



Our Vision



To be established as a national model for neurological institutes by providing innovative, integrated and individualized care that improves outcomes and the quality of life for all patients with neurological conditions



From the Directors

L to R: Anthony J. Furlan, MD; Warren R. Selman, MD

On behalf of the entire staff of University Hospitals Neurological Institute, we are pleased to present the University Hospitals Neurological Institute 2010 Annual Report.

In 2010, neurological conditions and treatments saw increased awareness thanks in large part to a number of high-profile stories in the media.

- Breakthroughs in early detection of Alzheimer's disease.
- Rock star Bret Michaels' stroke.
- Concussions in the National Football League.
- Controversy over research linking recurrent traumatic brain injury to amyotrophic lateral sclerosis (ALS or Lou Gehrig's disease).
- Cell phones and brain tumors.
- Hollywood movies about Parkinson's patients.

More than calling attention to neurology and neurological disorders, these media stories cast a spotlight on brain health, elevating its importance in the eyes of the general public.

Promoting and ensuring brain health by leveraging the latest surgical advances and technologies, and through proactive preventive medicine is the focal point of the UH Neurological Institute's efforts – in 2010 and moving forward:

- Brain Tumor & Neuro-Oncology Center Director Andrew Sloan, MD, and his team continue their groundbreaking work in delivering the leading-edge therapeutic options – including laser interstitial thermal therapy and brain tumor vaccines – for those with inoperable brain tumors.

- Skilled surgeons armed with the latest technologies – interventional radiology suites, remote-presence telemedicine, virtual-reality surgery simulators, image-guided surgical navigation, intra-operative brain mapping – are helping patients who suffer catastrophic injuries to their brains return to optimum health.
- New Division of Pediatric Epilepsy Chief Ingrid Tuxhorn, MD, is investigating the evaluation process of infants and children with epilepsy for surgery to reduce the negative impact of uncontrolled seizures on the developing brain.
- Led by Alan Lerner, MD, the Memory & Cognition Center is researching early detection of Alzheimer’s using radioactive dye and positron emission tomography (PET) so that patients eventually may seek drug treatment before the disease becomes too advanced.
- The Movement Disorders Center actively is engaging the Parkinson’s community by teaching and promoting exercise through its highly successful Boot Camps. Director David Riley, MD, and Benjamin Walter, MD, and their team are actively working with support groups to educate those impacted by the disease on how exercise and other physical activities can stave off and minimize symptoms.
- Neuropsychologists Christopher Bailey, PhD, and Philip Fastenau, PhD, are educating schools and the public about the long-term danger of concussions. Their Sports Concussion Program offers preseason baseline testing to prevent student-athletes from returning to the field of play before their brain is completely healed.
- Under the leadership of Cathy Sila, MD, our Stroke & Cerebrovascular Center is delivering education and awareness through its stroke prevention programs, talks in the community and free screenings.
- Spearheaded by Michael DeGeorgia, MD, the new Center for Music & Medicine is examining the impact of music on brain health and how new information on music’s role in cognitive development and recovery can be translated into clinical success.

These programs and others listed in this report illustrate our commitment to brain health and overall neurological wellness. We hope you find the contents informative and beneficial. If you have any questions or comments about our services or programs, we encourage you to please contact us directly. Thank you for your interest and support of the UH Neurological Institute.



Warren R. Selman, MD
 Director, UH Neurological Institute
 University Hospitals Case Medical Center
 Harvey Huntington Brown, Jr., Professor and Chair,
 Department of Neurological Surgery
 Case Western Reserve University School of Medicine



Anthony J. Furlan, MD
 Co-Director, UH Neurological Institute
 University Hospitals Case Medical Center
 Gilbert W. Humphrey Professor and Chair,
 Department of Neurology
 Case Western Reserve University School of Medicine

About Our Institute

A Legacy of Innovation

- Northeast Ohio's first designated neurological institute
- First in the world to test the diaphragm pacing stimulation system on patients with amyotrophic lateral sclerosis (ALS)
- First in North America to perform deep brain stimulation of the thalamus to successfully treat symptoms of Tourette syndrome
- Northeast Ohio's most experienced stroke team
- One of only three hospitals in the world offering AutoLITT (laser interstitial thermal therapy) technology for minimally invasive brain tumor surgery
- First in Ohio to offer both Gamma Knife and CyberKnife® in our Stereotactic Radiosurgery suite
- Neuroscience Intensive Care Unit is one of only 25 centers in the nation offering fellowships in neurocritical care
- One of Ohio's first physician-led Brain Attack programs – now one of the largest in the nation with 24/7 availability for emergency transfers
- One of only 25 centers in the United States offering surgical therapy for dystonia
- First comprehensive pediatric autonomic lab in the country
- Only program in the United States offering multiple hippocampal transections for the treatment of epilepsy

University Hospitals Neurological Institute delivers innovative, integrated and individualized care to patients with diseases affecting the nervous system at convenient locations throughout Northern Ohio.

Our multidisciplinary team of neurosurgeons and neurological specialists provides a full spectrum of services, including diagnosis and treatment of brain tumors, epilepsy, strokes, spine and pain disorders, Parkinson's, Alzheimer's and more. Nationally recognized experts in neurology, neurosurgery, neuroradiology and other specialties collaborate to devise personalized care plans using the latest clinical advances and cutting-edge technologies through our 16 Centers of Excellence:

- Brain Tumor & Neuro-Oncology Center
- Center for Music & Medicine
- Community Neurology Center
- Epilepsy Center
- Memory & Cognition Center
- Minimally Invasive Neurosurgery Center
- Movement Disorders Center
- Neurocritical Care Center
- Neurological Outcomes Center
- Neuromuscular Center
- Neuropsychiatry Center
- Neuroscience Nursing Practice Center
- Rainbow Neurological Center
- Spinal Neurosurgery Center
- Stroke & Cerebrovascular Center
- Translational Neurosciences Center

A Leading Academic Medical Center

As the primary affiliate of Case Western Reserve University School of Medicine, University Hospitals Case Medical Center is widely recognized as one of the country's leading teaching hospitals, providing top-quality patient care while serving as a training site for physicians, nurses and other health care professionals.

As part of a true academic medical center, UH Neurological Institute is able to deliver a depth of care and scope of services that no other medical center in Ohio can deliver. Our physicians and nurses are focused on patient care, teaching and research, benefiting our patients in a number of ways:

- Immediate access to the latest technologies and medical advances
- Clinical trial availability
- Physician collaboration results in highly specialized care
- Emphasis on education and training means more time and consideration is given in both routine and critical cases

Bench-to-Bedside Research

Our commitment to research pushes the boundaries of medical progress. We place a strong emphasis on translational neuroscience, which means that newly developed treatments and techniques transfer more rapidly from the research stage to actual patient care.

Neuroscience Nursing Practice Center

Superlative care is not possible without a dedicated, caring nursing staff. Our Neuroscience Nursing Practice Center improves patient long-term outcomes by using evidence-based nursing practices to bridge the gap between research and clinical practice, a patient-centered care approach and relationship-based nursing. Their commitment to patients and clinical excellence is evidenced by UH Case Medical Center's Magnet Certification from the American Nursing Credentialing Center, the highest form of external peer review for excellence in nursing-based and evidence-based standards.



Ohio's Only Neuroscience Center of Excellence



In 2010, the UH Neurological Institute was designated as a Center of Excellence – the only Neuroscience Center of Excellence in the State of Ohio with a Stage 4-Institute Designation.

The Stage 4-Institute Designation is the highest status a program can receive. It was awarded by NeuStrategy based on an extensive survey that grades hospitals on their clinical and research programs, staffing, facilities and technology, and business capabilities. The designation indicates that the UH Neurological Institute's comprehensive program has the expertise and capabilities to diagnose and treat the full spectrum of neurological disorders and diseases.

The NeuStrategy Neuroscience COE Survey is the industry standard for evaluating program infrastructure. A record 150 hospital-based neuroscience programs from 41 states participated in the 2010 Neuroscience Center of Excellence Survey. Only participating organizations scoring in the top two tiers of the survey results are awarded NeuStrategy's Neuroscience Center of Excellence designation.

The Industry Benchmark

After studying multidisciplinary institutes at academic medical centers to describe their operations and assess their impact on performance, University HealthSystem Consortium (UHC) proclaimed the UH Neurological

Institute model as the industry benchmark and invited institute leaders to share a case study at the UHC 2010 Strategy Summit.

A team from UHC interviewed a cross-section of UH Neurological Institute leaders to learn about strategic and operational approaches that UH Neurological Institute teams used to create its success.

“University Hospitals Neurological Institute is a model of interdepartmental collaboration, enhancing value across the clinical, educational and research missions,” said Mark A. Keroack, MD, MPH, Senior Vice President and Chief Medical Officer, University HealthSystem Consortium.

UH Neurological Institute Vice President Nancy Tinsley, RN, MBA, FACHE, oversees the business side and operations of the UH Neurological Institute while developing and driving its strategic objectives.



Evaluating Children with Epilepsy for Surgery

Surgery for young children with refractory epilepsy was once considered a last resort – appropriate only for patients whose seizures were not controlled by medication. But a growing body of evidence supports surgery as a solution for a larger segment of the population and at younger ages, according to Ingrid Tuxhorn, MD, Chief, Division of Pediatric Epilepsy, University Hospitals Rainbow Babies & Children’s Hospital.

Emerging diagnostic imaging technologies and advances in surgical approaches now allow pediatric epilepsy specialists to treat more types of epilepsy surgically – even performing surgery on infants.

Approximately 60 to 80 percent of adult and pediatric epilepsy patients respond to medical therapy with one or two drugs. The remaining 20 to 40 percent should be evaluated for surgical options at an epilepsy center



Ingrid Tuxhorn, MD

In 2010, UH Rainbow Babies & Children's Hospital launched a new Division of Pediatric Epilepsy, recruiting Ingrid Tuxhorn, MD, a leading expert in complex pediatric seizure disorders, to serve as the division's first chief.

with pediatric expertise. This approach allows optimal timing of the surgery, which may reduce the negative impact of uncontrolled seizures on the developing brain.

“Children tend to have more frequent seizures than adults. It’s not unusual for a child to have daily seizures, and with catastrophic epilepsy the daily seizure frequency may be uncountable,” Dr. Tuxhorn said. “In those cases, you’re not going to hold off as long as you would with an adult who’s having one or two seizures a month.

Dr. Tuxhorn’s research indicates that performing surgery early on babies and young children, rather than trying multiple drugs over the course of several years, may enable normal brain growth and improve the long-term cognitive development of children with severe, uncontrolled epileptic seizures. A study co-authored by Dr. Tuxhorn showed that among patients who were seizure-free following surgery, one-third showed gains of at least 15 IQ points.

A man with short dark hair, smiling, stands in front of a modern building with a curved, grid-patterned facade. He is wearing a black blazer over a black t-shirt and blue jeans. His hands are on his hips. The background shows a clear blue sky and a green lawn.

The Intersection of

Music & Medicine

Michael DeGeorgia, MD

Recognizing the healing qualities of music and that musicians often develop unique medical problems that can be devastating to their musical abilities and careers, UH Neurological Institute established the Center for Music & Medicine – with Michael DeGeorgia, MD, serving as the center’s director.

A collaboration between University Hospitals Case Medical Center and Case Western Reserve University, the center is focused on pioneering new discoveries involving the intersection of music and medicine through coordinated efforts in patient care, research, teaching and technology development.

This mission translates to efforts as diverse as treating injured musicians, using music to enhance patients’ experiences, educating patients and physicians about available therapies and medical resources, and exploring the relationship between music, memory and dementia. Educating the public about the neurological foundations of music is a key goal. The center regularly offers free public presentations as well as free musical performances at UH Case Medical Center to increase exposure to different types of music.

In conjunction with the Neurocritical Care 2010: Walk of Life, a Global Conference of Neurocritical Care and Music, the center hosted the inaugural Cleveland Music and Medicine Symposium, in which experts addressed topics such as the neurological basis for music, geographical differences in pitch perception and the appeal of sad songs. The three-day event also included the 7th Annual Cleveland Neurocritical Care & Stroke Conference, 3rd Annual Critical Care Bioinformatics Workshop and 2nd Annual TCD Ultrasound Workshop.

In addition to education, the center covers the full spectrum of care – from perception of music, speech and voice, to memory and motor performance. The center offers a full range of patient services relevant to music-related medical problems through its Music & Medicine Wellness Program, including diagnosis and treatment of tinnitus, musculoskeletal disorders, dizziness, voice and throat disorders, hearing loss, pulmonary disorders, anxiety and depression, memory loss, vision loss, overuse syndromes, neural impingement and focal dystonias.

Preserving Brain Health in Student Athletes

The Centers for Disease Control and Prevention estimate that 3.8 million sports- and recreation-related concussions occur annually.

Most athletes who suffer concussions make a full recovery, but there are some who experience chronic cognitive and behavioral difficulties because they returned to action before they were completely healed. These athletes are significantly vulnerable to future concussions and possibly a more severe and permanent injury.

To combat both the short-term and long-term negative impact of concussions on student-athletes, neuropsychologists Philip Fastenau, PhD, and Christopher Bailey, PhD, joined forces with sports medicine specialists at UH Rainbow Babies & Children's Hospital to launch the University Hospitals Sports Concussion Program.

Appropriate identification and management of concussions are vital to preventing further and more serious

injury. The Sports Concussion Program offers preseason baseline assessments to teams throughout Northeast Ohio to ensure that no student athletes return to their sport before they are ready.

Our Sports Concussion Team uses the Automated Neuropsychological Assessment Metrics tool to conduct baseline assessments. Developed by the Department of Defense, the ANAM is a 20-minute computerized test administered before the beginning of the season that detects speed and accuracy of attention, memory and thinking ability, and scores the test for each individual athlete. Following any concussion during the season, the athlete will repeat the computerized test and additional tests that are sensitive to the effects of concussion, which will be interpreted by one of the Sports Concussion Team neuropsychologists to help monitor the brain's recovery. The results help determine when it is safe for the athlete to return to their sport or activity.



L to R: Christopher Bailey, PhD; Philip Fastenau, PhD



L to R: Barbara Bryson; Benjamin Walter, MD; Christina Whitney, CNS; Ellen Walter, NP

The use of exercise to help manage the symptoms of Parkinson's disease is not a new idea. But the concept of actively delivering this message and instruction en masse to more than 700 patients and their caregivers certainly is.

The University Hospitals Neurological Institute's Movement Disorders Center held two free Parkinson's Boot Camps in 2010 to help those with Parkinson's and their caregivers learn new ways to manage the disease.

Spearheaded by David Riley, MD, Director, Movement Disorder Center, Benjamin Walter, MD, Medical Director, Deep Brain Stimulation Program, and Kim Ganley, President, Courageous Steps, and Vice President of the Ohio Parkinson Foundation, Northeast Region, the free programs were presented in partnership with Courageous Steps for Parkinson's and Ohio Parkinson Foundation Northeast Region.

Managing Parkinson's Through Exercise

“From what we’ve seen, our patients find it transformative,” said Dr. Walter. In patients who exercise regularly, there are improvements in symptoms and overall sense of well-being and some are able to reduce their medications. “But they have to maintain their exercise programs.”

Research indicates that exercise can restore some functions – particularly in people forced to exercise beyond their preferred level, including walking on a treadmill at a speed that is faster than what they normally would walk on pavement.

This message was reinforced as Boot Camp attendees learned exercise techniques, mind and body wellness practices and invigorating skills to

manage Parkinson's. Presenters actively engaged Parkinson's patients and their loved ones with presentations on yoga, Tai Chi, dancing and a number of other educational topics. Dancing helps improve balance while Tai Chi is believed to help improve posture, balance, flexibility and strength.

Stroke Patient Spotlight

A close-up portrait of a woman with voluminous, curly reddish-brown hair. She is wearing a bright pink top and has her right hand resting against her cheek, looking thoughtfully towards the camera. The background is softly blurred, showing what appears to be a wooden structure.

Stacy
Tutak

One minute, 34-year-old Elyria resident Stacy Tutak was talking to a friend outside her home while her kids played nearby. The next minute she was fighting for her life.

A dedicated mother of four who home schools her children, Stacy went into the house to get a drink when her mouth began drooping and she found herself barely able to walk. Her friend Joanne, a respiratory therapist, recognized the early signs of a stroke and told Stacy's husband, Joe, who rushed Stacy to Elyria Memorial Hospital. She was then airlifted to University Hospitals Case Medical Center, where a team of neurologists at the Stroke & Cerebrovascular Center quickly diagnosed her. One of her arteries was torn.

"On her CAT scan we could actually see a clot," said Anthony J. Furlan, MD, Co-Chairman, UH Neurological Institute. Clot-busting therapy was started to save her brain.

A few days later, Stacy's husband received troubling news. "The doctor came in and said she may never be able to talk or walk again, and probably won't be able to use her arm," Joe said. But with the help of physical therapy, Stacy started to improve. She learned to walk, run and even talk again.

"It was incredibly frustrating at first. The therapist had to teach me the names of my kids. I remembered them but I couldn't get them out," said Stacy.

Since that day in June, Stacy has made incredible strides.

"It's been a real struggle but I'm really grateful for the care I've received and for the way family, friends and the community have come to support us," she said.

Neurofibromatosis 2 Patient Spotlight

Amy Haslage

Hearing loss at any age can be devastating. But it can be especially devastating in a young adult when it can impact your ability to do your job.

In 2002, Amy Haslage, a registered nurse, noted gradual difficulty in hearing. A brain MRI identified that she suffers from neurofibromatosis 2 (NF2), a genetically inherited disorder, in which tumors grow on both of the auditory nerves. This disease – which occurs in about one in every 25,000 live births in the U.S. – usually results in profound hearing loss, and may also cause facial paralysis and other neurological symptoms. “In my mid-20s, I knew something was wrong, but my hearing was still good enough to carry on conversations,” the 39-year-old said. “When the condition got worse, and I had difficulty understanding words, I had to do something so that I could continue to work.”

Radiosurgery treatment for one of the tumors temporarily stabilized tumor growth. “It worked for five years, but then the tumors started growing again,” the Uniontown, Ohio, resident

said. She then underwent surgical removal of the left-sided tumor at a hospital in California, but as a result lost all hearing in that ear. (Of note, surgical treatments for NF2 can be complex and risky due to their location within and around the auditory nerve as well as the brainstem and cerebellum.)

Looking to preserve the hearing in her right ear, Amy consulted with the Department of Otolaryngology’s Cliff Megerian, MD. He referred her to the Brain Tumor & Neuro-Oncology Center’s Lisa Rogers, DO. In the fall of 2010, Dr. Rogers prescribed intravenous treatments using a drug designed to reduce the blood vessel supply to the tumor. Within a few weeks of treatment, Amy noted improved hearing which continues to the present time. Of greatest importance to Amy, she no longer has difficulty understanding conversations at her job in the hospital.

Additionally, she is tolerating the drug well and the brain MRI shows a reduction in size of the tumor.

*“My medical team
is phenomenal,”
Amy said.*

*“They really have
my best interest
in mind. I’m very
happy with the
care I am getting.”*



Brain Tumor Patient Spotlights

Debi Gryzbowski

Debi Grzybowski was the picture of good health. She was enjoying work and her family – until she was struck with debilitating headaches.

An MRI and biopsy revealed that Debi had what was described as an inoperable brain tumor. She was told to get her affairs in order because little could be done for her.

Not satisfied with that diagnosis, Debi sought a second opinion from Andrew

Sloan, MD, Director of the Brain Tumor & Neuro-oncology Center.

“Because we were able to remove the entire tumor after making the appropriate diagnosis, her long-term prognosis is far better,” Dr. Sloan said.

It has been two years since her treatment, and Debi is back to enjoying her grandchildren and living life to its fullest. “I think it’s a miracle,” she said. “Dr. Sloan gave me my life back and I’m so grateful. I thank God every day for the opportunity to be with my family, friends and grandchildren.”

Leslie Robertson

*“I’m glad to know
that the vaccine
might help me live
a few more years,”
Leslie said.*



In late 2008, Leslie Robertson knew that something wasn't right. He suffered from severe headaches, was unsteady on his feet and often became confused while performing normal daily tasks.

The Maine farmer sought medical attention and was diagnosed with a Stage 4 glioblastoma, an aggressive brain tumor. Surgeons removed as much of the cancerous tumor from his brain as possible, but he was still only given 12 months to live.

Linda Smith, Robertson's significant other, began researching other medical alternatives and eventually began

trading emails with Andrew Sloan, MD, Director of the Brain Tumor & Neuro-oncology Center.

Dr. Sloan told them about a new clinical trial for a treatment vaccine, which is made from a patient's own cells. The vaccine isolates something called heat shock protein, which is part of the immune system. HSP isolates molecules that don't belong, and alerts the immune system to attack. Theoretically, once the tumor is removed, the vaccine prevents the tumor from returning.

Robertson is only the second UH patient to get the vaccine.



“Volunteering for the medical community is a good idea, too. It certainly can have some unforeseen advantages,” James said. “If I hadn’t been in that study they never would have found that aneurysm. And if it weren’t for a little bit of luck, I probably wouldn’t be here.”

When Jean Biek enrolled in a UH clinical trial to monitor some minor memory lapses she was experiencing, her husband James joined her as a “healthy” study participant to show his support. Little did the 78-year-old former Lincoln Electric executive know that this caring gesture would ultimately save his life.

In 2006, the Shaker Heights, Ohio, couple began participating in the Memory & Cognition Center’s Alzheimer’s Disease Neuroimaging Initiative after seeing Memory & Cognition Center Director Alan Lerner, MD. This trial uses diagnostic imaging technology to discover which biomarkers or early physiological signs

James Biek

exist that can lead to the development of Alzheimer's disease.

Study participants regularly receive a variety of diagnostic tests, and it was during one of these routine exams in 2009 that an imaging scan showed that James had an "old" aneurysm. Dr. Lerner immediately consulted with specialists from neurosurgery and interventional radiology who determined the aneurysm wasn't an immediate threat but that it should be closely monitored as a precautionary measure.

A scan in early 2010 revealed that the aneurysm, which was not in a favorable location, was indeed growing. Further testing revealed that

the artery was on the verge of bursting and treatment was necessary. UH Neurological Institute Director Warren R. Selman, MD, used a minimally invasive endovascular coiling technique, which prevents further blood flow into the aneurysm and prevents it from rupturing. "Recent studies indicate that endovascular coiling produces substantially better patient outcomes than open surgery and results in shorter hospital stays and recovery times," Dr. Selman added.

After four days in the hospital and some physical therapy, James was back to volunteering his services for the United Way, Meals on Wheels and American Association of Retired Persons.

2010 Highlights:

To Heal. To Teach. To Discover.

Commitment to Quality: The Gold Standard of Stroke Care

University Hospitals Neurological Institute is leading efforts at UH Case Medical Center to focus on real and measurable quality outcomes as they pertain to the patient experience, education, clinical informatics, performance improvement, research and risk reduction.



Quality initiatives are being launched throughout the institute to address gaps and identify opportunities for improvement. Ultimately, our goal is to ensure that the care we provide is as safe, effective, patient-centered, timely and efficient as possible.

Our Stroke & Cerebrovascular Center is spearheading a number of these performance improvement projects. As a result, UH Case Medical Center received for the second consecutive year the American Heart Association/American Stroke Association's Get With The Guidelines® Stroke Gold Plus Performance Achievement Award. The award recognizes the Stroke & Cerebrovascular Center's commitment and success in implementing excellent care for stroke patients, according to evidence-based guidelines. To receive the award, UH Case Medical Center achieved an 85 percent or higher adherence to all Get With The Guidelines-Stroke Performance Achievement indicators for two or more consecutive 12-month intervals and 75 percent or higher six of 10 quality measures. University Hospitals Geauga Medical Center received Get With The Guidelines® Stroke Silver Plus Performance

Achievement Award. In addition, UH Case Medical Center, UH Geauga Medical Center and University Hospitals Bedford Medical Center all achieved Joint Commission stroke certification.

NeuroCritical Care Excellence

University Hospitals Neurological Institute's Reinberger Neuroscience Intensive Care Unit earned the prestigious Beacon Award for Critical Care Excellence. This is a top honor from the American Association of Critical Care Nurses recognizing nursing excellence. The NSU joins four other intensive care units at University Hospitals Case Medical Center that have been recognized with Beacon Awards: Medical Intensive Care Unit, Cardiac Intensive Care Unit, Surgical Intensive Care Unit, and UH Rainbow Babies & Children's Hospital's Pediatric Intensive Care Unit.



Leading-Edge Brain Tumor Technology

UH Neurological Institute's Brain Tumor & Neuro-Oncology Center solidified its standing as offering the widest variety of technology treatment options after implementing the Gamma Knife® Perfexion™ upgrade and the AutoLITT (laser interstitial thermal therapy) technology. The enhanced Gamma Knife technology is able to treat larger tumors and delivers unparalleled accuracy and dose planning, while reducing patient treatment times by 20-30 minutes and improving patient comfort and recovery. Meanwhile, the AutoLITT offers hope to patients with inoperable brain tumors by using MRI-

guided lasers to destroy tumors without damaging surrounding tissue. Approved by the U.S. Food and Drug Administration, the technology is available at UH Case Medical Center and only two other sites in the world.

5th Annual Neuroscience Nursing Symposium

The 5th Annual Neuroscience Nursing Symposium: Focus on Stroke drew nearly 200 attendees. The event featured nationally recognized experts discussing the latest advancements in therapeutic hypothermia in stroke, infection prevention and stroke management.

Epilepsy Colloquium

The Epilepsy Center held its 3rd Annual Epilepsy Colloquium: Surgery of the Extratemporal Lobe Epilepsy (ETL). This four-day event featured more than 40 international experts on surgery of ETL covering a variety of topics including evaluation of different approaches to invasive evaluation of patients with ETL; a revival of stereo-electroencephalography in the United States; assessing the value of source imaging of EEG and MEG in surgery of ETL; the clinical value of very high frequency “ripples”; and deep brain stimulation in patients with medically intractable ETL.

Innovations in Neurosciences and NI Journal

Our physicians embrace their roles as teachers and researchers, and share their knowledge, discoveries and case studies through two publications –

Innovations in Neurosciences and the *Neurological Institute Journal*. Nearly 30,000 neurologists, neurosurgeons, family practice and internal medicine physicians in a 25-state region covering the Midwest and the Eastern seaboard receive both periodicals.

Innovations in Neurosciences published in the Winter and Fall of 2010 and included stories on brain tumor treatments and case studies, the new Division of Pediatric Epilepsy and advances in epilepsy surgery.

Published both in the Spring and Winter of 2010, the *NI Journal* features five highly clinical papers complete with images, charts and supporting data. The *NI Journal* allows our physicians to share the latest advances in treatment for patients with disabling neurological disorders while providing continuing medical education (CME) programs through Case Western Reserve University School of Medicine. CME credit is readily available online for the busy practitioner interested in receiving *AMA PRA Category 1 Credits™*.

Expert Sources

What do Bret Michaels’ stroke, concussions and autism have in common? They were all high-profile stories in 2010 in which national media sought out physicians at the UH Neurological Institute for comments. Local television and radio stations as well as CNN, ABC News, U.S. News and World Report, the New York Times and other prominent media outlets contacted a number of our physicians for their expertise and opinions on current events.

Research

Attacking Alzheimer's Early

Researchers and clinicians have long been frustrated by the lack of either a biomarker or a reliable diagnostic test for AD. While the relationship between amyloid deposits and AD is not clearly understood, one of the hallmarks of the disease is the accumulation of amyloid plaques between neurons in the brain.

Until recently, the presence of amyloid deposits in the brain could only be detected during autopsy. Advances in radiopharmaceutical research have led to the development of agents, or radiotracers, that bind specifically to amyloid and can be safely injected into patients prior to a PET scan.

Under the leadership of Alan J. Lerner, MD, Director, Memory & Cognition Center, physicians are testing new imaging emission agents for positron tomography (PET) scanning that enable in vivo imaging of amyloid deposits in the brain in the Alzheimer's Disease Neuroimaging Initiative (ADNI).

Stem Cells and Brain Cancer

Working in conjunction with the Center for Stem Cell and Regenerative Medicine and sponsored by University Hospitals Seidman Cancer Center (formerly UH Ireland Cancer Center), the Brain Tumor & Neuro-Oncology Center is studying how stem cells can be used in the fight against brain cancers, particularly glioblastomas. Drugs used in chemotherapy, such as temozolomide, work in different ways to stop the growth of tumor cells, either by killing the cells or by stopping them from dividing. O6-benzylguanine may enhance temozolomide's effectiveness in making tumor cells more sensitive to the drug. A clinical trial launched by the center in 2010 examines how administering genetically modified peripheral blood stem cells during or after treatment may prevent the side effects caused by chemotherapy.

Annals of Neurology Publishes Dr. Lhatoo Article on Sudden Unexpected Death in Epilepsy

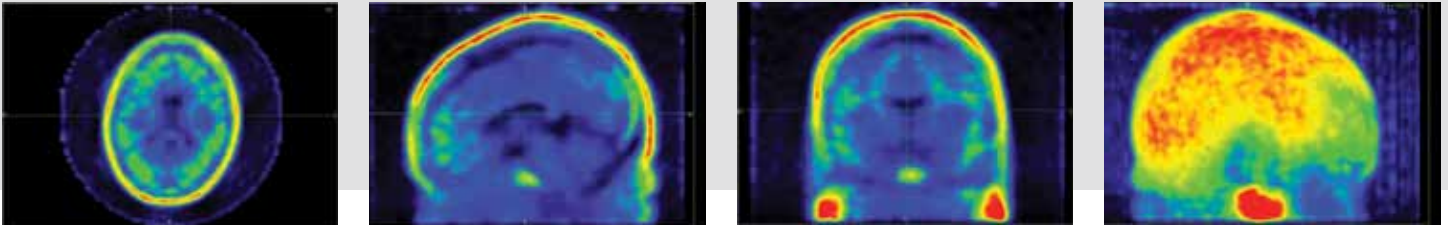
The Annals of Neurology published an article authored by the Epilepsy Center's Samden D. Lhatoo, MD, identifying refractory epilepsy patients with certain types of prolonged (50 seconds or greater) seizure activity as being at greater risk for sudden unexpected death in epilepsy. SUDEP accounts for approximately one in five deaths in patients with epilepsy, but its cause remains unexplained. Dr. Lhatoo and a group of investigators studied 10 adult patients who had 30 documented epileptic seizures during video-EEG recording and who later died of SUDEP. They were compared with 30 matching live patients with 92 epileptic seizures taken from the same database.

CLOSURE I Questions Interventional Treatment for Cryptogenic Stroke Prevention

In a study of more than 900 patients, Principal Investigator and UH Neurological Institute Co-Director Anthony Furlan, MD, showed that a widely available interventional treatment for recurrent strokes for which the cause cannot be determined ("cryptogenic stroke") is no more effective than taking aspirin or blood thinners.

Dr. Furlan said it's "too soon to say" with exact certainty what impact the results will have on PFO-closure procedures. Several trials are still ongoing, and while the devices are investigational in the United States, they are market-approved in Europe and elsewhere.

"I think this study will ratchet down the number of endovascular PFO closures performed," Dr. Furlan said. "The challenge now, in my view, is for the endovascular community to refine the selection criteria for patients with stroke due to PFO and to determine which, if any, patients may benefit from this procedure."



Neurological Outcomes Center Secures Grants

University Hospitals Neurological Institute's Neurological Outcomes Center (NOC) secured \$2 million in grants to research cognitive development and mathematical learning capacity in children, in assessing early Alzheimer's at-risk groups, and in the area of treatment adherence. The NOC team investigators are Martha Sajatovic, MD (Director), Kathleen Smyth, PhD (Co-Director), and Curtis Tatsuoka, PhD (Director of Biostatistics).

In a joint effort with the State University of New York-Buffalo, Dr. Tatsuoka recently received an \$850,000 grant from the National Science Foundation to create an adaptive testing system – based on partially ordered classification modeling methods that he developed for mathematics learning. This assessment system will target young children (ages 4-7) from Head Start programs or large urban school districts.

Dr. Kathleen Smyth and Dr. Martha Sajatovic are Principal Investigators on a grant totaling nearly \$950,000 from the National Institutes of Health through the Case Western Reserve School of Medicine for their participation in the "Assessing Early Alzheimer and At-Risk Groups with Patient Reported Outcomes" research project. Dr. Tatsuoka is also a co-investigator on this grant.

Dr. Martha Sajatovic was recently awarded an investigator-initiated grant of \$200,000 from Pfizer entitled "Ziprasidone Switching in Response to Adherence and Psychotropic-Related Weight Gain Concerns among Patients with Bipolar Disorder." Dr. Tatsuoka is a co-investigator on this project.

The Neurological Outcomes Center is one of the first centers of its kind in the United States and is devoted exclusively to studying outcomes and quality improvements in patients with neurological conditions. Working with investigators from the UH Neurological Institute, Case Western Reserve University School of Medicine and the Weatherhead School of Management, faculty and staff collaborate on creating projects designed to improve clinical care and patient outcomes, refine performance improvement processes, and increase knowledge to drive underlying advances in neurology, neurosurgery and psychiatry.

Memory & Cognition Center testing new drug for Progressive Supranuclear Palsy

University Hospitals Neurological Institute opened a clinical research trial for a rare degenerative movement disorder called Progressive Supranuclear Palsy (PSP). The disorder causes progressive symptoms similar to those of Parkinson's disease, but also causes difficulties with eye movement, swallowing and balance. "Treatments for the symptoms of this disorder are not very good, and there is no cure," said Steven Gunzler, MD, neurologist in the Memory & Cognition Center and principal investigator of the study.

Study Compares EEG and MEG in Localizing Seizure Focus

Kitti Kaiboriboon, MD, received a \$50,000 one-year grant from the Epilepsy Foundation to study electric and magnetic source imaging in localization of epileptic spikes. "The purpose of this project is to characterize and compare the ability of EEG and MEG to localize the seizure focus in patients with refractory focal epilepsy," Dr. Kaiboriboon said. "We hypothesize that with the use of source imaging technology, EEG and MEG provide comparable results."



The commitment to exceptional patient care begins with revolutionary discovery. University Hospitals Case Medical Center is the primary affiliate of Case Western Reserve University School of Medicine, a national leader in medical research and education and consistently ranked among the top research medical schools in the country by U.S. News & World Report. Through their faculty appointments at Case Western Reserve University School of Medicine, physicians at UH Case Medical Center are advancing medical care through innovative research and discovery that bring the latest treatment options to patients.

Awards, Achievements and Additions

Best Doctors

A number of UH Neurological Institute physicians were highlighted in the prestigious “Best Doctors in America” peer-to-peer survey of specialists in the United States.

Nancy Bass, MD
James Bates, MD
Joseph Calabrese, MD
Alan Cohen, MD
Thomas Chelimsky, MD
Michael Coffey, MD
Michael W. Devereaux, MD
Rose Marie Dotson, MD
Anthony J. Furlan, MD
Gerald E. Grossman, MD
Bashar Katirji, MD
Charles Kunos, MD
Janice Lyons, MD
Daniel W. Koontz, MD
Hans O. Lüders, MD, PhD
David C. Preston, MD
David E. Riley, MD
Lisa Rogers, DO
Shenandoah Robinson, MD
Robert Ronis, MD
Warren R. Selman, MD
Mark Scher, MD
Barbara Shapiro, MD
Cathy A. Sila, MD
Andrew Sloan, MD
Jeffrey Sunshine, MD
Robert Tarr, MD
Edward L. Westbrook, MD
Peter J. Whitehouse, MD
Max Wiznitzer, MD

UH Case Medical Center was ranked No. 5 in neurosurgery on a list of the top 10 percent of the nation’s neuroscience programs by CareChex, which examined 118 university hospitals overall, evaluating them based on The Delta Group’s National Quality Ranking Database.

Shenandoah Robinson, MD, Surgical Director of Rainbow’s Epilepsy Center, was elected to membership in the American Academy of Neurological Surgery. This is the most distinguished organization of neurosurgeons in the world, with only 100 active members. Dr. Robinson is only the third woman admitted to this society since its inception in 1938.

Jonathan Miller, MD, Director, Functional and Restorative Neurosurgery, received the “Top Poster Award” from the Council of State Neurosurgical Societies at the annual meeting of the Congress of Neurological Surgeons. The winning poster, “Teaching Neurosurgery in the 21st Century: A New Approach to the Medical Student Curriculum” outlines the success of the IQ+ program which was instituted at Case Western Reserve University School of Medicine in 2009.

Janis J. Daly, PhD, MS, received the 2010 award for Excellence In Neurological Research, American Physical Therapy Association, Section For Neurology.

Lisa Rogers, DO, has two articles appearing in the Journal of Neurooncology: “Morphologic Magnetic Resonance Imaging Features of Therapy-Induced Cerebral Necrosis” appearing in

the May 19 issue and “Erlotinib Therapy for Central Nervous System Hemangioblastomatosis Associated with Von Hippel-Lindau Disease: A Case Report” in the June 4 issue.

Shakeel Chowdhry, MD, and Nicholas Bambakidis, MD, had their article “The Role of Cerebrovascular Bypass at the Dawn of the 21st Century” accepted for publication by the Journal of Neuro-Intensive Surgery in April.

Leigh Ann McCartney, RN, MBA, Operations Manager, UH Neurological Institute, has been invited to serve as a member of the American Heart Association’s Get with the Guidelines Quality Improvement Sub Committee for a two-year term.

Robert Tarr, MD, Division Chief, MRI/Neuroradiology, UH Case Medical Center, has been named editor of the Journal of NeuroInterventional Surgery, the official journal of the Society for NeuroInterventional Surgery.

The UH Neurological Institute held its Inaugural Research Day at Wolstein Auditorium and Lobby. The event featured Garson Visiting Professor Robert C. Griggs, MD, Professor, Chair Emeritus, Department of Neurology, University of Rochester, presenting “The Treatment and Prevention of Myopathy.”

UH Neurological Institute Leadership Council

The University Hospitals Neurological Institute Leadership Council consists of members of our community with an expressed interest in the neurosciences and in helping the UH Neurological Institute achieve its vision.

Under the leadership of Co-chairs Terry Adelman and Claire Morgan, the Leadership Council plays an active role in community advocacy, strategic counseling and philanthropy – all with the objective of advancing the growth and success of the UH Neurological Institute.

The Leadership Council provides a vital connection to the community and the patient experience. Its active engagement has greatly impacted the way in which the UH Neurological Institute delivers on its promise to patients and families.

We are grateful for the ongoing support and trust of this dynamic group of volunteer leaders.

Council Members

Terry Adelman, Co-Chair
Claire O. Morgan, Co-Chair

Wendy K. Adelman
Diane L. Collier
Michael A. Cristal
Jeffrey D. Cristal
Margaret E. Elias
Kimberly A. Ganley
Robert C. Gilkeson, MD
Sally Gries
Cynthia W. Halle
B. Marvin Hardy, III
Debra S. Harlan
Jennie S. Hwang, PhD
Robert H. Jackson, Esq.
George R. Lincoln
Constance P. Lincoln
Christopher J. Livingston

Marilyn Miller
Richard S. Miller
Lynne M. Mitchell
Katherine T. O'Neill
Sue K. Rubin
Dr. Stanley I. Rubin
Thomas R. Scherr, Sr.
Gail C. Schlang
Mark P. Schumann
Christina M. Schumann
Margaret Singerman
Jamie Turk
Jennifer Turk
Robert N. Wallens
Shelly S. Wallens
Joni H. Wasserman
Steven L. Wasserman
Mary Jo Zingale

Physician & Administrative Leadership

Warren R. Selman, MD
Anthony Furlan, MD
Nancy M. Tinsley



In Memory

The UH Neurological Institute Leadership Council formally recognizes the contributions of the late Maxeen Stone Flower and John Flower, MD, who for many years served as exceptional advocates for University Hospitals. Their passion and dedication will continue to guide our efforts and serve as a source of inspiration.

In the Community

The UH Neurological Institute further elevated its service to communities throughout Northeast Ohio by expanding its geographic reach and hosting a number of free community outreach events focused on educating the public on a variety of neurological disorders and issues.

Enhanced Access

The UH Neurological Institute offers unparalleled access and convenience to our health care system through our hub at UH Case Medical Center and at a number of facilities located throughout the region. Because we have fully integrated our capabilities and resources with our network of community hospitals and medical centers, all patients receive the same innovative, integrated and individualized care, regardless of location.

In 2010, we continued to bring expert neurological care close to home by expanding the number of locations in which we see patients and the services offered there:

- The UH Neurological Institute at Concord brought a new level of sophistication to deal with neurological disorders thanks to the husband and wife team of Leonard Weinberger, MD, and Marie Tani, MD, who both joined the UH Neurological Institute in the spring.
- Michael Devereaux, MD, began seeing neurology and epilepsy patients at University Hospitals Geneva Medical Center in late 2010, providing much-needed neurological expertise to all of Ashtabula County and the Madison community in Lake County.
- Benjamin Walter, MD, Ingrid Tuxhorn, MD, and Tanvir Syed, MD, began holding clinics at University Hospitals Medina Health Center, bringing high-quality diagnosis and treatment for movement disorders such as Parkinson's disease and pediatric and adult epilepsy to residents of growing Medina County and those living near Akron.
- The Spinal Neurosurgery Center established ambulatory and surgical spine services at University Hospitals Richmond Medical Center, University Hospitals Bedford Medical Center, and recruited west side neurosurgeon Rishi Goel, MD, to cover St. John Medical Center and Southwest General Hospital.
- Stroke prevention programs were initiated at University Hospitals Mentor Health Center and St. John Medical Center.

Education and Wellness

With a focus on increasing neurology awareness and brain and nervous system wellness, the UH Neurological Institute held a number of free and engaging public education events.

- More than 200 seniors and their family members attended the Healthy Brain, Healthy Aging Health Literacy Conference in May at McGregor House in East Cleveland. Hosted by the University Hospitals Neurological Institute's Memory & Cognition Center, the free all-day seminar featured a number of speakers presenting information on Alzheimer's disease and aging, high blood pressure, healthy eating, stroke treatments and prevention, and music therapy.
- May is Stroke Awareness Month and the Stroke & Cerebrovascular Center had clinical staff on hand in the UH Case Medical Center Atrium performing stroke screenings. Center Director Cathy Sila, MD, also bolstered awareness through a number of educational talks in the community.
- Free carpal tunnel screenings were held in May at the University Hospitals University Suburban Health Center in South Euclid and the event not only

reached capacity but created a waiting list large enough to accommodate two future screenings. In addition, screenings were offered in November at the University Hospitals Ahuja Medical Center grand opening, which drew more than 10,000 people.

- The Epilepsy Center hosted "Seizing Control" – free educational forums on adult epilepsy management and treatment options – in June at the University Hospitals Westlake Health Center and in July at University Hospitals Chagrin Highlands Health Center in Orange Village. The public talks featured presentations by our epileptologists as well as a question-and-answer session.
- In recognition of November as Epilepsy Awareness Month, clinical staff and technologists from the Epilepsy Center were in the UH Case Medical Center Atrium distributing education materials, displaying videos and answering questions.

Our Locations

University Hospitals Case Medical Center

11100 Euclid Avenue
Cleveland, Ohio 44106
1-866-UH4-CARE (1-866-844-2273)

Patients with neurological disorders can also be seen at:

University Hospitals Ahuja Medical Center

3999 Richmond Road
Beachwood, Ohio 44122
1-866-UH4-CARE (1-866-844-2273)

University Hospitals Bolwell Health Center

11100 Euclid Avenue, Suite 3100
Cleveland, Ohio 44106
1-866-UH4-CARE (1-866-844-2273)

University Hospitals Bedford Medical Center

44 Blaine Avenue
Bedford, Ohio 44146
440-735-4775

University Hospitals Chagrin Highlands Health Center

3909 Orange Place
Orange Village, Ohio 44122
1-866-UH4-CARE (1-866-844-2273)

University Hospitals Foley Elderhealth Center

3619 Park East Drive, Suite 211
Beachwood, Ohio 44122
216-464-6445

University Hospitals Geauga Medical Center

13207 Ravenna Road
Chardon, Ohio 44024
440-285-6000

University Hospitals Geneva Medical Center

870 West Main Street
Geneva, Ohio 44041
1-866-UH4-CARE (1-866-844-2273)

University Hospitals Landerbrook Health Center

5885 Landerbrook Drive
Mayfield Heights, Ohio 44124
1-866-UH4-CARE (1-866-844-2273)

University Hospitals Medina Health Center

4001 Carrick Drive
Medina, Ohio 44256
1-866-UH4-CARE (1-866-844-2273)

University Hospitals Mentor Health Center

9000 Mentor Avenue
Mentor, Ohio 44060
1-866-UH4-CARE (1-866-844-2273)

University Hospitals Richmond Medical Center

27100 Chardon Road
Richmond Heights, Ohio 44143
440-585-6137

University Hospitals Twinsburg Health Center

8819 Commons Boulevard
Twinsburg, Ohio 44087
1-866-UH4-CARE (1-866-844-2273)

University Hospitals University Suburban Health Center

1611 South Green Road
South Euclid, Ohio 44121
1-866-UH4-CARE (1-866-844-2273)

University Hospitals Westlake Health Center

960 Clague Road
Westlake, Ohio 44145
1-866-UH4-CARE (1-866-844-2273)

St. John Medical Center

29000 Center Ridge Road
Westlake, Ohio 44145
440-835-6160

About University Hospitals



University Hospitals, named one of the nation's top 10 health systems by Thomson Reuters, serves the needs of patients through an integrated network of hospitals, outpatient centers and primary care physicians.

At the core of our health system is UH Case Medical Center, ranked among the nation's best by U.S. News & World Report and the primary affiliate of Case Western Reserve University School of Medicine.

UH is home to some of the most prestigious clinical and research centers of excellence in the United States and the world, including University Hospitals Harrington-McLaughlin Heart & Vascular Institute, University Hospitals Neurological Institute, University Hospitals Transplant Institute, University Hospitals Eye Institute, University Hospitals Digestive Health Institute and University Hospitals Urology Institute.

The main campus includes the internationally celebrated University Hospitals Rainbow Babies & Children's Hospital, University Hospitals MacDonald Women's Hospital and the nationally ranked University Hospitals Seidman Cancer Center (formerly University Hospitals Ireland Cancer Center), part of the National Cancer Institute-designated Case Comprehensive Cancer Center.

For more information, visit UHhospitals.org.

Among the nation's leading academic medical centers, University Hospitals Case Medical Center is the primary affiliate of Case Western Reserve University School of Medicine, a nationally recognized leader in medical research and education.



University Hospitals

University Hospitals Neurological Institute
11100 Euclid Avenue, MSC-9160
Cleveland, Ohio 44106

PRESORTED STD
US POSTAGE
PAID
CLEVELAND OH
PERMIT NO 1764

Rapid Referral

Call 1-866-UH4-CARE (1-866-844-2273) to get an appointment scheduled within 24 hours.

Physician Advice Line

You're just one phone call away from the finest neurosurgeons, neurologists and specialists in the country. Receive immediate decision-making advice from the UH Neurological Institute team of experts by calling 216-844-1001.

UH Transfer Referral Center

Our team of transfer liaisons will expedite the process and give you immediate access to our critical care transport teams, board-certified specialists and Beacon Award-winning intensive care unit. The Center also provides 24/7 teleconsultation services with nationally recognized experts in stroke, epilepsy (seizures) and other neurological emergencies. Please call 216-844-1111 or 800-421-1999 to speak with a transfer referral liaison.

UHhospitals.org/neuro