

UCMC earns nation's highest certification for stroke

It's official: Stroke care at the UC Medical Center is among the best in the United States. In July the Joint Commission certified UCMC as an Advanced Comprehensive Stroke Center, a new level of certification reserved for institutions that receive and treat the most complex stroke cases. UCMC is the 47th institution nationally and the fourth in Ohio to receive the new comprehensive designation since its creation in September 2012. There is no higher certification.

The Joint Commission is a nonprofit organization that accredits more than 20,000 health care organizations and programs in the United States. It also has certified more than 900 Primary Stroke Centers, the designation UCMC had held since 2005. The new level of certification is based on volume of cases, advanced imaging capabilities, post-hospital care coordination of patients, a dedicated neuroscience intensive care unit, a peer review process, participation in stroke research, and performance measures.

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UCNI CENTERS & PROGRAMS

- Brain Tumor Center
- Comprehensive Stroke Center
- Epilepsy Center
- Gardner Family Center for Parkinson's Disease and Movement Disorders
- Memory Disorders Center
- Mood Disorders Center
- Neurosensory Disorders Center
- Neurotrauma Center
- Waddell Center for Multiple Sclerosis
- Neuromuscular Disorders Program

The new neurobiology of mental illness: Disorders come from our genes, not from a lack of willpower

Researchers at the UC Mood Disorders Center are helping the public understand that mental illness, like other illnesses, is rooted in biology. In public lectures, symposia, academic publications and textbooks. They are presenting and discussing new research that shows that diseases like bipolar disorder and schizophrenia emanate from specific parts of the brain which, because of genes, inflammation and environmental stress, do not function normally.

"A mood disorder is not a sign of moral failing or personal weakness," says Stephen Strakowski, MD, the Dr. Stanley & Mickey Kaplan Professor and Chair of Psychiatry and Behavioral Neuroscience. "The brain is vulnerable to going awry."

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Pilot grant to allow study of brain changes in college football players



Changes in the brain in college football players is the subject of one of four \$25,000 pilot grants awarded this year to researchers by UCNI and the Network for Neuroscience Discovery. The pilot grants are intended to help the researchers gain preliminary data that can be used in applications for larger grants from the National Institutes of Health (NIH). Winners of the grants were announced by UCNI Administrative Director Anya Sanchez, MD, MBA.

Jon Divine, MD, Associate Professor in the Department of Orthopedics and team physician for the UC Bearcats, and Cal Adler, MD, Professor in the Department of Psychiatry and Behavioral Neuroscience, will compare the brain scans of UC football players to the scans of UC athletes whose sport (such as swimming) involves limited contact.

"Increasing attention is being paid to the potential effects of contact sports, particularly football, on the cognitive and psychological state of players," Dr. Adler says. "Over one million high school students actively participate in football programs each year, as do over 60,000 college athletes. Newer data is now suggesting that the blows to the head often sustained during play may carry significant risks to these amateur participants."

The researchers will scan the brains of current and past UC football players who have suffered a concussion and are in their last year of competition. Three types of scans will be performed: magnetic resonance imaging (MRI), diffusion tensor imaging (DTI) and functional magnetic resonance imaging (fMRI) while the athlete is performing a working memory task.

The scans will enable the researchers to examine gray and white matter changes in the brain as well as functional activity in the prefrontal cortex, the area of the brain responsible for problem-solving, complex cognition and the moderation of social behavior. The researchers' sobering hypothesis is that the brain scans of football players will show evidence of injury when compared to those of the athletes who play non-contact sports.



Jed Hartings, PhD

Brain trauma researchers see new promise in an old drug

Patients who are fighting for their lives following a traumatic brain injury may benefit from an established drug that is drawing keen attention from researchers in the Neurotrauma Center at the UC Neuroscience Institute. The drug is ketamine, which is commonly used as an anesthetic in children and is widely used in veterinary practice.

Jed Hartings, PhD, Research Associate Professor in UC's Department of Neurosurgery, recently co-authored a study that showed that ketamine halted the damaging electrical activity known as spreading depolarizations, or brain tsunamis, after traumatic brain injury and stroke.

During the study, Dr. Hartings and his colleagues from the international group COSBID (Co-Operative Studies of Brain Injury Depolarizations) accumulated brain-monitoring data of patients who had suffered spreading depolarizations after head trauma or stroke. They then compared spreading depolarizations in patients who were treated with various medications during their hospitalization.

"There was no intention to treat spreading depolarizations with ketamine," Dr. Hartings said. "But some patients in the European population were given ketamine for other reasons. And we found that when that drug was given, the depolarizations stopped."

The next step for Dr. Hartings and his team is to conduct a study that administers ketamine to patients with an intention to treat spreading depolarizations. An application is in process with the U.S. Department of Defense to fund the project.

Epilepsy Center receives top rating



Dr. Michael Privitera

The UC Epilepsy Center has once again been designated a Level 4 Epilepsy Center -- the highest level -- by the National Association of Epilepsy Centers (NAEC), a nonprofit trade association with a membership of more than 170 epilepsy centers. As defined by the NAEC, "Level 4 epilepsy centers have the professional expertise and facilities to provide the highest level of medical and surgical evaluation and treatment of patients with complex epilepsy."

Research has shown that people with epilepsy do better when they are treated at a specialized epilepsy center. They are more likely to be seizure-free and, if they do have seizures, they are more likely to have fewer of them.

The UC Epilepsy Center, led by Medical Director Michael Privitera, MD, offers treatments that include conventional, new and investigational anti-epileptic drugs, surgery, and vagus nerve stimulation. The team is skilled in the extensive preparation required to determine whether epilepsy surgery is a treatment option that can halt or reduce seizures.

Telestroke Network marks 1-year anniversary

The UC Health Telestroke Network, which enables doctors from the UC Stroke Team to "examine" stroke patients long-distance with the help of robots, marked its first anniversary in March with a big thumbs up. UC Health launched the program in March 2012, with one robot placed in the UC Medical Center's Emergency Department and another in the Neuroscience Intensive Care Unit. UC Health now has seven official telestroke affiliates, including West Chester Hospital.

The telestroke robots can play a critical role in expediting evaluation and treatment of patients in hospitals in rural or outlying areas. The robots enable audio-video communications in real time between a patient and clinician at a distant site and a UC Stroke Team member (with laptop) wherever he or she is at the time.

"The introduction of telestroke genuinely adds a dimension that allows us to improve upon the care we have been delivering," says Opeolu Adeoye, MD, Director of the UC Health Telestroke Network. "We hope this model in stroke serves to expand the services we are able to deliver to communities in the Cincinnati region."



Dr. Opeolu Adeoye demonstrates a telestroke robot.

UCMC EARNS HIGHEST CERTIFICATION *(continued from page 1)*

"This designation places us in the top tier of institutions that provide stroke-related care," says Dawn Kleindorfer, MD, Co-Director of UCNI's Comprehensive Stroke Center. "It is a testament to the hard work of our team, which prides itself on providing the best possible care for stroke patients in Greater Cincinnati and beyond."

"The designation confirms what we have long known: that a person who suffers a stroke, or is at risk of stroke, will receive outstanding care at the Comprehensive Stroke Center," adds Co-Director Mario Zuccarello, MD. "This care ranges from interventional treatments that prevent stroke, to emergency care for acute stroke,

to surgical treatments following ischemic or bleeding stroke. The treatments are guided by research, much of which was performed right here at UC."

The center's specialists treat conditions that include transient ischemic attack (TIA), ischemic stroke, intracerebral hemorrhage and subarachnoid hemorrhage, brain aneurysms, arteriovenous malformations and moyamoya disease.

The UC Stroke Team was founded as the first multidisciplinary stroke team in the United States during the mid-1980s. The team evaluates patients who have suffered an acute stroke at 15 regional hospitals

and provides consultation services to more than 20 additional regional hospitals. In 2012 the UC Neuroscience Institute and UC Medical Center launched a major initiative to bring the expertise of the UC Stroke Team to partner hospitals through the use of telemedicine for stroke care.



Jim's story: an unusual diagnosis of a 'classic case'

The changes in Jim crept up so slowly that no one paid any attention. Not Jim, not his wife, not even his regular doctor. Ever so gradually, a tumor on his pituitary gland caused his nose, hands and feet to grow.

The surprise diagnosis occurred when Jim took his father to a doctor's appointment. That doctor, seeing Jim for the first time, looked closely at him, shook his hand and wouldn't let go. As Jim recalls, "The guy just got fascinated with my look. He asked, 'Has your nose always been that big? Have your hands always been that big?'"

The doctor told Jim that he had acromegaly, a condition in which the body produces too much growth hormone. The culprit is usually a benign tumor on the pituitary gland. And while the tumor itself is not cancerous, the ultimate outcome can be deadly, as the heart and other internal organs continue to grow.

Laboratory tests and an MRI confirmed the doctor's astute diagnosis, and a few days later Jim was at the UC Brain Tumor Center. Lee Zimmer, MD, PhD, an ear, nose and throat surgeon with UC Health, worked with a UCNI neurosurgeon to create a safe strategy for removing Jim's tumor.

"Jim had a classic case of acromegaly," Dr. Zimmer says. "He had experienced multiple physical changes and distortions, including a change in head (and hat) size, an increase in nose and jaw size, and an increase in the gap between his teeth. His glasses had become too small, and he was forced to have his wedding ring resized several times. By the time we saw him, he was unable to wear his wedding ring at all." Dr. Zimmer notes that Jim did not have major symptoms commonly associated with pituitary tumors, including double vision and headaches.

Jim promptly underwent a transsphenoidal pituitary tumor resection at the UC Medical Center. Using long, tube-like instruments, Dr. Zimmer and his team approached the tumor through one of Jim's nostrils and removed it through the other. The entire procedure took 45 minutes and is expected to add 15 years to Jim's life.



Jim, who hadn't missed a day of work before his diagnosis, was back at the plant full-time within eight weeks. And, in a story-book ending, he was able to slip on his wedding ring for the first time in years.

Neurobiology of mental illness

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Biological vulnerability is at the root of mental illness, says Melissa DelBello, MD, Co-Director of the UC Mood Disorders Center. "Recent advances in brain imaging techniques have improved our ability to identify abnormalities in brain structure, neurochemistry and function in children, adolescents and adults."

Functional MRI, a test that produces images of the brain in action, shows that in people with bipolar disorder, the amygdala is overactive even in situations when the brain is processing a simple task. This may result in serious mood swings, from abnormally elevated or energized moods (mania) to depression.

The heightened activity also extends to the prefrontal cortex, where executive function resides. "Our hypothesis is that the prefrontal cortex is over-working to control an over-activated amygdala," Dr. Strakowski says. "The brain is compensating, struggling to maintain a dysfunctional emotional regulatory system."

Glutamate, an excitatory neurotransmitter, is elevated in people with bipolar disorder, as is lactate in the brain, reflecting abnormalities with energy management at a deep cellular level. The ventricles, reservoirs where fluids are exchanged, spread and grow larger, reflecting a loss of surrounding brain tissue.

Meanwhile, the hippocampus, a small area of the brain that is the size of your little finger, is being studied for its role in schizophrenia. The brain's two hippocampi, one on each side, help us synthesize experiences into coherent memories. People with schizophrenia have alterations in parts of their brains, including the hippocampus, which appear to contribute to hallucinations, delusions or other breaks from reality.

"Advances in imaging have revolutionized cognitive neuroscience," says Cal Adler, MD, Co-Director of the UC Mood Disorders Center. "We are on the threshold of understanding the biological basis of many forms of mental illness, and this will lead us in the direction of novel, more effective treatments for our patients and loved ones."

A home run for this stroke survivor



Dr. Andrew Ringer, an endovascular neurosurgeon and specialist with the UC Comprehensive Stroke Center, celebrated with his former patient, Ryan Banks, 15, at the Strike Out Stroke event at Great American Ballpark in May, during Stroke Awareness Month. Ryan threw out the ceremonial first pitch, and Dr. Ringer caught it. Dr. Ringer was enjoying a game at the ballpark last fall when he was summoned to the UC Medical Center to provide emergency endovascular care for Ryan.

Dr. Ringer and Ryan

John M. Tew Chair celebrated

The community that raised \$2 million to create the John M. Tew, Jr., MD, Chair in Neurosurgical Oncology was sincerely thanked in March with a memorable evening highlighted by tributes, memories and pledges of stewardship.

Attending were more than 100 dignitaries, donors and supporters of the Tew Chair, which was awarded to Ronald Warnick, MD, Professor of Neurosurgery and Radiation Oncology and Medical Director of the UC Brain Tumor. The chair was a tribute to Dr. Tew, Professor of Neurosurgery, Radiology and Surgery at UC and Clinical Director of UCNI. "Tonight we gather here to acknowledge that we owe you an enormous debt of appreciation," Dr. Tew said. "We want to assure you that the expectations that you have entrusted to us will be continuously respected by our extraordinary team of experts – experts who share your hope and passion for the future of science."



Counterclockwise from top: Drs. Tew (left) and Warnick; UC Trustee Ginger Warner; Sara Vance Waddell (left), Dr. Tew and Michelle Vance Waddell

SAVE THE DATE!

- 9/27 Forget-Me-Not Gala for Alzheimer's Research**
- 10/12 Stroke of Genius Event**
- 10/19 Strategies for Managing Epilepsy: Ask the Experts**
- 10/26 Midwest Regional Brain Tumor Conference**
- 10/27 Walk Ahead for a Brain Tumor Cure**

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From left, Chris McCaulsky, Brian & Elizabeth Wiles

A Toast to a Brain Tumor Cure

More than 200 supporters enjoyed premium wine tastings, a silent auction, survivor testimonials and a presentation about metastatic brain tumor research at the UC Brain Tumor Center's fourth annual Wine Tasting Event May 14. The event, which raised more than \$30,000, supports local, investigator-initiated research geared toward future Phase I clinical trials at the UC Neuroscience Institute and UC Cancer Institute.



Drs. Haleem and Rekha Chaudhary (above left); Rich Seal leads the live auction (above right)



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NEWSWORTHY

Our 2013 Health Care Heroes

Four physicians associated with the UC Neuroscience Institute were honored at the Cincinnati Business Courier's 2013 Health Care Heroes banquet at the Duke Energy Convention Center in March. They are: Yash Patil, MD, a head and neck cancer specialist, winner in the provider category; John Hawkins, MD, Chief of Psychiatry and Deputy Chief of Research at the Lindner Center of HOPE, winner in the innovator category; George Atweh, MD, Director of the UC Cancer Institute, finalist in the manager category; and Christopher McPherson, MD, a specialist with the UC Brain Tumor Center, finalist in the innovator category.



From left: Drs. McPherson, Patil and Atweh.

Movement disorders event challenges global specialists

Experts from six countries joined the Gardner Center's Alberto Espay, MD, at the Cincinnati Club in May for the first Unusual Movement Disorders Marathon Symposium. Twelve professors each presented one of the most challenging cases of their careers, and three internationally known specialists with no prior knowledge of the cases then worked to arrive at the correct diagnoses and optimal treatment plans. Making a diagnosis demanded knowledge of genetics, pathology, neurology and physiology, and some of the cases stumped the expert panel. The event, endorsed by the international Movement Disorder Society, is likely to be repeated in the future.



Dr. Espay, Event Director