (ABMS) and ABMS specialty boards to continue to examine the evidence supporting the value of specialty board certification and MOC and to determine the continued need for the mandatory high-stakes examination; and 2) work with the ABMS to explore alternatives to the mandatory high-stakes examination. (Directive to Take Action)
 6. That our AMA encourage the ABMS to ensure that all ABMS specialty boards provide full transparency related to the costs of preparing, administering, scoring, and reporting MOC and certifying/recertifying examinations and ensure that MOC and certifying/recertifying examinations do not result in significant financial gain to the ABMS specialty boards. (Directive to Take Action)
 7. That our AMA work with the ABMS to lessen the burden of MOC on physicians with multiple board certifications, in particular to ensure that MOC is specifically relevant to the physician's current practice. (Directive to Take Action)
 8. That our AMA solicit an independent entity to commission and pay for a study to evaluate the impact that MOL and MOC requirements have on physicians' practices, including but not limited to: physician workforce, physicians' practice costs, patient outcomes, patient safety and patient access. Such study will look at the examination processes of the ABMS, the American Osteopathic Association, and the Federation of State Medical Boards. Such study is to be presented to the AMA HOD, for deliberation and consideration before any entity, agency, board or governmental body requires physicians to sit for MOL licensure examinations. Progress report is to be presented at Annual 2014. (Directive to Take Action)
 9. That our AMA 1) support ongoing ABMS specialty board efforts to allow other physician educational and quality improvement activities to count for MOC; 2) support specialty board activities in facilitating the use of MOC quality improvement activities to count for other accountability requirements or programs such as pay for quality/performance or PQRS reimbursement; 3) encourage the ABMS specialty boards to enhance the consistency of such programs across all boards; and 4) work with specialty societies and specialty boards to develop tools and services that facilitate the physician's ability to meet MOC requirements. (Directive to Take Action)
- **Recommendations of CME Report 5, Physician Workforce Shortage, Going Forward with Reforming GME Financing.** In addition to supporting existing policy to address the physician workforce shortage, including seeking additional funds for GME, the HOD directed the AMA to work with the Association of American Medical Colleges and other key stakeholders to continue to examine alternative models of funding for graduate medical education, with a report back at the 2014 Annual Meeting.
 - **Council on Science and Public Health Report 9 – Pharmacy Compounding.** In light of the recent challenges regarding contaminated compounded materials, the HOD considered additional recommendations regarding AMA policy on this topic. The HOD adopted the following policy calling on the AMA to:
 1. recognize that traditional compounding pharmacies must be subject to state board of pharmacy oversight and comply with current United States Pharmacopeia and National Formulary (USP-NF) compounding monographs, when available, and recommends that they be required to conform with USP- NF General Chapters on pharmaceutical compounding to ensure the uniformity, quality, and safety of compounded medications;

2. encourage all state boards of pharmacy to reference sterile compounding quality standards, including but not limited to those contained in United States Pharmacopeia Chapter <797>, as the standard for sterile compounding in their state, and to satisfy other relevant comparable standards that have been promulgated by the state in its laws and regulations governing pharmacy practice;
3. support the view that facilities (other than pharmacies within a health system that serve only other entities within that health system) that compound sterile drug products without receiving a prescription order prior to beginning compounding and introduce such compounded drugs into interstate commerce be recognized as compounding manufacturers subject to FDA oversight and regulation; and
4. support the view that allowances must be made for the conduct of compounding practices that can realistically supply compounded products to meet anticipated clinical needs, including urgent and emergency care scenarios, in a safe manner; and, 5. in the absence of new federal legislation affecting the oversight of compounding pharmacies, continues to encourage state boards of pharmacy and the National Association of Boards of Pharmacy (NABP) to work with the United States Food and Drug Administration (FDA) to identify and take appropriate enforcement action against entities that are illegally manufacturing medications under the guise of pharmacy compounding. (BOT Action in response to referred for decision Res. 521, A-06) (Modify Current HOD Policy)

- **Resolution 522 – The Next Transformative Project: In Support of the BRAIN Initiative.**

The HOD adopted policy calling on the AMA to support the scientific and medical objectives of the Brain Research through Advancing Innovative Neurotechnologies (BRAIN) Initiative of mapping the human brain to better understand normal and disease process. Furthermore, the AMA should encourage appropriate scientific, medical and governmental organizations to participate in and support advancement in understanding the human brain in conjunction with the BRAIN initiative.

- **Board of Trustees Report 30 – Future of the Interim Meeting of the House of Delegates.** After extensive, ongoing discussion for the past several years, the HOD rejected calls for the AMA to eliminate its Interim meeting. Thus, the AMA will continue to hold 2 policy-setting meetings each year – one in June and the other in November.

- **Board of Trustees Report 11 – Designation of Specialty Societies for Representation in the House of Delegates.** Another ongoing issue of debate in the HOD, is how to allocate state and specialty society delegates. Currently, specialty society representation is determined based on the “ballot” system, whereby individual physicians must designate one specialty society as their representative in the HOD. The Board noted the difficulties of this system and provided the following recommendations:

1. That the current specialty delegation allocation ballot system be discontinued and that specialty society delegate allocation be determined in the same manner as state medical society delegate allocation based on membership numbers allowing one delegate per 1000 AMA members.
2. That the membership data used to determine the delegate allocation be the data that the specialty societies are required to submit every five years to determine their representation in the House of Delegates.
3. That this system is implemented beginning with the delegate allocation process for 2014.
4. That organizations that do not meet the five-year review criteria be allowed a one-year grace period to meet the requirements and that their delegation is frozen until the end of the grace period
5. That this system of delegate allocation continues to be monitored and evaluated for improvements.

Several concerns were raised about the actual impact of these recommendations, and so the HOD voted to refer this back to the Board, which will provide a revised report that will include a more detailed impact analysis. This manner of allocation may actually benefit neurosurgery, to the extent

that both the AANS and CNS have 1000 or more AMA members, in which case we would gain an extra delegate over the 3 we currently have between the two groups. If, however, we drop below the 1000 threshold, we will lose one AANS delegate.

- **Board of Trustees Report 9 - Pain Management and the Hospital Value-Based Purchasing Program.** The HOD passed policy calling on the AMA to urge the Centers for Medicare and Medicaid Services to suspend the use of HCAHPS measures addressing pain management until their validity as reliable and accurate measures of quality of care in this domain has been determined.
- **Council on Medical Service Report 2 - Value-Based Insurance Design.** The HOD made a number of recommendations regarding the development of value-based insurance design, as follows:

1. That our American Medical Association (AMA) amend Policy H-155.960 by addition and deletion as follows:

H-155.960 Strategies to Address Rising Health Care Costs

Our AMA...(7) encourages third-party payers to use targeted benefit design, whereby patient cost-sharing requirements are determined based on the clinical value of a health care service or treatment. Consideration should be given to further tailoring cost-sharing requirements to patient income and other factors known to impact compliance...(Modify Current HOD Policy)

2. That our AMA support flexibility in the design and implementation of value-based insurance design (VBID) programs, consistent with the following principles:
 - a. Value reflects the clinical benefit gained relative to the money spent. VBID explicitly considers the clinical benefit of a given service or treatment when determining cost-sharing structures or other benefit design elements.
 - b. Practicing physicians must be actively involved in the development of VBID programs. VBID program design related to specific medical/surgical conditions must involve appropriate specialists.
 - c. High-quality, evidence-based data must be used to support the development of any targeted benefit design. Treatments or services for which there is insufficient or inconclusive evidence about their clinical value should not be included in any targeted benefit design elements of a health plan.
 - d. The methodology and criteria used to determine high- or low-value services or treatments must be transparent and easily accessible to physicians and patients.
 - e. Coverage and cost-sharing policies must be transparent and easily accessible to physicians and patients. Educational materials should be made available to help patients and physicians understand the incentives and disincentives built into the plan design.
 - f. VBID should not restrict access to patient care. Designs can use incentives and disincentives to target specific services or treatments, but should not otherwise limit patient care choices.
 - g. Physicians retain the ultimate responsibility for directing the care of their patients. Plan designs that include higher cost-sharing or other disincentives to obtaining services

designated as low-value must include an appeals process to enable patients to secure care recommended by their physicians, without incurring cost-sharing penalties.

- h. Plan sponsors should ensure adequate resource capabilities to ensure effective implementation and ongoing evaluation of the plan designs they choose. Procedures must be in place to ensure VBID coverage rules are updated in accordance with evolving evidence. (New HOD Policy)
- i. VBID programs must be consistent with AMA Pay for Performance Principles and Guidelines (Policy H-450.947), and AMA policy on physician economic profiling and tiered, narrow or restricted networks (Policies H-450.941 and D-285.972).

- **Council on Medical Services Report 6 – Delivery Reform.** The HOD adopted comprehensive policy related to delivery reform:

1. That our American Medical Association (AMA) amend Policy H-390.849[1] and its title by deletion to read as follows: “~~Medicare~~ Physician Payment Reform (1) Our AMA will advocate for the development and adoption of ~~Medicare~~ physician payment reforms that adhere to the following principles: ...” (Modify Current HOD Policy)
2. That our AMA rescind Policy H-478.995. (Rescind HOD Policy)
3. That our AMA support the inclusion of actively practicing physicians and patients in health information exchange governing structures. (New HOD Policy)
4. That our AMA advocate that physician participation in health information exchanges should be voluntary, to support and protect physician freedom of practice. (New HOD Policy)
5. That our AMA advocate that the direct and indirect costs of participating in health information exchanges should not discourage physician participation or undermine the economic viability of physician practices. (New HOD Policy)
6. that our AMA amend Policy H-450.966[6] by addition and deletion to read as follows: “The AMA ... (6) advocates that the following principles be used to guide the development and evaluation of quality and performance standards and measures under federal and state health system reform efforts: (a) Standards and measures shall have demonstrated validity and reliability. (b) Standards and measures shall reflect current professional knowledge and available medical technologies. (c) Standards and measures shall be linked to health outcomes and/or access to care. (d) Standards and measures shall be representative of the range of health care services commonly provided by those being measured. (e) Standards and measures shall be representative of episodes of care, as well as team-based care. (f) standards and measures shall account for the range of settings and practitioners involved in health care delivery. (g) Standards and measures shall recognize the informational needs of patients and physicians. (h) Standards and measures shall recognize variations in the local and regional health care needs of different patient populations. (i) Standards and measures shall recognize the importance and implications of patient choice and preference. (j) Standards and measures shall recognize and adjust for factors that are not within the direct control of those being measured. (k) Data collection needs related to standards and measures shall not result in undue administrative burden for those being measured.” (Modify Current HOD Policy)

- **Resolution 722 - Clarifying EMTALA Specialty On-Call Requirements.** The AMA adopted policy to have the AMA compile and make available to the physician community various examples of on-call solutions intended to avoid subjecting physicians to unrealistic and unduly burdensome on-call demands, and to educate AMA physician members regarding these options. (Directive to Take Action)

AANS 5-Year Review

The AANS is up for its 5-year review to determine whether or not it will continue to satisfy the requirements for holding a seat in the House of Delegates, and, if so, how many delegates will be allotted. Currently, the AANS has 2 delegate and 2 alternate delegate slots. However, to maintain this number, at least 1000 eligible AANS members must also be AMA members and have designated the AANS as their representative organization.

According to the preliminary records match, the AANS has 889 AMA Members out of 3033 possible, which is 29.31 percent; thus it appears we are safe to retain our seat in the House of Delegates, but that we will lose a delegate unless we can generate 111 new AMA members. We are exploring our options.

Communications and Public Relations Update



Administrative Issues

The goal of the Communications and Public Relations (CPR) Committee is to provide a strategic, formalized process to coordinate and prioritize Washington Committee/Office communications and public relations efforts.

Committee Members

Monica Wehby, MD, Chair

Cory Adamson, MD (Young Neurosurgeons)	Jack Knightly, MD (QIW)
Peter Angevine, MD (Coding and Reimbursement)	Alon Mogilner, MD (Pain Section)
Tony Asher, MD (NeuroPoint Alliance)	David Okonkwo, MD (Trauma Section)
Deborah Benzil, MD (AANS Neurosurgeon)	Julie Pilitsis (CSNS Newsletter)
Rick Boop, MD (Journal of Neurosurgery)	Vacant (Pediatric Section)
Sander Connelly, MD (Neurosurgery)	Brian Ragel, MD (CNS)
William Curry, MD (Tumor Section)	Clemens Schirmer, MD, PhD
Art Day, MD (Society of Neurological Surgeons)	Gary Simonds, MD (CSNS)
Rick Fessler, MD (Drugs and Devices Committee)	Mike Steinmetz, MD (Spine Section)
James Harrop, MD (CNS Quarterly)	Brian Subach, MD (AANS)
Jason Hauptman, MD (CSNS Resident Fellow)	Shelly Timmons, MD (Emergency NS Task Force)
Kathryn Holloway, MD (Stereotactic Section)	Craig Van der Veer, MD (NeurosurgeryPAC)
Rashid M. Janjua, MD	Christopher Winfree, MD (Guidelines Committee)

Staff Liaison:

Alison Dye, Sr. Manager for Communications

Ex-Officio:

John Wilson, MD (WC, Chair)

William Couldwell, MD (AANS

President) Ali Rezai, MD (CNS President)

Washington Office Continues Process to Form Blog Editorial Board

The CPR met at the AANS Annual Meeting in New Orleans and approved the development of a Neurosurgery Blog editorial board. This board will consist of 6-10 members who will meet on a quarterly basis to review the latest news and opinion trends and to discuss what the blog should say on a range of issues relating to neurosurgery. The primary functions of the blog editorial board will include:

- Writing guest editorial blog posts
- Commenting on special issues include blog posts
- Serving as high-volume reviewers of submitted articles
- Committee liaisons identifying potential blog content from various sections

The Committee made some additional recommendations with regard to blot posts including:

- Cross-posting other blog posts on Neurosurgery Blog and/or providing a monthly summary of different blog posts that may be of interest to neurosurgeons and other readers of Neurosurgery Blog
- Posting the Rapid Response Team coverage policy summaries and links to our letters to third party payers
- Posting summaries and links to CSNS reports and white papers
- Preparing a post on de facto healthcare rationing
- Preparing a post on patient rankings
- Feature posts from the various sections and other committees within neurosurgery (e.g. WINS)

Washington office staff members are working to identify a Neurosurgery Blog Editor and other editorial board members who will agreed to take on this new and exciting role.

Communication Activities***Neurosurgery Blog Tackles Health Policy Issues***

Each week, Neurosurgery Blog is updated on a regular basis and reports on how healthcare policy affects patients, physicians and medical practice and to illustrate that the art and science of neurosurgery encompasses much more than brain surgery. As of September 3, 2013, we have disseminated 63 blog posts on topics including the SGR, the Independent Payment Advisory Board (IPAB), medical liability

reform, and health reform in general. Since our last CPR report in April, the following new blog posts have been published:

- [CBO Releases its “Not So Pretty” 2013 Long-Term Budget Outlook](#)
- [Neurosurgeons Respond to CMS on Proposed 2014 Medicare Payment Policies](#)
- [AANS Spotlight: Patient Safety and Today’s Neurosurgeon](#)
- [Cross Post: How Medical Professionals Are Using Social Media \(Infographic\)](#)
- [CNS Spotlight: 2013 Summer Congress Quarterly Released](#)
- [Implementation of Physician Payments Sunshine Act Begins](#)
- [Neurosurgery to Washington Monthly: Who’s REALLY Getting a “Special Deal?”](#)
- [Study Finds Medicare Spending Variations Due to Health Differences NOT “Overtreatment”](#)
- [Neurosurgical Resident Maya Babu, MD Elected to AMA Board of Trustees](#)
- [House Energy and Commerce Committee Passes SGR Reform Legislation](#)
- [Mark Kirk: The Senator’s Comeback from a Stroke](#)
- [Alliance of Specialty Medicine Hosts Successful Capitol Hill Advocacy Conference](#)
- [Ms. Sanger-Katz: Come Spend a Week in My Scrubs](#)
- [The New BRAIN Initiative to Prevent and Treat Brain Attack \(aka Stroke\)](#)
- [House Committee Unveils Framework to Replace the SGR](#)
- [AANS Spotlight: Negotiating the Neurosurgical Learning Curve](#)
- [CNS Spotlight: 2013 Spring Congress Quarterly Released](#)
- [Moot Point: IPAB Triggers Won’t Happen This Year](#)
- [Obamacare is raising the Cost of Healthcare](#)
- [Efforts to Fix the SGR Continue](#)
- [AANS Spotlight: Changing Our Culture to Advance Patient Safety Marks Theme of 81st AANS Annual Meeting](#)

We invite you to visit the blog and subscribe to it, as well as connect with us on our various social media platforms list below, so that you can keep your pulse on the many health-policy activities happening in the nation’s capital.

- Neurosurgery Blog: More Than Just Brain Surgery - www.neurosurgeryblog.org
- Neurosurgery’s Twitter Feed: @Neurosurgery – <https://twitter.com/neurosurgery>
- Neurosurgery’s Facebook Page – <http://bit.ly/NeuroFacebook>
- Neurosurgery’s LinkedIn Group <http://bit.ly/NeuroLinkedIn>

Reaching Key Health Policy Influencers Online

Neurosurgery's Washington office continues to use social media platforms to expand the reach of its message by reaching key health policy influencers online. Our new media tools serve as a conduit to deliver two types of communiqués: (1) neurosurgery's positions on key health policy issues, and (2) news about neurosurgery that could range from op-eds to endeavors in new medical innovations to bring greater attention to the achievements of, and issues facing, the AANS and CNS. More specifically, we have engaged on Twitter with individuals such as:

- U.S. House Representatives:
 - Speaker of the U.S. House John Boehner (R-OH-8)
 - Kevin McCarthy, Majority Whip of the U.S. House (R-CA-22)
 - Kevin Brady (R-TX-8)
 - Jim Bridenstine (R-OK-1)
 - Michael Burgess (R-TX-26)
 - Bill Cassidy (R-LA-6)
 - Rodney Davis (R-IL-13)
 - Charlie Dent (R-PA-15)
 - Jim Matheson (D-UT-2)
 - Markwayne Mullin (R-OK-2)
 - Rep. Phil Roe (R-TN-1)
 - Aaron Schock (R-IL-18)
 - Pete Sessions (R-TX-32)
 - Pat Tiberi (R-OH-12)
- Senators:
 - Mark Kirk (R-IL)
 - Amy Klobuchar (D-MN)
 - Jeff Merkley (D-OR)
- Hill Staff:
 - Ellen Carmichael, Communications Director for Rep. Tom Price
 - Jay Khosla, Policy Director for the Senate Finance Committee
 - Tiffany McGuffee, Communications Director for Rep. Phil Roe
 - Jessica Sandlin, Press Secretary for Sen. John Cornyn
- Health Media:
 - Jennifer Haberkorn and Jason Millman, prominent health reporters for Politico
 - USA Today health reporter, Liz Szabo
 - Scott Hensley, writer and editor for Shots, NPR's health blog
 - The Hill's Healthwatch Blog and Congress Blog
 - Maggie Fox, Senior health writer at NBC News
 - American medical News reporter, Charles Fiegl
 - Matthew Cooper, Editor, National Journal Daily
 - David Pittman, Washington Correspondent for MedPage Today
 - Kevin B. O'Reilly, Reporter at American Medical News
 - Margot Sanger-Katz, Health Care Correspondent at National Journal
 - Avik Roy, Contributor to Forbes
 - Rick Ungar, Contributor to Forbes

Traditional Media Outreach

In addition to aforementioned new media efforts, the DC office continues to implement traditional media/communication efforts including Op Eds, letters to the editor, radio “tours” and desk side briefings with reporters. Since December, we have been able to generate media hits in the following outlets: American Medical news, Becker's ASC Review, Becker's Spine Review, British Medical Journal, Bureau of National Affairs (BNA), California Healthline, Health Leaders Media, Inside Health Policy, MedPage Today, medwire News, NBC News, The Plain Dealer, Politico, The Salt Lake Tribune, and The Wall Street Journal. In the past year, the Washington Office has generated 54 traditional media hits reaching a circulation of 3.2 million. It's now easier than ever to keep tabs on our media outreach with our newly created [Press Room](#) on the AANS website. There you will find our statements and release, letters to the editor, and media hits.

Member Outreach

The AANS and CNS have continued to update our members by disseminating a monthly DC e- newsletter to better inform them of key health policy activities happening in Washington. To date, we have produced eighteen “Neurosurgeons Taking Action” newsletters, which reach a distribution list of 10,350 individuals and covered a variety of topics including the Independent Payment Advisory Board (IPAB), replacing the sustainable growth rate (SGR) formula, and a host of other topics of concern to organized neurosurgery. Accessing past issues is easy as they are archived directly on the AANS website and are available at: <http://bit.ly/MgL646>. Additionally, the DC office regularly submits items to AANS and CNS for website postings and continues to provide content for AANS and CNS newsletters and publications and. Since our last report, we have contributed to the following items:

- August AANS Neurosurgeon “[Washington Watch](#)” article
- CNS [Summer Congress Quarterly](#) “Neurosurgeons Providing a Strong Voice at the AMA” and “Washington Update” articles
- May AANS Neurosurgeon “[Washington Watch](#)” article
- CNS [Summer Congress Quarterly](#) “OIG Issues Opinion Regarding On-Call Payments” articles

AANS Website Update

Over the past few months, the Washington Office communications staff worked with the AANS headquarters staff to update the legislative activities pages of the AANS website. Amongst other things, changes entailed a complete revamp of the Washington Office section on the AANS website including archiving old materials by year and only having 2013 content on the main pages, renaming and adding new navigation sidebars to better reflect our activities, adding links to our blog and social media platforms, and enhancing our pages with key links and introductory copy to provide viewers with context as to what each page offers.

Coalition Efforts

- **The Alliance of Specialty Medicine and Health Coalition on Liability and Access.** The AANS and CNS have continued to work closely with other healthcare organizations, including the Alliance of Specialty Medicine (Alliance), the Health Coalition on Liability and Access (HCLA) to provide assistance in promoting those organizations and/or their health policy and advocacy to the media. Past Washington Committee Chairman, Alex Valadka, serves as the spokesperson for the Alliance and is also called on by HCLA to speak on the topic of medical liability reform.

Working with these groups, we have been able to generate media hits in the following outlets: American Medical news, CQ Healthbeat, FierceHealthcare, Inside Health Policy, Modern Healthcare Magazine, Modern Physician, Roll Call and The Hill. One of these aforementioned hits will appear in Congressional Quarterly on the topic physician workforce and graduate medical education.

- **National Dialogue for Healthcare Innovation.** Organized neurosurgery has joined the National Dialogue for Healthcare Innovation (NDHI), an interactive forum where leaders from government, academia, industry, payers, providers, societies and patient and consumer organizations work toward consensus on the most important issues affecting healthcare innovation, and ultimately, patient care. NDHI's mission is to raise awareness, educate key stakeholders and inform decision makers of the importance of principled physician-industry collaboration. To that end, on March 25, 2013, the American Medical News published an article featuring AANS President-Elect Robert E. Harbaugh, MD, FAANS, FACS. The article, "Doctor-pharma ties defended on eve of pay reporting mandate," addressed the topic of physician-industry collaborations. Additional details can be found at: <http://bit.ly/17HKDPw>.

Accomplishments

Making Progress

In just the first year of operation, neurosurgery has seen a significant expansion of its digital media outreach. This new highly effective online echo chamber, allows us the ability to share neurosurgery news and AANS/CNS health policy positions to a growing audience of healthcare media and key policy influencers in a very rapid manner. Listed below are some key metrics pertaining to neurosurgery's digital media efforts:

- From March 15, 2012 to Sept. 15, 2013, Neurosurgery's Twitter has "touched" 6,430,753 million twitter users with its communications.
- From Sept. 15, 2012 to Sept. 15, 2013, Neurosurgery generated 21,735 hits via its bit.ly links.
- From Sept. 10, 2012 to Sept. 15, 2013, Neurosurgery Blog has garnered 15,454 hits.
- From Oct. 15, 2012 to Sept. 15, 2013, Neurosurgery's Facebook page has "touched" 206,882 Facebook users with its communications.
- From Oct. 15, 2012 to Sept. 15, 2013, Neurosurgery's LinkedIn Group has "touched" 15,414 LinkedIn users with its communications.

PR Success Stories

- **Making Millions Of Digital Media impressions.** In the first year, neurosurgery's digital media communications platforms reached nearly 6.6 million individual impressions. This number takes on great significance with the understanding that neurosurgery doesn't market its social media messages to a broad, national audience but rather to a targeted audience of media, Capitol Hill staff and policy influencers.
- **Thousands of influencers can be reached with just one "tweet."** When *Roll Call* Newspaper tweeted out a Guest Opinion piece by our own Alex Valadka, MD, on Twitter, the article was re-tweeted 10 times by key health policy influencers, including House Speaker John Boehner (R-OH), and reached an audience of 297,525 people within a day.
- **Washington Office Health Policy E-Newsletter Disseminated to Thousands.** Every month, the Washington Office disseminates a health policy newsletter to better inform them of our key health policy activities happening in DC. As of September 17, we have produced eighteen "Neurosurgeons Taking Action" newsletters which reach a distribution list of 10,350 individuals each month.
- **Neurosurgery priority issues can be disseminated rapidly to large audiences.** When the Mark Levin and "Jeff the Brain Surgeon" issue began make the rounds again, neurosurgery used its social media outlets to spread the word about our position to an expanded audience. Between Twitter and our own Neurosurgery blog, we reached over 11,000 people instantly (on top of the millions reached during the original engagement).

- **Reaching Millions through traditional Media.** Since January 2012, the Washington Office has generated 54 traditional media hits reaching a circulation of nearly 3.2 million. In addition to working alone on these media efforts organized neurosurgery also continues to work closely with other healthcare organizations to provide assistance in promoting those organizations and/or their health policy and advocacy to the media by using neurosurgery spokespersons.