Progressive Neuroscience

A publication for physicians produced by the Institute for Neurosciences at Winthrop-University Hospital

- **Research:** Anoxia & Nerve Action Potential
- **Migraines & Occipital Nerve Stimulation**
- **Intracranial Aneurysms & Pipeline Embolization Devices**
To Our Colleagues:

Winthrop’s Institute for Neurosciences is committed to strengthening the synergy between research and clinical practice — a relationship we consider critical to providing the most accurate diagnoses and effective, novel treatments for patients with diseased nervous systems.

Underscoring that pledge, we are experiencing an exciting period of growth and expansion, building upon the reputation and work of our exceptional faculty, as well as the dramatic advances in diagnosis and treatment facilitated by our cutting-edge technologies.

The Electrodiagnostic Laboratory (EDX) stands as a prime example of our first-rate services and technology. Recently the Lab received the highest level of accreditation accorded to such a facility by the American Association of Neuromuscular and Electrodiagnostic Medicine (AANEM). The unusual recognition — there are only two accredited AANEM labs in the area — validates the Lab’s clinical excellence.

In addition to detailing the requirements for AANEM accreditation, the current issue of Progressive Neuroscience also looks at:

- Research into the effects of anoxia on the time course of changes in the nerve action potential produced by hyperkalemia
- Advancing the treatment of challenging intracranial aneurysms
- Using occipital nerve stimulation to improve the quality of life for chronic migraine sufferers
- Nursing and safety in the Epilepsy Monitoring Unit
- Support groups for patients with chronic neurologic illnesses

Enthusiastic about the progress being made at the Institute, we are proud to begin the sixth year of producing this publication. Most important, however, we continue to feel privileged to treat your patients, and look forward to continuing our partnership in their care.

Mark M. Stecker, MD, PhD
Chairman
Department of Neuroscience

Michael H. Brisman, MD
Chief
Division of Neurosurgery
Co-Director
Institute for Neurosciences
# Table of Contents

Winthrop-University Hospital's Institute for Neurosciences specializes in the latest and most effective neurological procedures for:

- Acoustic Neuroma
- Astrocytoma
- Arteriovenous Malformation of Brain & Spine
- Back Pain
- Brain Aneurysms
- Brain & Spinal Traumas
- Brain Tumors
- Carotid Stenosis
- Cerebral Aneurysms
- Cerebrovascular & Endovascular Diseases
- Chiari Malformation
- Chronic Pain
- Degenerative Scoliosis
- Epilepsy
- Facial Pain
- Glioblastoma
- Hemifacial Spasm
- Herniated Discs
- Hydrocephalus
- Intracranial Atherosclerotic Disease
- Intracranial Hemorrhage
- Memory Disorders
- Meningiomas
- Metastatic Tumors
- Movement Disorders
- Moyamoya Disease
- Multiple Sclerosis
- Neck Pain
- Neurological Cancers
- Neuromuscular Diseases
- Normal Pressure Hydrocephalus
- Ossification of Posterior Longitudinal Ligament
- Parkinson’s Disease
- Pediatric Neurological Conditions
- Peripheral Nerve Disorders
- Phantom Limb Pain
- Pinched Nerve
- Pituitary Adenoma
- Post Herpetic Neuralgia
- Sciatica
- Seizure Disorder
- Spasticity
- Spina Bifida
- Spinal Cord Injury
- Spinal Stenosis
- Spine Fractures
- Spine Tumors
- Stroke
- Subarachnoid Hemorrhage
- Subdural Hematoma
- Syringomyelia
- Trigeminal Neuralgia

## Advancing the Treatment of Challenging Intracranial Aneurysms

2

## Nursing and Safety Considerations in the Epilepsy Monitoring Unit

4

## Effects of Anoxia on the Time Course of Changes in the Nerve Action Potential Produced by Hyperkalemia

6

(Provided at the 2013 AAN Conference, San Diego, CA, by Mark Stecker, MD)

## Improving Quality of Life for Chronic Migraine Patients with Occipital Nerve Stimulation

8

## Winthrop Neurology Faculty Practice Electrodiagnostic Laboratory Awarded AANEM Accreditation

10

## Patients with Chronic Neurological Disorders Benefit from Support Group Involvement

11

## Contributing Clinicians

<table>
<thead>
<tr>
<th>Name</th>
<th>Position</th>
</tr>
</thead>
<tbody>
<tr>
<td>Charles M. Strain</td>
<td>Chairman of the Board</td>
</tr>
<tr>
<td>John F. Collins</td>
<td>President &amp; CEO</td>
</tr>
<tr>
<td>Mark M. Stecker, MD</td>
<td>Chairman, Neuroscience</td>
</tr>
<tr>
<td>Michael H. Brisman, MD</td>
<td>Chief, Neurosurgery Co-Director, Institute for Neurosciences</td>
</tr>
<tr>
<td>Garry J. Schwall</td>
<td>Chief Operating Officer</td>
</tr>
<tr>
<td>Solomon A. Torres</td>
<td>Vice President, Administration</td>
</tr>
<tr>
<td>J. Edmund Keating</td>
<td>Vice President</td>
</tr>
<tr>
<td>Phyllis Abrams</td>
<td>Writer/Editor</td>
</tr>
<tr>
<td>Charles Walsh</td>
<td>Graphic Designer</td>
</tr>
</tbody>
</table>

*Progressive Neuroscience* is produced by the Institute for Neurosciences at Winthrop-University Hospital, 259 First St., Mineola, NY 11501, 516-663-0333, www.winthrop.org.
Little more than a decade ago — despite the heralded introduction of novel, minimally invasive, endovascular techniques to treat unruptured cerebral aneurysms — giant, wide-necked, or otherwise untreatable, intracranial aneurysms still required direct surgical reconstruction or bypass.

These techniques — clipping and intrasaccular packing with coils — have proven effective with most narrow-necked lesions. However, when used for fusiform, giant or wide-necked aneurysms, success is limited, with complete occlusion often failing.

Today, the treatment of large, unruptured brain aneurysms once deemed untreatable is undergoing a paradigm shift with the use of the Pipeline™ Embolization Device (PED). Considered a breakthrough in aneurysm therapy, PED was granted FDA approval in 2011, and is being utilized increasingly as a curative approach to select, large aneurysms.

At Winthrop-University Hospital, which has earned a reputation as a center of excellence for the management of complex cerebral aneurysms, Jonathan Brismam, MD, Director of Cerebrovascular and Endovascular Neurosurgery, is making a significant impact on practice patterns used to treat patients with these challenging lesions. “In every instance, our goal is to reduce the risk of rupture and minimize brain damage,” said Dr. Brismam, who is one of fewer than 100 neurosurgeons, nationwide, with dual training in microneurosurgery and endovascular techniques.

“Advancing Treatment of Challenging Intracranial Aneurysms

A 62-year-old woman with hypertension and diabetes presented with a subacute, complete third-nerve palsy. MRA disclosed a giant cavernous aneurysm. Because the patient had had the third-nerve palsy for at least six months prior to presentation, it was believed that treatment was not indicated. On follow-up imaging, the aneurysm continued to grow and began to extend into the intracranial space. Therefore, the patient underwent pipeline stenting to obliterate the aneurysm and prevent a disastrous intracranial hemorrhage. After premedication with aspirin and plavix — and documentation of good responsiveness to these medications using a new aspirin and plavix assay — the patient underwent successful pipeline stenting with near-complete obliteration of the aneurysm.
The PED is considered safe and effective. It represents a significant advance in endovascular therapy and in the evolution of intracranial stents,” he explained. “Rather than utilizing endosaccular occlusion to exclude the aneurysm, PED involves targeting and reconstructing the parent vessel.”

Engineered specifically for the treatment of brain aneurysms, the PED is a flexible, microcatheter-delivered, self-expanding stent consisting of a braided mesh cylinder constructed of platinum and cobalt chromium microfilaments. Using general anesthesia and the transfemoral approach, stent deployment is achieved via a slow unsheathing in conjunction with a push/pull and twisting motion that allows the device to remodel the vessel as it is deployed. Using fluoroscopic guidance, it is navigated through the parent vessel and placed across the aneurysm neck, diverting and redirecting blood flow through the artery away from the vulnerable area.

“With the PED we never enter the aneurysm,” reported Dr. Brisman. “The stent seals off the lesion’s neck, maintaining the parent vessel’s patency as it changes the hemodynamics. Eventually, intra-aneurysmal thrombosis occurs, reducing the likelihood of rupture.” After blood flow to the aneurysm is halted, the PED becomes endothelialized, forming a permanent biological seal across the diseased parent artery.

“Approval for PED use is currently restricted to patients over age 22 with an aneurysm located between the petrous and superior hypophyseal segments of the internal carotid artery; the aneurysm neck must be >4mm and the size >10mm,” Dr. Brisman stated. “Contraindications include patients with active bacterial infection, patients in whom dual antiplatelet therapy is contraindicated, patients who have not received dual antiplatelet agents prior to the procedure, and those with an existing stent at the target site.”

A landmark study concluded that “Endovascular reconstruction with the PED represents a safe, durable, and curative treatment of selected wide-necked, large, and giant cerebral aneurysms. Although there are limitations with respect to the clinical scenarios and anatomic locations in which the device can be effectively used, for those aneurysms amenable to treatment, PED reconstruction appears to represent an optimal treatment modality.”

Nevertheless, according to Dr. Brisman, there remain some unanswered questions, such as determination of the aneurysm; patient- or operator-specific factors that predispose these lesions to bleed post-treatment; long-term recurrence and in-stent stenosis rate; and when to complement stent placement with coiling.

“Despite the questions, when the device is used judiciously, it provides once-untreatable patients, who have dangerous, unruptured aneurysms, with an effective treatment option,” Dr. Brisman concluded.

For more information call the Institute for Neurosciences at 1-866NEURO-RX or visit www.winthrop.org.

REFERENCES
2. Brisman JL. What’s coming down the pipe—and should we be excited, concerned, or both? AJNR 2013;34:388-390.
Nursing and Safety Considerations in the Epilepsy Monitoring Unit

By Mona Stecker, DNP, NP-BC, CNRN
Special Projects Manager
Winthrop-University Hospital

Patients with epileptic and non-epileptic events require close monitoring and thorough assessments. In addition, it is especially important that these patients are provided a safe environment. The issue of safety in caring for patients on an epilepsy monitoring unit (EMU) is well referenced throughout the literature.

The Clinical Practice Guidelines (CPGs) put forth by the American Association of Neuroscience Nursing (AANN 2007)¹ and the National Association of Epilepsy Centers (NAEC 2010)² make numerous references to the importance of safety in patient care on an EMU. However, “information to design and establish appropriate practices to improve patient safety in the EMU is scattered, if not entirely lacking.”³ Currently, EMUs throughout the country do not function according to standardized protocols.

Many injuries — including fractures, burns, soft tissue injuries, lacerations, head injuries, and dental injuries — result from patients having seizures. Furthermore, withdrawal of antiepileptic medications and other provocative factors place EMU patients at particularly high risk for injury.²³

According to the literature, quality of patient care and maintenance of patient safety depend, in large part, on the competence of the nursing staff. Nurses must have accurate assessment skills, the ability to use them in a timely fashion and the training to recognize acutely ill patients immediately.⁴

Diagnosing seizures accurately and in a timely manner depends largely on a thorough assessment of what occurred before, during and after the event. Since not all behavior changes are electrographic seizures, nurses who witness clinical events can add crucial information to the diagnostic phase.⁵ As part of the initial assessment, nurses should get a description of a patient’s “typical event” by questioning, if possible, a secondary source in order to obtain a more precise picture of patient’s events; this description is especially important, if a patient typically loses awareness or consciousness during the event.⁵

Close observation and recording of the event with data such as level of consciousness, language ability and motor facility can substantially increase the accuracy of diagnosis. Provocative factors, such as the

Since not all behavior changes are electrographic seizures, nurses who witness clinical events can add crucial information to the diagnostic phase.
withdrawal of medication, sleep deprivation and photic stimulation, can produce seizures that may become frequent and severe. Seizure activity may lead to status epilepticus — a medical emergency.\(^7\)

Since nurses’ assessment skills in the EMU are critical to providing safe, quality care, it is important that they have a good foundation in the application of those skills and ensure that they are performed accurately and consistently. Fundamental safety precautions — such as timely response to an event, working suction set-up, bed in lowest position, padded bed rails and the removal of sharp objects during a clinical event — are essential to a safe environment. Nurses should not leave patients unattended until their baseline level of consciousness has returned. They should also be available for assisted mobility, especially in the post-ictal period, when the risk of falling may be increased.

It is equally important for nurses to recognize the potential for sudden unexpected death in epilepsy (SUDEP). Although rare, SUDEP accounts for 1 in 5 deaths in people with epilepsy. Although the cause remains unknown,\(^8\) the literature is mixed with respect to etiology and risk factors for SUDEP. While uncontrolled tonic-clonic seizures, cardiac arrhythmias and certain respiratory mechanisms (laryngospasm, pulmonary edema) have been cited as contributors/causes of SUDEP,\(^9\) the sudden cessation of antiepileptic drugs (AEDs) can also place patients at risk for SUDEP. Therefore, it is worth repeating that an EMU nurse must be prepared to make a quick and accurate assessment of a patient and take necessary precautions to reduce this risk.

It is important not to forget about one of the fundamental characteristics of nursing care: showing respect and compassion for patients, and consoling them after clinical events. Patients can be confused and frightened after a seizure. To calm them, nurses should use the patients’ names and speak respectfully to them and their families.

The high quality of nursing plays a critical role in the care of EMU patients, who are especially vulnerable. Providing a safe environment, close observation, accurate event recording, and respectful and compassionate treatment are critical aspects of care on an EMU,\(^10\) and use of a structured educational program for nurses working on an EMU can improve some aspects of care provided to patients.

In epilepsy care as in every aspect of advanced neurologic care, it is important to have teamwork between physicians, nurses, technologists and other providers in order to ensure optimal outcomes.

For more information call the Institute for Neurosciences at 1-866NEURO-RX or visit www.winthrop.org.

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### Table 1. Pre- & Post-Education Rating Scale Scores

<table>
<thead>
<tr>
<th>Assessment Element</th>
<th>Pre-Education</th>
<th>Post-Education</th>
<th>t-tests</th>
<th>df</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>S.D.</td>
<td>Mean</td>
<td>S.D.</td>
<td>t</td>
</tr>
<tr>
<td>Response Time</td>
<td>2.5</td>
<td>0.52</td>
<td>2.20</td>
<td>0.41</td>
<td>-2.44</td>
</tr>
<tr>
<td>Neuro Exam</td>
<td>2.1</td>
<td>0.88</td>
<td>2.70</td>
<td>0.47</td>
<td>-7.37</td>
</tr>
<tr>
<td>Safe Environment</td>
<td>1.6</td>
<td>0.81</td>
<td>1.95</td>
<td>0.69</td>
<td>-3.21</td>
</tr>
<tr>
<td>Vital Signs</td>
<td>2.5</td>
<td>0.70</td>
<td>2.90</td>
<td>0.31</td>
<td>-2.56</td>
</tr>
<tr>
<td>Event Button</td>
<td>2.3</td>
<td>0.47</td>
<td>2.60</td>
<td>0.50</td>
<td>-2.26</td>
</tr>
<tr>
<td>Respect</td>
<td>2.1</td>
<td>0.63</td>
<td>2.55</td>
<td>0.51</td>
<td>-3.21</td>
</tr>
<tr>
<td>Conversation</td>
<td>1.3</td>
<td>0.83</td>
<td>1.40</td>
<td>0.68</td>
<td>-0.32</td>
</tr>
<tr>
<td>Sum</td>
<td>14.5</td>
<td>2.1</td>
<td>16.30</td>
<td>1.17</td>
<td>-3.73</td>
</tr>
</tbody>
</table>

* p values that are statistically significant after correction for multiple testing

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Position, padded bed rails and the removal of sharp objects during a clinical event — are essential to a safe environment. Nurses should not leave patients unattended until their baseline level of consciousness has returned. They should also be available for assisted mobility, especially in the post-ictal period, when the risk of falling may be increased.

One epilepsy center used a standardized protocol to evaluate the care provided by EMU nurses.\(^10\) An investigator-developed tool quantified nurses’ assessments of EMU patients, and scores were compared before and after the institution of a structured nursing education program. Table 1 summarizes the nurses’ performance in general. Performing a neurological exam, providing a safe environment and engaging in respectful conversations were most difficult prior to instituting the educational program. The post-education scores indicate that the program resulted in improved scores in the areas of proper neurological exam and showing respect and compassion. The overall scores of the quantified rating scale also improved.

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### REFERENCES

Effects of Anoxia on the Time Course of Nerve Action Potential Mark M. Stecker M.D., PhD Dept of Neuroscience, Win Presented at the 2013 AAN Conference, San

Objective
Use the time course of changes in the nerve action potential to an elevated potassium solution to explore the effects of anoxia on peripheral nerve.

Background
Acute anoxia eventually produces failure of peripheral nerve conduction. However, even after oxygen is restored, the nerve action potential (NAP) does not always return completely to baseline\(^2\). Could this be related to an effect of anoxia on potassium channel function?

Methodology
Paired constant-current stimuli at 15mA, 0.01msec duration and 5Hz are applied to in vitro rat sciatic nerve while the NAP is recorded continuously. Computer-controlled perfusate, either fully oxygenated with KCL=3.9 mM or KCL=25mM, or fully deoxygenated with KCL=3.9 mM. Automated abstraction of NAP parameters with experimenter auditing is used, and the time course of changes in response to high KCL is recorded before and after a 90-minute period of anoxia followed by a 90-minute recovery period in normal KCL oxygenated perfusate.
**Results**

On exposure to the high potassium concentrations, the amplitude of the nerve action potential declines gradually; conduction velocity decreases while the duration of the NAP increases.

The paired pulse response initially decreases then increases. After being exposed to the high potassium solution, the time it takes for the NAP to drop to half its baseline value is similar before and after anoxia. However, the shape of the curve is very different (F(19,190)=2.4,p<.001) when a repeated measures ANOVA is used for analysis. The Mann-Whitney U test applied to each of the time points shows significant differences at the 1st, 2nd, 3rd and 19th data points (p<.05, p<0.005, p<.01 and p<.05 respectively). Recovery from anoxia is impaired in high potassium solutions. Latencies are much longer during the initial potassium infusion than the potassium after anoxia.

**Conclusions**

The course of changes in the NAP after exposure to high concentrations of potassium is affected by anoxia. Although additional studies will be required to fully understand the implications of this phenomenon, it does suggest the possibility that anoxia affects potassium channels.

**References**

Now in her mid 20s, a patient began suffering from headaches when she was 12. By age 15, and for nearly a decade afterward, at least twice a day, she was tormented by relentless pounding in the regions over her eyes. The pain started without warning as a dull ache, but soon would grow so severe she was forced to retreat into a dark room and wait for the throbbing to subside.

Diagnosed with the chronic migraine disease, she failed every major migraine medication. While Imitrex® provided mild-to-moderate relief, her quality of life, relationships and school work were seriously compromised. Never knowing when the pain would hit, she often refused to attend family events, could not complete assignments and hesitated to go out with friends, frightened that the wave of pain would overcome and immobilize her.

That pain became the focus of her life. It was all she thought about, and when it was at its worst, she could not think straight. Most important, her disability forced her to set aside dreams of going to college and becoming a teacher.

About 18 months ago, the young woman, who had failed treatment with extensive trials of various migraine medications, as well as botox, was referred to Brian Snyder, MD, a Winthrop-University Hospital neurosurgeon, who specializes in the surgical management of pain, epilepsy and movement disorders.

After noting her refractory pain, reviewing her history and conducting a thorough examination, Dr. Snyder suggested a one-week temporary trial of occipital nerve stimulation (ONS) as a reasonable option. She responded robustly. Within 48 hours of initiating the trial, her headaches were nearly eliminated, and she was provided with a permanent neurostimulator.

Subsequently, the patient began going pain-free for days at a time. When she did get a headache, it was tolerable. She now holds a job and is enrolled in college. “I can actually live my life now, and know I’m going to be OK,” she said.
Chronic migraine disease affects an estimated 3 million people in the U.S. Sufferers are incapacitated 15 or more days a month with headaches that last at least four hours for three consecutive months. According to the World Health Organization, severe migraine attacks are among the most disabling illnesses, comparable to dementia, quadriplegia and active psychosis.

Despite advances in the understanding of the condition and new pharmacologic treatments, many chronic migraine patients remain refractory to medical therapy.

Chronic migraine is deemed intractable with failure of three or more medications and at least moderate disability. Despite advances in the understanding of the condition and new pharmacologic treatments, many chronic migraine patients remain refractory to medical therapy. And, in such cases, occipital nerve stimulation (ONS) has been shown to be beneficial.

“The exact mechanism of relieving headache pain remains unknown,” explained Dr. Snyder, “but there are connections between the occipital nerves and regions in the brainstem/spinal cord that are likely responsible for pain generation/propagation. Stimulation of these nerves may alter these circuits.”

ONS involves delivering a mild electrical stimulus over the region of the occipital nerve(s). Produced by a pulse generator (neurostimulator) implanted in the chest wall, the charge is delivered to the occipital nerve(s) from the device through electrodes that are placed subcutaneously at the base of the skull.

Prior to implantation, trial lead placement is conducted to assess whether the stimulation will produce relief. Using local anesthesia and fluoroscopic guidance, a temporary lead (or leads) is placed through a needle under the skin and over the base of the skull. The patient undergoes a trial period of approximately one week during which the wires are attached to an outside battery pack. If the trial is successful, the leads and impulse generator are implanted permanently through small incisions under general anesthesia.

“Millions suffer from extreme migraines daily,” Dr. Snyder said. “ONS has been researched extensively, and currently, several, large-scale, trials of the procedure are being conducted. Findings show significant relief for severely debilitated patients who continue to struggle, despite medical therapies.”

For more information call the Institute for Neurosciences at 1-866/NEURO-RX or visit www.winthrop.org.

REFERENCES
The American Association of Neuromuscular & Electrodiagnostic Medicine (AANEM) has awarded a five-year accreditation with “Exemplary Status” to the Winthrop Neurology Faculty Practice Electrodiagnostic Laboratory (EDX). Exemplary Status — the highest level of accreditation an EDX laboratory can achieve under the AANEM Accreditation Program — is provided only if the physicians performing the laboratory studies have:

- Completed a neurology or physical medicine and rehabilitation residency program
- Completed at least three months of training in EDX medicine as part of a residency or fellowship program
- Been certified by the American Board of Electrodiagnostic Medicine (ABEM) or the American Board of Psychiatry and Neurology (ABPN) in clinical neurophysiology, or by the ABPN/American Board of Physical Medicine and Rehabilitation in neuromuscular disease

Electrodiagnostic studies, which cover a broad range of tests, measure the electrical activity of muscles and nerves to determine if there is damage, the cause of the damage and response to treatment. EDX laboratories provide diagnostic testing for a variety of neurological conditions, including anterior horn cell diseases; radiculopathies; peripheral neuropathy; neuromuscular junction disorders; muscle diseases, such as amyotrophic lateral sclerosis, cervical radiculopathy, sciatica, carpal tunnel syndrome, myasthenia gravis, myositis; and autonomic disorders.

According to the Laboratory’s Medical Director, Huiyung Yu, MD, who is certified by the American Board of Electrodiagnostic Medicine and the American Board of Psychiatry and Neurology, there are only two AANEM-accredited labs in the area. “The AANEM accreditation provides EDX laboratories with a structured mechanism that enables them to continually assess, evaluate and improve the quality of care we provide,” she said. “Our technologist, Manuel Bermudez, is one of the few technologists certified to perform nerve conduction studies in New York State. We have demonstrated clinical excellence in EDX medicine and confirmed our commitment to provide the highest quality medical care in a safe environment.”

The AANEM accreditation program — which utilizes a peer-review process that identifies and acknowledges EDX laboratories for achieving and maintaining the highest level of quality performance and integrity — evaluates the diagnostic services and clinical operations essential to providing quality patient care, including:

- Clinical staff qualifications and continuing education
- Physical facilities
- EDX equipment
- Protocols for performing EDX studies
- Patient reports
- Policies for ensuring the health and safety of every patient

“Certification of the Winthrop Neurology Faculty Practice Electrodiagnostic Laboratory validates the quality of the EMG and nerve conduction studies performed in our lab on a regular basis,” said Mark Stecker, MD, Chairman of Winthrop-University Hospital’s Department of Neuroscience. “National certification programs for laboratories and credentialing programs for practitioners are crucial to improving patient care.”

For more information call the Institute for Neurosciences at 1-866NEURO-RX or visit www.winthrop.org.
Because they can have a profound effect on the very essence of a person, diseases of the nervous system are often life-changing. In addition to producing serious physical deficits, chronic neurological conditions often have an ongoing and dramatic impact on the fundamental aspects of living, such as independence, education, family interaction, social relationships and the ability to work.

Hearing the diagnosis of a chronic neurological illness, therefore, can be alarming, engendering intense and potentially overwhelming emotional reactions. Everyone reacts differently, depending on the nature and severity of the condition and the patient’s age, self perception and family situation, as well as other factors, such as support and finances.

While anxiety and depression typically develop with most chronic illnesses, neurological disorders, such as epilepsy, Parkinson’s disease and multiple sclerosis, carry additional feelings of stigma and shame, prompted by feeling different, unacceptable and less desirable.

Defined as an “undesired differentness,” stigma is a hidden, yet powerful burden that can lower self-esteem and prevent individuals from reaching their full potential. In an attempt to avoid stigma, patients may deny, minimize or ignore their illnesses or treatment recommendations, living in a world so shrouded in secrecy and silence that they

Marked by concealment and suppression, shame can cause patients to disconnect from others.

Continued on pg. 12
grow socially disabled and isolated. Shame, the deep pain generated by believing that one is flawed and, therefore, unworthy of love and belonging, creates fear. Marked by concealment and suppression, shame can cause patients to disconnect from others. For an individual to accept living with a chronic neurological disorder, the feelings of shame and stigma need to be recognized by the patient and understood by a trusted health care provider.

The participation of family or caregivers in support groups can lead to a shared awareness of the impact of a neurological illness on the entire family. These experienced clinical social worker, with training in the special needs of patients suffering from chronic neurological disorders, have educational and emotional components. The former provides concrete information, problem-solving strategies and coping skills via lecture and discussion, with the latter focusing on the expression of participants’ complex and painful feelings in a non-judgmental arena.

It is impossible to escape the psychological and emotional impact of living with a chronic neurological disorder. Emotions affect not only functional capacity and ability to adjust to the condition, but they also have a significant impact on outcome and prognosis. Interventions that include education, guidance and emotional support can help an individual achieve optimal function and improve quality of life.

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**Neurological Disorders**

**Support Groups/Lectures at Winthrop-University Hospital**

- **Stroke Support Group** for survivors and caregivers, 3rd Wednesday of every month, 10:00-11:30 am, 200 Old Country Road, Lower Level Conference Room, Mineola NY.
- **Parkinson’s Patient Support Group**, 4th Wednesday of every month, 4:00-5:00 pm, Winthrop Wellness Pavilion, 1300 Franklin Avenue, Ste ML5, Garden City, NY.
- **Parkinson’s Caregiver Support Group**, 3rd Monday of every month, 4:00-5:00 pm, Winthrop Wellness Pavilion, 1300 Franklin Avenue, Ste ML5, Garden City, NY.
- **Epilepsy Support Group** for patients and families, 1st Monday of every month, 7:00-8:00 pm, Winthrop Wellness Pavilion, 1300 Franklin Avenue, Ste ML5, Garden City, NY.
- **Women’s Multiple Sclerosis Support Group**, 1st Thursday of every month, 12:30-1:30 pm, Winthrop Wellness Pavilion, 1300 Franklin Avenue, Ste ML5, Garden City, NY.
- **Multiple Sclerosis Monthly Informational Meeting**, 3rd Thursday of every month, 10:00-11:00 am, 200 Old Country Road, Ste 370, Mineola, NY.

Failure to overcome the fear of stigma and shame can delay help-seeking behavior, hinder communication with health care providers and care givers and obstruct treatment compliance.

By developing a sense of worth, it is possible to reduce the negative implications of stigma and feelings of shame. This can be achieved through psychosocial and behavioral interventions, including patient education, cognitive behavioral therapies and psycho-educational support groups that offer individuals the opportunity to develop social connections, which promote feelings of being seen, heard and valued.

Support groups afford patients a safe, non-threatening, encouraging environment in which individuals with chronic neurological disorders can discuss their difficulties, coping mechanisms, feelings and disabilities with others in the same situation, who really understand the challenges they face and can truly empathize. Their conversations — generally facilitated by a professional — often ease stress, restore psycho-physiological balance, attract social support and increase emotional stability.

The monthly meetings, facilitated by an experienced clinical social worker, with training in the special needs of patients suffering from chronic neurological disorders, have educational and emotional components. The former provides concrete information, problem-solving strategies and coping skills via lecture and discussion, with the latter focusing on the expression of participants’ complex and painful feelings in a non-judgmental arena.

It is impossible to escape the psychological and emotional impact of living with a chronic neurological disorder. Emotions affect not only functional capacity and ability to adjust to the condition, but they also have a significant impact on outcome and prognosis. Interventions that include education, guidance and emotional support can help an individual achieve optimal function and improve quality of life.

For more information call the Institute for Neurosciences at 1-866NEURO-RX or visit www.winthrop.org.

**REFERENCES**

Contributing Surgeons & Physicians

Mark M. Stecker, MD, PhD
Chairman, Department of Neuroscience
516.663.4832

Dr. Mark Stecker is Board Certified by the American Board of Psychiatry and Neurology in Neuropsychiatry and Clinical Neuropsychology, as well as by the American Board of Clinical Neurophysiology in EEG and by the American Board of Neurophysiologic Monitoring in Intra-Operative Neurophysiology. His special clinical interests are EEG/epilepsy and intra-operative neurophysiologic monitoring. His research interests center on the role of the peripheral nerve to ischemia, the properties of electrodes and information theory. Prior to his appointment as Chairman of Neuroscience at Winthrop, he was Associate Chair for Neurology in the Department of Neuroscience at Marshall University in Huntington, West Virginia, where he was also a Professor of Neuroscience. His postgraduate training includes a Dana Fellowship in Neuroscience/Epilepsy/EEG at the University of Pennsylvania and Graduate Hospital in Philadelphia. He completed a residency in neurology at the Hospital of the University of Pennsylvania and an internship in medicine at Lankenau Hospital in Philadelphia. Dr. Stecker earned his medical degree from Columbia University’s College of Physicians and Surgeons. He is a past president and a Fellow of the American Society of Neurophysiologic Monitoring and a Fellow of the American Clinical Neurophysiology Society. Dr. Stecker is a senior member of the IEEE (Institute of Electrical and Electronics Engineers) and has authored over 100 papers and articles.

Michael H. Brisman, MD
Chief, Division of Neurosurgery
Co-Director, Institute for Neurosciences
516.255.9031

Dr. Michael Brisman specializes in stereotactic surgery and radiosurgery for brain tumors and trigeminal neuralgia. He is Board Certified by the American Board of Neurological Surgeons and is a Fellow of the American College of Surgeons. His postgraduate training includes a neurosurgical residency and surgical internship at The Mount Sinai Medical Center in New York, where he was Chief Resident. He received his medical degree from Columbia University’s College of Physicians and Surgeons. Dr. Brisman has published numerous articles in professional journals. He is past President of the Nassau County Medical Society and serves on the Board of Directors of the New York State Neurosurgical Society.

Jonathan L. Brisman, MD
Director, Cerebrovascular & Endovascular Neurosurgery
516.255.9031

Dr. Jonathan Brisman specializes in cerebrovascular and endovascular surgery for diseases of the central nervous system. As one of fewer than 100 neurosurgeons nationwide with dual training in micro-neurosurgery and endovascular techniques (and the first on Long Island), he is skilled in aneurysm clipping and endovascular coiling for brain aneurysms, as well as in advanced procedures for treating the central nervous system. He received his medical degree from Columbia University’s College of Physicians and Surgeons. He has published over 30 articles in peer-reviewed neurosurgery journals, including a recent article entitled “Medical Progress: Cerebral Aneurysms” in the New England Journal of Medicine and one on stroke management in Lancet Neurology.

Mary Rzeszut, MSW, LCSW
Neuroscience Social Worker
516-663-4593

Ms. Mary Rzeszut, a Licensed Clinical Social Worker in Winthrop’s Department of Neuroscience, is responsible for conducting psychosocial clinical assessments. Moreover, she provides counseling/psychotherapy to patients and caregivers, as well as referrals to community resources. Ms. Rzeszut also coordinates and facilitates support groups and educational programs for patients with neurological disorders. Prior to joining Winthrop, she was a social worker in the Hospital’s Institute for Cancer Care; her social work career began at Winthrop in 2006 as a renal social worker in the Hospital’s outpatient unit. Ms. Rzeszut’s training includes a Master’s Degree from Fordham University. Additionally, she is a practicing psychotherapist, specializing in chronic illnesses, anxiety, depression and grief, as well as a trained bereavement counselor and a Social Work Field Supervisor for Molloy College in Rockville Centre. Her work has been published in the Journal of Nephrology Social Work, and she is affiliated with the National Association of Social Workers.

Brian J. Snyder, MD
Neurosurgeon
516.225.9031

Dr. Brian Snyder specializes in the surgical treatment of movement disorders such as Parkinson’s disease, tremor and dystonia, seizure disorders and epilepsy, as well as the surgical management of pain. He is an expert in deep brain stimulation (DBS), utilizing microelectrode recording; procedures for mapping, recording and identifying seizure foci in the brain; the surgical resection of these foci; vagal nerve stimulation (VNS); motor cortex stimulation (MCS); and spinal cord stimulation (SCS). His postgraduate training includes a Fellowship in Stereotactic and Functional Neurosurgery under Dr. Andres Lozano at the Toronto Western Hospital, University of Toronto. He completed a neurological surgery residency and general surgery internship at the Mount Sinai School of Medicine, where he was Chief Neurosurgical Resident. Dr. Snyder received his medical degree from the Temple University School of Medicine. He has published and presented extensively on functional neurosurgery, including works on deep brain stimulation for Parkinson’s disease, primary dystonia and depression, as well as stereotactic radiosurgery for tremor and seizure outcomes associated with cavernous malformations.

Mona Stecker, DNP, NP-BC, CNRN
Special Projects Manager
Department of Patient Care Services
516-663-2001

Dr. Mona Stecker, a nurse practitioner and Special Projects Manager at Winthrop, is responsible for initiating and coordinating activities that focus on patient-centered care, including administrative, clinical and research endeavors. Dr. Stecker is also involved in voluntary mentoring of new neuroscience nurses. Prior to joining Winthrop, she was the Epilepsy Nurse Practitioner at Cabell Huntington Hospital in Huntington, West Virginia, and the Stroke Program Coordinator at Geisinger Medical Center in Danville, Pennsylvania. Dr. Stecker was very active in starting two stroke programs, which obtained Primary Stroke Center Certification, and in spearheading the development of a neuroscience nursing fellowship, which provides clinical and didactic education for critical care nurses interested in neurosciences. Her training includes a Doctorate of Nursing Practice from West Virginia University in Morgantown, West Virginia, and a Master of Nursing from Misericordia University in Dallas, Pennsylvania. Dr. Stecker is on the Board of the American Association of Neuroscience Nurses, and has lectured nationally and internationally on epilepsy and stroke. She has published in a variety of professional publications, including Epileptic Disorders, the Journal of Neurology and Neuropsychology, the Canadian Journal of Neuroscience Nursing and Surgical Neurology International.
Winthrop-University Hospital is a 591-bed teaching hospital located on Long Island in Mineola, NY. A major regional healthcare resource, the Hospital has been a leading healthcare provider for more than a century, dedicated to the integrity, dignity and well-being of every individual. Winthrop offers a full complement of advanced inpatient and outpatient services with a deep commitment to medical education and research.

Physicians and surgeons in Winthrop’s Institute for Neurosciences are pioneering the use of technologically advanced approaches for the diagnosis and treatment of diseases of the brain and spine, including computerized imaging systems, state-of-the-art surgical interventions and the latest generation of medication therapies.

The Institute’s interdisciplinary team includes neurologists; neurosurgeons; neurointensivists; pediatric neurologists and neurosurgeons; neuroradiologists; vascular surgeons; orthopaedic spine surgeons; neuro-oncologists; neuro-pathologists; neurophysiologists; and specially trained nurse practitioners, physician assistants and nurses. Specialized physical and occupational therapy, social work and other supportive services are also key components of the Institute. The Institute’s experts are up to date on the latest developments in neuroscience and help pave the way for new discoveries through participation in clinical research trials, which enable them to provide patients with access to tomorrow’s most promising therapies.

### Programs & Services Offered by the Institute for Neurosciences

#### Neuroscience Intensive Care Unit

The 14-bed acute care NeuroICU is reserved for patients with serious, complex neurological issues. The focus is on providing continuous monitoring and instantaneous results of critical values, allowing the expert staff, experienced in using advanced technology and providing neurocritical care, to employ aggressive interventions that treat neurological deterioration.

#### Neurology

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<thead>
<tr>
<th>Service</th>
<th>Description</th>
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<tr>
<td>Comprehensive Level 4 Epilepsy Center</td>
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<td>Movement Disorders Program</td>
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<td>Multiple Sclerosis Care Center</td>
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<td>Neurodiagnostic Laboratory</td>
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#### Neurosurgery

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<th>Procedure</th>
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<tr>
<td>Aneurysm Coiling &amp; Clipping</td>
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<td>Disc Replacement</td>
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<td>Brain Aneurysm Program</td>
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<td>Brain Tumor Program</td>
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<td>Brain &amp; Skull Base Surgery</td>
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<td>Carotid Stenting &amp; Endarterectomy</td>
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<td>Cerebrovascular &amp; Endovascular Surgery</td>
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<td>Chiari Decompression Surgery</td>
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<td>Complex &amp; Minimally Invasive Spinal Surgeries</td>
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<td>Complex Cranial Surgery</td>
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<td>Computer-Assisted Resection of Brain Tumors</td>
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<td>CyberKnife® Radiosurgery</td>
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<td>Epilepsy Surgery Program</td>
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<td>Facial Pain/Trigeminal Neuralgia Program</td>
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<td>Image-Guided Spine Surgery</td>
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#### Neuroradiology

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<td>CT Perfusion Scanning</td>
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<td>Interventional Neuroradiology</td>
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<td>Neuroangiography</td>
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#### Pediatric Neurology & Neurosurgery

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<th>Procedure</th>
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<td>Attention Disorders &amp; Learning Disabilities</td>
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<td>Craniosynostosis Surgery</td>
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<td>Brain Tumor Treatment</td>
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<td>Evaluation &amp; Treatment of Children with Headaches</td>
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<td>Myelomeningocele Surgery</td>
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#### For more information, call the Institute for Neurosciences at 1-866-NEURO-RX.