

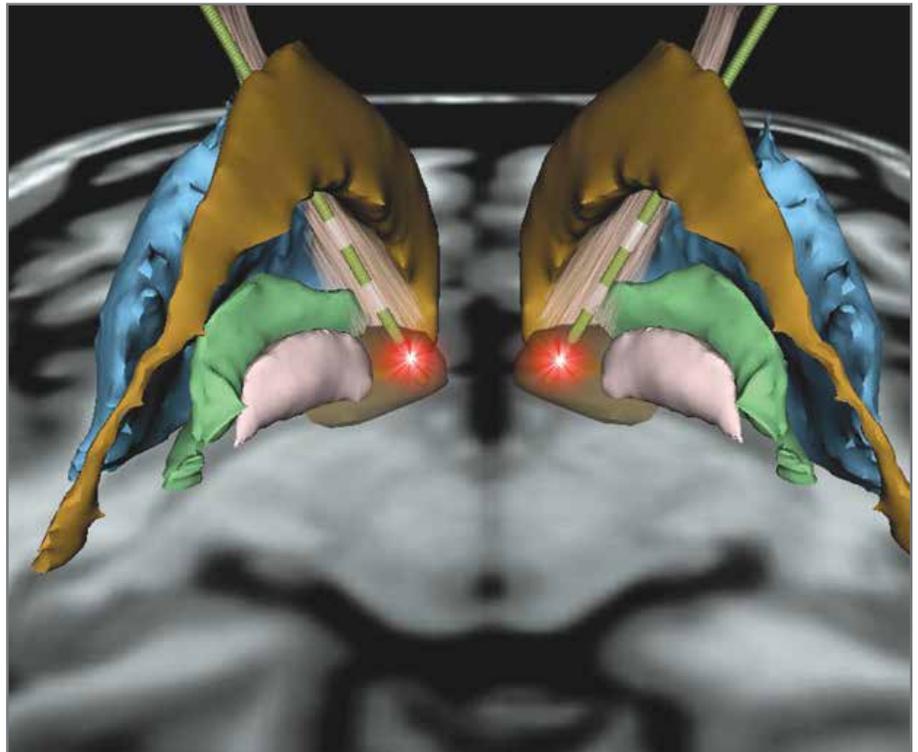
Deep Brain Stimulation Yields Positive Results in Patients with Obsessive-Compulsive Disorder

For more than a decade, Sara Gordon experienced the debilitating effects of obsessive-compulsive disorder (OCD), which had her constantly washing her hands and taking showers that lasted four hours. "I never felt like I was clean enough," says Ms. Gordon, a recent graduate of Harvard University. "I had tried every treatment and nothing worked."

Last summer, Ms. Gordon turned to Wayne K. Goodman, MD, Chair of the Department of Psychiatry and the Esther and Joseph Klingenstein Professor of Psychiatry at the Icahn School of Medicine at Mount Sinai. Under Dr. Goodman's care, Ms. Gordon underwent deep brain stimulation (DBS), a procedure in which an implanted device delivers electrical stimulation directly to the brain and modulates the abnormal patterns of neural activity underlying OCD.

Over the last 12 years, Dr. Goodman has used DBS to treat more than 20 patients with

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Bilateral VC/VS stimulation using 0-/Case+. The orientation is from posterior (back of head) to anterior, with left hemisphere on the left, and right hemisphere on the right. The MRI shown is an axial plane at the level of the base of the ventral striatum.

How Adaptive Rewiring Protects Against Bipolar Disorder

Individuals whose siblings have bipolar disorder and are at high risk for developing the mood disorder themselves may have a natural ability to rewire their brains, which enables them to remain unaffected and healthy. These findings, led by Sophia Frangou, MD, PhD, Professor of Psychiatry at the Icahn School of Medicine at Mount Sinai, were published in the January 5, 2016, issue of *Translational Psychiatry*.

Most of the risk (up to 80 percent) of developing



Sophia Frangou, MD, PhD

bipolar disorder is genetic and can be traced to genes that affect brain function. Studies show that close relatives of a person with bipolar disorder are up to 10 times more likely than a typical person to present with a range of mood problems within the bipolar spectrum.

The new study examined patterns of brain connections in individuals with bipolar disorder and the patients' healthy (resilient) siblings, then compared them to unrelated

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Mental Health Services for the LGBT Community

Transgender individuals who experience clinically significant distress or impairment due to the lack of congruence between their experienced gender and their natal sex meet DSM-5 criteria for the diagnosis of gender dysphoria (GD). Some individuals will seek treatment through hormones and surgery while others will socially transition and benefit from assistance to cope with stigma and connections to community support.

In 2014, Medicare lifted its ban on coverage for gender-transition-related-health care and subsequently, many private insurers have followed suit, as have some state Medicaid programs.

“This increased insurance coverage underscores not only the recognition by the medical profession and insurance carriers of hormonal and surgical transition treatments as medically necessary, but also the increased social acceptance of gender transition,” says William Byne, MD, PhD, Associate Professor of Psychiatry at the Icahn School of Medicine at Mount Sinai, and staff physician at the James J. Peters VA Medical Center. “The generally positive public response to Caitlyn Jenner’s recent transition is another indicator of increasing public acceptance.”

Dr. Byne chaired the American Psychiatric Association’s Task Force on Treatment of Gender Dysphoria and chairs the workgroup

charged with implementing its recommendations. He is also on the editorial boards of the *Journal of Homosexuality*, the *Journal of Gay and Lesbian Mental Health*, and serves as editor-in-chief of *LGBT Health*. He works nationally with the Veteran’s Health Administration to train VA staff in the provision of culturally competent health care to transgender veterans.



William Byne, MD, PhD

It is essential, he says, that clinicians accept and affirm their patients’ sexual orientation and gender identity when providing mental health services to sexual and gender minority individuals. An affirmative stance reflects the therapist’s respect for and validation of the patient’s sexual orientation, relationships, and gender identity.

“The therapist’s affirmative attitude is meant to offer LGBT patients a contrast to the social denial and denigration they may have experienced in the past, or continue to experience outside the consultation office,” says Dr. Byne.

Psychiatrists should also consider the impact of such stigmatization, sometimes referred to as LGBT minority stress. While each LGBT population experiences a unique

profile of health risks and disparities, increased rates of depression, anxiety disorders, suicidality, and substance abuse have been found across all of these groups and have been linked to minority stress.

Dr. Byne says, “A similar pattern of mental health disparities is seen in stigmatized racial and ethnic minorities, and is even more

pronounced in sexual and gender minority individuals who are also racial or ethnic minorities.”

For GD patients, he says, mental health professionals have many tasks. These include assessing GD; providing information regarding options for gender identity and expression and possible medical interventions; assessing and diagnosing coexisting mental health concerns, discussing treatment options and making appropriate referrals for care; assessing eligibility and preparedness for hormonal and surgical treatments, and providing necessary referrals; and engaging in psychotherapy with the goal of finding ways to maximize a person’s overall psychological well-being, quality of life, and self-fulfillment.

› Deep Brain Stimulation Yields Positive Results in Patients with Obsessive Compulsive Disorder *continued from page 1*

intractable OCD—patients who fail to respond to selective serotonin reuptake inhibitors (SSRIs), augmentation with antipsychotics, or cognitive behavioral therapy. In a 2012 literature review in the *Annual Review of Medicine*, Dr. Goodman showed that more than 60 percent of participants experienced clinically significant relief from symptoms following DBS. The procedure was successful for Ms. Gordon, as well.

During her case, Dr. Goodman worked closely in the operating room with neurosurgeon Brian Kopell, MD, Associate Professor of Neurosurgery, Neuroscience, Psychiatry, and Neurology at the Icahn School of Medicine at Mount Sinai. Over the course of three surgeries, Dr. Kopell



From left: Brian Kopell, MD; Sara Gordon; and Wayne Goodman, MD

implanted electrodes bilaterally in each side of Ms. Gordon’s brain and placed a neurostimulator in her chest. He used intraoperative imaging and tractography to guide the DBS lead placement, two advances pioneered at Mount Sinai.

Two months after her initial surgery, Dr. Goodman worked with Ms. Gordon to determine her emotional and behavioral reactions to the device and adjust the settings using a handheld programmer to optimize her response.

“Making it through the day is no longer an accomplishment—I don’t brood over who touched the doorknob or faucet, and my repetitive reassurance questions are nonexistent,” says Ms. Gordon. “I finally feel like I have a future ahead of me.”

► How Adaptive Rewiring Protects Against Bipolar Disorder

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healthy individuals without family history of the disorder. Siblings selected to participate in the study were in their mid-40s, an age when the chances of developing the disorder are very low.

Functional Magnetic Resonance Imaging (fMRI) results revealed that compared to healthy unrelated individuals, patients with bipolar disorder and their resilient siblings showed similar brain abnormalities when asked to perform tasks that tap into brain functions known to be affected by bipolar disorder. However, the resilient siblings showed additional changes in brain wiring within these networks that were unique to them and therefore likely to represent adaptive rewiring that has helped them remain well.

“So far in the field of psychiatry we have focused on risk, and on brain changes that contribute to illness instead of looking for brain changes that can be protective,” says Dr. Frangou. “The fact is, the majority of people at ‘high risk’ for bipolar disorder remain free of any psychiatric disorder. Recognizing the factors that promote resilience in the presence of significant genetic risk is very important as it shifts the focus from illness to well-being.”

The research suggests “that it is possible for some individuals to develop adaptive changes naturally, and we can promote these connectivity changes in other high-risk people,” Dr. Frangou says.

Ultimately, Dr. Frangou expects to develop an automated algorithm able to reveal the likelihood that a person at high risk for bipolar disorder will actually develop it.

She also wants to extend her research to include relatives of people with schizophrenia, and to develop computer-based cognitive training interventions to evaluate whether mental exercises can help promote resilience.

“Looking for biological mechanisms that can protect against illness opens up a completely new direction for developing new treatments,” says Dr. Frangou. “Our research should give people hope that it is possible to beat the odds at the genetic lottery.”

Substance Use and Adolescent Brain Development



Rita Goldstein, PhD

marijuana), academic achievement, cognitive skills, mental health, and brain structure and function using advanced research methods.

Mount Sinai’s portion of the ABCD study will include following 500 teens and specifically focus on predictors of early onset use and how these substances alter the developmental trajectory of the brain in the short and longer terms.

“The standardized, multisystem big-data framework approach that we will use to study a large number of young study participants represents a paradigm shift for the addiction and mental health fields and will yield valuable insight about the impact of substance use and abuse on young people,” says Rita Goldstein, PhD, Chief of the Neuropsychology of Addiction and Related Conditions (NARC) and the Brain Imaging Core (BIC), and Professor of Psychiatry and Neuroscience in the Icahn School of Medicine at Mount Sinai, who is leading the study at Mount Sinai.

She says, “Integrative multimodal neuroimaging studies to uncover the brain mechanisms that could predate and potentially contribute to risk for substance abuse and addiction and related psychiatric comorbidities have not been conducted at this scale before, so this project is both exciting and crucially important.”

Dr. Goldstein will work with collaborators from the University of California, San Diego, and Weill Cornell Medical College of Cornell University and Columbia University to collect mental and physical health information, including data from high-resolution brain scans and genetic material. They will also collect information about sleep patterns, diet and exercise, social media use, and other environmental factors.

“The close collaboration with BJ Casey, PhD, the principal investigator of the study at Weill Cornell, and her team, will allow us to study the cortical-subcortical pathways that may predispose some individuals for developing impulsive behaviors that could contribute to drug addiction and other disorders,” says Dr. Goldstein. “Such early identification of risk is crucial for the development of effective and individually tailored intervention and prevention efforts. We will also be able to identify the brain circuits and pathways that may provide protection against developing addiction; identifying mechanisms underlying resilience has been an important focus at Mount Sinai.”

In addition to creating a comprehensive informational database and birds-eye view of this potentially turbulent time in a person’s development, the ABCD study aims to apply these findings to help inform public health and prevention strategies that can be designed to protect young people when they are most vulnerable.

For more information about the ABCD study, please visit: <http://addictionresearch.nih.gov/adolescent-brain-cognitive-development-study>

Enhanced Training in Child and Adolescent Psychiatry

In July, the Icahn School of Medicine at Mount Sinai will launch an integrated residency as part of the Child Behavioral Health and Science Center Education and Training Program, with 10 residents from the child and adolescent psychiatry program and the Triple Board program—which combines pediatrics, psychiatry, and child and adolescent psychiatry.

Drawing upon the vast resources of the Mount Sinai Health System, trainees will have access to faculty members, clinical material, and rotations, as well as a wide variety of research projects. For the first time, trainees will rotate through four Mount Sinai campuses, including The Mount Sinai Hospital, Mount Sinai St. Luke's, Mount Sinai Beth Israel, and Mount Sinai West (formerly Mount Sinai Roosevelt).

“Our program has been carefully crafted to provide immersion in a wealth of in-depth experiences for trainees, from comprehensive evaluation to state-of-the-

art evidence-based treatments across a broad spectrum of child and adolescent psychiatric disorders,” says Barbara Coffey, MD, MS, Director of the Child Behavioral Health Center Education and Training Program, Professor of Psychiatry, and Director of the Tics and Tourette's Clinical and Research Program.

The training program offers protected time to participate in the Department of Psychiatry's Centers of Excellence. Directed by renowned leaders in the field, the centers provide exposure to research and specialized clinical approaches within subspecialty areas, including: Attention Deficit/Hyperactivity Disorder and Learning



Barbara Coffey, MD

Disorders; Autism Spectrum Disorder; Childhood Trauma and Resilience; Eating and Weight Disorders; Mood and Anxiety Disorders; Obsessive-Compulsive Disorder; Substance Use Disorders; and Tics and Tourette's Disorder.

Senior residents will have additional protected time and flexibility to choose clinical areas of focus and develop expertise that facilitates career development. Triple Board residents will also specialize in addressing the mental health needs of medically ill children and adolescents.

“As the field of child and adolescent psychiatry continues to expand and mature, we rely more heavily on developmental neuroscience to treat mental disorders,” says Dr. Coffey. “As a result, a central, unifying theme of our educational approach is a developmental perspective that provides a clinical neuroscience foundation drawing on empirically based treatments understanding human behavior.”

A MESSAGE FROM THE VICE CHAIR FOR EDUCATION



Antonia New, MD

Redesigning Resident Training

The Department of Psychiatry has redesigned residency training to better align new trends in clinical psychiatry with discoveries in neuroscience. In preparing our graduates to become the next generation of academic leaders, the Icahn School of Medicine at Mount Sinai has created the first National Institutes of

Mental Health-funded, seven-year program that combines clinical training with a PhD. We offer this novel Psychiatry Residency + PhD track, in addition to the Academic Clinician-Educator (ACE) program, and the Physician-Scientist Research track.

By leveraging the Mount Sinai Health System's outstanding neuroscience and translational research faculty, we have created an integrated and agile learning environment with a wealth of material that residents draw upon and fashion into individualized academic and professional experiences. Mount Sinai's redesigned residency program permits maximum flexibility within the bounds of the Accreditation Council for Graduate Medical Education (ACGME) requirements and facilitates independent thinking and expanded research opportunities.

We have reduced inpatient rotations to eight months from fourteen

months, and added a six-month full-time outpatient experience in the second year. This novel program structure reflects the changing practice of psychiatry and maximizes the ratio of educational opportunities to service delivery. Looking to the future of psychiatric practice, we have added rotations for our third- and fourth-year residents to learn the principles of collaborative care and working within other subspecialty medical clinics.

In addition, we are adapting our curriculum to integrate neuroscience into every year of training, so that residents can translate clinical phenomenology into abnormal brain function. Mount Sinai's residents now train in the imaging laboratory, attend clinical neuroscience case conferences, participate in interactive neuroscience didactic series, and collaborate with expert clinical researchers in subspecialty areas of their choosing. The curriculum includes elective time that begins in the second year and substantially increases during the third and fourth years.

Our mission is to foster a level of independence and expertise that will form the foundation for their development as leaders in clinical practice, research, teaching, and administration.