President’s Message

David Kloth, MD

I hope you had an enjoyable summer. As we move into fall, I'd like to provide an update on some of the activities the NANS Board of Directors has been engaged in as well as provide you with an introduction to the 2014 NANS Annual Meeting.

In July, the board gathered for a 2-day meeting and strategic planning retreat. The meeting was very productive and allowed us the opportunity to chart the society's future for the next 3-5 years. We also reviewed NANS's existing initiatives and activities. Part of the meeting's focus was to examine the progress that had been made since the last strategic planning meeting took place in October 2009 and reassess the objectives laid out at that time. We are pleased to say that we have been able to execute nearly every one of the objectives outlined in 2009. Building from these successes, the board worked to chart a course for the next several years that we hope will allow the organization to expand its reach.

Additional accomplishments from the July meeting included the formation of the NANS Industry Relations Council. The council is intended to help bridge the gap between industry and NANS and to create an ongoing dialog around issues confronting us that affect clinicians and industry collectively, beyond just advocacy. The council may establish a forum for discussion on developing coordinated efforts in areas such as a registry, clinical data collection guidelines, physician training, and credentialing. There also will be a focus on how industry and NANS can work together to face reimbursement challenges. More information regarding the council will be forthcoming.

The board also discussed NANS’s potential role in expanding our educational offerings and possible future involvement in credentialing. This discussion arose out of several requests that were received, and the board expressed an interest in discussing this at a more detailed level. There are potential opportunities for NANS to offer additional educational training for members and practitioners. As such, an Education and Credentialing Committee has been formed to continue the discussion and further explore what opportunities and subjects NANS could focus on. The group has also been tasked with outlining the pros and cons that NANS would need to consider before becoming a credentialing body.

This summer, NANS provided input and several articles for the fall edition of Pain Pathways magazine. This edition will focus on neuromodulation, and we encourage you to seek out a copy to review.

We have also begun the process of overhauling the NANS website, and we hope to unveil a new design closer to the annual meeting.

Focus on the Annual Meeting

It goes without saying that as we move into the fall, NANS staff and committee members put increased efforts into final preparations for the annual meeting. This year is no different. 2014 marks the 20th anniversary of NANS. The NANS Annual Meeting Planning and Scientific Program committee members—led by Salim Hayek, MD PhD; Peter Konrad, MD PhD; Lawrence Poree, MD PhD; Parag Patil, MD, PhD; and Ashwini Sharan, MD—have been hard at work putting together an outstanding program for this year’s meeting taking place December 11-14, 2014, at the Mandalay Bay Resort and Casino in Las Vegas, NV. The goal is to not only present an exceptional meeting but also celebrate neuromodulation and NANS. The Planning Committee has been supported by an outstanding group of NANS members who have volunteered their time and talents to help bring the program to reality. Specifically, I would like to acknowledge the efforts of Steven Falowski, MD; Jason Pope, MD; David Provenzano, MD; Eric Grigsby, MD; Gail McGlothlen, RN; and Gladstone McDowell, MD. These individuals have put in tremendous efforts this year to revitalize and expand our preconference workshop offerings.

The 2013 Annual Meeting broke attendance records for NANS, and we hope to build on that success in 2014. This year, NANS will again offer premeeting workshops, including a symposium on intrathecal pump management and the customer service–oriented session focusing on the delivery of high-quality customer service in a health practice setting. We will again conduct our popular spinal cord stimulation workshop for residents and fellows. This year, the course has been redesigned and expanded to include a specific component exploring the use of neuromodulation therapies for treating urologic disorders. A neuromodulation primer for neurology residents will also be part of this preconference course.

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New for this year will be a re-imagined allied health workshop. This year’s course will focus on providing allied health partners with a comprehensive overview of neuromodulation therapies and their involvement with them in clinical practice settings. The course will overlap in part with the intrathecal pump management course. The pump course will focus on mitigating risks that arise when treating patients with programmable pump technologies.

The third annual NANS I³: Investment, Invention, and Invigoration Forum will bring together researchers, industry partners, and emerging companies to discuss new developments and the future direction of the field. Residents and fellows will have a dedicated afternoon session that will also encompass a special interest section focusing on women in neuromodulation.

This year’s keynote speaker will be Robert Greenberg, MD PhD, president and CEO of Second Sight, a visual prosthetics research and development company exploring the use of retinal electrical stimulation to aid patients suffering from degenerative retinal conditions. We will also acknowledge our Lifetime Achievement and Distinguished Service winners for this year, Alim Louis Benabid, MD PhD, and David Caraway, MD PhD, respectively.

In addition, this year’s program will include an expanded session on neuromodulation for urologic disorders as well as sessions dedicated to deep brain stimulation, intrathecal pump management, best clinical practices, emerging trends, imaging, and bioelectric medicine, among others. A new and improved meeting app will be unveiled to help guide you through the various presentations and events.

The 2014 meeting will have several events dedicated to this year’s theme of celebrating NANS and neuromodulation, including interactive displays in and around the exhibit hall containing artifacts from the history of neuromodulation and a timeline exploring the development and evolution of this therapy. You will not want to miss this unique opportunity to explore neuromodulation and connect with colleagues. More information and descriptions of meeting courses and other meeting components are included later in this newsletter and on the NANS annual meeting website at www.neuromodulation.org.

We look forward to seeing you in Las Vegas December 11–14!

With best regards,

David Kloth, MD
NANS President

Letters to the Editor

NANS welcomes letters to the editor to discuss thoughts on NANS Newsletter articles, changes in neuromodulation, and other issues surrounding the field. Please send letters to Julie Pilitsis, MD, at pilitsj@mail.amc.edu. NANS reserves the right to edit letters for space and grammar.
NANS Submits Comments on Proposed CMS Reimbursement Changes

Editor's note. The letter below was written by NANS President David Kloth, MD, on behalf of NANS members to provide a comment to the Centers for Medicare & Medicaid Services (CMS) regarding recent proposed reimbursement changes. The letter was submitted to Marilyn Tavenner, CMS administrator, in late July.

Dear Ms. Tavenner:

The North American Neuromodulation Society (NANS) would like to provide the following comments on the proposed 2015 physician reimbursement for CPT codes 62310, 62311, 62318, 62319, and 77003. These codes underwent significant revisions last year which resulted in CMS receiving numerous comments regarding the fee schedule released in November 2013. While CMS has responded to these concerns in the proposed 2015 fee schedule, NANS remains concerned with the new CMS proposals as they do not properly address the issues of proper and adequate reimbursement with these codes.

The proposed changes include reverting to the 2013 physician fee schedule for these CPT codes in 2015, but also simultaneously bundling fluoroscopy associated with this procedure (CPT77003) into the primary CPT code without any adjustment to the fee for the bundling of this service. Presumably, CMS will release an NCCI edit that will prevent billing of this CPT code with the above four epidural codes.

These four epidural codes are used for chronic pain management, OB anesthesia, and other operating room procedures (for surgical anesthesia and acute post-op pain management), with fluoroscopy only used routinely in the chronic pain management setting. Our understanding is that approximately 50% of the time, these codes are billed when the procedure is performed without the use of fluoroscopic guidance. Our analysis suggests that bundling of fluoroscopy with these CPT codes will lead to overpayment for OB and surgical anesthesia and underpayment for chronic pain care.

While the reimbursement for the CPT codes 62310, 62311, 62318, and 62319 contains practice expense (PE) for a fluoroscopic suite, it does not include the work value for the physician performing the fluoroscopic guidance. It is understandable that CMS did not want to pay the practice expense two times, once within the epidural family of codes and once within the fluoroscopic code 77003; however, removal of the physician work value will underpay physicians who are performing this service using fluoroscopic guidance, and the net reimbursement for this procedure will decrease in the hospital setting for three of the four codes and the office for one of the four codes (please refer to the tables on page 4).

Previously, when CMS has bundled fluoroscopy with other pain-related procedures, such as facet injections, sacroiliac injections, and transforaminal epidurals, there has been an increase in the RVUs to compensate for the practice expense and work values associated with the bundling of these procedures. While we recognize that the practice expense is included in the RVUs for the current proposed codes, there has been no adjustment for the physician work value and the increased risk from radiation exposure. Physicians who are unwilling to assume the increased risks and costs with using fluoroscopy for these services may elect to perform these without fluoroscopic guidance, increasing risks to patients and the failure rate of the procedure due to improper placement of the injected medication(s).

The reimbursement changes that were instituted last year led many physicians to stop performing interlaminar epidurals in the cervical region completely. Many opted to perform multilevel or bilateral transforaminal injections, rather than interlaminar injections, increasing the overall costs and risks associated with the treatment. Patients not treated properly with interventional techniques are more likely to undergo invasive and risky surgery or be placed on high-dose opioids, further contributing to the opioid epidemic in the country; both of these also significantly increase the costs to the healthcare system.

It is NANS’s recommendation and request that CMS take one of two actions. Either add RVUs for the physician work and professional liability risk to these family of codes (CPT 62310, 62311, 62318, and 62319) or remove the fluoroscopic suite from the practice expense for these codes and allow physicians to bill fluoroscopy (CPT 77003) independently of these codes (ie, don’t bundle fluoroscopy). There is precedent for the former approach, which was used when fluoroscopy was bundled into facet procedures (diagnostic and radiofrequency neurotomy) and transforaminal epidural injections. However, the latter approach seems more appropriate since these codes are often performed without the use of fluoroscopic guidance, which would allow more accurate billing in all circumstances when epidural injection codes are used.

While either of these approaches would be acceptable, the current proposal does not adequately or properly reimburse the physician for the work and risk associated with the use of fluoroscopic guidance. NANS again points out that the net reimbursement will actually decrease for these procedures in many situations. Furthermore, for the other codes, where reimbursement has increased, the increase is nominal and inadequate (please see the tables on page 4, highlighting the proposed changes).

As always, we appreciate the opportunity to provide comment and would like to thank CMS for taking our concerns into consideration when evaluating these codes for the final 2015 physician fee schedule.

Sincerely,
David Kloth, MD
President, North American Neuromodulation Society
Proposed Medicare Reimbursement Changes for 2015

David Kloth, MD

In 2014, we saw a number of changes to the physician fee schedule that significantly affected spinal cord stimulation (SCS), peripheral nerve stimulation, and spinal/epidural reimbursement. We will see a number of changes in 2015, some of which are still in the proposal stage. NANS urges the membership to get involved and provide comment. Below is a summary of the proposed changes for 2015 and some already implemented changes in 2014.

The Centers for Medicare & Medicaid Services (CMS) received many comments on the reductions in epidural reimbursement that were seen in 2014 for codes 62310, 62311, 62318, and 62319. In response to these comments from various stakeholders and also due to some congressional pressure applied by several organizations, CMS has responded with new proposals for epidural code reimbursement. CMS admitted that the original methodology used in 2013 was incorrect; unfortunately, it has now proposed another flawed solution.

While at first glance, a reversion to 2013 reimbursement levels would seem like a victory, the bundling of fluoroscopy fees severely dampens any positive effect. In fact, on closer analysis of Table 1 and Table 2 below, the total physician reimbursement will decrease in three of four situations in the hospital and either change minimally or decrease in the office setting. NANS has submitted a comment letter on these proposed changes (which is printed on page 3). An e-blast on this issue was sent to all NANS members with information about where to submit comments before the September 2 deadline.

### Table 1. Epidural/Spinal Injection Non-Facility 2015 Proposed Rule

<table>
<thead>
<tr>
<th>Procedure</th>
<th>Codes</th>
<th>2014 Current Medicare Rate</th>
<th>2015 Proposed Medicare Rate</th>
<th>2015 vs 2014 Payment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inject spine lumbar/sacral</td>
<td>62311</td>
<td>$108.90</td>
<td>$225.33</td>
<td>$116.43</td>
</tr>
<tr>
<td>Fluoroguide for spine injection</td>
<td>77003</td>
<td>$90.99</td>
<td>$0</td>
<td>$90.99</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td><strong>$199.89</strong></td>
<td><strong>$225.33</strong></td>
<td><strong>$25.44</strong></td>
</tr>
<tr>
<td>Inject spine (cervical/thoracic)</td>
<td>62310</td>
<td>$110.69</td>
<td>$244.67</td>
<td>$134.98</td>
</tr>
<tr>
<td>Fluoroguide for spine injection</td>
<td>77003</td>
<td>$90.99</td>
<td>$0</td>
<td>$90.99</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td><strong>$201.68</strong></td>
<td><strong>$244.67</strong></td>
<td><strong>$42.99</strong></td>
</tr>
<tr>
<td>Inject spine with catheter (lumbar/sacral)</td>
<td>62319</td>
<td>$114.99</td>
<td>$170.52</td>
<td>$55.53</td>
</tr>
<tr>
<td>Fluoroguide for spine injection</td>
<td>77003</td>
<td>$90.99</td>
<td>$0</td>
<td>$90.99</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td><strong>$205.98</strong></td>
<td><strong>$170.52</strong></td>
<td><strong>$35.46</strong></td>
</tr>
<tr>
<td>Inject spine with catheter (cervical/thoracic)</td>
<td>62318</td>
<td>$111.41</td>
<td>$233.21</td>
<td>$121.80</td>
</tr>
<tr>
<td>Fluoroguide for spine injection</td>
<td>77003</td>
<td>$90.99</td>
<td>$0</td>
<td>$90.99</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td><strong>$202.40</strong></td>
<td><strong>$233.21</strong></td>
<td><strong>$30.81</strong></td>
</tr>
</tbody>
</table>

### Table 2. Epidural/Spinal Injection Facility 2015 PFS Proposed Rule

<table>
<thead>
<tr>
<th>Facility Site of Service Procedure</th>
<th>Codes</th>
<th>2014 Current Medicare Rate</th>
<th>2015 Proposed Medicare Rate</th>
<th>2015 vs 2014 Payment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inject spine lumbar/sacral</td>
<td>62311</td>
<td>$72.72</td>
<td>$92.06</td>
<td>$19.34</td>
</tr>
<tr>
<td>Fluoroguide for spine injection</td>
<td>77003-26</td>
<td>$30.81</td>
<td>$0</td>
<td>$30.81</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td><strong>$103.53</strong></td>
<td><strong>$92.06</strong></td>
<td><strong>($11.47)</strong></td>
</tr>
<tr>
<td>Inject spine (cervical/thoracic)</td>
<td>62310</td>
<td>$74.15</td>
<td>$112.13</td>
<td>$38.03</td>
</tr>
<tr>
<td>Fluoroguide for spine injection</td>
<td>77003-26</td>
<td>$30.81</td>
<td>$0</td>
<td>$30.81</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td><strong>$104.96</strong></td>
<td><strong>$112.13</strong></td>
<td><strong>$7.17</strong></td>
</tr>
<tr>
<td>Inject spine with catheter lumbar/sacral</td>
<td>62319</td>
<td>$81.32</td>
<td>$98.51</td>
<td>$17.19</td>
</tr>
<tr>
<td>Fluoroguide for spine injection</td>
<td>77003-26</td>
<td>$30.81</td>
<td>$0</td>
<td>$30.81</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td><strong>$112.13</strong></td>
<td><strong>$98.51</strong></td>
<td><strong>($13.62)</strong></td>
</tr>
<tr>
<td>Inject spine with catheter (cervical/thoracic)</td>
<td>62318</td>
<td>$79.53</td>
<td>$101.74</td>
<td>$22.21</td>
</tr>
<tr>
<td>Fluoroguide for spine injection</td>
<td>77003-26</td>
<td>$30.81</td>
<td>$0</td>
<td>$30.81</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td><strong>$110.34</strong></td>
<td><strong>$101.74</strong></td>
<td><strong>($8.60)</strong></td>
</tr>
</tbody>
</table>

Unfortunately, an unrecognized consequence of the SCS physician fee schedule changes last year, which included elimination of L8680 (coding for the lead) from the fee schedule, is that physicians performing PNS in the office setting no longer had a mechanism for billing or being paid for the lead costs by Medicare. As a result, CMS received comments from a stakeholder requesting a non-facility fee schedule for the American Medical Association (AMA) Current Procedural Terminology (CPT®) codes 64553 (percutaneous implantation of neurostimulator electrode array; cranial nerve) and 64555 (percutaneous implantation of neurostimulator electrode array; peripheral nerve [excludes sacral nerve] when furnished in the non-facility setting that included relative value units (RVU) for practice expense [PE]). In response to stakeholder comments, CMS this year nominated PNS codes as potentially misvalued (as was done last year for SCS, CPT 63650) to ascertain whether the practice expense values are correct for the non-facility setting (ie, to provide practice expenses for PNS in the office setting). NANS will once again work with other societies on the AMA RVS Update Committee to ensure these codes are evaluated properly.
As it relates to intrathecal therapy, CMS has announced that the current pump refill drug code J2275 preservative-free morphine sulfate, 10 mg, will no longer be recognized or paid by Medicare as of July 1, 2014. In its place, providers must submit new drug code Q9974-injection, morphine sulfate, preservative-free or epidural or intrathecal use, 10 mg. No other intrathecal medication coding or fee schedules have been changed. See Table 3 below for the associated reimbursement changes with these coding changes.

Providers who purchase and bill for the drug component now must stop using J2275 and instead use Q9974 for preservative-free morphine sulfate in conjunction with refills for spinal opioid delivery system. Because the drug unit value for Q9974 continues to be “per 10 mg,” there is no change in how total drug units are calculated for pump refills. The only change is the code being used to report the drug component. Non-Medicare payers will likely adjust to these changes sporadically and slowly as they convert to these new codes over the next several years. Billing staff should be alerted to watch carefully as insurance carriers transition to the new code to ensure the correct code is billed to each insurance provider.

Major changes were proposed in 2013 to hospital ambulatory payment classification (APC) coding as part of CMS’s overarching plan to create composite APCs that would have affected neuromodulation devices. CMS’s stance is that this will allow it to pay more appropriately for combinations of devices when provided in the same service. As a result of the many comments CMS received, including from NANS and its members, these changes were averted. As a follow-up, CMS has provided new proposed fee schedules for comprehensive APCs in 2015 for neurostimulator devices (see Table 4). These revisions, consistent with the recommendations made by physicians, societies, and industry, are workable overall. CMS accepted comments on the proposed APC rule until September 2 and will respond to comments in a final rule to be issued on or around November 1.

<p>| Table 3. Payment Information for Q9974 Compared With Prior Payment Information for J2275 |</p>
<table>
<thead>
<tr>
<th>4/1/14-6/30/14 HCPSC Code</th>
<th>Short Description</th>
<th>HCPSC Code Dosage</th>
<th>Payment Limit</th>
<th>Infusion AWP%</th>
<th>DME Infusion Limit</th>
</tr>
</thead>
<tbody>
<tr>
<td>J2275 10 mg</td>
<td>Morphine sulfate injection</td>
<td>10 mg</td>
<td>$10.141</td>
<td>95</td>
<td>$4.390</td>
</tr>
<tr>
<td>Q9974 10 mg</td>
<td>Morphine epidural/intrathecal</td>
<td>10 mg</td>
<td>$9.029</td>
<td>N/A</td>
<td>N/A</td>
</tr>
</tbody>
</table>

<p>| Table 4. OPPS APC Chart |</p>
<table>
<thead>
<tr>
<th>Procedure</th>
<th>CPT</th>
<th>Final 2014 APC</th>
<th>Final 2014 OPPS Payment</th>
<th>Proposed 2015 OPPS Payment</th>
<th>Difference ($)</th>
<th>Difference (%)</th>
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</thead>
<tbody>
<tr>
<td>Dual Percutaneous Lead Trial</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SCS percutaneous lead</td>
<td>63650</td>
<td>0040</td>
<td>$4,626.50</td>
<td>0061</td>
<td>$5,331</td>
<td>-42.4%</td>
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<tr>
<td>SCS percutaneous lead</td>
<td>63650</td>
<td>0040</td>
<td>$4,626.50</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td>$9,253</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Neurostimulator Insertion Only</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SCS INS (rechargeable and nonrechargeable)</td>
<td>63685</td>
<td>0039</td>
<td>$17,232.90</td>
<td>0318</td>
<td>$26,058</td>
<td></td>
</tr>
<tr>
<td>Programming</td>
<td>95972</td>
<td>0692</td>
<td>$115.82</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Total</td>
<td></td>
<td></td>
<td>$17,348.72</td>
<td></td>
<td></td>
<td>50.2%</td>
</tr>
<tr>
<td>Full Implant/Dual Percutaneous Lead</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SCS INS (rechargeable and nonrechargeable)</td>
<td>63685</td>
<td>0039</td>
<td>$17,232.90</td>
<td>0318</td>
<td>$26,058</td>
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<td>63650</td>
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<td>$4,626.50</td>
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<td>SCS percutaneous lead</td>
<td>63650</td>
<td>0040</td>
<td>$4,626.50</td>
<td></td>
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<td></td>
</tr>
<tr>
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<td>0692</td>
<td>$115.82</td>
<td></td>
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<tr>
<td>Total</td>
<td></td>
<td></td>
<td>$26,601.72</td>
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<td></td>
<td>-2%</td>
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<tr>
<td>Single Surgical Lead</td>
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<td>0039</td>
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<tr>
<td>Total</td>
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<td></td>
<td>$7,424.49</td>
<td></td>
<td>$16,903</td>
<td>127.7%</td>
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<tr>
<td>Full Implant with Surgical Paddle Lead</td>
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<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>SCS INS (rechargeable and nonrechargeable)</td>
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<td>$17,232.90</td>
<td>0318</td>
<td>$26,058</td>
<td></td>
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<tr>
<td>SCS lami lead</td>
<td>63655</td>
<td>0061</td>
<td>$7,424.49</td>
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<tr>
<td>Programming</td>
<td>95972</td>
<td>0692</td>
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<tr>
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<td>$24,773.21</td>
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<td>$26,058</td>
<td>5.2%</td>
</tr>
</tbody>
</table>

NANS will continue to monitor for changes in reimbursement that affect its members and the institutions within which they work to protect patient access to these important therapies. It is important that NANS members stay engaged and submit comment letters when appropriate to ensure that our message is being heard. Please make sure that info@neuromodulation.org is accepted in your address book so that you receive important notices on proposed reimbursement changes that require physician comment. It is important that CMS hears from many.
The Use of Interventional Ultrasound for Pump Reservoir Refills by the Allied Health Professional

Gail McGlothlen, MS APRN CNS

Interventional ultrasound can be used by the trained allied health professional (AHP) for pump reservoir refills to improve the localization of the reservoir access port, assess for an inverted pump before attempts to access, and evaluate the pump pocket for fluid—all of which may interfere with proper needle placement in the reservoir and result in a pocket fill, the erroneous injection of infusate into the pump pocket during a reservoir refill procedure. The consequence of a pocket fill can be a life-threatening overdose or underdose. Every patient with a subcutaneously implanted drug delivery system must undergo periodic pump refills, which require accurate needle placement within the drug reservoir to allow complete aspiration of the old drug and safe refill of the pump with new infusate. The reservoir access port of the SynchroMed II pump (Medtronic, Minneapolis, MN), the most widely implanted pump, is located in the center of the anterior surface of the pump and is rarely palpable to the refilling clinician because of its low profile as well as patient factors including obesity; seroma; and tilted, deep, or mobile pump and scar tissue. Without conducting an ultrasound, the reservoir access port is located by using pump landmarks and tactile and auditory feedback. Proper needle placement is checked using indirect signs (passive injectate in the syringe at the beginning of the refill, aspirated volume approximately equals expected volume and the feel of the needle at the back of the pump). Other checks throughout the refill procedure include aspirating back some injectate at the beginning, middle, and end of the refill procedure to ensure continuous needle position within the reservoir. Currently, fluoroscopy is the only direct method to confirm needle position within the pump reservoir chamber, but it exposes patients to ionizing radiation and requires special licensing.

In January 2011, Medtronic informed implanting physicians of 351 reports related to pocket fills received from May 1996 through September 2010 in which 8 patients died, 270 were serious or life-threatening, 58 required no medical intervention, and the severity of 15 events were not known.1 Based on those reports, the risk for pocket fill was reported to be in 10,000 refills with the caveat that pocket fills are most likely underrecognized and therefore underreported. In addition, there are seven published case reports of pocket fills from as far back as 1992 through 2013 that resulted in eight life-threatening events and one overnight stay in the emergency department. All patients survived and the causes of the pocket fills, when known, included seroma, extravasation, needle dislodgement, bent needle, septum damage, and difficult access.2-8

Interventional ultrasound is a safe and effective method for locating the pump reservoir access port and evaluating fluid within the pocket or an inverted pump and doesn’t expose patients to ionizing radiation. Peccora, Ross, and Hanna describe a case where ultrasound was used to confirm and aspirate a large pocket fill on a patient who became symptomatic after a refill, and others have reported the successful use of ultrasound to access a deeply implanted pump in a child on intrathecal baclofen,9 a pump surrounded by fluid,9,10 and a pump bolus port that was difficult to localize.11 Ultrasounds have been used for more than 20 years; they do not expose the patient to ionizing radiation, and there are no known risks. An ultrasound can result in the production of heat and sheer forces from agitation of gas bubbles in tissue, but there are no known long-term effects of tissue heating and cavitation.12 Indications for musculoskeletal ultrasound, the mode used for pump refills, are evaluation of soft tissue masses, swelling or fluid collections, planning and guiding for an invasive procedure, and post-procedural evaluation and interventional ultrasound is used for pre-procedure exam of the target area.13 In a preclinical study of cadavers implanted with pumps, Gofeld and McQueen found that ultrasound was not helpful in identifying a pump versus pocket fill but the inverted pump had a distinctly different appearance and the technique was easy to learn.14 Although an ultrasound produces an image of the reservoir and catheter access port in the pocket on all U.S. Food and Drug Administration-approved pumps, no evidence exists that the use of ultrasound for pump reservoir refills alone prevents pocket fills because it cannot provide direct visualization of proper needle position within the reservoir access port.15 The advantages of ultrasound far outweigh the risks by giving clinicians more information about the pump pocket not possible using the traditional method or fluoroscopy for locating the reservoir access port, thus reducing the risk of injury from a pocket fill. All clinicians who refill intraspinal drug delivery systems must be knowledgeable about the pharmacotherapy, device mechanics, and function and continue to be hypervigilant in the management of the patient’s care to optimize the safety and efficacy of intraspinal therapy.16 The AHP can become proficient in the use of ultrasound for reservoir refills in a reasonable amount of time with appropriate training and physician support. The opportunity to learn more about intrathecal therapy and this refill technique is available at the NANS 18th Annual Meeting in Las Vegas, NV, December 11-14. Physicians who implant and manage intraspinal drug delivery systems should encourage their AHPs who manage and refill pumps to attend and become a member of the neuromodulation community.

References

5. Johnson M, Visser E, Goucke C. Massive clonidine overdose during refill of an implanted drug delivery device for intrathecal analgesia: a review of inadvertent soft-tissue injection during...


We are pleased to invite you to the NANS 18th Annual Meeting, December 11–14, 2014. This year's meeting will again take place at the Mandalay Bay Resort and Casino and Four Seasons Hotel in Las Vegas, NV. To build on the success of the 2013 meeting, we will offer opportunities for networking, state-of-the-art lectures, an expanded exhibit hall, enhanced and diversified concurrent tracks, and new and expanded preconference sessions. Several industry-sponsored luncheon sessions and a large number of oral presentations from submitted abstracts will be offered. Electronic posters will be on display, with awards given for the best abstracts. This year also marks the 20th anniversary of NANS. To celebrate this milestone, we are planning several unique experiences highlighting the history of NANS and neuromodulation that you won't want to miss.

We will again offer our popular spinal cord stimulation (SCS) workshop that will combine didactic lectures and hands-on training. This session will include an enhanced concurrent portion solely dedicated to neurology residents, offering some of the same hands-on activities as the SCS course. New this year will be cross-over sessions focusing on the use of neuromodulation therapies for the treatment of various urologic disorders. In addition to the residents and fellows’ section, we will offer a new Certificate of Attendance Course for a limited number of physician providers. This session will provide hands-on training on effective and appropriate uses of implantable devices for pain management.

Returning this year will be a full-day workshop on intrathecal therapy. The workshop will focus on the evaluation, management, and mitigation of risks associated with implanted drug delivery pumps with a special emphasis on the risks associated with the management of patients with implanted pumps in various clinical situations. Engineering and compounding pharmacy risks will be reviewed by a regulatory officer from the US Food and Drug Administration.

For the sixth consecutive year, we will offer the midlevel practitioner workshop for nurses and physician assistants. This year's course has been significantly revised and will cover the role of allied health providers in all aspects of neuromodulation, including spinal cord stimulation, intrathecal therapy, and deep brain stimulation. A hands-on cadaver session for pump refill training will be part of this course. All preconference courses are scheduled for Thursday, December 11.

During our scheduled concurrent sessions, renowned faculty will present on peripheral nerve stimulation, brain stimulation, best clinical practices, neurorehabilitation, targeted drug delivery, neuromodulation practice issues, and gastrointestinal and genitourinary issues. The 2014 Keynote Lecture will be presented by Robert Greenberg, MD PhD, president and CEO of Second Sight, a visual prosthetics research and development company exploring the use of retinal electrical stimulation to aid patients suffering from degenerative retinal conditions. Special sessions dedicated to residents and fellows will be offered, along with a new plenary session focusing on neuromodulation for ear, nose, and throat specialists and lectures on emerging neuromodulation therapies for sleep apnea and hearing impairment.

We have also expanded and revised our sessions for neuromodulation practitioners in the fields of urology and neurology. Given the expanding roles these specialties are playing within this field, we want to offer relevant content and a forum for practitioners in other specialties to interact with other colleagues. NANS is aware of the interdisciplinary dependency among prescribers, implanters, and managers of neuromodulation therapy; this year's meeting content will continue to emphasize these relationships.

Don't miss this world-class meeting, the largest meeting of its kind dedicated to the field of neuromodulation. We look forward to seeing you in Las Vegas to celebrate NANS!
FEATURED WORKSHOPS

Neuromodulation Workshop: A Hands-On Cadaver Course for Pain Fellows and Neurosurgery Residents  NEW
Directors: Steven Falowski, MD; Jason Pope, MD; David Provenzano, MD

NANS I: Invention, Investment, and Invigoration Forum
Directors: Ashwini Sharan, MD; Ali Rezai, MD; Ben Pless; Kevin Wasserstein

Evaluation, Management, and Mitigation of Risks Associated with Intrathecal Therapy  NEW
Directors: Lawrence Poree, MD PhD; Ramana Naidu, MD

Neurology Neuromodulation Workshop
Directors: Steven Falowski, MD; Joohi Jimenez-Shahed, MD; Jason Pope, MD; David Provenzano, MD

Urology Neuromodulation Workshop  NEW
Directors: Sandip Vasavada, MD; David Ginsberg, MD; Eric Rovner, MD

Certificate of Attendance Neuromodulation Workshop  NEW
Directors: Steven Falowski, MD; Jason Pope, MD; David Provenzano, MD

6th Annual Course on Neuromodulation for Midlevel Practitioners  NEW
Directors: Gladstone McDowell, MD; Gail McGlothlen, MS RN CNS

Resident-Fellows Breakout Session
Directors: Steven Falowski, MD; Jason Pope, MD; David Provenzano, MD

Cadaver Practicum: Pump Refill, Port Access, and Refill  NEW
Directors: Gladstone McDowell, MD; Gail McGlothlen, MS RN CNS

MEETING CONCURRENT TRACKS

Cranialfacial Pain
Power Options in Neuromodulation
Pelvic Pain
New Hypotheses for Potential Clinical Applications in Neuromodulation
Deep Brain Stimulation: Updates on Existing Strategies
Spinal Cord Stimulation Across the Pond
Rehabilitation
Innovations in Peripheral Nerve Stimulation
Neuromodulation: Best Practices
Deep Brain Stimulation: Lessons Learned
Intrathecal Therapies: Basic Challenges
Bioelectric Medicine
Complications in Neuromodulation
Sensing and Software Interfacing for Neuromodulation
Improving Otaryngeal Function
Intrathecal Therapies: Pharmacological Challenges in Pain Therapy
Efficacy and Safety Issues in Neuromodulation Imaging
Expanding Neuromodulation Applications in Cancer Pain
Stimulation for Incontinence and Bladder Control
Spasticity Management

For more information about the annual meeting visit www.neuromodulation.org/2014meeting and watch your mailbox for the full meeting brochure.
Women in Neuromodulation
Heather Basara, PhD

Discovering new technologies and novel interventions for disease requires the collective effort of scientists, engineers, clinicians, the private sector, and government partners. Diagnostics and therapeutics for some of the most interesting, complex, and impactful diseases are within the reach of the neuromodulation community.1,2 Our challenge is to advance medical science with the goal of engaging the most brilliant, capable scientists and clinicians, independent of demographics.

To do this, we must be prepared to shift our thinking. We agree that diversity is not only morally right but also scientifically necessary, especially to the extent that achieving greater diversity in concepts and approaches can be associated with gender and other demographic variables.3 The issue is that our culture, or the way we practice, has not caught up with our rhetoric. When we seek the best and the brightest, we need to cast a wider net and we need to be prepared to remove obstacles faced by the individuals we recruit. The individuals we recruit may arrive with inconvenient logistics: They may have children at home, need a spousal accommodation, or require assistance with a visa.

For example, it is arguable that the number of women choosing surgical specialties has just as much to do with operating room start times (often scheduled before the school bus picks up or daycare opens) as with attitudes toward women in the operating room.5,7 The list of logistical and situational obstacles is long, but we need to identify and mitigate these if inclusiveness is a real goal.

We also should consider the pools from which we draw members into our community. The best candidates may not be on our current applicant lists. Other medical and scientific specialties, industry, and government may provide more attractive training and work environments for women. Consequently, in looking for unique and innovative intellectual contributors, we first may have to change external perceptions about our community to attract a candidate pool that aligns with the transformative opportunities that neuromodulation offers over the next several decades.

The strength of the neuromodulation community resides in its intrinsic multidisciplinary basis. Think about the revolutionary and highly technical ideas that have emerged from creating pathways from basic understandings of anatomy and the clinical presentation of disease to sophisticated restorative operative techniques. Or consider how translation of the basic concepts of electricity and biology into engineered devices has enabled many people to regain productive, healthy lives. This field is a progressive leader in integrating science, medicine, and engineering. It does stand on the shoulders of giants.9 As we look forward to the future of our specialty, we look forward to a strong and diverse work force.

Currently Innovating

The prevalence of many chronic diseases, such as obesity, depression, diabetes, and complex pain, has reached epidemic levels in North American populations. Although we can describe aspects of these diseases and have a number of medical and surgical tools to manage them, the continued impact on morbidity and mortality is devastating. Members of our community (including women) already are in hot pursuit of breakthroughs for several neurological and neuropsychological diseases (eg, depression, chronic pain, obesity, obsessive compulsive disorder) that contribute to that growing chronic disease burden. However, these are complex, debilitating diseases, and the number of investigators and novel approaches to them should be expanded. Last year, the Department of Defense, through the Defense Advanced Research Projects Agency, called on the neuromodulation community to develop novel understanding about these diseases and others (eg, general anxiety disorder, traumatic brain injury, borderline personality disorder, posttraumatic stress disorder, substance abuse/addiction) and apply that basic scientific understanding to invent and bring to market new deep brain stimulation technologies for therapeutic intervention.9

Neuropsychiatric disorders are one of the leading causes of disability and suffering among the American public—not just veterans—often co-occurs with other chronic diseases, such as cancer, heart disease, and diabetes.10,11 Although great advances have been made toward understanding the underlying neural mechanisms and pathophysiology of these disorders, advanced intervention is limited by inadequate diagnostic measures and technology that desperately needs more attention. Neural interfaces and stimulation offer hope for definitive targeting to correct or mitigate specific disorders with first-pass treatment. Enough is known about the pathophysiology of these disorders to consider deep brain stimulation as the next-generation intervention.12 However, the base of necessary expertise required to realize such an impressive technological development is vast, and the explicit inclusion and collaborative efforts of the most gifted will be the key to success.

A Dip in the Underrealized Talent Pool

As we look forward to increasing the contributions from women to our scientific, technological, and clinical developments, we can learn from women who have already made an impact—most while overcoming substantive social, political, and academic obstacles. A few noteworthy examples of contributions:

• Augusta Ada Byron Lovelace (1815-1852) was privately taught math and science by her mother. Ada is arguably the world’s first computer programmer. In 1843, she published an article on “Babbage’s Analytical Engine,” which included detailed instructions about how to program and calculate Bernoulli numbers.13

• Ida Hyde (1857-1945) was a woman of many firsts. She was the first woman (in 1896) to earn a PhD from the University of Heidelberg, the first woman to conduct research at Harvard Medical School, and the first woman to be elected to the American Physiological Society.14 Her research on the physiology of circulation, respiration, and nervous system functions led to the development of the first stimulating electrode that was small enough to insert into a cell and simultaneously inject or remove material.15

• Rita Levi-Montalcini (1909-2012) was a summa cum laude graduate in medicine and surgery (1936), which was followed by additional training in neurology and psychiatry. In her (secret, because she was Jewish and Nazis barred Jewish from holding university positions) home laboratory, she conducted experiments that later led her to discover the “trophic factor,” which is known to cause the spreading of nerve fibers.16 In 1986, she was awarded the Nobel Prize in Medicine for this discovery.

• Dorothy Hodgkin (1910-1994) perfected the technique of X-ray crystallography and used this to determine the structures of disease to sophisticated restorative operative techniques. Or consider how translation of the basic concepts of electricity and biology into engineered devices has enabled many people to regain productive, healthy lives. This field is a progressive leader in integrating science, medicine, and engineering. It does stand on the shoulders of giants.9 As we look forward to the future of our specialty, we look forward to a strong and diverse work force.

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of interesting molecules, such as penicillin, vitamin B12, and insulin. In 1964, she was awarded the Nobel Prize for the X-ray crystallography method.

- Gertrude Elion (1918-1999) was a chemist and pharmacologist for Burroughs Wellcome. She started her career with 15 rejected graduate school applications because of gender. She went on to develop chemotherapeutic drugs for pediatric leukemia along with drugs used to treat rheumatoid arthritis, herpes, and kidney disease. She won the 1988 Nobel Prize in Medicine.

Arguably, each of these pioneers achieved impressive milestones in part because of her background, including her gender. Dr. Levy recently described several women from industry, medicine, and science who actively contribute to the progress of neuromodulation. Our strength rests in our diversity. Neuromodulation is a collective of medical and surgical physicians from both academia and private practice along with various flavors of engineers and scientists from multiple disciplines. Our community includes technical partners and business leaders as well. Because we are a multidisciplinary community and because we rely on diversity as the underpinning of innovation, we also need to be progressive about our demographic composition to ensure that foundation for diverse innovation grows and informs our science and clinical translation.

Looking Ahead
Pursuing the greater inclusion of women in the STEM-H (Science, Technology, Engineering, Math, and Health) disciplines is more than just an invitation to participate or an open door; what we are proposing is a transformation in the way we, the broader scientific community, identify ourselves and the ways in which we structure our workplaces and collaborative environments.

Most would agree that giving and ability are independent of demographic factors such as race, gender, age, and other variables—such that if we recruit and train the next generation from the broadest pool possible, we will find the best talent to pursue answers to our most compelling problems. At the same time, however, raw talent often is shaped in specific ways by experience—and experience is dependent to some extent on demography. Recognizing that, some of the most impressive institutions and most profitable corporations are known for their intentionally diverse leadership groups.

Since the feminist movement in the 1970s, opportunities for young women have expanded in the STEM-H disciplines. And while the proportion of men and women graduating from medical school is now roughly equal, these proportions do not hold steady in specialties like neurosurgery nor in the hard sciences or engineering. Many scholars and journal editors have discussed the myriad reasons for this problem. To pursue progress, we need to rethink the way that we recruit, train, evaluate, compensate, and structure workplaces. We need to pursue the best and the brightest regardless of race, gender, socioeconomic status, or disciplinary silo. We all know this. We need to continue to discuss these problems, identify the obstacles, and plan how we can change our workforces and work environments to enhance the innovative diversity of our community.

References
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As NANS begins to celebrate its 20th anniversary year, the board wanted to invite reflections from past presidents of NANS regarding the past and future of neuromodulation. We were fortunate to receive the following responses.

Q: Please reflect on the recent history of neuromodulation and where this will take us.

Peter Staats, MD: Voltaire once stated “Doctors are men who give drugs of which they know little, into bodies of which they know less, for diseases of which they know nothing at all.” A lot has changed, and not just that doctors aren’t all men!

The early use of electrical stimulation seems somewhat mystical. We placed electrodes in strange places, stimulated with a particular frequency, and hoped for the best. Until recently, we hadn’t even studied the ideal frequencies or targets for most disease processes. Although electricity has been used medically for literally thousands of years, and we have been implanting electrodes to modify pain since the 1960s, our understanding of what we are actually doing to the nervous system had been quite limited up until this generation. Over the past 20 years or so this has been changing, and our field has enjoyed enormous successes of late—it’s an exciting time to be a neuromodulator. I believe the field is about to take off even more exponentially, with Star Trek–worthy technologies that we couldn’t have even dreamed of just a few years ago. The new intersection of advances in technology and power sources, along with our scientific understanding of the neurologic-electrical interface will make the field of neuromodulation explode. In the coming years, we will be diagnosing patients based on their responses to neurostimulation and be able to treat patients who, to date, have been considered untreatable, and the successes will be astounding.

In fact, we have already grown dramatically over the past several decades. I had the privilege of chairing many of our initial educational conferences on pain. We started with less than 100 attendees, and at best, we had several hundred attendees in the early years; last year, we had more than 1,600 participants at the NANS Annual Meeting. This success has been born on the shoulders of giants, several of whom have been presidents of this organization and continue to make great contributions. An entire book would not allow me to properly recognize all who have contributed to our field, but a few deserve special mention. Back in 2002, we recognized that those truly interested in neuromodulation needed a home, and we transformed the society into a platform society studying neuromodulation as it related to all diseases and specialties, making it more than just another pain society or neurosurgical society. Basic and clinician scientists, including Drs. Linderoth, Dejongste, and Foreman, expanded our fundamental knowledge, helping us understand how electricity works to modify disease and not just the symptoms of pain.

With well-designed clinical trials, other physician scientists, like Drs. North, Barolat, Rezai, Henderson, and Stanton-Hicks demonstrated that the therapies we use today have a role in helping patients with pain. Among their many contributions, physician educators and patient advocates Drs. Prager, Deer (president-elect of INS), Kloth, Sharan (president-elect of NANS), and the late Drs. Hassenbush and Oakley helped define our field with education, research, and healthcare policy. Each contributed greatly to the betterment and indeed the survival of our field. Dr. Krames had the vision to start the *International Journal of Neuromodulation* and collaborated with other organizations to help broaden the field from a pain organization to a platform for exploring numerous diseases. Today that torch has been passed to Dr. Levy, who has met the challenge with resounding success, improving the impact factor every year.

These giants have worked for decades to establish and advance the field of neuromodulation and make it what it is today, a multidisciplinary group of scientists working collaboratively to advance the study of neuromodulation in a variety of disease states. All of the physicians interested in neuromodulation (along with the patients who directly benefit from their talents) owe a huge debt of gratitude to these leaders. Their vision and action have made it possible for us to treat patients with advanced disorders.

I believe that we are at a real inflection point in the use of neuromodulation for numerous disorders. We are making progress in many areas; yet, paradoxically, the breadth and depth of what we still don’t know intrigue me. There are disorders that we never thought could be amenable to neurostimulation. We are about to see an explosion of the use of “electroceuticals,” or digital drugs, as a primary drug to both diagnose and treat disorders as divergent as pain and arthritis.

In addition, during this coming decade we will see miniaturization of electrodes and power sources along with advances in surgical techniques to minimize complications. Currently, there is great attention being placed on the use of alternative frequencies, magnetic resonance imaging compatibility, and novel targets (such as the dorsal root ganglion), and even immediate negative feedback loops built into devices. New well-designed clinical trials will demonstrate the efficacy of these therapies. In addition, guidelines will move neurostimulation and intraspinal drug delivery up the algorithm into the mainstream. Although we will certainly have challenges in this cost-conscious society, I am convinced that this will be a very stimulating time to be a neuromodulator.

Q: What do you think the greatest innovation in pain (treatment, diagnosis, science, engineering) over the next decade will be?

Michael Stanton-Hicks, MB BS DrMed: Most likely, because of increasing understanding and relationship to genetic factors, mechanisms of pain syndromes as they become known will be subject to genetic engineering and neuromodulatory applications. Already some 407 pain genes are identified. These genes are specific for functional areas such as ion channels, behavior, and response to injury.

Pathological tissue function could be modulated using viral vectors trophic for the target tissue. Engineering aspects of neuromodulation will see the most dramatic change in design of the neural interface with an almost infinite number of contacts, the use of conducting polymers replacing precious metals and “intelligent...
electrodes” using wireless power sources. Miniaturization and reliability of implantable systems will reduce technical failure by having a lower mass and therefore susceptibility to displacement. Use of the body’s movement will also become a source of power, the conversion of which will supplement the power of IPGs that will also benefit from improved battery capacity. Such systems will offer two-way telemetry, allowing continuous monitoring of whichever parameter is appropriate for system integrity or patient care. Compound systems that allow both infusion and stimulation will also have specific applications. The future face of neuromodulation has almost unlimited possibilities.

Q: Will there be any role of neuromodulation in the treatment of chronic pain in the future?  
Richard B. North, MD: Neuromodulation has compelling advantages over alternative treatments for pain in particular and neurologic disease in general. Not only is it inherently reversible, with fewer side effects and risks than alternative treatments, but it also is more effective for many conditions. It allows a trial of the actual treatment (not a potentially misleading surrogate) before any commitment is made and any major expenditure is incurred. Its upfront costs are more justified by its results; that is to say, it is cost-effective. A growing base of randomized controlled trial evidence for spinal cord stimulation attests to this.1,2,3

For more than 50 years there have been ongoing technical advances in implantable devices, stimulation waveforms and pulse sequences, and anatomic targets. As these advances continue apace, the role of neuromodulation for pain in particular and neurologic disease in general will continue to grow.

References

Q: What advance in science would be the most beneficial to the field of neuromodulation?  
Robert Foreman PhD: I enjoyed the privilege of serving this exciting and visionary society as a basic scientist who was graciously accepted as president by this community. My knowledge of issues facing neuromodulation expanded extensively while I interacted with the NANS board and members of the society. Through this experience, I believe an important advancement in science that would be most beneficial to the field of neuromodulation is committed collaboration between scientists, engineers, and physicians. Basic sciences and technology have made great strides in discovering mechanisms and making new inventions. The challenge is to move these discoveries from laboratory to the patient. Thus, it is critical that direct cooperation and partnership exist to develop models, design experiments, and discuss results that would expedite the translation of studies from bench to bedside and vice versa.

NANS, the Program and Scientific Committee, and the NANS board are making every effort to increase the involvement of basic scientists and engineers in the leadership of our society. This involvement is paramount because it addresses an important component of our mission statement, which states “NANS promotes multidisciplinary collaboration among clinicians, scientists, engineers, and others to advance neuromodulation through education, research, innovation, and advocacy. Through these efforts, NANS seeks to promote and advance the highest quality patient care.”

To advance the field of neuromodulation, the NANS board recently agreed to set up a Science and Engineering Committee to work with the board to determine ways to serve in a leadership role in NANS. The proposed roles of this committee are to promote pure science disciplines related to neuromodulation for the program of the NANS Annual Meeting and related activities; improve the basic science program of the NANS Annual Meeting; bridge the gap between basic science, biomedical engineering, clinical science, and clinical practice; encourage basic scientists to present their research at the NANS Annual Meeting; act as a diverse forum for related national clinical and basic science societies and an opportunity for positive collaboration; and involve basic scientists in the activities and responsibilities of the NANS board. I am excited about this visionary decision to advance the field of neuromodulation.

Q: What do you think the future of neuromodulation looks like?  
Joshua P. Prager, MD MS: Neuromodulation is still in its infancy. The capabilities of neuromodulation are barely beginning to be understood. In the last decade, we have seen the advent of rechargeability, various new forms of stimulation, and increased use of functional MRI which allows us to better understand what we are accomplishing and striving to reach. Recently, we’ve seen neuromodulation as a technique that allows a spinal cord injury patient to be able to move a limb. We have enumerated a list of targets that neuromodulation can treat, including cardiac, vascular, gastrointestinal, and a plethora of neurological targets in addition to potential psychiatric targets. With quality studies, we will get to understand the impact that neuromodulation has in these various systems.

Despite the burgeoning impact of neuromodulation, there has been pushback by carriers regarding reimbursement for these modalities. Clearly, when the therapy involves an implantable device including surgery to implant it, costs will be high. Policy makers must look at the long-term cost-benefit of a treatment and look beyond immediate upfront costs. The clear challenge in the future of neuromodulation is educating the public and the policy makers regarding the potential benefits of neuromodulation. For the field to thrive, it will be necessary to continue to produce quality studies demonstrating the long-term cost efficacy of neuromodulation. Neuromodulation can provide significant benefits over systemic medications with their side effects and surgery that is irreversible and often destructive.
Committee Updates

Membership Committee
Lawrence Poree, MD MPH PhD, Chair

Membership in NANS continues to grow in response to the expansion of membership categories, including our allied health members. In addition, both our regular and trainee membership numbers have increased. The NANS Board of Directors recognizes that NANS members are the foundation of our society, and we continue to seek ways to increase the value of membership. We encourage members to contact individual committee chairs or the executive director directly with any suggestions or concerns or to become more involved in the activities of the society. As an example, the newly formed residents/trainees committee suggested that NANS support greater access to employment opportunities during the NANS Annual Meeting. To accommodate this request, employers and industry members are invited to attend the NANS-sponsored residents/trainee evening reception Thursday, December 11, to publicize their job opportunities. Likewise, the allied health members requested a NANS-sponsored reception for our allied health members. This event will also be hosted during the evening on Thursday, December 11.

The NANS board also recently formed the Science and Engineering Committee to assist with the development of initiatives for recruiting and retaining basic scientists and engineers in our society. Members who wish to participate in this committee or any other committee should contact Chris Welber, NANS executive director, at cwelber@neuromodulation.org. The board is also pleased to announce the formation of our new Women in Neuromodulation Committee chaired by Julie Pilitsis, MD, who is developing programs aimed at enhancing the visibility of all our female members. This committee was formed as a result of suggestions made by our members. Of course, the board continues to advance the educational and advocacy issues related to neuromodulation. Recent initiatives include NANS-sponsored intrathecal practice guidelines that are expected to be published soon. The NANS board and Advocacy Committee have also devoted a considerable amount of time advocating for greater access and reimbursement for neuromodulation therapies in both the halls of Congress and the offices of the Centers for Medicare & Medicaid Services. These activities are the direct result of requests made by our members and are one measure of the value of your membership.

To better serve NANS members, we encourage members to become directly involved in one of our many committees. We also request that members update their demographic information, as this will allow us to better anticipate the needs of our members. See the box below for information about how to update your contact information. As always, do not hesitate to contact Executive Director Chris Welber (cwelber@neuromodulation.org) or me (lporee@neuromodulation.org) with any recommendations or concerns.

NANS Foundation
Robert Foreman, PhD FAHA, Chair

The function of the NANS Foundation is to promote, fund, and initiate programs that support NANS’s overall mission. The mission is to support multidisciplinary collaboration among patients, clinicians, scientists, engineers, and others to advance neuromodulation through research and education.

The NANS Foundation is pleased to announce the Kumar New Investigator Best Manuscript Award, created to encourage new investigators to conduct scientific work in the exciting arena of neuromodulation. It is given to honor the legacy of Dr. Krishna Kumar and is provided by a benevolent grant of $5,000 from Medtronic. This award will be given to a basic scientist, clinical investigator, or engineer who has been recognized for outstanding originality and ingenuity in a scientific manuscript, which will be presented at the NANS Annual Meeting. The NANS Foundation is in the process of developing the criteria and application procedure.

The foundation is in the process of developing a strategy for giving travel grants to scientists and engineers who are in the early stages of their scientific career to present abstracts at the NANS Annual Meeting. This $1,000 grant will provide an opportunity for investigators to present and promote their current research efforts to the membership of NANS. In addition, these investigators will be given an opportunity to become involved in our society. The number of awards to be given is still under consideration.

An important component of the foundation is fundraising. The foundation members are discussing the best starting point for fundraising and how the development of a strategy could be initiated. One idea being considered for development is a marketing piece that could be used to recruit contributors. Another suggestion is the possibility of NANS matching, up to a certain percentage, contributions received from individuals. Staff are exploring how to include a section on the online membership renewal form for members who elect to make a contribution to the NANS Foundation.

Members who would like to participate in the NANS Foundation may contact Chris Welber at cwelber@neuromodulation.org.

UPDATE YOUR NANS CONTACT INFORMATION

• WEBSITE. Click the Member Login link in the upper right corner of the NANS website to verify that we have the most current information on record.

• PHONE. Call Member Services at 847.375.4714 to speak with a member services representative.

• E-MAIL. Send your current contact information to info@neuromodulation.org.

Meetings of Interest

NANS members are encouraged to attend these meetings of interest presented by other pain, spine, and neurology associations. Please see the following contacts for more information.

October

Anesthesiology 2014
American Society of Anesthesiologists
October 11-15
New Orleans, LA
www.asahq.org

EANS 2014
The 15th European Congress of Neurosurgery
October 12-17
Prague, Czech Republic
www.eans2014.com

64th Annual Meeting of the Congress of Neurological Surgeons
Congress of Neurological Surgeons
October 18-23
Boston, MA
www.cns.org/calendar/default.aspx

6th Annual Scientific Meeting
Texas Pain Society
October 24-26
San Antonio, TX
http://texaspain.org

November

NYNJSIPP Pain Medicine Symposium 2014
New York New Jersey Society of Interventional Pain Physicians
November 6-9
Jersey City, NJ
www.etouches.com/ehome/nynjsipp2014/nysipp/?

NASS 2014 Annual Meeting
North American Spine Society
November 12-15
San Francisco, CA
www.spine.org/Pages/default.aspx

NANS Mentorship Program Opportunities

Jason E. Pope, MD; Steven Falowski, MD; Dave Provenzano, MD

Guided by continued advocacy efforts for safe and responsible neuromodulation practices, NANS is piloting a new mentorship program based on the Neuromodulation Appropriateness Consensus Conference and the NANS Training Requirements for Spinal Cord Stimulation. The neuromodulation experience in the Accreditation Council for Graduate Medical Education fellowships is highly diverse, and a need exists to structure a more formal, society-driven effort to standardize training. The absence of a personal, ongoing, accountable mentorship strategy is an obvious deficit in promoting safe patient care. The NANS Resident and Fellow Section (RFS) and the Women in Neuromodulation Section (WNS) have developed the NANS Mentorship Program to fill this deficit. Participants will have the opportunity to join special interest groups that best meet their needs to create relationships, improve safety, and foster the development of a neuromodulation component to their practice.

Spearheaded by Julie Pilitis, MD; Jason E. Pope, MD; Steven Falowski, MD; Erika Peterson, MD; Chen Wu, MD; David Provenzano, MD; and Michael Hanes, MD, NANS fellows and residents will be offered the opportunity to be paired with mentorship faculty. The mentorship interaction is governed by a schedule that is both individualized and structured to ensure accountability and will be accompanied by Web-based didactic content to reinforce neuromodulation principles.

The goal of the mentorship program is to increase the NANS general membership by 2016 and offer a twice-a-year workshop schedule to allow for additional hands-on training. In offering a certificate of attendance training workshop at the 2014 NANS Annual Meeting, the goal is to provide an educational platform to educate and train physician providers on advanced implantable pain care therapies, including spinal cord stimulation and intrathecal drug delivery. Candidates will be in autonomous practice for 1-5 years and desire to enhance their formal education, as the workshop will be at higher level, consisting of a 5-hour, hands-on cadaver lab with a 5:1 or lower ratio of attendees to faculty, as well as scheduled didactics.

For additional information, please contact Chris Welber at cwelber@neuromodulation.org.

Bibliography

NANS Newsletter Available Online
Visit www.neuromodulation.org to read current and past issues.

NANS 18th Annual Meeting
December 11-14, 2014 | Las Vegas

Register Now
The world’s largest meeting on neuromodulation returns to Las Vegas in December. Join colleagues in envisioning more for the future of neuromodulation therapies by attending the NANS 18th Annual Meeting.

Visit www.neuromodulation.org/2014meeting for more details.