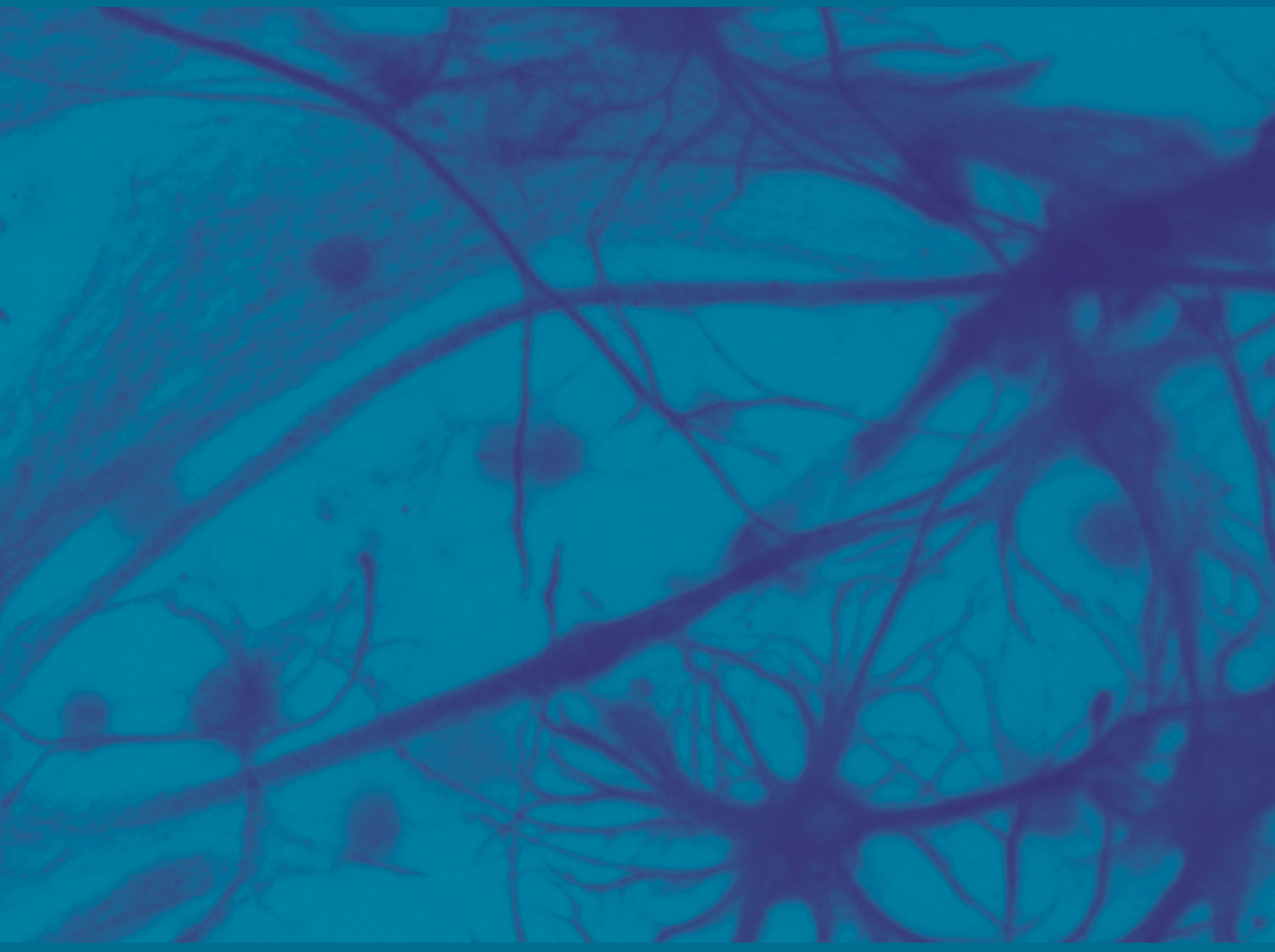
NYU Langone Health

Psychiatry

Adult Psychiatry | Child & Adolescent Psychiatry

2017 YEAR IN REVIEW



162,955
OUTPATIENT VISITS IN 2017

836
FACULTY MEMBERS

99
RESIDENTS & FELLOWS

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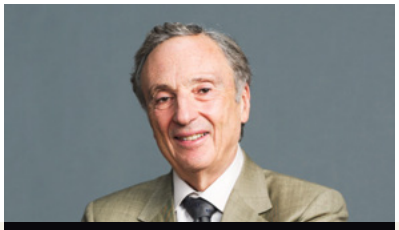
On the cover: Brain cells

MESSAGE FROM THE CHAIRS

Dear Colleagues and Friends:



CHARLES R. MARMAR, MD

Lucius N. Littauer Professor of Psychiatry

Chair, Department of Psychiatry

Director, Cohen Veterans Center

HELEN L. EGGER, MD

Arnold Simon Professor of Child and Adolescent Psychiatry

Chair, Department of Child and Adolescent Psychiatry

Director, Child Study Center

NYU Langone Health's Departments of Psychiatry and Child and Adolescent Psychiatry share a heritage of innovation and excellence that stretches back to the beginning of modern psychiatric medicine more than a century ago.

Today, we continue to build on that heritage with trailblazing research, state-of-the-art care, and residency and specialty training programs that are consistently ranked among the top in the United States.

Our translational research brings neuroimaging, genetics, population science, and digital health approaches together to advance our understanding of the causes, course, and treatment of mental health and developmental disorders from infancy to late adult life. Investigators are shedding new light on disorders of mood, attention, cognition, addiction, and development. We are global leaders in the study of trauma, spearheading a consortium of research centers in the hunt for biomarkers of PTSD in combat veterans. Our experts in child and adolescent psychiatry are implementing trauma-informed care throughout the New York City juvenile justice system and developing models for such programs nationwide.

In 2017, our researchers published landmark studies on the long-term effects of antipsychotic drugs and the biochemical links between sleep disorders and Alzheimer's disease. We discovered previously undetected neural commonalities in children with autism and those with ADHD and pioneered novel therapies for adult treatment-resistant depression and PTSD-related alcohol abuse. To accelerate our pursuit of such breakthroughs, we hired an array of outstanding faculty.

Improving access to care has always been central to our mission. We provide integrated, team-based treatment to patients with complex medical conditions and to patients facing challenges such as poverty, substance abuse, or homelessness. Our tele-psychiatry programs bring mental health services to underserved populations. We collaborate with local and global policymakers, schools, social service agencies, and other academic and community partners. We are one of only two U.S. academic medical centers with a department dedicated to child and adolescent mental health.

Our vision is a world in which families and communities everywhere have access to the knowledge and resources they need to support the mental health of all children and adults.

FACTS & FIGURES

Adult, Child & Adolescent Psychiatry

PATIENT VOLUME

162,955
OUTPATIENT VISITS ANNUALLY*

7,852
CONSULTATION-LIAISON CONSULTS*

1,569
INPATIENT DISCHARGES*

15,628
SCHOOL-BASED VISITS ANNUALLY

FACULTY, RESIDENTS & FELLOWS

836
FACULTY MEMBERS**

99
RESIDENTS & FELLOWS

EDUCATION

#3
IN RESEARCH CONTRIBUTIONS
from psychiatry residency graduates (last 12 years)

#8
IN REPUTATION FOR QUALITY
of clinical training in psychiatry residency

RESEARCH & FUNDING

341
SCIENTIFIC PUBLICATIONS

$24.7M
IN FY17 NIH GRANTS

$28.9M
IN FY17 TOTAL RESEARCH FUNDING

PUBLIC PROGRAMS

12,200+
COMMUNITY MEMBERS EDUCATED
through Child Study Center workshops and webinars

ACCOLADES

Birthplace
OF AMERICAN PSYCHIATRY
NYU School of Medicine is home to two of the largest and most respected departments of psychiatry and child and adolescent psychiatry in the country and is widely considered to be the "birthplace of American psychiatry."

High Performing
IN *U.S. NEWS & WORLD REPORT*'S "BEST HOSPITALS"

Numbers represent FY17 (Sept 2016–Aug 2017) unless otherwise noted
*Includes NYU Langone Hospital—Brooklyn
**Includes voluntary faculty

NYU Langone Health

View of NYU Langone Health's main Manhattan campus, including renderings of the new Science Building (left) and the Helen L. and Martin S. Kimmel Pavilion (right), both set to open in 2018.
(Image credit: Ennead Architects)

BEST HOSPITALS U.S.News & World Report HONOR ROLL 2017-18

#19

IN THE NATION

and nationally ranked in 12 specialties: Rehabilitation, Orthopedics, Rheumatology, Neurology & Neurosurgery, Geriatrics, Urology, Cardiology & Heart Surgery, Gastroenterology & GI Surgery, Diabetes & Endocrinology, Pulmonology, Cancer, and Nephrology

BEST GRAD SCHOOLS U.S.News & World Report MEDICAL RESEARCH 2018

#12

IN THE NATION
BEST MEDICAL SCHOOLS FOR RESEARCH

and a leader in innovation in medical education, including accelerated pathways to the MD degree

Bernard A Birnbaum, MD Quality Leadership Award 2017 Winner vizient

Leader

IN QUALITY CARE AND PATIENT SAFETY

For the past four years, NYU Langone has received top rankings for overall patient safety and quality of care from Vizient, Inc., formerly the University HealthSystem Consortium. In 2017, NYU Langone received two significant awards from Vizient—the Bernard A. Birnbaum, MD, Quality Leadership Award and the Ambulatory Care Quality and Accountability Award for demonstrated excellence in delivering high-quality, patient-centered outpatient care.

5 Star Rating

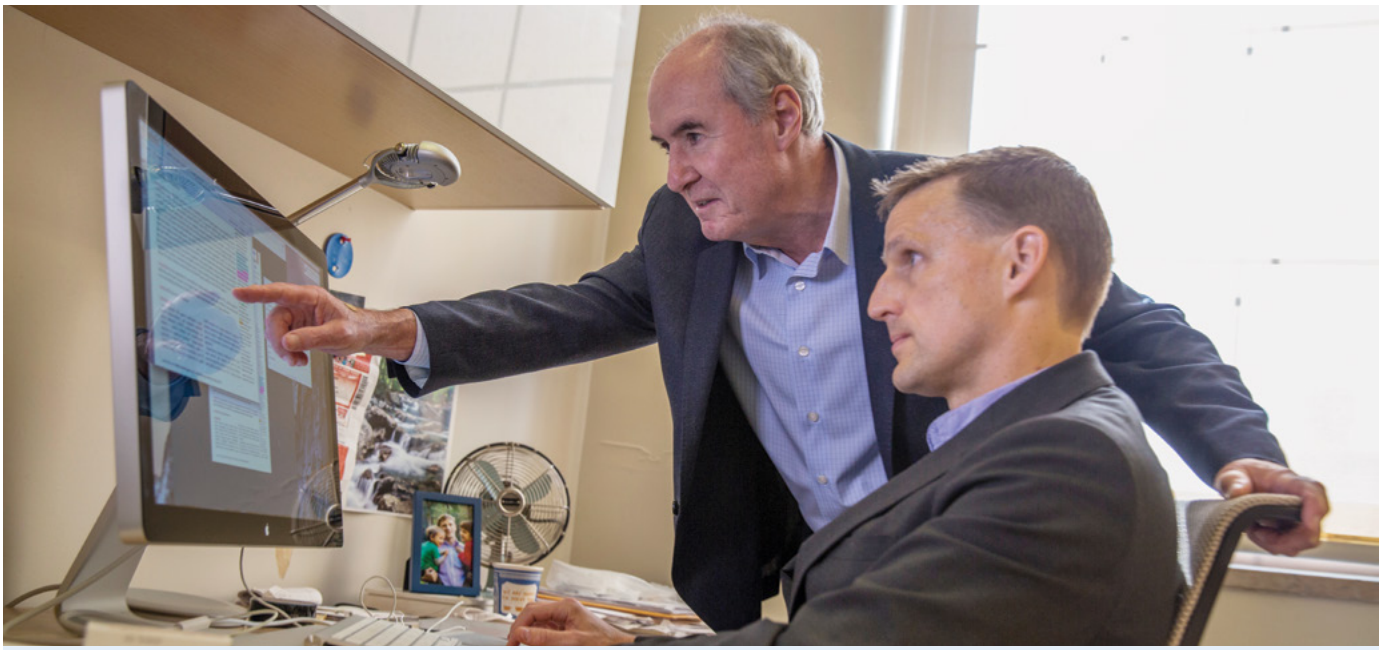
FROM CMS HOSPITAL COMPARE

NYU Langone Health is the only full-service hospital in New York State and one of 9 percent of hospitals nationwide to receive a five-star rating from the Centers for Medicare and Medicaid Services (CMS). The rating reflects overall safety, quality, and patient experience.

2017 IN BRIEF

Transforming the Future of Psychiatric Medicine

John Rotrosen, MD, and Joshua D. Lee, MD, MSc



Study Compares Treatments to Address a National Epidemic

In 2016, more than 64,000 Americans died of drug overdoses, the vast majority involving opioids. Interventions are critical, and medications are considered the most effective opioid use disorder treatments. But there is a wide gap between those who could benefit and those who are treated, and there is no comparative research on existing office-based therapies—the partial agonist buprenorphine and the antagonist naltrexone—and hence, controversy and misconceptions about best practices abound. To address this problem, NYU Langone Health researchers John Rotrosen, MD, professor of psychiatry, and Joshua D. Lee, MD, MSc, associate professor of population health and medicine, led an eight-site National Institute on Drug Abuse–supported team in a major study, published in *The Lancet* in November 2017.

Opioid agonist and antagonist approaches are pharmacologically and conceptually distinct: Agonists activate receptors, produce opioid effects, and maintain physical dependence; antagonists block receptors, prevent opioid effects, and eliminate dependence. These drugs also differ in withdrawal symptoms, abuse and diversion risks, prescribing restrictions, and community acceptance. Antagonists cannot be started until patients are fully opioid-free for at least several days without precipitation of withdrawal, an "induction hurdle" that limits use.

The 24-week randomized, open-label trial followed 570 opioid-dependent adults assigned to sublingual buprenorphine or injectable extended-release naltrexone. As expected, fewer patients assigned to naltrexone were successfully inducted, many of them dropping out of detoxification before becoming opioid-free. For the 474 participants who were able to initiate treatment, the study found that the two medications were equally safe and effective in preventing relapse.

"Patients, families, and providers now have compelling and consistent data, from this and a smaller, concurrent Norwegian trial, to inform complex treatment choices involving personal preferences, risks, and long-term outcomes," says Dr. Rotrosen. "Future articles from this study will describe genetic and other predictors of outcome, costs, and cost-effectiveness."

Researchers Update Adult ADHD Screening Scale to Meet New *DSM-5* Standard

To align screening for adult attention deficit hyperactivity disorder (ADHD) with expanded *Diagnostic and Statistical Manual of Mental Disorders* criteria, Lenard A. Adler, MD, professor of psychiatry and child and adolescent psychiatry and director of the Adult ADHD Program at NYU Langone, has developed an updated electronic screening tool. Dr. Adler and Ronald C. Kessler, PhD, the McNeil Family Professor of Health Care Policy at Harvard Medical School, created the new, six-question scale based on machine-learning algorithms they developed and tested.

In the early 2000s, Dr. Adler helped create the World Health Organization ADHD Self-Report Scale (ASRS-V1.1)—the first screener for ADHD in adults and still the most widely used. Over the past decade, this ADHD screening tool has been used in community, workplace, and primary care settings. However, this scale was calibrated using *DSM-IV* criteria, which was narrower than the criteria in the recently introduced *DSM-5*. Dr. Adler's update, the first based on the new standards, was used to analyze responses to the ASRS from approximately 200 adults who had been diagnosed with ADHD according to *DSM-5* criteria. The NYU Langone study, published in *JAMA Psychiatry* in May 2017, found that the new scale detected the vast majority of adult ADHD cases studied, with high sensitivity and specificity.

Dr. Adler and his colleagues will soon introduce an online version of the screener, which will be accessible to patients via a dedicated website. They are also developing an app for iPhones and iPads. "Our hope is that the new screener will help identify adults who have undiagnosed ADHD," says Dr. Adler, "so that they can receive a full diagnosis and treatment."

Lenard A. Adler, MD

Autism: Identifying Biomarkers and Improving Inpatient Treatment

A new study from NYU Langone's Child Study Center points to possible biomarkers that could lead to more precise diagnosis and treatment of autism spectrum disorder (ASD) and its common comorbidity attention deficit hyperactivity disorder.

The study, led by Adriana Di Martino, MD, associate professor of child and adolescent psychiatry and research director of the Autism Spectrum Disorder Clinical and Research Program at the Child Study Center, and published in *JAMA Psychiatry*, was the first to investigate whether symptoms that co-occur across both diagnoses arise from shared structural abnormalities in the brain.

Separately, at the Bellevue Hospital Center Children's Comprehensive Psychiatric Emergency Program, a team co-led by Sarah Kuriakose, PhD, clinical assistant professor of child and adolescent psychiatry, and Beryl J. Filton, PhD, clinical assistant professor of child and adolescent psychiatry, has implemented the nation's first clinical pathway for managing children with ASD and/or intellectual disability in a general inpatient psychiatric unit.

Read more on **PAGE 11**

New

6-question ADHD scale

leads to enhanced digital screening for adults

Grant Expands Early Childhood Program in Brooklyn

A grant awarded to the Family Health Centers at NYU Langone in August 2017 will help expand the reach of an early childhood development program in and beyond one of Brooklyn's most impoverished and culturally diverse neighborhoods. The Department of Child and Adolescent Psychiatry and the Department of Pediatrics will co-lead this new initiative.

The 15-month, $150,000 grant from the New York State Office of Mental Health and the Robin Hood Foundation, with support from the nonprofit foundation ZERO TO THREE and Montefiore Medical Center, will enable the Healthy Steps Program at NYU Langone's Sunset Park Family Health Center to provide care to 200 more families. In addition to augmenting services at Sunset Park, most of whose nearly 5,000 patients under age five are Latino, the initiative will establish a site at the Seventh Avenue Family Health Center, whose 1,200 young patients are predominantly Chinese American.

Healthy Steps, an evidence-based, interdisciplinary pediatric program developed by ZERO TO THREE, has more than 100 sites in 15 states. The program fosters babies' and toddlers' mental and physical health by connecting families with child development specialists, now part of the primary care team. The specialists augment well-child visits with additional screening, referrals, home visits, and developmental resources supporting feeding, behavior, sleep, attachment, and social determinants of health.

Data collected through the initiative will be used to help optimize screening, assessment, and interventions for all pediatric patients. "Our goal is to build a network of sites across NYU Langone Health that can serve as a model for innovative research programs nationwide," says Ron-Li Liaw, MD, clinical associate professor of child and adolescent psychiatry, director of the Center for Child and Family Resilience of the Sala Institute for Child and Family Centered Care, and co-director of the Child and Adolescent Psychiatry Consultation-Liaison Service.

In Sunset Park, Healthy Steps is overseen by Kathleen Hopkins, senior vice president of Community Based Programs at NYU Langone Hospital—Brooklyn, in collaboration with medical director Iman Sharif, MD, clinical professor of pediatrics, and pediatrician Angela Ng, MD. Both sites will be integrated with NYU Langone's electronic records system, Epic, and will connect with the NYU Langone network via telehealth technology. Helen L. Egger, MD, the Arnold Simon Professor of Child and Adolescent Psychiatry, chair of the Department of Child and Adolescent Psychiatry, and director of the Child Study Center, will play a leading role in the collaboration on the evaluation and expansion of Healthy Steps.

Ron-Li Liaw, MD

Novel Approaches to Treatment-Resistant Depression

Major depressive disorder (MDD) is a leading cause of disability in the United States, with complications ranging from substance abuse to suicide—and existing medications fail to help as many as one-third of all patients. Dan Iosifescu, MD, MMSc, associate professor of psychiatry at NYU Langone and director of clinical research at the Nathan S. Klein Institute for Psychiatric Research, is spearheading the search for therapies to control treatment-resistant MDD.

Along with novel medications such as the anesthetic ketamine, candidates include emerging neuromodulation techniques such as transcranial magnetic stimulation and transcranial photobiomodulation, as well as combinations of these therapies with antidepressants, atypical antipsychotics, and other drugs.

Read more on **PAGE 13**

Finding Better Ways to Treat Childhood Trauma

An estimated 90 percent of juveniles in secure detention have experienced trauma—from physical and sexual abuse to community violence—often leading to anger, depression, and challenging behaviors. New York City's two secure juvenile detention centers are screening youths for trauma, delivering evidence-based psychiatric and psychotherapeutic interventions, and providing training to both youths and staff to mitigate the effects of trauma.

The project—with systems change efforts led by Michael P. Surko, PhD, clinical assistant professor of child and adolescent psychiatry and director of Juvenile Justice Psychology at NYC Health + Hospitals/Bellevue, and clinical services led by Frank Tedeschi, MD, clinical assistant professor of child and adolescent psychiatry and medical director of Juvenile Justice Psychiatry at Bellevue—was one of few like it in the nation when it launched in 2012. To gauge the project's impact on outcomes such as violent incidents and mental health utilization, researchers are analyzing data collected over a four-year period.

At the same time, Christopher E. Branson, PhD, assistant professor of child and adolescent psychiatry, is leading the first-ever National Institutes of Health-funded study of trauma-informed care in juvenile justice. Dr. Branson and colleagues are teaching the Trauma Affect Regulation: Guide for Education and Therapy curriculum to the staff of juvenile justice agencies throughout the city. The goal is to create effective models of trauma-informed care that can be used in New York City agencies and in agencies nationwide.

Read more on **PAGE 15**

Data was collected on

2,400 youths

during 4-year Substance Abuse and Mental Health Services Administration grant

Tracing Substance Use in Youth with Manic Symptoms

Research led by Sarah McCue Horwitz, PhD, professor of child and adolescent psychiatry, sheds new light on the connection between substance use disorders (SUDs) and manic symptoms in adolescents. A considerable body of evidence suggests that youth and adults with bipolar spectrum disorders (BPSDs) are at elevated risk for developing SUDs and that the comorbidity of the two disorders fuels medication nonadherence and poor functional outcomes. Yet little was previously known about the risk and the prevalence of SUDs among adolescents who have manic symptoms but who do not meet the criteria for BPSD.

In their study, published in February 2017 in the *Journal of the American Academy of Child & Adolescent Psychiatry*, Dr. Horwitz's team enrolled 707 children (88 percent with elevated symptoms of mania) and followed 685 of these children for six years. Among subjects who were aged nine years or older at baseline, 34.9 percent used alcohol at least once, with 11.9 percent being regular users; 30.1 percent used drugs at least once, with 16.2 percent being regular users. Predictors of regular alcohol use included sustained high mania symptoms over the first 24 months of the study, parental marital status other than married biological parents, and older age. Predictors of regular drug use included parental marital status, stressful child life events, and a baseline disruptive behavior disorder diagnosis. Baseline medications decreased the risk of regular drug use. "These findings argue strongly for targeted attention to the family environments of dysregulated children as a means of preventing the development of substance use," notes Dr. Horwitz.

Post-Traumatic Stress Disorder: Diagnostic and Treatment Advances

An estimated 24 million Americans—8 percent of the population—suffer from post-traumatic stress disorder (PTSD). But those afflicted often downplay their symptoms, resulting in significant underdiagnosis. Charles R. Marmar, MD, the Lucius N. Littauer Professor of Psychiatry, chair of the Department of Psychiatry, and principal investigator in the PTSD Systems Biology Consortium, a multicenter research collaboration funded by the U.S. Department of Defense, is a leader in the hunt for biomarkers that could aid in screening and diagnosing PTSD.

In 2017, NYU Langone researchers received two grants from the National Institute on Alcohol Abuse and Alcoholism to investigate cannabidiol (CBD), a non-psychoactive chemical component of marijuana, for treating alcohol use disorder in patients with and without PTSD. Studies supported by these grants, one led by Dr. Marmar and the other by Michael P. Bogenschutz, MD, professor of psychiatry, will be the first of their kind to explore the effects of CBD on patients with either disorder.

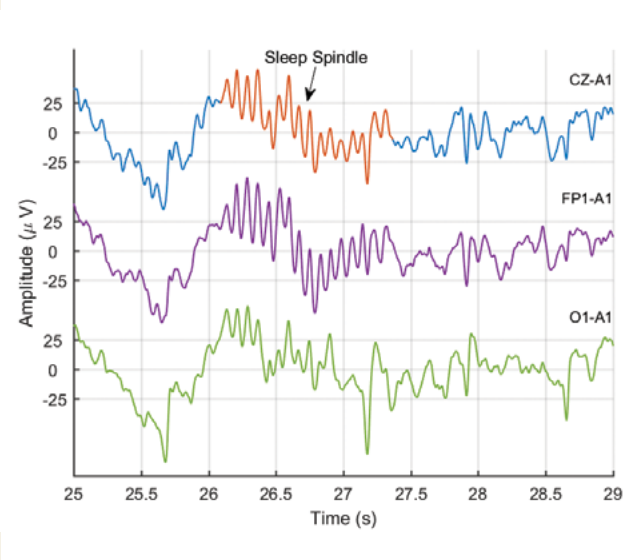
Read more on **PAGE 17**

Addressing the Mental Health of Medically Complex Patients

For patients with complex medical problems, mental health issues can add to the challenges of care. At NYU Langone Health, a new initiative enables the adult inpatient psychiatry unit to treat these patients, who might be turned away from such units at hospitals lacking the equipment and expertise to care for them. Similarly, at the Fink Children's Ambulatory Care Center, part of Hassenfeld Children's Hospital, a multidisciplinary Pediatric Integrated Behavioral Health Team—under the direction of NYU Langone's Child and Adolescent Psychiatry Consultation-Liaison Service—addresses the mental health needs of children receiving cardiology, endocrinology, pulmonology, and other outpatient services.

For many of these patients, psychological difficulties result from the stresses of coping with a chronic illness; for others, psychiatric disorders exist independently of other illness. Either way, treating their mental health issues may be key to improving their physical health. The mental health experts at NYU Langone treat more than 1,000 complex medically ill patients annually.

Read more on **PAGE 19**



Sleep spindle on the central EEG channel, in stage 2 of NREM sleep across the central, frontal and occipital regions of the brain

Exploring the Links Between Sleep and Alzheimer's Disease

Groundbreaking research led by Ricardo M. Osorio Suarez, MD, research assistant professor of psychiatry at NYU Langone's Center for Brain Health, suggests that improving sleep quality may be key to preventing Alzheimer's disease. The study, presented at the 2017 Alzheimer's Association International Conference, showed a link between cortical sleep spindles—distinctive brainwave patterns found during stages 2 and 3 non-REM sleep—and tau proteins, which form the neurofibrillary tangles associated with the disease. Among the study's 40 healthy subjects aged 53 to 83, Dr. Osorio's team found that levels of tau in cerebrospinal fluid rose as spindle count decreased.

"Tau pathology distribution corresponds better with Alzheimer's symptoms than amyloid-beta plaques, and since sleep spindles are implicated in sleep-dependent memory consolidation, this could be one of the mechanisms by which tau pathology disrupts memory and directly affects the course of the disease," Dr. Osorio explains. He notes that sleep spindles, associated with memory processing and neuro-plasticity, are known to decline with age and that further research will help determine whether the reduction in spindles drives the increase in tau proteins, or vice versa.

App Will Advance the Science of Picky Eating in Children

How do we tell the difference between typical picky eating and extreme versions that can affect a child's physical and social development? To answer this question, the Ambulatory Product Research and Innovation Lab (APRIL) and the Innovation Lab in the Department of Child and Adolescent Psychiatry are creating an app that will assess picky eating, provide individualized advice to parents, and advance the clinical science of eating challenges in early childhood.

Expected to be released this spring, the app will use questionnaires, games, and video facial recognition technology to gather data about children's food preferences and emotions around eating. Artificial intelligence will be used to interpret findings to help provide parents with evidence-based advice on their children's behaviors compared with other children's, suggestions on how to broaden their children's tastes, and information on finding help if needed. Parents can use this smartphone app with their children at home.

The Picky Eating app will be the first part of a larger digital platform called When to Worry, which will contain apps for temper tantrums, anxiety, sleep problems, and hyperactivity. The multidisciplinary APRIL and Department of Child and Adolescent Psychiatry team are designing a platform that will be accessible, affordable, and scalable, with a national and global reach. "We seek to transform how, when, and where we identify and address mental health and developmental challenges in young children through innovative technology and data science," says Helen L. Egger, MD, the Arnold Simon Professor of Child and Adolescent Psychiatry, chair of the Department of Child and Adolescent Psychiatry, and director of the Child Study Center.

Co-leader of the Innovation Lab, Timothy L. Verduin, PhD, clinical assistant professor of child and adolescent psychiatry and clinical director of the ADHD and Behavioral Disorders Service, notes, "By creating apps that are beautiful and fun to use, we can engage parents and children in research that will not only improve treatment, but also extend the benefits of NYU Langone's child mental health knowledge globally."

Timothy L. Verduin, PhD

Schizophrenia: New Findings Inform Treatment

Donald C. Goff, MD, the Marvin Stern Professor of Psychiatry and vice chair for research in the Department of Psychiatry, is at the forefront of efforts to more fully assess the risks and benefits of antipsychotics to treat schizophrenia, while developing improved treatments. In two recently completed studies, he and his colleagues uncovered evidence that untreated psychosis may injure the brain and that blood biomarkers that are associated with brain volume loss may guide personalized treatments to protect the brain. His work also suggests that standard medications are safe and effective for most patients—and may even have neuroprotective effects for some. Yet the question of whether antipsychotics may be toxic for certain subgroups, Dr. Goff cautions, remains unresolved.

Read more on **PAGE 21**

Telepsychiatry Expands Mental Health Access to Children in Underserved Communities

The persistent shortage of mental health providers in the United States creates access challenges for children who need care. To mitigate this problem, NYU Langone Health's Child Study Center has partnered with rural New York psychiatric facilities and school-based programs to expand telepsychiatry—which connects patients to remote clinicians via live interactive videoconferencing—to children in local communities. In July 2017, Shabana Khan, MD, assistant professor of child and adolescent psychiatry, joined the Child Study Center faculty as director of Child and Adolescent Telepsychiatry to help drive expansion of the program.

Dr. Khan has led an effort to launch telepsychiatry services at NYU Langone Hospital—Brooklyn Family Health Centers in order to provide psychiatric assessment and treatment through videoconferencing to underserved urban communities, starting with programs in two public schools in Brooklyn's Sunset Park neighborhood, with plans to expand nationally in rural and urban communities.

Read more on **PAGE 23**

2017 IN DEPTH

Spotlight on Innovative Clinical Care and Research Advancements

Helen L. Egger, MD, and Charles R. Marmar, MD

Tracing the Neural Links Between Autism and ADHD

Attention deficit hyperactivity disorder (ADHD), one of the most frequent comorbidities of autism spectrum disorder (ASD), can further compromise a child's ability to function in a classroom or other social settings. Although imaging studies have shown structural differences between the brains of children with either disorder and those of typical controls, few studies have compared the brains of children with ASD to the brains of children with ADHD—and only one has examined whether symptoms that co-occur across diagnoses arise from shared structural abnormalities.

That study, published in September 2017 in *JAMA Psychiatry*, was led by Adriana Di Martino, MD, associate professor of child and adolescent psychiatry and research director of the Autism Spectrum Disorder Clinical and Research Program at NYU Langone's Child Study Center. "To find better treatments for patients with complex presentations, we must uncover the neural correlates of clinical symptoms," explains Dr. Di Martino, a pioneer in the use of innovative imaging approaches to neurodevelopmental disorders. "Instead of focusing on ASD and ADHD as categorically distinct, we need to think of each of their domains in a continuum—with some patients more impaired by autistic symptoms than by ADHD symptoms and vice versa. If we can identify biomarkers for the type of symptom and its severity, we can then develop more precisely targeted interventions for children in both diagnostic groups."

In the study, Dr. Di Martino and colleagues used diffusion tensor imaging—which visualizes neural connectivity by measuring the diffusion of water molecules in white matter—to scan the brains of 69 children with ASD, 55 with ADHD, and 50 typically developing controls. Regardless of the child's diagnosis, the team found associations between the ASD symptom severity and abnormalities in white matter organization—particularly in the corpus callosum, the bundle of nerve fibers that connect the brain's hemispheres. The total severity of ADHD traits was not associated with white matter metrics.

But when the team further analyzed the results, separating out hyperactivity from inattentive traits, they found evidence of a white matter correlation for the inattentive symptoms—again, a finding that transcended diagnosis.

These findings, Dr. Di Martino notes, point to promising avenues for further exploration. "Larger studies will help to uncover the relationships between the structural anomalies and children's symptoms, and the mechanisms involved," she explains. "Eventually, we hope to find proxies for these neurological patterns—perhaps using eye-tracking measurements or other inexpensive tests—so clinicians can make nuanced assessments without resorting to an MRI."

Adriana Di Martino, MD, and Sarah Kuriakose, PhD

NEW AUTISM CLINICAL PATHWAY DESIGNED TO IMPROVE CARE

An estimated 10,000 children and adolescents affected by severe forms of ASD and/or intellectual disability (ASD/ID) are hospitalized psychiatrically each year for dangerous, self-injurious, or aggressive behavior.

In a busy medical center, sensory processing, communication, and social difficulties can lead to staff injuries, excessive medication, and prolonged hospital stays, explains Sarah Kuriakose, PhD, clinical assistant professor of child and adolescent psychiatry and clinical director of the ASD Clinical and Research Program at NYU Langone's Child Study Center. "Many hospitals cannot accommodate the needs of children with ASD/ID, but we're helping to provide the tools needed to manage these patients," she says.

Three years ago, Dr. Kuriakose, Beryl J. Filton, PhD, clinical assistant professor of child and adolescent psychiatry, and colleagues at the Child Study Center, part of Hassenfeld Children's Hospital, joined with NYU Langone's Child and Adolescent Psychiatry faculty based at NYC Health + Hospitals/Bellevue, which operates the only Children's Comprehensive Psychiatric Emergency Program (C-CPEP) in New York State. Together they devised the nation's first clinical pathway to manage children with ASD/ID in a general inpatient psychiatric unit.

9-day decrease

in length of stay since implementation of new clinical pathway

The pathway follows patients from intake at the C-CPEP—where caregivers complete a questionnaire detailing the child's behavioral triggers, including stimuli that upset or calm the child—through discharge to outpatient units. Admissions information goes into each child's binder, to which visual representations of daily tasks can be attached. To harness the proven benefits of physical exercise, children are given "motor breaks" every two hours, and staff carry a "coping card" with techniques to defuse meltdowns. Developmentally appropriate activities and supporting materials are also introduced in the units. At discharge, caregivers receive copies of these materials and a verbal debriefing, to prevent incidents that could lead to readmission.

Data from the pathway's first 18 months were presented at the 2017 American Academy of Child & Adolescent Psychiatry Annual Meeting. Compared with the 18 months prior to implementation, use of restraints and seclusions declined significantly, as did total length of stay, from a mean of 22 days to 13 days.

Less easily measured, but equally important, has been the pathway's effect on staff. "The entire attitude toward children with autism has changed," reports Dr. Kuriakose. "Now, there's an understanding that these are great kids; we just need the tools to help them."

Other hospitals have begun to adopt the pathway. In May 2017, Dr. Kuriakose, Dr. Filton, and colleagues helped roll out a program at NYC Health + Hospitals/Elmhurst, training frontline staff in the psychiatric emergency department and inpatient psychiatric units. A modified version will be implemented in 2018 at the Children's Center, a residence for children awaiting foster placement operated by the New York City Administration for Children's Services, and additional partnerships across the nation are planned.

Finding Solutions When Depression Resists Medical Treatment

According to the National Institute of Mental Health, major depressive disorder (MDD) affects more than 16 million American adults in a given year.

It is the leading cause of disability among individuals ages 15 to 44, and it can bring potential complications including substance abuse, cardiovascular disease, and suicide. Although numerous medications are available for MDD, up to a third of patients are considered treatment-resistant after trying at least two approved therapies for at least eight weeks without experiencing improvement.

"This is a very significant problem, in terms of both the functional abilities of affected individuals and the burden it places on the people around them," observes Dan Iosifescu, MD, MMSc, associate professor of psychiatry and director of clinical research at the NYU Langone Health–affiliated Nathan S. Kline Institute for Psychiatric Research. Dr. Iosifescu, who joined the NYU Langone faculty in March 2017, is leading groundbreaking research on novel MDD therapies, some of which bear little resemblance to previous generations of antidepressants.

The best known of these novel therapies may be ketamine, a common anesthetic that is also used as an illicit street drug. Over the past five years, a growing body of research has demonstrated that low doses of ketamine, administered via intravenous or intranasal infusion, can alleviate symptoms in many patients with treatment-resistant MDD. Although its precise mechanism of action remains unclear, ketamine is known to partially block N-methyl-D-aspartate receptors, which bind to the neurotransmitter glutamate. "Ketamine works much faster than conventional antidepressants—within hours, rather than weeks," Dr. Iosifescu notes. "That can be lifesaving for a patient with suicidal impulses."

As evidence of the effectiveness of ketamine mounts, clinicians are increasingly administering it off-label to patients with resistant MDD. Nonetheless, Dr. Iosifescu cautions that the drug is not a panacea. One major caveat is that its effects tend to be short-lived, tapering off after a few days. Another is that heavy use of ketamine has been associated with a form of brain damage known as Olney's lesions in lab animals—and, in one 2013 study, in humans. The long-term side effects of multiple repeats of current therapeutic doses are unknown.

ATYPICAL ANTIPSYCHOTIC MAY PROLONG THE BENEFITS OF KETAMINE

Dr. Iosifescu is researching treatments that can prolong ketamine's beneficial effects, allowing for less-frequent use. One promising candidate is brexpiprazole, an atypical antipsychotic, which has already been approved by the Food and Drug Administration (FDA) as an adjunctive treatment with standard antidepressants. At the Nathan S. Kline Institute, Dr. Iosifescu is leading trials of brexpiprazole in combination with intranasal ketamine, as part of a five-site study in subjects with treatment-resistant MDD.

Dan Iosifescu, MD, MMSc

"Over the past five years, a growing body of research has demonstrated that low doses of ketamine, administered via intravenous or intranasal infusion, can alleviate symptoms in many patients with treatment-resistant MDD."

—Dan Iosifescu, MD, MMSc

MAPPING THE MALE AND FEMALE BRAIN CENTERS OF SEX AND AGGRESSION

Brain structures that control sexual and aggressive behaviors in mice are wired differently in females than in males, according to a study led by Dayu Lin, PhD, assistant professor of psychiatry and of neuroscience and physiology at NYU Langone Health's Neuroscience Institute. In an article published in September 2017 in *Nature Neuroscience*, the researchers reported that although aggression control resides in the same brain region in female and male mice, certain groups of neurons in that region are organized differently in females and males.

The region in question is the ventrolateral part of the ventromedial hypothalamus (VMHvl), an area on the underside of the hypothalamus that Dr. Lin's team identified as a key aggression center in male mice during a landmark 2011 study. The current study monitored the neural activity of both sexes during fights with mice that entered their boxed space and during mating. In male mice, a widely distributed group of cells fired during both activities; in females, cells in the center of the VMHvl fired during fights, whereas cells along the borders of the VMHvl fired during mating.

"Our study furthers the understanding of how aggression differs in male and female brains," Dr. Lin observes. "Such research is a fundamental step toward the development of drugs that treat pathological aggression in humans."

Dayu Lin, PhD

Also under investigation are neuromodulation treatments, which employ various forms of electromagnetic energy to elicit changes in brain circuit activity. A familiar example is electroconvulsive therapy (ECT), used for decades on patients with MDD and other serious mental disorders. Because ECT works by inducing a seizure and carries a risk of adverse cognitive effects, it is used only after multiple other treatments have been unsuccessful.

In transcranial magnetic stimulation (TMS), a newer and gentler form of neuromodulation, a magnetic coil placed on the patient's scalp near the forehead stimulates small regions of the brain—for MDD, the region is the dorsolateral prefrontal cortex. Although repetitive TMS for treatment-resistant MDD was approved by the FDA in 2008, its efficacy has not been compared with that of other antidepressants. At NYU Langone, Dr. Iosifescu is leading a randomized, open-label effectiveness study, part of a multisite project funded by the Patient-Centered Outcomes Research Institute, testing TMS against two pharmacological treatments: the atypical antipsychotic aripiprazole as an add-on therapy to standard antidepressants and the serotonin-norepinephrine reuptake inhibitor venlafaxine as monotherapy.

BATTLING DEPRESSION WITH LASERS

Transcranial photobiomodulation, another form of neuromodulation, uses low-energy lasers to transmit near-infrared light through the skull into the brain. An emerging technique used to promote healing in various parts of the body, photobiomodulation is believed to work by stimulating activity in mitochondria, boosting cellular energy production. In collaboration with researchers led by Paolo Cassano, MD, PhD, a psychiatrist at Massachusetts General Hospital, Dr. Iosifescu's Nathan S. Kline Institute team is testing the therapy's efficacy for treatment-resistant MDD in a randomized, double-blind study of approximately 50 subjects.

"For a large number of patients, the standard treatments for MDD are ineffective," says Dr. Iosifescu. "By rigorously investigating new techniques and enhancing established ones, we hope to provide a new slate of options for these patients."

Making Detention Facilities Healthier for Traumatized Children

On any given day, New York City's two secure juvenile detention centers, Crossroads Juvenile Center in Brooklyn and Horizon Juvenile Center in the Bronx, each hold as many as 50 youths who have been arrested and detained; some of these youths spend weeks awaiting trial or sentencing, and a few remain for longer periods.

An estimated 90 percent of juveniles in secure detention have suffered trauma—from physical and sexual abuse to community violence—and many display resulting depression, anger, and challenging behaviors. NYU Langone Health, NYC Health + Hospitals/Bellevue Juvenile Justice Mental Health Service, and the New York City Administration for Children's Services formed an innovative partnership to help these youths heal.

The collaboration began in 2012 with support from the Substance Abuse and Mental Health Services Administration, which helped to establish the National Child Traumatic Stress Network (NCTSN) Community Treatment and Services Center. At the time, the project was one of only a few in the nation to implement trauma-informed practices in a secure juvenile detention system.

Christopher E. Branson, PhD

The program began with screening youths entering detention for trauma, teaching youths about trauma and managing post-traumatic reactions, and training frontline staff in dealing effectively with traumatized youths. In October 2014, the collaboration was extended to include direct clinical care when Bellevue assumed responsibility for psychiatry and psychology in New York City juvenile detention.

And most recently, in October 2016, the collaboration began a second, five-year NCTSN Community Treatment and Services Center grant, led by Michael P. Surko, PhD, clinical assistant professor of child and adolescent psychiatry and director of Juvenile Justice Psychology at Bellevue. During this grant cycle, partners will implement the evidence-based TARGET (Trauma Affect Regulation: Guide for Education and Therapy) curriculum. This intervention includes staff training in recognizing and mitigating stress reactions and secondary trauma and conducting trauma skills groups for both youths and families. Beyond the therapeutic goals of reduced trauma symptomatology, the project aims to increase prosocial coping among youths, build physical and emotional safety for youths and staff, increase staff members' job satisfaction, and reduce violence in the facilities.

"Children suffering from trauma, including clinical and subclinical PTSD, are often misdiagnosed with conduct disorder or bipolar disorder," says Frank Tedeschi, MD, clinical assistant professor of child and adolescent psychiatry and medical director of Juvenile Justice Psychiatry at Bellevue. "Many come to us with histories of the wrong kinds of treatment, including antipsychotic drugs. In addition to evaluations, individual therapy, medication management, and reports used at the next step of the justice pipeline, we provide them with skills needed to help them manage their post-traumatic symptoms."

The team of clinical and research faculty from NYU Langone and Bellevue, includes two full-time psychiatrists, one half-time psychiatrist, and five full-time psychologists, with master's-level clinicians from START Treatment & Recovery Centers providing coordinated services. The team is analyzing data collected on its work with 2,400 youths during the first four-year grant cycle, to better understand the youths' needs and gauge the project's effects on outcomes such as violent incidents and mental health utilization; preliminary results are expected later this year.

"Research shows that being traumatized as a child increases your risk of being arrested as an adolescent, and experiencing trauma in the justice system increases the likelihood that you will continue to offend as an adult."

—Christopher E. Branson, PhD

SPREADING TRAUMA-INFORMED CARE THROUGHOUT THE JUVENILE JUSTICE SYSTEM

Christopher E. Branson, PhD, assistant professor of child and adolescent psychiatry, is principal investigator of the first-ever National Institutes of Health (NIH)–funded study of trauma-informed care in juvenile justice. A clinical psychologist and a leading national expert on trauma in the juvenile justice system, Dr. Branson—a former juvenile offender himself—has provided training and consultation on trauma-informed practices to juvenile justice agencies in eight states.

The NIH study began in 2015, and since then Dr. Branson has taught the TARGET curriculum to more than 500 juvenile justice professionals from five New York City agencies, including the staff of the Rikers Island adolescent unit, all Department of Probation employees in Brooklyn, two adolescent diversion programs, and a juvenile drug court. Over the next five years, Dr. Branson and colleagues plan to spread the method to juvenile probation staff in the other four boroughs of New York City, as well as to staff at all city-operated secure and nonsecure juvenile detention sites. The team will collect quantitative and qualitative data to help illustrate what works and what does not work, explains Dr. Branson. "The immediate goal is to create evidence-based models of trauma-informed care for these types of settings. The longer-term goal is to spread this approach nationwide," he adds.

Dr. Branson has established a partnership with the Council of Juvenile Correctional Administrators to develop trauma-informed care policies in juvenile justice systems across the country. "Research shows that being traumatized as a child increases your risk of being arrested as an adolescent, and experiencing trauma in the justice system increases the likelihood that you will continue to offend as an adult," he says. "I want to give all of these kids the chance to turn their lives around like I did."

RENOWNED CHILD PSYCHIATRIST JOINS NYU LANGONE HEALTH

Daniel S. Schechter, MD, joined NYU Langone in January 2018 as the Barakett Associate Professor of Child and Adolescent Psychiatry and director of the Center for Stress, Trauma, and Resilience in the Department of Child and Adolescent Psychiatry.

Daniel S. Schechter, MD

An internationally recognized expert in early childhood stress and trauma, Dr. Schechter will develop a translational research, clinical, and educational program on infant and preschool mental health; the impact of trauma on young children; and the impact of parental trauma, stress, and mental health disorders on children's development. In addition, as medical director of Perinatal and Early Childhood Mental Health Services, he will partner with NYC Health + Hospitals/Bellevue and other affiliates to develop a strategic model to enhance multidisciplinary clinical care for children from infancy to kindergarten across all NYU Langone sites. He will connect the Department of Child and Adolescent Psychiatry's early childhood program with medical center–wide infant–maternal health initiatives, working side by side with the Departments of Pediatrics, Obstetrics and Gynecology, and Population Health, as well as with other programs, including the planned NYU Langone Autism Network. In his career before coming to NYU Langone, Dr. Schechter was adjunct assistant professor of psychiatry at Columbia University; director of Research in the Child Division of the Columbia University Center for Psychoanalytic Training and Research; and deputy chief of child and adolescent psychiatry, medical director of the Pediatric Consult-Liaison Unit, and director of Parent-Infant Research at the University of Geneva Hospitals in Geneva, Switzerland.

Two Grants Help to Research New Treatment for PTSD-Related Alcoholism

Alcohol use disorder (AUD) and post-traumatic stress disorder (PTSD) are among the most common and debilitating psychiatric ailments in the United States.

The two disorders are highly comorbid, with studies suggesting that 30 percent to 60 percent of individuals diagnosed with AUD have PTSD and 20 percent to 70 percent of individuals diagnosed with PTSD have AUD. One disorder appears to exacerbate the other, leading to higher mortality and impairment and to poorer response to treatment. Although several medications have been tested for AUD efficacy in patients with AUD/PTSD, none have progressed to a phase III trial.

Charles R. Marmar, MD

STUDY LOOKS AT CANNABIDIOL AS NEW TREATMENT OPTION

In September 2017, researchers at NYU Langone Health received a grant from the National Institute on Alcohol Abuse and Alcoholism (NIAAA) to investigate a promising new therapy for AUD in patients with PTSD: cannabidiol (CBD), one of the main chemical components of marijuana. CBD has been shown in animal and human trials to produce anxiolytic, anti-addictive, anti-inflammatory, and fear-extinction effects, with no evidence of toxicity. Intriguingly, threat-related amygdala arousal, a predictor of alcohol craving in PTSD patients, appears to be reduced by CBD, without the euphoria-inducing effects of marijuana's other main active ingredient, tetrahydrocannabinol (THC). Preclinical data suggest that CBD may also have longer-term effects in reducing alcohol craving, possibly related to increased hippocampal neurogenesis. "This is a remarkably complex drug with multiple actions affecting the brain and behavior," says the study's principal investigator, Charles R. Marmar, MD, the Lucius N. Littauer Professor of Psychiatry, chair of the Department of Psychiatry, and director of the Steven and Alexandra Cohen Veterans Center for the Study of Post-Traumatic Stress Disorder and Traumatic Brain Injury.

Dr. Marmar's double-blind study comparing CBD with placebo in 40 veterans and civilians with PTSD and AUD will be the first of its kind to explore the effects of CBD on subjects diagnosed with both disorders. Safety and tolerability, alcohol use and craving, and PTSD symptoms will be assessed at baseline and over six weeks of treatment. In another first of its kind NIAAA-funded study, principal investigator Michael P. Bogenschutz, MD, professor of psychiatry, will investigate the effects of CBD on patients with AUD alone.

Beyond CBD's potential effects on PTSD and AUD, Dr. Marmar notes, the drug also shows promise against neuropsychiatric disorders ranging from social anxiety and schizophrenia to epilepsy. "It's hard to think of another drug with as much potential across such a diverse array of neuropsychiatric problems," he says. "If CBD proves to be as good as it looks, it could be analogous to a steroid or a broad-spectrum antibiotic."

NYU Langone will also be conducting research using CBD to treat PTSD and traumatic brain injury, thanks to a generous grant from the Bank of America, received in 2017.

ADVANCING PTSD BIOMARKERS

Before PTSD can be treated, it must be diagnosed—a process that is not always easy. Military veterans and other first responders often underreport symptoms because of perceived stigma; in cases involving litigation, some individuals may exaggerate symptoms in pursuit of financial compensation. Thus, to improve diagnostic accuracy and precision, researchers around the world are searching for the disorder's biological markers.

Dr. Marmar is helping to spearhead these efforts as a principal investigator in the PTSD Systems Biology Consortium, a U.S. Department of Defense–funded collaboration involving seven academic and military research centers. Over the past five years, the consortium has collected blood and urine samples, anthropometric data, brain images, and cognitive assessments of 166 male combat veterans of the wars in Iraq and Afghanistan—83 subjects with PTSD and 83 healthy controls. The evidence is being analyzed by specialists in genetics, genomics, metabolomics, proteomics, neurobiology, and other disciplines, aided by experts in complex computation. "We have more than 1 million biological features on each subject," says Dr. Marmar, who heads the project's clinical and neurocognitive phenotype core, "so it should be no surprise that the informatics is extremely challenging."

The researchers have found several promising biomarkers, and initial candidates are expected to be submitted for FDA review in two to three years. Beyond their potential utility in screening and diagnosis, such markers may someday help to identify individuals at higher risk of PTSD, as well as to identify biological factors contributing to resilience, which could lead to rapid screening before, during, and after deployments and to new treatment targets.

NEW APP SEARCHES FOR PTSD IN VOICE PATTERNS

One key biomarker for PTSD may be alterations in vocal patterns. In 2017, Dr. Marmar and his colleagues completed the first study to test whether an automated, speech-based assessment can objectively identify PTSD in combat veterans.

The researchers worked with speech-recognition engineers at SRI International in Menlo Park, California—the company that contributed to Apple's Siri platform—using machine learning to analyze voice recordings of 56 veterans with PTSD and 81 healthy controls. Examining more than 40,000 features—including patterns of pitch, volume, rhythm, and intensity—the team found approximately 200 that distinguished subjects with PTSD from controls.

Once these findings are replicated and refined, they could enable the creation of smartphone apps to help screen for PTSD or clarify its diagnosis. "We're looking for the vocal equivalent of a fingerprint," says Dr. Marmar. "In the future, we believe that mental health providers will use vocal analysis in combination with other noninvasive clinical tests to assess many neuropsychiatric disorders more quickly, reliably, and cheaply than is currently possible."

ENLISTING EMERGENCY DEPARTMENTS TO SCREEN FOR EMOTIONAL TRAUMA

Research shows that victims of trauma are at increased risk of developing post-traumatic stress disorder (PTSD) if they experience prolonged emotional distress. Yet emergency departments, which are uniquely positioned to provide early intervention, rarely screen for PTSD. A new study by Adam D. Brown, PhD, adjunct assistant professor of psychiatry, could help change that.

In 2017, through the Fulbright Specialist Program, Dr. Brown spent a month in Switzerland collecting data at the University Hospital of Bern, while helping its emergency medicine physicians screen, diagnose, and treat PTSD and other mental health disorders among migrants and refugees.

According to Dr. Brown, the need to study mental illness in migrants has never been more urgent. "Across the globe, 65 million people have been displaced from their homes," he notes, "and depression is now the leading cause of disability worldwide." His study is believed to be the first to evaluate such disorders among migrants in an emergency department. Dr. Brown has been awarded a second Fulbright scholarship to continue his work this summer. In this next phase, he will follow these patients over time to see how their symptoms change in order to investigate predictors of risk and resilience.

Team Approach Restores Medically Complex Patients' Independence

For patients with complex medical problems, mental health issues can add to the challenges of care. Here, at NYU Langone Health, new initiatives are helping to address the needs of our adult, child, and adolescent patients.

VOLUNTARY INPATIENT PSYCHIATRY UNIT

To help transition medical patients whose mental health needs would be more appropriately served in the inpatient psychiatry unit than on a hospital medical floor, David L. Ginsberg, MD, clinical professor of psychiatry, vice chair for clinical affairs in the Department of Psychiatry, and chief of the Psychiatry Service, worked with the Department of Medicine to develop a program with protocols to identify these patients.

With the Department of Medicine's assistance, the inpatient unit's medical resources were significantly enhanced to address the complex patients' needs, enabling interventions including IV fluids, tube feeding, and in-house dialysis during their stay. Since the project was initiated in 2015, more than 200 medically complex patients have passed through the 22-bed, voluntary psychiatric inpatient unit.

ADULT COMPLEX CASE

The inpatient psychiatry unit offers a unique care model in which every patient encounter involves a multidisciplinary specialty panel with three attending psychiatrists; three full-time psychiatric social workers; psychologists, psychotherapists, and psychiatric nurses; and a consulting physician for medical issues. A recent case typifies the unit's collaborative approach.

The patient, a woman in her 50s, had been admitted to a medical bed through the emergency department for failure to thrive. In addition to early-onset Parkinson's disease, she had a history of hospitalization for major depression with psychotic features. In the preceding weeks, she had stopped eating, leading to severe weight loss, metabolic derangements, and multi-organ shutdown. "She came to us almost completely nonverbal, unable to ambulate independently or feed herself," explains Michael F. Walton, MD, assistant professor of psychiatry and the unit's medical director. "Our team met with her to formulate an individualized treatment plan and then implemented the plan in a multidisciplinary, coordinated way. Our goal is to always ensure that the patient's experience is personalized and at the center of everything we do."

Over the next month, the patient underwent electroconvulsive therapy, along with daily behavioral, physical, and occupational therapy. After learning of the importance the patient placed on her physical appearance, the team incorporated access to cosmetics into the treatment plan as an incentive to meeting program goals. "We wanted to ensure that she was recovering from her illness in all ways—physically and psychiatrically, of course, but also in terms of physical rehabilitation, self-esteem, and spirituality. After 31 days," says Dr. Walton, "she walked out of the unit to outpatient care—in heels!" A year later, he adds, she has not required readmission.

200+

MEDICALLY COMPLEX ADULT PATIENTS

have been treated in the voluntary psychiatric inpatient unit since 2015

UNTANGLING MENTAL AND PHYSICAL CHALLENGES IN CHILDREN

For children, complex medical problems can have a profound mental health impact—and resolving those issues can concurrently have a positive effect on their physical health. That is the mission of NYU Langone's Child and Adolescent Psychiatry Consultation-Liaison (CL) Service, co-led by Ron-Li Liaw, MD, clinical associate professor of child and adolescent psychiatry and director of the Center for Child and Family Resilience of the Sala Institute for Child and Family Centered Care, and Aron C. Janssen, MD, clinical associate professor of child and adolescent psychiatry.

At the Fink Children's Ambulatory Care Center, part of Hassenfeld Children's Hospital at NYU Langone, the CL Service is coordinated through the Pediatric Integrated Behavioral Health (IBH) Team. Led by Rebecca Lois, PhD, clinical assistant professor of child and adolescent psychiatry, the team—including two psychologists, three social workers, and a child life specialist—provides care for more than 800 patients annually, partnering with Fink's multidisciplinary medical teams, which offer outpatient cardiology, endocrinology, pulmonology, and other specialized services.

"Many of our patients struggle with depression, anxiety, trauma, behavioral issues, and adherence issues," Dr. Lois explains. "In turn, their families grapple with the emotional burdens of their child's illness." Patients and families receive a mental health screening when they begin care at Fink and are offered support for logistical issues that may add to their stress, such as housing, transportation, or payment for medications. Children identified as having illness-related psychological symptoms may receive therapy from the Pediatric IBH Team.

CHILD COMPLEX CASE

Recently, a 10-year-old boy with a genetic disorder was referred by his nutritionist to the Pediatric IBH Team's clinical lead, Lara K. Brodzinsky, PsyD, clinical assistant professor of child and adolescent psychiatry. After more than 10 urological surgeries, as well as pharyngeal flap surgery, the boy had refused to eat, necessitating multiple gastrostomy tube placements.

His restrictive food behaviors had led to poor weight gain, and his insufficient fluid intake and refusal to bathe had led to frequent urinary tract infections.

"This little boy's body had been cut open, poked, and prodded—and he was increasingly irritable and anxious," says Dr. Brodzinsky. "We interpreted his behaviors around eating, drinking, and bathing as attempts to exert control. So we focused not only on improving those behaviors but on strengthening his coping skills."

Dr. Brodzinsky worked with the patient's mother on a schedule of rewards for increasing fluid intake and frequency of showers. As the boy began to progress, the emphasis shifted to reducing anxiety about medical procedures, beginning with psychoeducation, exposure therapy, and relaxation training in an effort to help him prepare for upcoming oral surgery. Finally, Dr. Brodzinsky brought in the team's child life specialist to enhance the boy's emotional resources through art therapy.

By last July, after eight months of work, the patient's weight was approaching normal, he was bathing regularly, and his anxiety levels had decreased significantly. Unlike the previous summer, he completed his full session of sleepaway camp, and he remains infection-free.

"This little boy's body had been cut open, poked, and prodded—and he was increasingly irritable and anxious. We interpreted his behaviors around eating, drinking, and bathing as attempts to exert control. So we focused not only on improving those behaviors but on strengthening his coping skills."

—Lara K. Brodzinsky, PsyD

Unraveling Antipsychotics' Long-Term Effects on Schizophrenic Patients

In recent years, concerns have mounted that treatment with antipsychotic medications might adversely affect the long-term outlook for people with schizophrenia.

Donald C. Goff, MD

Evidence commonly cited against antipsychotics includes their association with reduction in brain volume and with dopamine receptor sensitization, which could make patients vulnerable to relapse and illness progression. "There's a real controversy," notes Donald C. Goff, MD, the Marvin Stern Professor of Psychiatry and vice chair for research in the Department of Psychiatry. "Increasingly, patients and family members are questioning the value of these drugs."

Dr. Goff is leading the quest to unravel the complex relationships among brain structure, cognitive function, and medication use in patients with schizophrenia. His research has shown that in people with schizophrenia, key brain regions begin shrinking before they start taking antipsychotics; after treatment, some patients exhibit clinical improvement, whereas others experience continued—and sometimes accelerating—loss of brain volume.

This raises a number of questions: Could antipsychotic drugs have a neuroprotective effect for some individuals but a neurotoxic effect for others? If so, could biomarkers distinguish patients likely to be helped from those likely to be harmed? Could novel medications benefit patients who respond poorly to existing therapies? And given that targeted drugs are not yet available, is it riskier for patients to take antipsychotics—or to avoid them?

In two recent studies, both funded by the National Institute of Mental Health, investigators led by Dr. Goff have taken significant steps toward solving those puzzles.

STUDY ASSESSES DRUG RISKS AND BENEFITS FOR SCHIZOPHRENIC PATIENTS

In a study published in September 2017 in *The American Journal of Psychiatry*, Dr. Goff and co-investigator Jeffrey A. Lieberman, MD, the Lawrence C. Kolb Professor of Psychiatry and chair of the Department of Psychiatry at Columbia University, convened an international panel of experts in antipsychotic pharmacology, neuroimaging, and neuropathology to comprehensively review the evidence to date.

Most strikingly, the panel found no clear evidence that antipsychotics play a role in brain volume loss. Although there is a correlation between antipsychotic dose and such shrinkage, the question of causality is muddied by the fact that dosage may be a marker of severity of illness or refractoriness to treatment, since clinicians increase the dose in patients who fail to respond. Thus, volume loss may occur not because of medication but in spite of it. Indeed, duration of untreated psychosis is also associated with brain volume loss after treatment. Further complicating the picture, gray matter volume loss during treatment is sometimes associated with clinical improvement.

The study also found that although the benefit of antipsychotics for negative symptoms and cognitive deficits is not well established, the medications' effectiveness for psychosis is robust—with a response rate of 41 percent for second-generation antipsychotics, versus 23 percent for placebo. Both low and moderate antipsychotic exposure are associated with lower overall mortality in people with schizophrenia compared with no exposure. And although carefully controlled medication discontinuation studies suggest that up to 20 percent of patients may experience sustained remission without antipsychotics, the majority of medication abstainers relapse. Conversely, over time, most patients who continue medication can ward off relapse with a reduced dose.

Study finds robust response rate from antipsychotics for psychosis:

41%

for second-generation antipsychotics

"This study suggests that on average, it's riskier to have long-term untreated psychosis than it is to be exposed to these drugs," Dr. Goff explains. "But further research is necessary to identify subgroups for whom these drugs may be unnecessary or even toxic."

PROBING THE MECHANISMS BEHIND BRAIN VOLUME LOSS

In a study presented to the American College of Neuropsychopharmacology in December 2017, Dr. Goff and colleagues focused on the hippocampus because hippocampal volume loss is associated with poor outcomes in schizophrenia. The team sought to determine whether hippocampal volume loss occurs early in treatment and, if so, whether the reduction is related to duration of untreated psychosis or to the drugs used to treat it. The study followed 71 medication-naive patients with first-episode psychosis treated at Shanghai Mental Health Center and 73 healthy controls. Subjects had MRIs and blood tests at the start of the trial and again after eight weeks. Hippocampal volume was found to be lower at baseline in the group with psychosis and to have declined significantly at follow-up. The degree of loss correlated with the duration of untreated psychosis, as the researchers had hypothesized. It also correlated with molecular biomarkers of inflammation, oxidative stress, glial injury, brain-derived neurotrophic factor, and dopamine and glutamate transmission—none of which changed significantly with treatment.

"Our analysis identified molecular mechanisms by which duration of untreated psychosis may affect hippocampal volume but found no evidence for a medication effect," says Dr. Goff. "These new insights reveal who is most at risk for hippocampal volume loss and may ultimately help us develop brain-sparing treatments based on a patient's biomarker profile."

Expanding Mental Health Access to Children in Underserved Communities

In many parts of the United States, children and adolescents with mental health needs have scant access to psychiatric care. NYU Langone Health has led efforts to address this shortage through the use of telepsychiatry, a telecommunications technology innovation that connects patients with clinicians at a distance.

Since 2010, NYU Langone's Department of Child and Adolescent Psychiatry has partnered with the New York State Office of Mental Health (OMH) to provide telepsychiatry services to several upstate facilities, including the St. Lawrence Psychiatric Center, the Mohawk Valley Psychiatric Center, and the Elmira Psychiatric Center. These telepsychiatry services include direct psychiatric care as well as consultations with healthcare professionals.

Two years ago, the department developed the first NYU Langone resident and NYU School of Medicine student pediatric telepsychiatry training clinic in partnership with the Rockland Children's Psychiatric Center, an OMH-run institution in Orangeburg, New York. This clinic provides telepsychiatry services to school-based programs in Ulster and Sullivan Counties. In addition to their value to clinical care, the partnerships offer vital educational opportunities for future practitioners. Second-year child and adolescent psychiatry fellows and medical students who rotate through these programs gain valuable experience in the field.

Shabana Khan, MD

In July 2017, Shabana Khan, MD, assistant professor of child and adolescent psychiatry and director of Child and Adolescent Telepsychiatry, joined the Child Study Center faculty to further expand these services to children in and beyond the New York area. Her work has been focused on enhancing and expanding the technology's proven efficacy. "The literature shows that this treatment modality achieves outcomes comparable to in-person care across a wide range of diagnoses, and across the life span," says Dr. Khan. "Patient satisfaction rates are very high, at 95 percent or greater. Some individuals, such as those with a significant anxiety or trauma history, may actually prefer to see their doctor or therapist this way. Telepsychiatry transforms our practice and improves current models of care."

FROM RURAL CENTERS TO URBAN COMMUNITIES, TELEPSYCHIATRY BRINGS BENEFITS

Whereas previous telepsychiatry access efforts have focused on rural areas, the Department of Child and Adolescent Psychiatry has now begun outreach to underserved urban communities. In October 2017, in partnership with NYU Langone Hospital—Brooklyn, the Child Study Center launched telepsychiatry programs at two public schools in the largely low-income Sunset Park neighborhood, part of a plan to reach school-based mental health programs throughout Brooklyn. At present, these school-based services include psychiatric assessment, medication management, and consultation with other providers. More offerings, such as psychotherapy and autism assessments, will be rolled out in the future.

Dr. Khan also works closely with Ruth S. Gerson, MD, assistant professor of child and adolescent psychiatry and director of the Children's Comprehensive Psychiatric Emergency Program (C-CPEP) at NYC Health + Hospitals/Bellevue, to provide pediatric telepsychiatry consultations from the C-CPEP to emergency departments at NYU Langone Hospital—Brooklyn and NYU Langone Health—Cobble Hill, as well as to other locations in the NYC Health + Hospitals network.

In addition to serving these patient populations, the department's telepsychiatry program is developing nationwide models to allow the nation's 7,400 practicing child psychiatrists to better reach the estimated 13 percent of U.S. children who experience a psychiatric disorder annually. The program will expand to provide tele-education to mental health professionals in under-served areas who may not have easy access to educational resources. This will allow more children and adolescents to receive evidence-based behavioral healthcare. "There are places across this country where you can drive for hundreds of miles without finding a mental healthcare provider of any kind," Dr. Khan observes. "As the evidence base continues to grow, demonstrating that telepsychiatry is feasible, acceptable, and highly effective, the use of this technology will grow tremendously in treatment, educational, and research settings."

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Academic Activities

AWARDS & RECOGNITION

Jaskanwar S. Batra, MD, clinical associate professor of psychiatry, was inducted into the Upsilon Phi Delta Honor Society.

Carol A. Bernstein, MD, professor of psychiatry and neurology, and vice chair for education, was appointed to the Action Collaborative on Clinician Wellbeing and Resiliency, National Academy of Medicine, and received the American Psychiatric Association's Distinguished Service Award.

Hillery Bosworth, MD, clinical assistant professor of psychiatry, was elected president of the Association for psychoanalytic Medicine.

Francisco X. Castellanos, MD, the Brooke and Daniel Neidich Professor of Child and Adolescent Psychiatry; professor of radiology, neuroscience and physiology, was appointed to the National Advisory Mental Health Council Workgroup on Revisions to the RDoC Matrix (NIMH).

Zhe Chen, PhD, research assistant professor of psychiatry, neuroscience and physiology, was appointed associate editor and named to the editorial board, *Journal of Neural Engineering*.

Helen L. Egger, MD, the Arnold Simon Professor of Child and Adolescent Psychiatry, chair of the Department of Child and Adolescent Psychiatry, and director of the Child Study Center, was an invited speaker at the Inaugural Endowed Emde Lectureship in Developmental Psychobiology at the University of Colorado, and an invited speaker at the Ed Hornick Memorial Lecture at the New York Academy of Medicine.

Michael M. Halassa, MD, PhD, assistant professor of psychiatry, neuroscience and physiology, received the Vilcek Prize for Creative Promise from the Vilcek Foundation and was named 2017 Pew Scholar.

Helena B. Hansen, MD, PhD, assistant professor of psychiatry, was appointed to the Lancet Commission on Public Policy and Health in the Trump Era, an international commission sponsored by the UK medical journal *The Lancet*; she was also keynote speaker, APA Annual Meeting Chester Pierce Symposium; Keynote Speaker, National Conference for Physician Scholars in the Social Sciences and Humanities, Harvard Medical School; Michael M. Davis Lecturer, University of Chicago Center for Health Administration Studies; Symposium Keynote Speaker: "Sociocultural Factors Impacting Access to Medically Assisted Treatment and Care Delivery," American Association of Addiction Psychiatry Annual Meeting; Keynote Speaker for national conference, "Structural Competency: New Approaches to Dismantling Racism in Health Care," UC Berkeley School of Public Health and Medical Anthropology Program; Keynote Speaker, UCLA MD PhD Research Conference.

Schuyler W. Henderson, MD, MPH, assistant professor of child and adolescent psychiatry, was promoted to deputy editor for the *Journal of the American Academy of Child and Adolescent Psychiatry*.

Robert Mitchell, MD, clinical assistant professor of psychiatry, received the Irma Bland Certificate of Excellence in Teaching Residents by the American Psychiatric Association.

Lianne K. Morris Smith, MD, clinical assistant professor of psychiatry, received the American Psychiatric Association award for Advancing Minority Mental Health.

Barry Reisberg, MD, professor of psychiatry, clinical director of the Aging & Dementia Research Center, and director of the Zachary and Elizabeth M. Fisher Alzheimer Disease Education and Research Program, received the Jack Weinberg Memorial Award for Geriatric Psychiatry, "for leadership and excellence in clinical practice, training, and research in Geriatric Psychiatry."

Richard Rosner, MD, clinical professor of psychiatry and child and adolescent psychiatry, became editor of *Principles and Practice of Forensic Psychiatry*, Third Edition.

Anita M. Sacks, LCSW, clinical assistant professor of psychiatry, received the Albert Nelson Marquis Lifetime Achievement Award.

Benjamin J. Sadock, MD, the Menas S. Gregory Professor of Psychiatry, received the Wolters Kluwer Lifetime Achievement Award on the publication of the 10th edition of the textbook, *Kaplan & Sadock's Comprehensive Textbook of Psychiatry*.

Norman Sartorius, MD, PhD, adjunct professor of psychiatry, received the Griesinger medal from the German Society of Psychiatry, Psychotherapy and Psychosomatics.

Leadership

ADULT PSYCHIATRY

Charles R. Marmar, MD
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Carol A. Bernstein, MD
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Vice Chair for Education, Department of Psychiatry
Director, Psychiatry Residency Training Program

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Director, Child Study Center

Jennifer Havens, MD
Professor of Child and Adolescent Psychiatry and Psychiatry
Vice Chair for Public Psychiatry
Director and Chief of Service, Child and Adolescent Psychiatry, Bellevue Hospital Center

Glenn S. Hirsch, MD
Associate Professor of Child and Adolescent Psychiatry, Psychiatry, and Pediatrics
Vice Chair for Clinical Affairs
Medical Director, Child Study Center

Kimberly E. Hoagwood, PhD
Cathy and Stephen Graham Professor of Child and Adolescent Psychiatry
Vice Chair for Research

Jess P. Shatkin, MD, MPH
Professor of Child and Adolescent Psychiatry and Pediatrics
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98
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68,884
Patient Discharges

4,500,000
Outpatient Faculty Practice Visits

9,654
Births

3,633
Physicians

5,104
Nurses

516
MD Candidates

85
MD/PhD Candidates

263
PhD Candidates

418
Postdoctoral Fellows

1,327
Residents and Fellows

5,087
Original Research Papers

549,707
Square Feet of Research Space

$359M
NIH Funding

$364M
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