



# PSYCHIATRY

2014 YEAR IN REVIEW

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**MESSAGE FROM THE CHAIRS**

**Dear Colleagues and Friends,**

The following pages tell the story of an outstanding year at NYU Langone Medical Center's Department of Psychiatry and Department of Child and Adolescent Psychiatry.

As home to one of the oldest and largest departments of psychiatry at any U.S. medical center, as well as to one of the only two freestanding departments of child and adolescent psychiatry in the nation, NYU Langone offers state-of-the-art psychiatric care to individuals at all stages of life, and is committed to advancing the future of the field through groundbreaking research and outstanding educational programs.

We have made great strides this year in our efforts to help our nation's veterans cope with the mental and emotional burdens that follow them long after they leave the battlefield. Our efforts to identify diagnostic and treatment biomarkers for traumatic brain injury and PTSD have yielded extremely promising results, and a new dual diagnosis program for mental health disorders and substance abuse at the Steven and Alexandra Cohen Military Family Clinic offers veterans and their families compassionate, collaborative care for these issues, which frequently go hand in hand, all under one roof.

For children who have been victims of trauma, the comprehensive Trauma Systems Therapy—pioneered by leaders here at NYU Langone—will form the basis of a newly funded Center on Coordinated Trauma Services in Child Welfare and Mental Health, which will support the development of best care practices for children and families with trauma-related mental health needs both here in New York City and throughout the nation.

Our achievements this year also include a remarkable array of research in schizophrenia, a new outpatient program to help patients with eating disorders, and new findings from the Autism Brain Imaging Data Exchange.

Caring for the mental health of our fellow human beings is a tremendous privilege and a tremendous responsibility. Here at NYU Langone, our collaborative Departments of Psychiatry and Child and Adolescent Psychiatry see it as our mission not only to always strive to improve the care that we provide to our own patients, but to move the field forward by establishing new and more effective pathways for diagnosis and treatment. We believe that this year we have made tremendous strides toward the goal that we share with our many distinguished colleagues around the world: ensuring that people of all ages and backgrounds have access to excellent, evidence-based, compassionate mental healthcare.



**Charles R. Marmor, MD**

Lucius N. Littauer Professor of Psychiatry  
Chair, Department of Psychiatry  
Director, Cohen Veterans Center  
NYU Langone Medical Center



**Glenn N. Saxe, MD**

Arnold Simon Professor of Child and Adolescent Psychiatry  
Chair, Department of Child and Adolescent Psychiatry  
Director, the Child Study Center  
NYU Langone Medical Center

**FACTS & FIGURES\******Psychiatry*****800** 

faculty members

**41,000+**outpatient visits  
annuallyincludes adult and child/  
adolescent**contract** 

awarded

NYC contract to oversee psychiatric services in juvenile  
justice facilities awarded to the Department of Child and  
Adolescent Psychiatry**#9**in the nation for  
psychiatry residencyin research conducted by the  
physician network Doximity®**#15** 

in the nation

among psychiatry programs  
for NIH fundingSource: Blue Ridge Institute for  
Medical Research**40** 

courses

taught to 3,500 students  
in NYU's undergraduate  
program in Child and  
Adolescent Mental  
Health Studies (cumulative)**340**

agencies in 28 states

received training, consultation,  
and technical assistance on  
improving quality of care from  
child and adolescent psychiatry  
faculty (cumulative)**600**

children

tracked at Child Study  
Center for outcomes over  
6 months**20 to 30**

percent

showing improvement  
in clinical symptoms**100+** active grants and  
clinical trials**\$35.8**

million

in research funding

**4,500+**consultation-liaison  
consults**\$18,539,515**

in NIH grants

**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."



**NYU Langone Medical Center**

## Ranked #1 for Two Years in a Row

in overall patient safety and quality, among leading academic medical centers across the nation that participated in the University HealthSystem Consortium Quality & Accountability Study



## Ranked #15 on “Best Hospitals” Honor Roll

by *U.S. News & World Report* and nationally ranked in 13 specialties, including top 10 rankings in Orthopaedics (#4), Rheumatology (#6), Geriatrics (#8), Neurology & Neurosurgery (#8), and Rehabilitation (#9)



## Ranked One of the Top 20 Medical Schools

by *U.S. News & World Report*

## Magnet Designation for Third Consecutive Term

for Tisch Hospital and Rusk Rehabilitation, an honor achieved by only 2% of hospitals in the country. NYU Langone's Hospital for Joint Diseases received its first Magnet recognition in 2012.



## NEW &amp; NOTEWORTHY

# Moving Mental Healthcare Forward with New Research and Resources

## Eye Movement Test for Concussion

Uzma Samadani, MD, PhD, assistant professor of neurosurgery, neuroscience and physiology, and psychiatry, is studying an age-old symptom of head injury—out-of-sync eye movements—to develop a quick test for concussion. This research is part of the mission of the Cohen Veterans Center, to find biomarkers for traumatic brain injury and post-traumatic stress disorder.



Lucy Hutner, MD, is the new director of reproductive psychiatry at NYU Langone

## Chemical Senses Expert Honored

Donald Wilson, PhD, professor of child and adolescent psychiatry, was honored with the Max Mozell Award from the Association for Chemoreception Sciences for Outstanding Achievement in the Chemical Senses. Dr. Wilson also edited and published a chapter in *Odor Memory and Perception*, a 2014 volume in the acclaimed *Progress in Brain Research* neuroscience series.

## Addiction Expert Appointed

Stephen Ross, MD, is the newly appointed director of addiction psychiatry at NYU Langone's Tisch Hospital. Dr. Ross, who continues to serve as director of alcoholism and drug abuse at Bellevue Hospital Center, is conducting a randomized controlled study in which the hallucinogen psilocybin—as an adjunct to psychotherapy—is used to treat alcoholism.

## Linking Emotional and Reproductive Health

Lucy Hutner, MD, has been named director of reproductive psychiatry. The outpatient program addresses the mental health needs of patients across the reproductive lifecycle, from preconception through pregnancy, postpartum, and early parenting.

## Faculty Author New Books

Faculty in the Departments of Psychiatry and Child and Adolescent Psychiatry published eight important new books:

- *Kaplan & Sadock's Synopsis of Psychiatry: Behavioral Sciences/Clinical Psychiatry*, 11th edition, by Benjamin J. Sadock, MD, the Menas S. Gregory Professor of Psychiatry; Virginia A. Sadock, MD, clinical professor of psychiatry; and Pedro Ruiz, MD
- *Trauma Systems Therapy for Children and Teens*, co-authored by Glenn Saxe, MD, the Arnold Simon Professor of Child and Adolescent Psychiatry and chair of the Department of Child and Adolescent Psychiatry and director of The Child Study Center; and Adam Brown, PsyD, clinical assistant professor at The Child Study Center
- *Attention-Deficit Hyperactivity Disorder in Adults and Children*, by Lenard A. Adler, MD, professor of psychiatry and child and adolescent psychiatry; and Thomas J. Spencer, MD
- *Landmark Cases in Forensic Psychiatry*, by Elizabeth Ford, MD, clinical associate professor of psychiatry; and Merrill Rotter, MD
- *Treating Child and Adolescent Mental Illness: A Practical, All-in-One Guide*, by Jess Shatkin, PhD, associate professor of child and adolescent psychiatry
- *Organizational Skills Training for Children with ADHD: An Empirically Supported Treatment*, co-authored by Richard Gallagher, PhD, associate professor of child and adolescent psychiatry; Howard B. Abikoff, PhD, Pevaroff Cohn Professor of Child and Adolescent Psychiatry; and Elana Spira, PhD, adjunct lecturer
- *Helping Kids in Crisis: Managing Psychiatric Emergencies in Children and Adolescents*, by Fadi Haddad, MD, clinical assistant professor of child and adolescent psychiatry, and Ruth S. Gerson, MD, clinical assistant professor of child and adolescent psychiatry
- *Game-Based Cognitive-Behavioral Therapy for Child Sexual Abuse: An Innovative Treatment Approach*, co-authored by Justin Misurrell, PhD, clinical director of the NYU Langone Child Study Center's New Jersey campus

## Biomarkers Seen in PTSD and TBI

Changes in brain imaging, blood and genetic markers, eye movements, and even the voice are evident in service members and civilians who have experienced a TBI or been diagnosed with PTSD, according to preliminary findings presented in November 2014 in a media roundtable at NYU Langone by Charles Marmar, MD, the Lucius N. Littauer Professor of Psychiatry and chair of the Department of Psychiatry. Dr. Marmar leads the Cohen Veterans Center at NYU Langone Medical Center in its search for biomarkers for PTSD and TBI that will lead to the development of diagnostic tests.

## New Clinical Director Named for Child Study Center's NJ Campus

Justin Misurrell, PhD, was named director of the Child Study Center's New Jersey campus in Hackensack. A highly published expert on child abuse, trauma, and the game-based approach, Dr. Misurrell co-founded and studied an integrative and evidence-based treatment model, Game-Based Cognitive-Behavioral Therapy, at Newark's Beth Israel Medical Center.

## Understanding Opiates and PTSD

Glenn Saxe, MD, the Arnold Simon Professor of Child and Adolescent Psychiatry and chair of Child and Adolescent Psychiatry, published a commentary in *Biological Psychiatry* on the clinical implications of an important new study on anxiety and stress hormone response to heroin use. Pointing to his team's groundbreaking research on the use of opiates as a preventive therapy for PTSD, he noted that "converging evidence points to [opiates'] power to regulate the survival circuits: systems of the brain and body that have been given to us through evolutionary refinement to help us manage adversity and survive in the face of threat." He called for a larger study to help further trace causal mechanisms for this relationship. Dr. Saxe's team had published the first studies finding that opiates given shortly after a trauma may prevent PTSD.

**CLINICAL TRANSLATIONAL CARE**

► *NYU Langone psychiatrists and psychologists are offering new therapeutic approaches for the most challenging childhood and adult disorders in a range of clinical and research areas, with a current focus on trauma, addiction, eating disorders, schizophrenia, brain aging, and autism.*

Diane Klein, MD, and Andrea Vazzana, PhD,  
specialize in treating eating disorders



# Eating Disorders

## PREVENTION AND TREATMENT ACROSS THE LIFE SPAN

### THE BODY PROJECT: PREVENTING EATING DISORDERS

In 2014, NYU Langone's Child Study Center initiated the Body Project, a group program focused on body acceptance, emphasizing prevention for adolescents at risk for developing anorexia nervosa and bulimia nervosa.

"The linchpin of this program is to identify and deconstruct the extent to which participants subscribe to the thin beauty ideal; if you question the value our culture places on thinness, you're less likely to engage in the unhealthy dieting practices that often trigger eating disorders," explains Andrea Vazzana, PhD, NYU Langone's Body Project group facilitator, clinical assistant professor of child and adolescent psychiatry, and a psychologist at NYU Langone's Child Study Center.

Dissatisfaction with body image and idealizing thinness are generally most pronounced between the ages of 15 and 19. Without timely intervention, these self-critical concepts can spiral into a serious, life-threatening eating disorder.

Dr. Vazzana worked closely with the developer of the evidence-based Body Project, Eric Stice, PhD, a senior

scientist at the Oregon Research Institute in Eugene, to bring the program to NYU Langone. She plans to enroll participants for the first four-week group in early 2015. Each one-hour session will include verbal, behavioral, and written activities, including role-playing. Activities are designed to prompt teens to rethink their notions of body image and to learn to stand up to cultural beliefs, peer pressure, and family triggers.

Dr. Vazzana anticipates that the program will expand in future months to include groups for adolescents who already exhibit signs and symptoms of eating disorders.

The Body Project complements NYU Langone's Eating Disorders Service within the Child Study Center, led by Melissa Nishawala, MD, assistant professor of child and adolescent psychiatry and a recognized authority in the assessment and treatment of eating disorders. Dr. Nishawala, Dr. Vazzana, and Lisa Kotler, MD, clinical assistant professor of child and adolescent psychiatry, offer expert diagnostic evaluations and individualized treatment programs for eating disorders and co-occurring psychiatric diagnoses.

### NEW OUTPATIENT PROGRAM TARGETS ADULT EATING DISORDERS

For adults struggling with eating disorders, Diane A. Klein, MD, associate professor of psychiatry and director of the Eating Disorders Program in the Department of Psychiatry, is equally focused on early identification and on treatment. In 2014 she launched an outpatient clinical eating disorders program at NYU Langone emphasizing these goals.

To enhance screening and identify more at-risk patients, Dr. Klein encourages clinicians, psychiatrists, and primary care physicians alike to probe for eating disorders in both male and female patients of any age—but especially in young adults—and to refer patients to a specialized psychiatrist when these disorders are suspected. Dr. Klein notes that generally these individuals do not volunteer information to clinicians, and suggests that everyone be screened for eating disorders. A thorough medical and psychological assessment, including a record of prior eating disorders, is essential in making a diagnosis.

"I encourage clinicians to ask questions that will ascertain how often patients think about food and their

bodies, as well as their eating behaviors and habits," says Dr. Klein. For example, screening questions can include whether there have been major weight changes in the past and whether the person spends a lot of time thinking about eating, weight, and shape. Positive answers to those two questions may indicate a need for closer assessment. "The earlier we are able to diagnose eating disorders in adults, the more likely we can treat them successfully."

Among adults with eating disorders, inpatient treatment or individual outpatient therapy with a specialist is typically the first line of treatment. At the new adult eating disorders practice, Dr. Klein, along with therapists, nutritionists, and internists in the community, addresses all of the needs of adult eating disorder patients.

"Here in New York, with so many college campuses and the high prominence of fashion, media, and other societal factors that can pose added risk for eating disorders, this program is particularly important," Dr. Klein says. "Specialized treatment for eating disorders, rather than just treatment in a general psychiatry program, is essential for true recovery—without it, patients can be in treatment for years without getting better."

## CLINICAL TRANSLATIONAL CARE

# The Steven and Alexandra Cohen Veterans Center and Military Family Clinic

## CARING FOR THE “INVISIBLE WOUNDS OF WAR”

### PTSD DIAGNOSIS AND TREATMENT

One in four veterans entering the VA healthcare system has been diagnosed with either a mental health or a behavior disorder, according to the National Association of Mental Illness.

NYU Langone’s Psychiatry Department is undertaking this enormous psychological and societal challenge with two important initiatives: The Steven and Alexandra Cohen Military Family Clinic, opened in 2012, and the Steven and Alexandra Cohen Veterans Center, launched in 2013. These two entities address the mental health consequences of armed conflict in unique, yet complementary, ways.

Funded by \$28 million in philanthropic support by the Steven and Alexandra Cohen Foundation—including a lead gift representing perhaps the largest-ever philanthropic contribution to post-traumatic stress disorder (PTSD) research—the Steven and Alexandra Cohen Veterans Center is dedicated to researching the causes and seeking a curative therapy for PTSD and traumatic brain injury (TBI). It is one of a limited number of programs to simultaneously focus on both PTSD and TBI under one roof.

The Cohen Veterans Center conducts research to accelerate the discovery of biomarkers—measurable medical characteristics—to enable clinicians to accurately and objectively diagnose post-traumatic

**“We can treat trauma, concussion, depression or substance abuse, and reconstruction in one place. If you don’t treat the pain and emotional disfigurement, the veterans are constantly reminded of the trauma.”**

Charles Marmar, MD  
Lucius N. Littauer Professor of Psychiatry  
Chair, Department of Psychiatry  
Director, Cohen Veterans Center

stress (PTS) and TBI in veterans, create lab tests for these disorders, and ultimately employ this knowledge to develop novel treatments, including targeted medications and other therapies.

“Without objective biological tests, the diagnosis of PTSD and TBI is incredibly difficult to get right,” says Charles Marmar, MD, the Lucius N. Littauer Professor of Psychiatry and chair of NYU Langone’s Department of Psychiatry, who leads the center.

The Steven and Alexandra Cohen Military Family Clinic at NYU Langone Medical Center offers multidisciplinary, collaborative care for veterans and their families in the New York City area, and has enrolled an average of two or three families per week. Since opening its doors in fall 2012 with an initial \$500,000 grant from the Robin Hood Foundation, the Family Clinic is now supported by the Steven and Alexandra Cohen Foundation, Welcome Back Veterans, an initiative of Major League Baseball and the Robert R. McCormick Foundation, and the Bob Woodruff Foundation.

Evidence-based individual, couples, family, and child/adolescent therapies, as well as medication management, psychiatric evaluations, and psychological assessments, are offered free of charge.

“We can treat trauma, concussion, depression or substance abuse, and reconstruction in one place,” Dr. Marmar says. “If you don’t treat the pain and emotional disfigurement, the veterans are constantly reminded of the trauma,” he says. “You can’t treat the war fighters if you don’t treat their family, too.”



Charles Marmar, MD,  
heads the Cohen  
Veterans Center

## NEW DUAL DIAGNOSIS INITIATIVE MEETS VETERANS' MULTIPLE NEEDS

As many as 20 percent of veterans deployed to Iraq and Afghanistan may experience symptoms of post-traumatic stress disorder (PTSD), according to the American Psychological Association. For many of these men and women, PTSD is associated with depression, anxiety, substance abuse, disfiguring physical injury, and traumatic brain injury (TBI).

As a coordinated response to the combination of mental health issues and drug dependency, the Steven and Alexandra Cohen Military Family Clinic launched the "Welcome Back Veterans Dual Diagnosis Program" in 2014. The new, dual diagnosis program is funded by a recent \$1 million donation from "Welcome Back Veterans," an initiative of Major League Baseball and the Robert R. McCormick Foundation. The funding has enabled the hiring of more clinicians with specialized training and experience in treating substance abuse and addiction.

"More than 25 percent of the veterans and families we see at the Military Family Clinic for mental health ailments also have some type of substance abuse problem—and half of them are referred to an outside program to address their addiction issues," says Dr. Marmar.

The Military Family Clinic follows a biopsychosocial model in treating mental health and substance abuse disorders, combining individual and group psychotherapy, medication management, and adjunctive therapies such as mindfulness training and meditation.

"The goal of our new initiative is to address all the patient's needs in a single, collaborative clinical setting," says psychologist Joshua Scott, PhD, who helps coordinate the program.

### ***Identifying Biomarkers for PTSD and TBI***

The Cohen Veterans Center is also leading a new study to accelerate the development of biomarkers for the objective diagnosis of PTSD and TBI, as current diagnostic methods are lacking. This cohort study will enroll 1,700 active duty Army members from the U.S. Army base in Fort Campbell, Kentucky, and conduct several evaluations of their stress, anxiety, depression, PTSD, concussion, and TBI symptoms, and their cognitive and psychomotor functions—both before and after deployment.

This novel study, led by Drs. Marmar and Samadani, builds on a long-standing relationship with Fort Campbell. Research published in the *Journal of Neurosurgery* (December 2014) found that a new eye-tracking technology developed by Dr. Samadani and her team and tested in more than 600 active military members at Fort Campbell and the Cohen Veterans Center may be a biological marker for assessing brain function and recovery in patients

with brain injuries. Study participants with nerve damage or swelling in the brain pressing on nerves all showed abnormal eye movement ratios correlating to the affected nerve; when the abnormal eye movement was due to swelling in the brain, surgery to fix the brain problem restored the eye movements to normal range.

"We are very excited about the findings as a proof of concept that this technology can detect brain injury and suggest its location," Dr. Samadani says. "One of the reasons that past clinical trials for treatment of brain injury have failed is that brain injury is hard to classify and quantitate with existing technologies. This invention suggests a potential new method for classifying and quantitating the extent of injury."

### ***Predicting the Course of PTSD***

Post-traumatic stress disorder should be particularly preventable, since people exposed to traumatic events could be targeted for therapy in the event's immediate aftermath. But given the relatively small number of people exposed to trauma who actually develop PTSD, and the costliness of these interventions, better methods are needed to identify high-risk individuals.

Internationally known PTSD expert Arieh Shalev, MD, professor of psychiatry, has three major grants from the National Institute of Mental Health supporting his work to understand why some trauma survivors develop PTSD while many others do not. "Most people recover from trauma with no lasting effects, but a minority—as many as 17 percent—do not recover with time. Why is it that some people remain distressed and anxious, mentally and functionally incapacitated, long after the trauma?" he asks.

His team begins assessing trauma survivors within days—or sometimes hours—of a traumatic experience, and follows them for months or years. They use functional MRI to identify differences in the way the brain responds to fear and exercises executive control over reactions to the environment among trauma survivors who develop PTSD, compared with those who do not.

"During this past year we described the trajectory leading from trauma exposure to PTSD," Dr. Shalev says. "The percentage of survivors who do not recover and develop long-term PTSD are also those who do not respond to the kinds of early treatments that help most people—the best-available treatments that we have now. This tells us that we have to devise other therapies to prevent them from remaining in very poor control of their negative emotions."

Dr. Shalev is now studying a therapeutic approach that provides "retraining" to help the brain process emotions, exercise executive control, and reduce the reaction to threat and fear.

## CLINICAL TRANSLATIONAL CARE

# Addressing the Complexity of Child Trauma

## TRAUMA SYSTEMS THERAPY

Glenn Saxe, MD, pioneered Trauma Systems Therapy, now used in 13 states



### TRAUMA SYSTEMS THERAPY

Child psychiatrists at NYU Langone have spearheaded numerous efforts to develop systematic trauma assessment and treatment protocols for the field's clinicians. The Child and Adolescent Psychiatry Department recently received two grants totaling nearly \$6 million, enabling work in partnership with New York City's Administration for Children's Services (ACS) to improve the care of traumatized children in New York and across the country, including those in the juvenile and foster care/child welfare systems.

### **Trauma Systems Therapy Provides Holistic View**

Trauma Systems Therapy (TST), an approach pioneered by Glenn Saxe, MD, the Arnold Simon Professor of Child and Adolescent Psychiatry and chair of the Department of Child and Adolescent Psychiatry, is now used in 13 states, and abroad.

TST addresses childhood traumatic stress comprehensively by taking into account a child's support system and social environment. "Some treatments oversimplify trauma and don't address the complexity of the child's environment," Dr. Saxe says.

TST focuses on trauma-related symptoms and perpetuating socio-environmental factors, helping a child acquire control over emotions and behavior

through skill-based psychotherapy, home and community-based care, advocacy, and/or medication. The flexible protocol allows clinicians to match the correct interventions to the child's social environment to increase the likelihood of a successful outcome, and is designed for easy adoption and scale-up by clinicians in any setting.

### **Addressing Trauma in Child Welfare**

In 2014 the Child Study Center received a \$2.4 million grant from New York City's Substance Abuse and Mental Health Services Administration to establish a Center on Coordinated Trauma Services in Child Welfare and Mental Health. Working with ACS, the center will provide national expertise and support specialized adaptation of effective care for children and families with trauma-related mental health needs, in New York City and nationwide. Through a \$3.2 million grant from ACS, the Child Study Center will also help spearhead the Atlas Project Administration on Children, Youth and Families, an initiative focused on strengthening mental health assessment and treatment for children in the city's and state's child welfare systems, improving training for service providers, and creating tools to improve children's safety, permanency, well-being, and adoption.

## C-CPEP

### **Raising the Standard of Psychiatric Crisis Care for Children and Adolescents**

The Children's Comprehensive Psychiatric Emergency Program (C-CPEP), located at Bellevue Hospital Center in Manhattan, is the only 24-hour psychiatric emergency care facility in the nation that cares exclusively for children and adolescents.

Developed and led by Jennifer Havens, MD, associate professor of child and adolescent psychiatry and vice chair for public psychiatry in the NYU Langone Medical Center Department of Child and Adolescent Psychiatry, and chief of child and adolescent psychiatry at Bellevue, the C-CPEP provides the specialized psychiatric crisis care that children and adolescents need—but all too often do not receive.

According to a study published in 2012 in the *Journal of the American Academy of Child & Adolescent Psychiatry*, 61 percent of children discharged from a medical emergency room with psychiatric symptoms such as self-harm have not had a mental health workup, and 57 percent have left the ER without a referral for follow-up mental healthcare.

"What happens to kids in psychiatric emergencies is an enormous nationwide problem. They go to medical emergency rooms or adult psychiatric emergency units, which lack either the appropriate staff and/or the facilities to care for children and adolescents in psychiatric emergency; the care they receive is not adequate," says Dr. Havens.

"Pediatric emergency departments are increasingly being used as a mental health safety net, something they're not equipped to handle," continues Dr. Havens,

pointing to a 2006 study that found that mental health visits to pediatric ERs increased by more than 102 percent over one six-year period. "Yet while between 2 percent and 7.2 percent of pediatric ER visits are for psychiatric emergencies, fewer than 1 in 20 ERs have any sort of dedicated mental health unit."

To address this gap, the C-CPEP, officially designated a comprehensive psychiatric emergency program by the New York State Office of Mental Health, is staffed with child psychiatrists and specially trained psychiatric nurses 24 hours a day, 7 days a week, and expert social workers 16 hours a day.

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**"Pediatric emergency departments are increasingly being used as a mental health safety net, something they're not equipped to handle."**

Jennifer Havens, MD  
Associate professor and vice chair for public psychiatry  
Chief of Child and Adolescent Psychiatry, Bellevue Hospital Center

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In addition to providing emergency evaluation, the C-CPEP has six beds for 72-hour observation, which is often sufficient time for patients to stabilize and then be released to outpatient care. The C-CPEP links emergency evaluation and outpatient follow-up, and reduces unnecessary and costly hospitalizations. Patients can also be admitted to the child psychiatric unit for longer inpatient care when appropriate.

C-CPEP is the only

**24-hour**

psychiatric emergency care facility  
in the nation that cares exclusively  
for children and adolescents

A 2006 study found that mental  
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over one six-year period

While between 2 percent and 7.2  
percent of pediatric ER visits are  
for psychiatric emergencies,

**fewer than 1 in 20**

ERs have any sort of dedicated  
mental health unit

## CLINICAL TRANSLATIONAL CARE

Since opening in January 2011, the C-CPEP has cared for nearly 5,000 children and adolescents in mental health crisis. The program serves as a national model for improving emergency mental health services for children and adolescents, providing leadership through the New York Emergency Child Psychiatry Work Group and the American Academy of Child and Adolescent Psychiatry.

The program is also disseminating lessons learned through a 2014 publication, *Helping Kids in Crisis: Managing Psychiatric Emergencies in Children and Adolescents*, by Ruth Gerson, MD, clinical assistant professor of child and adolescent psychiatry, and director of the C-CPEP, and Fadi Haddad, MD, clinical assistant professor of child and adolescent psychiatry and psychiatry, and C-CPEP associate director. The publication provides practical guidance for clinicians working with child and adolescent psychiatric emergencies across settings, including emergency rooms, schools, and community pediatric or mental health clinics.

"In the C-CPEP, we have a solution to a national problem for kids and their families," Dr. Havens says. "We provide the right care, in the right environment, from the right practitioners."

In 2015 Drs. Havens and Gerson will direct the Second Annual CME conference on issues related to psychiatric emergencies in children and adolescents, at NYU Langone.

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**Since opening in January 2011, the C-CPEP has cared for nearly 5,000 children and adolescents in mental health crisis.**

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Jennifer Havens, MD, leads a Grand Rounds discussion of child and adolescent psychiatric emergencies





## Child Study Center

### EXTENDING EFFECTIVE CARE TO THE COMMUNITY AND BEYOND WITH RESEARCH AND REAL-WORLD FEEDBACK

With more than 70 full-time and 20 part-time staff members, 13 areas of expertise, and 8 innovation networks, encompassing 340 programs in 28 states, NYU Langone's Child Study Center (CSC) is striving to fulfill its mission: to improve the treatment of child psychiatric disorders through scientific practice, research, and training; to influence child-related public policy; and to eliminate the stigma of being or having a child with a psychiatric disorder. In 2014 the CSC had a diverse portfolio of approximately \$40 million in research grants.

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**The Child Study Center is home to one of the world's top implementation science teams for child mental health, enabling scientifically grounded interventions to reach the people who most need them.**

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Founded in 1997, the CSC comprises a group of research institutes with associated clinical arms. This structure allows recruitment of patients for research and provides real-world testing for successful controlled-environment findings. Its programs are organized as innovation labs where researchers can develop treatment modalities, recruit patients for studies, and test therapeutic innovations in practical settings.

Over the past decade, research results of the Child Study Center have been disseminated through more than 400 peer-reviewed journal articles and thousands

of presentations at national and international scientific meetings. The Child Study Center is home to one of the world's top implementation science teams for child mental health, enabling scientifically grounded interventions to reach the people who most need them.

In 2014 the CSC conducted important research in the treatment of trauma, ADHD, and autism. In addition, the CSC perpetuated its commitment to making research findings accessible to the community, by organizing a workshop series examining a range of research topics, including creative strategies for managing behaviors in children with autism; identifying and successfully treating ADHD; advancing children's organizational skills; test and performance anxiety; giftedness; improving a child's sleep; adolescent depression; and the use of medications in treating anxiety, mood and behavioral problems.

### CHILD STUDY CENTER WORKSHOPS: AN EXPERT RESOURCE FOR NYC PARENTS

The expert clinical team at NYU Langone's Child Study Center hosts weekly workshops for parents on topics related to emotional health and illness, managing behavior, and raising healthy children. Over the past year, these Thursday workshops have covered such issues as treating anxiety, helping children cope with grief and illness, and identifying and helping the struggling learner.

## CLINICAL TRANSLATIONAL CARE

# Shedding Light on the Mechanisms of Psychotic Disease

## SCHIZOPHRENIA

The NYU Langone Department of Psychiatry has a long and noted reputation for research and care of those with schizophrenia and associated disorders. New research findings over the past year have yielded valuable insights into the thinking processes and patterns of people with psychotic disorders, further enhancing the care of these patients.

### TREATING DELUSIONS VIA MEMORY CONSOLIDATION

Donald Goff, MD, the Marvin Stern Professor of Psychiatry, vice chair for research in the Department of Psychiatry, and director of the Nathan S. Kline Institute for Psychiatric Research, is an international expert in translational neuroscience research in schizophrenia. His research focuses on biological mechanisms that contribute to the onset of schizophrenia and that shape its clinical course.

Over the past decade, Dr. Goff and his collaborators have discovered that impairment in learning may play an important role in manifestations of the illness, including delusions and apathy. People with schizophrenia have difficulty consolidating memory

during the 24 hours after initial learning—a process linked to slow-wave sleep. A related inability to unlearn false beliefs may contribute to the persistence of delusions, and an inability to recall rewarding experiences may contribute to apathy.

When given in very low doses, the tuberculosis drug D-cycloserine activates a subset of NMDA receptors involved in memory consolidation. Dr. Goff previously demonstrated improvement of memory consolidation in individuals with schizophrenia following a single dose of D-cycloserine, and improvement of negative symptoms with once-weekly dosing. In 2014 Dr. Goff's group published the results of a study in which once-weekly D-cycloserine dramatically improved learning of an auditory discrimination task as part of a cognitive remediation exercise and, once again, improved negative symptoms. However, as is typical of strategies that enhance neuroplasticity, D-cycloserine only enhanced the performance of the novel, practiced skill of auditory discrimination—and did not generalize to other cognitive domains.

With National Institute of Mental Health (NIMH) funding, Dr. Goff is now studying the impact of D-cycloserine combined with cognitive behavioral therapy for the treatment of delusions, based on his promising preliminary studies. If successful, this work could revolutionize the treatment of delusions.

Schizophrenia is treatable.  
Studies have indicated that  
**25%**  
of those having schizophrenia  
recover completely,  
**50%**  
are improved over a 10-year  
period, and  
**25%**  
do not improve over time. But  
**50%**  
of all people diagnosed with  
schizophrenia have not  
received treatment.

Source: SARDA

### BIOMARKERS SIGNAL PATH TO FIRST-EPIISODE PSYCHOSIS

Dr. Goff has established a research program in first-episode psychosis based at Bellevue Hospital, in partnership with a recently established specialized clinical program. With colleagues at Massachusetts General Hospital and in China, in 2014 Dr. Goff successfully enrolled participants in two major NIMH-funded studies looking at biomarkers that may predict treatment response and the course of illness in first-episode psychosis. In one of the studies, 100 participants are followed for one year to see if the antidepressant citalopram improves the course of illness via facilitation of the growth factor BDNF, which promotes neuroplasticity. This work will examine biomarkers for several additional factors, such as neuroinflammation and stress, that also shape the course of illness—and these biomarkers could guide a personalized approach to treatment.

Approximately  
**3.5 million**  
 people in the United States  
 are diagnosed with  
 schizophrenia, and it is one of  
 the leading causes of  
 disability.

Source: Schizophrenia and Related  
 Disorders Association of America

Approximately one-third of  
 people with schizophrenia will  
 attempt suicide and,  
 eventually, about  
**1 out of 10**  
 will take their own lives.

Source: Division of Population Health,  
 National Center for Chronic Disease  
 Prevention and Health Promotion

### NEW EVALUATIONS OF FIRST- AND SECOND-GENERATION THERAPIES

Until recently, long-acting injectable (LAI) formulations were only available for first-generation antipsychotics, and their utilization decreased as use of oral second-generation antipsychotics (SGA) increased. Registry-based studies show that LAIs reduce rehospitalization more than oral medications in clinical practice, but this was not seen in recent clinical trials.

To compare SGA oral medications with a long-acting injectable SGA, Dr. Goff collaborated in PROACTIVE, a randomized clinical trial. In the trial, patients with schizophrenia or schizoaffective disorder were randomly assigned to LAI risperidone (LAI-R) or physician's choice oral SGAs, evaluated during the 30-month study using two-way video, and monitored biweekly. PROACTIVE showed a greater improvement in psychotic symptoms and BRIEF Psychiatric Rating Scale total in the LAI-R group but insignificant differences between LAI-R and oral SGA treatment in time to first relapse and hospitalization.

In another study, Dr. Goff and his team examined D-cycloserine (DCS), which has been shown to enhance memory and improve negative schizophrenia symptoms. The team hypothesized that DCS, combined with a cognitive remediation (CR) program, would improve memory of a practiced auditory discrimination task, as well as performance on unpracticed cognitive tasks. Medicated adult schizophrenia outpatients participated in the Brain Fitness CR program three to five times per week for eight weeks. Primary outcomes were performance on an auditory discrimination task, the MATRICS cognitive battery composite score, and the Scale for Assessment of Negative Symptoms total score.

This study, published in *Schizophrenia Research* in March 2014, found that DCS significantly improved performance on the practiced auditory discrimination task compared with the placebo group, while significantly improving negative symptoms. These results suggested that DCS augments cognition remediation and alleviates negative symptoms in schizophrenia patients. Further work is needed to evaluate whether CR gains achieved with DCS can generalize to other unpracticed cognitive tasks.

### TRANSLATING MENTAL ILLNESS ETIOLOGY TO TREATMENT

Dolores Malaspina, MD, MSPH, the Anita Steckler and Joseph Steckler Professor of Psychiatry at NYU Langone, conducts translational research to understand the etiologies of severe mental illnesses, with the goal of finding personalized preventions and treatments.

In genetics, Dr. Malaspina was the first to link an increased risk for schizophrenia to advanced paternal age—which is now also linked with many other conditions—proposing that de novo mutations arose in the aging paternal germ cell line. In 2014 Dr. Malaspina demonstrated that epigenetic changes in sperm also accompany paternal aging, and that these affect gene function and behavior in the offspring. Another study showed that in some cases, a family history of schizophrenia and later paternal age were associated with pathologically lengthened telomeres.

**In 2014, Dr. Malaspina demonstrated that epigenetic changes in sperm also accompany paternal aging, and that these affect gene function and behavior in the offspring.**

In separate 2014 studies, Dr. Malaspina and her colleagues also explored the pathways that associate childhood trauma, vitamin D deficiency, and substance abuse. Additional published studies examined the variability in neuroimaging measures, symptoms, olfactory processing, and cognition in mental illness, as these are the intervening components that link risk exposures to mental dysfunction. Both chronically ill subjects and those in early disease have been studied to illuminate the impact of risk factors on symptom trajectories and psychosis onset.

Other etiology-related areas of ongoing work for Dr. Malaspina concern metabolic health, particularly cardiovascular disease and diabetes, which are the major causes of early death in patients with severe mental illness. Her 2014 editorial in the *American Journal of Psychiatry* considered the relevance of vascular dysfunction as a primary etiology of psychosis.

## CLINICAL TRANSLATIONAL CARE

# Finding Focus

## ADHD

### TESTING THE EFFECTS OF LDX ON EXECUTIVE FUNCTION

The Attention Deficit Hyperactivity Disorder (ADHD) Program provides advanced, multidisciplinary treatment approaches, including comprehensive diagnostic examinations, medication management, neuropsychological testing, cognitive behavioral therapy, and family therapy. The ADHD Program also provides special outreach to adults with ADHD—a unique program in the New York metropolitan area.

Lenard A. Adler, MD, professor of psychiatry and child and adolescent psychiatry, recently examined the clinical effects and mechanism of action of lisdexamfetamine dimesylate (LDX) on ADHD. LDX is a long-acting amphetamine prodrug for the treatment of ADHD that has been shown to be effective in adults.

In one study, Dr. Adler's team evaluated the clinical effects of equivalent doses of LDX and mixed amphetamine salts-immediate release (MAS-IR/ Adderall) on adult attention deficit hyperactivity disorder in a placebo-controlled, crossover design. Both drugs had significant effects on ADHD clinician ratings and measures of executive function (EF) (with response rates of about 80 percent), but LDX treatment yielded significantly greater reductions in CGI-S (a rating scale that measures symptom severity) and selected BRIEF subsets (an assessment tool of children's EF behaviors) than did MAS-IR treatment.

**Dr. Adler and his collaborators sought to better understand the effects of stimulants on the motivation-reward mechanisms that have been demonstrated in ADHD.**

Dr. Adler and his collaborators sought to better understand the effects of stimulants on the motivation-reward mechanisms that have been demonstrated in ADHD. The team used functional magnetic resonance imaging (fMRI) to study the relationship between LDX and the brain's motivation-reward system, and noted clinical improvement. Their randomized, placebo-controlled trial in adults with ADHD, presented at the June 2014 meeting of the American Society for Clinical Psychiatry, showed that compared to placebo, LDX increased blood oxygen level-dependent (BOLD) responses in: 1) caudate and anterior cingulate cortices (frontal part of the cingulate cortex, involved in reward anticipation, decision making, and impulse control), when the subject responded; and 2) insular/inferior frontal cortex, when they did not respond. This study showed that LDX increases sensitivity in the motivation-reward system, which may be compromised in individuals with ADHD.

In another randomized, double-blind, placebo-controlled study, Dr. Adler's team assessed the level of agreement between self- and observer-reported ratings of ADHD symptoms and EF behaviors in adults with moderate to severe ADHD and EF deficits. They found that LDX improved EF and ADHD symptoms, based on participant, informant, and clinician ratings.



Lenard Adler, MD, and  
Mary Solanto, MD,  
specialize in ADHD

## GIVING CHILDREN WITH ADHD THE TOOLS TO THRIVE

The Child Study Center at NYU Langone Medical Center has developed a new Organizational Skills Training (OST) program to treat children with Organization, Time Management and Planning (OTMP) deficits, an aspect of ADHD that pharmaceutical therapy does not always resolve. The program is now in its second year.

The OST methodology is based on more than 15 years of research led by Howard Abikoff, PhD, the Pevaroff Cohn Professor of Child and Adolescent Psychiatry and director of the Child Study Center's Institute for Attention Deficit Hyperactivity and Behavior Disorders, and Richard Gallagher, PhD, associate professor of psychiatry and child and adolescent psychiatry, and director of the Parenting Institute at the Child Study Center. They have shown that many children with ADHD have severe organizational problems that undermine scholastic performance, and that they often do not learn how to be organized by observing others, as many children do.

The NYU Langone program has its roots in a National Institute of Mental Health (NIMH)-funded pilot program designed to teach basic organizational skills by deconstructing them into simple tasks learned step by step. Most participants in that program showed significant improvement in their organizational skills, and a large-scale, NIMH-funded, five-year controlled trial conducted at NYU and Duke University, published in 2013, confirmed the findings of the pilot program. Students' scores on the Children's Organizational Skills Scales (COSS) improved so significantly that they no longer qualified as organizationally impaired. Their school performance improved, and parents and children experienced less conflict as a result.

At NYU Langone, the OST program is open to third-, fourth-, and fifth-graders with ADHD-related organizational problems, using an intensive system of skills building to help these children develop productive habits. By studying the program's impact on the brain circuitry of young participants, a team of NYU Langone Medical Center scientists aims to improve our understanding of the complex relationships between behavioral and neural functioning in children with ADHD. So far 24 children have completed the new clinical program, which is described by Dr. Gallagher, Dr. Abikoff, and another team member, Dr. Elana Spira, in the new book *Organizational Skills Training for Children with ADHD: An Empirically Supported Treatment*.



Howard Abikoff, PhD, and Richard Gallagher, PhD, lead OST research

## STRUCTURED SUPPORT GROUP BOOSTS COPING SKILLS

Mary Solanto, PhD, associate professor of psychiatry and of child and adolescent psychiatry, joined the NYU Langone faculty in July 2014. Dr. Solanto is the developer of the first-ever structured, 15-session group therapy program to help adults with ADHD strengthen their time management, organization, and project management skills. The program has treated 500 adults in the 15 years since its inception, and has demonstrated efficacy in improving executive functioning in adults with ADHD in a study sponsored by the National Institute of Mental Health.

Since joining NYU Langone, Dr. Solanto has inaugurated and run two of these ADHD groups—a third began recently—providing active treatment to adults who can benefit from improvements in executive function. Future groups may target patients with specific comorbid problems or relationship issues; people in specific professions; or other undesired behaviors, such as impulses or addictions, in patients with ADHD.

In addition to the group format she offers for adults, Dr. Solanto performs diagnostic evaluations of adults who are suspected of having ADHD, provides one-on-one therapy services to complement medication regimens, and trains other therapists.

## CLINICAL TRANSLATIONAL CARE

# Worldwide MRI Exchange Puts Autism In a New Light

## AUTISM



Melissa Nishawala, MD (left), and Adriana Di Martino, MD, with the "play" MRI in the Child Study Center



The Autism Brain Imaging Data Exchange (ABIDE), co-founded and managed by Adriana Di Martino, MD, research director of the autism spectrum disorder research and clinical program, and the Leon Levy Assistant Professor of Child and Adolescent Psychiatry in the Center for Neurodevelopmental Disorders at NYU Langone's Child Study Center, is yielding new insights into the functional organization of autistic brains for researchers and clinicians around the world. The findings derived from ABIDE images are being used to accelerate discovery and lay a path for the next generation of autism spectrum disorder (ASD) studies.

ABIDE provides resting-state functional magnetic resonance imaging data on 539 individuals with ASDs and 573 age-matched typical controls from 16 international sites, along with corresponding structural MRI and phenotypic information. The exchange is the largest imaging sample available through open sharing.

Since opening in 2012, the registry has provided data for several significant research papers and poster presentations. The ABIDE consortium study, published in June 2013 in *Molecular Psychiatry*, helped elucidate the disconnection model of autism by illustrating concurrent hypo- and hyper-connectivity in different regions of the brains of individuals with autism. Specifically, MRI images from the ABIDE registry showed hypoconnectivity between cortical regions in both hemispheres, and hyperconnectivity between subcortical and cortical regions. "The prefrontal cortex

has always been considered important in autism, but these studies highlight the role of other circuits, those based on the thalamus, thus indirectly highlighting the role of sensory processes that are subserved by these circuits," Dr. Di Martino says.

Because very young children have difficulty remaining still for MRI scans such as these, Dr. Di Martino has developed a protocol to scan children with autism as young as two during their natural sleep cycle. "That will allow us to study, early on, brain imaging correlation with language-related impairments in children with autism," she says. Before the protocol is used, the validity of generalizing MRI findings obtained during sleep to the waking state must be established—something not yet done in children with autism. To do this, Dr. Di Martino has received a \$250,000, two-year grant from the National Institute of Mental Health for a pilot study on the intrinsic brain architecture of young children with autism while awake and asleep.

Even as data are collected and evaluated, progress is being made. Child psychiatrists and autism specialists at the Child Study Center are helping families by formulating effective therapies, while research faculty use brain scans to predict which treatment will be most beneficial to a child with autism and to track that child's progress. The Child Study Center offers several types of therapies in addition to gold-standard applied behavior analysis, including pivotal response treatment and the evidence-based social skills group PEERS®.

# National Study Compares Relapse-Prevention Medications To Break Opioid Addiction

## ADDICTION

An estimated

**2.1 million**

people in the United States suffer from substance use disorders related to prescription opioid pain relievers, and an additional 467,000 are estimated to be addicted to heroin.

Source: National Institute on Drug Abuse

John Rotrosen, MD, professor of psychiatry at NYU Langone Medical Center and director of the Addiction Research Center in the Department of Psychiatry, is the principal investigator of a new, nationwide study that may help break the cycle of heroin addiction.

Funded by the National Institute on Drug Abuse, Dr. Rotrosen and scientists from the Addiction Research Center are leading a nationwide trial to provide evidence-based data on the most effective ways to treat addiction to heroin or to prescription opioids, using currently available relapse-prevention medications.

X:BOT compares extended-release naltrexone (XR-NTX, Vivitrol<sup>®</sup>), administered monthly by intramuscular gluteal injection, and buprenorphine-naloxone (BUP-NX, Suboxone<sup>®</sup>), taken orally, in individuals with diagnosed opioid-use disorder. Naltrexone, an opioid receptor antagonist, prevents patients from getting high (or overdosing) if they use heroin or prescription opioids. By contrast, buprenorphine is a partial agonist that produces modulated opioid effects and prevents withdrawal symptoms.

X:BOT's primary endpoint is "time-to-relapse"—when a subject reverts to using an opioid. Secondary outcomes include retention in treatment and abstinence, alcohol and other drug use, tobacco use, opioid craving, problems related to drug abuse, and HIV risk behavior, among others. The study will also examine whether patients respond better to a medication they might prefer than to a non-preferred medication.

"Extended-release naltrexone and buprenorphine are incredibly effective medications and have the potential to save many lives, but we need to learn more about them, including who benefits most from one intervention versus the other, and to delineate relevant predictors of success," says Dr. Rotrosen.

## PSILOCYBIN STUDY



A phase II clinical trial, recently completed by Stephen Ross, MD, associate professor of psychiatry and child and adolescent psychiatry and director of addiction psychiatry at NYU Langone's Tisch Hospital, used psilocybin, the naturally occurring psychedelic compound commonly referred to as "psychedelic mushrooms," to help patients with advanced cancer overcome their fear of death. The double-blind, placebo-controlled pilot study assessed the potential for psilocybin to treat anxiety, depression, pain perception, existential/psycho-spiritual distress, fear of death, attitude toward disease progression, quality of life, and spiritual/mystical states of consciousness associated with a cancer diagnosis.

**"The vast majority [of patients] have exhibited an immediate and sustained reduction in anxiety"**

— Stephen Ross, MD  
*The Atlantic Monthly*, April 2014

**CLINICAL TRANSLATIONAL CARE**

## Reproductive Psychiatry

### *Emotional Support for the Reproductive Life Span*

The Department of Psychiatry's Center for Reproductive Health focuses on diagnosis and treatment of psychiatric disorders related to the reproductive life span, including preconception, pregnancy, and the postpartum period. The center evaluates and treats psychiatric conditions in pregnant and postpartum women, and provides emotional support for issues such as the stresses of infertility and recurrent pregnancy loss.

Lucy A. Hutner, MD, assistant professor of psychiatry and director of the Reproductive Psychiatry Program, directs the center, which this year is launching support groups for pregnant patients and their partners, and for new parents with infants in the neonatal intensive care unit (NICU). The center is also establishing a clinical database to follow patients through the natural history of mood disorders in pregnancy.

Residents, fellows, and medical students rotate through the center, which is structured as an integrated clinical, educational, and research program. Dr. Hutner collaborates with Judy Greene, MD, who directs both the fellowship program in reproductive psychiatry and the Women's Health Program at Bellevue Hospital Center.

"This allows our trainees to see a wide range of patients coming through their pregnancy and postpartum journey, in a variety of stressful situations," says Dr. Hutner. "The patients I see are usually facing infertility, high-risk pregnancy, recurrent perinatal loss, or medical complications and babies in the NICU. Dr. Greene's population tends to be more socioeconomically disadvantaged, impacted by trauma and lack of healthcare access."

Dr. Hutner is completing a first-of-its-kind research project characterizing psychiatric issues in a group of women who were hospitalized (for pregnancy-related reasons or other, unrelated medical issues) during their pregnancy.

## Consultation-Liaison Psychiatry Service

### *Psychiatric Care for Patients with Comorbidities*

Inpatients with complex medical illnesses who are also psychiatrically ill receive expert care from Psychiatry's Consultation-Liaison Service (CL Psychiatry) at NYU Langone's Tisch Hospital.

Jane Rosenthal, MD, clinical associate professor of psychiatry and population health, is director of the service, with team members including Sally Habib, MD, associate director; Seema Quraishi, MD, attending with specialization in psychosomatic medicine; and Vicki Kalira, MD, attending with specialization in addiction medicine.

CL's daily work involves assessing the most complex patients in the general hospital. It requires a comprehensive range of expertise in the differential diagnoses spanning psychiatry and medicine, along with an acute understanding of the neuropsychiatric presentations of medical illness. These versatile mental health professionals work in the medical, surgical, and neurosurgical ICUs; on the medicine and surgery floors; in OB/GYN; and on the oncology service, to help assess delirium, suicidality, the need for medication management, alcohol/substance withdrawal, mood and psychotic disorders, capacity to make medical decisions, and end-of-life care.

CL psychiatrists also work closely with the NYU Langone Transplant Service, meeting with all potential living kidney and liver donors to understand their motivations for donating and ensure that they are not being unduly pressured. These experts have the singular responsibility of representing the donor's best interests and ensuring that they are aware that they have the right to change their mind up until the moment of surgery, without any repercussions. The CL team is often called to help evaluate inpatient liver and kidney recipients—who

are often very ill and encephalopathic—as well. The team evaluates a number of important elements that would bear on the patient's ability to become an organ recipient, including alcohol and substance use, and psychiatric illness, which might impede the ability to be adherent to lifetime immunosuppressants.

### *Child Psychiatry Consultation Liaison*

K. Ron-Li Liaw, MD, director of the Child Psychiatry Consultation Liaison Program at the Child Study Center, oversees psychiatry and psychology consultations for pediatric patients and integrated psychosocial program development within Children's Services. Her team, comprised of three child psychiatrists and two child psychologists, provides consultation to all of Tisch Hospital's pediatric inpatient units and the KiDS Emergency Department, the Hassenfeld Children's Center for Cancer and Blood Disorders, and Fink Children's Ambulatory Care Center. Over the past few years, the service has expanded and now leads the way in innovative, multidisciplinary program development to enhance emotional supports for children and families facing childhood illness and injury.

One example out of several quality improvement initiatives led by Dr. Liaw is the implementation of a universal mental health screening program and matched care pathways for depression, anxiety, and traumatic stress within the Cystic Fibrosis Center. Children and adolescents with chronic, complex illnesses, like cystic fibrosis, and their caregivers report much higher rates of depression and anxiety than in the general population. Dr. Liaw explains, "The experience that we have gained from this quality improvement initiative for adolescents and young adults with cystic fibrosis will allow us to build higher-quality models of integrated care for all children and families facing chronic illness."

## Treatment-Resistant Depression

### ***When Treatment Fails, the Brain May Provide Clues***

As many as one-third of patients with clinical depression fail to respond to multiple courses of treatment, a problem known as treatment-resistant depression. In treating these complex patients, Norman Sussman, MD, MPA, professor of psychiatry and director of the Treatment Resistant Depression Program, and David L. Ginsberg, MD, clinical associate professor and vice chair for clinical affairs, focus on enzyme deficits, genetic differences in metabolism, and other areas of emerging evidence.

A key area of investigation for treatment-resistant depression is inflammation in the brain, which has been found to correlate with the severity of depression. In September 2013, Dr. Sussman, Dr. Ginsberg, and colleagues published a case report in *Biological Psychiatry* that dramatically illustrates the role inflammation may play in this condition. "I had been treating a patient for 10 years. He had been on every treatment without success, and his depression was so severe that he was incapable of working," says Dr. Sussman. A biopsy revealed that the man's brain was full of inflammatory cells. "After we treated him with the drugs we usually use to treat rheumatoid diseases, he was cured and able to go back to work."

All patients at NYU Langone with treatment-resistant depression are now routinely screened for inflammatory factors—a practice that is not yet common at many centers.

## Inpatient Psychiatry

### ***Improving the Quality and Efficiency of In-Unit Care***

NYU Langone's Inpatient Psychiatry unit offers a unique care model in which every patient encounter is team-based, involving a full panel of experts, providing an ideal environment for understanding and caring for patients with complex conditions. "I've never seen that at any other psychiatric hospital," says Michael Walton, MD, the unit's medical director. Each patient is asked to identify specific goals for care, and the multidisciplinary team collaborates to build an individualized treatment plan based on those goals.

Walton says that the unit strives for an environment that replicates normal life for patients as much as possible. "We are more cooperative with patients than the average psychiatric floor," he says. "We go out of our way to accommodate them and make life comfortable so that they can focus on their chief complaint, not the inconveniences of an institution. We've deinstitutionalized as much as possible to focus on an environment that is in all ways therapeutic. We are one of the only voluntary-only units in the New York metropolitan area, which helps enable us to maintain this milieu."

The unit also has a robust ECT program and a favorable patient-to-staff ratio. It offers a dedicated internist as part of its team, so that patients with medical needs can be treated within the same environment.

As length of stay for inpatient psychiatry units decreases nationwide, NYU Langone has led the way. Over the past several years, the unit has decreased the average length of stay—from 14.5 days in 2012 to 10.09 days in 2014—while at the same time seeing more patients. There were 444 discharges from the unit in 2012, and 563 in 2014. "We have to accomplish a great deal in a short time and consider what our goals of hospitalization are," says Dr. Walton. The unit is developing a short-stay psychiatric hospitalization curriculum for residents that they plan to publish for nationwide dissemination within the next year.

### **THE CENTER FOR BRAIN HEALTH**

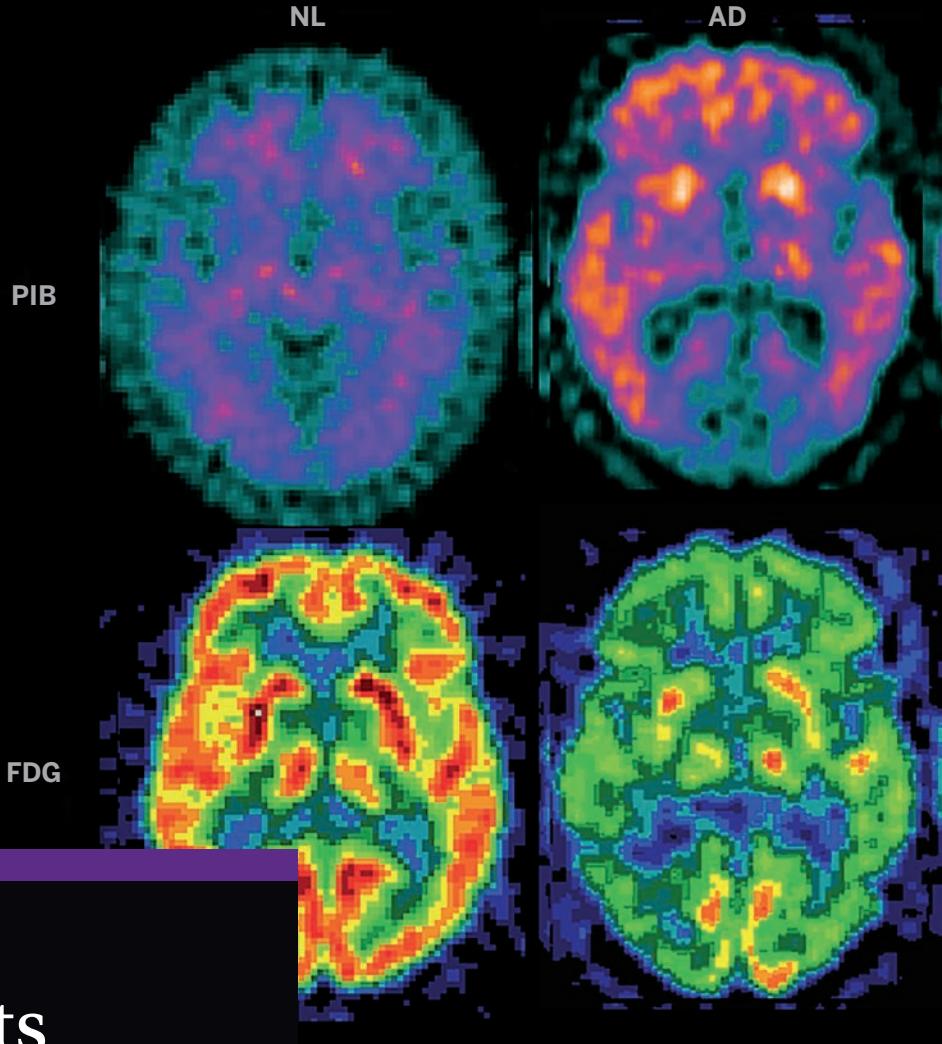
### **Tracking Brain Changes Across Conditions**

For more than 30 years, faculty at NYU Langone's Center for Brain Health, directed by Mony J. de Leon, EdD, professor of psychiatry, have researched brain changes associated with normal aging, memory loss, the early diagnosis of Alzheimer's disease, and the cognitive changes associated with diabetes.

The center is funded by grants from the National Institutes of Health and is world renowned for its development of imaging and biomarker tools to provide the early diagnosis of Alzheimer's disease. The center consists of three main laboratories—neuroimaging, physiology, and neuropsychology—as well as a clinical diagnosis and treatment group.

As progress in the early detection of brain pathology has greatly improved in recent years, the next great scientific challenge is to use this information to develop prevention strategies for late-life disease. Ongoing studies conducted at the center in hypertension, sleep-disordered breathing, and nutrition suggest that early disease modifications may afford alternative therapeutic gain in the prevention of neurodegenerative diseases such as Alzheimer's.

## RESEARCH HIGHLIGHTS



## Research Highlights

→ Research at NYU Langone is uncovering new pathways to treat conditions such as PTSD and Alzheimer's, and provide better emotional care for the youngest patients.

Brain imaging is an important component of psychiatry research at NYU Langone



## Post-Traumatic Stress

### ***The Persistence of PTSD***

A significant number of Vietnam veterans—more than 1 in 10—still struggle with PTSD decades after the war's end, according to findings from a landmark study led by Charles Marmar, MD, the Lucius N. Littauer Professor of Psychiatry and chair of the Department of Psychiatry. The new analysis, financed by the Department of Veterans Affairs and presented to the American Psychological Association in August 2014, is part of the first effort to follow a large representative sample of service members through their adult lives. Veterans with persistent PTSD were also twice as likely to have died before reaching retirement age than those without the disorder. "This study shows us what the road ahead is going to look like," Dr. Marmar says. "A significant number of veterans are going to have PTSD for a lifetime unless we do something radically different."

***When Trauma Activates Inflammation***  
Individuals with combat-related PTSD have significantly higher proinflammatory scores compared to combat-exposed subjects without PTSD, according to a new study co-authored by Dr. Marmar. One of the largest to date to investigate inflammatory cytokines in PTSD, the study demonstrated that combat-related PTSD in males is associated with higher levels of proinflammatory cytokines, even after accounting for depression and early-life trauma, and suggests that immune activation may be a core element of PTSD pathophysiology. The study appeared in *Brain, Behavior, and Immunity* in November 2014.

## Brain Science

### ***Dialing in the Brain Switchboard***

How is the brain able to seamlessly shift between attending to the outside world and to our inner thoughts? Researchers at NYU Langone Medical Center have identified a few nerve cells in the brain, referred to as the thalamic reticular nucleus (TRN), that may control these shifts—much like a switchboard operator. This new study, funded by the NIH and published in *Cell* in August 2014, combined multielectrode recordings and optogenetics, identifying for the first time that different TRN neurons can independently control distinct channels of information in the brain.

Lead researcher Michael Halassa, MD, PhD, assistant professor of psychiatry and neuroscience and physiology, and his team studied the firing patterns of TRN cells in mice during sleep and arousal, to understand how the switchboard might work. They found that during sleep, neurons that controlled sensory channels fired vigorously, but they became very quiet when an animal had to pay attention to a sensory stimulus. Because these neurons are inhibitory, their firing is thought to regulate sensory flow. Leveraging this basic knowledge, researchers were able to control attentional behavior in mice. Exciting the TRN made well-rested mice behave as if they were sleep-deprived, while inhibiting the TRN made sleep-deprived mice much more attentive. According to Dr. Halassa, a practicing psychiatrist who treats patients with schizophrenia, these findings may provide fundamental insights into how the brain controls information transmission, which is interrupted in patients with neuropsychiatric disorders such as schizophrenia and ADHD.

## Alzheimer's

### ***Reducing Expression of Amyloid Precursor Protein***

Scientists at NYU Langone Medical Center have identified a compound called 2-PMAP, which reduces expression of amyloid precursor protein associated with Alzheimer's disease in the brain. The researchers hope that a treatment based on the molecule might be used to prevent and mitigate the progression of the neurodegenerative disease.

"What we want in Alzheimer's prevention is a drug that modestly lowers amyloid beta and is also safe for long-term use," says Martin J. Sadowski, MD, PhD, associate professor of neurology, psychiatry, and biochemistry and molecular pharmacology, who led the research, which appeared in *Annals of Neurology* in June 2014.

***The Role of Diet in Alzheimer's Disease***  
A pilot study led by Lisa Mosconi, PhD, assistant professor of psychiatry, has provided intriguing evidence supporting dietary interventions in the prevention of Alzheimer's disease.

Researchers assessed the dietary intake of 49 cognitively normal individuals with and without risk factors for Alzheimer's disease, and performed a battery of studies including neurocognitive testing and PET scans using both Pittsburgh Compound-B (PiB, a biomarker for amyloid deposition) and FDG (a proxy for neuronal activity). They found that higher intake of vitamin B12, vitamin D, and omega-3 polyunsaturated fatty acid (PUFA) was associated with lower Abeta load in AD regions on PiB-PET, while higher intake of beta carotene and folate was associated with higher glucose metabolism on FDG-PET. These nutritional combinations are generally associated with diets that are higher in fruits, vegetables, fish, and whole grains, and lower in fats and sweets.

## RESEARCH HIGHLIGHTS

### Alzheimer's (continued)

#### **Caregiver Intervention Program**

Research by NYU Langone's Psychosocial Research and Support Program, led by Mary Mittelman, DrPH, professor of psychiatry, has shown that counseling and support for family caregivers of people with Alzheimer's disease or related dementias improve the mental and physical health of the caregiver—and postpone the need to place the person with dementia in residential care by an average of 18 months. This can amount to a considerable savings for hard-pressed caregivers and for local and federal governments, as nursing home care can cost hundreds of thousands of dollars.

Recent findings about the benefits of these services—which include individual counseling, family counseling for the spouse together with close family or friends, participation in support groups, and the availability of ongoing consultation as needed—appeared in *Health Affairs* in April 2014.

#### **Easing Anxiety May Help Stave Off Memory Decline in Older Adults**

Although beta-amyloid, anxiety, and depression have been linked cross-sectionally to reduced memory function in healthy older adults without dementia, there is a paucity of data evaluating these associations.

In a new study published in *The British Journal of Psychiatry* in May 2014, Alexander Neumeister, MD, professor of psychiatry and radiology, and colleagues found that anxiety symptoms played a significant role in the relationship between beta-amyloid level and decline in verbal and episodic memory. Anxiety symptoms were additionally linked to a greater decline in executive function—the group of mental skills that help the brain organize and act on information—irrespective of beta-amyloid and other risk factors.

These findings, which used data from an observational cohort study of 178 healthy older adults without dementia who were followed for three years, suggest that interventions to mitigate anxiety symptoms may help delay memory decline in otherwise healthy older adults with elevated beta-amyloid.

### Children's Mental Health

#### **"Good Mothering" Hardwires the Infant Brain**

Research led by neurobiologist Regina Sullivan, PhD, professor of child and adolescent psychiatry, offers insight into how a mother's nurturing can shape the long-term growth of her infant's brain.

After watching nearly a hundred hours of video showing mother rats protecting, warming, and feeding their young pups, and then aligning what they saw to real-time electrical readings from the pups' brains, Sullivan and her team found that the mother's nurturing role directly molds the early neural activity and growth of her offspring's brain.

Featured in the July 21, 2014, edition of *Current Biology*, the findings are believed to be the first to show how natural, early maternal attachment behaviors regulate and control electrical signaling in the brain and affect key stages in postnatal brain development.

Study results showed that when rat mothers left their pups alone in the nest, infant cortical brain electrical activity, measured as local field potentials, jumped 50 percent to 100 percent, and brain wave patterns became more erratic, or desynchronous. Researchers point out that such periodic desynchronization is key to healthy brain growth and communication across different brain regions.

During nursing, infant rat pups calmed down after attaching themselves to their mother's nipple. Brain activity also slowed and became more synchronous, with identifiable electrical patterns.

"Our research shows how in mammals, the mother's sensory stimulation helps sculpt the infant's growing brain and define the role played by nurturing in healthy brain development—offering greater insight into what constitutes good mothering," Dr. Sullivan says. "The study also helps explain how differences in the way mothers nurture their young could account, in part, for the wide variation in infant behavior among animals, including people, with similar backgrounds or in uniform, tightly knit cultures."

## ***Are Younger Children Using Mental Health Services More Seriously Ill?***

Children using outpatient mental health services at an earlier age (6–7) were much more likely than older children (8–12) to have required these services before the age of six, according to new research from Sarah McCue Horwitz, PhD, professor of child and adolescent psychiatry. The study, which appeared in *Psychiatric Services* in August 2014, found that younger children showed very early use of multiple types of services for mental health problems and a pattern of persistent impairment, despite long-standing use of services.

## ***Taking Best Practices from Research to Reality in Children's Mental Health Clinics***

Designing effective mental health treatments, practices, and services for children, adolescents, and their families does little good if those best practices are not used. Understanding how and whether agencies adopt—or choose not to adopt—effective practices is a key goal in the research lab of Kimberly Eaton Hoagwood, PhD, the Cathy and Stephen Graham Professor of Child and Adolescent Psychiatry and vice chair for research in the Department of Child and Adolescent Psychiatry.

Dr. Hoagwood has led a series of studies to help the State of New York improve its dissemination of best practices by better understanding how to target rollout efforts.

The massive undertaking involved all 350 licensed mental health clinics serving children and adolescents in New York. “We found that some agencies are ‘high achievers,’ adopting everything that you offer them, while others are more reluctant, cautious, or in need of additional support prior to adoption,” she says. “Working closely with leaders in New York State as well as family and agency partners, we are developing tool kits to help policymakers target their dissemination efforts more precisely. The idea is to make adoption of new best practices more pragmatic, targeted, and efficient.”

The findings have appeared in *Administrative Policy in Mental Health* and *Psychiatric Services in Advance*.



Regina Sullivan, PhD, and  
Kimberly Hoagwood, PhD,  
researchers in child psychiatry



## EDUCATION &amp; TRAINING



## Education & Training

► *The next generation of mental health leaders benefit from a diverse training ground in our centers and programs.*

Our rigorous training programs prepare the next generation of psychiatrists, child and adolescent psychiatrists, psychologists, and researchers to bring the field of psychiatry to new levels of excellence



## Education

NYU Langone's psychiatry team trains the next generation of leaders, paving the way for innovative care and research in the etiology and treatment of psychiatric disorders. Residents and fellows gain experience across all systems of healthcare, from the academic umbrella of NYU School of Medicine including private practice and inpatient care at NYU Langone's Tisch Hospital, to the public sector through affiliations with NYC Health and Hospitals Corporation locations including Bellevue Hospital Center, to government-based care through the Veterans Administration NY Harbor HealthCare System (Manhattan VA Hospital) and New York State OMH-funded facilities at Rockland and Manhattan Psychiatric Centers.

## Residency

The psychiatric residency program at NYU Langone provides:

**DIVERSE EXPERIENCE.** Residents train for four years at the world-famous Bellevue Hospital Center, gaining experience in diagnosis and treatment of chronic mental illness and inpatient, outpatient, and psychopharmacological care, as well as at NYU Langone Behavioral Health Programs and the Counseling and Wellness Service at New York University.

**A RESEARCH FOCUS.** The program accepts up to three MD/PhD residents per year in its mentorship-focused academic track, a pathway to postdoctoral funding, and also sponsors a combined six-year psychiatry and neurology residency, which allows these residents to meet requirements for board certification in psychiatry and neurology.

**GLOBAL REACH.** Fourth-year residents are encouraged to participate in a four-week rotation in Accra, Ghana. Through collaboration between the departments of Psychiatry at NYU Langone and Ghana Medical School, the program, piloted in 2013–14, enables trainees to be involved in teaching medical students in Ghana—a country with only 16 psychiatrists available to serve a population of 25 million.

### Key Facts

- Accepts 14 general psychiatry residents each year
- Applicant pool includes more than half of U.S. medical students pursuing psychiatry
- Nearly 75 percent of 2014 postgraduate year 1 (PGY 1) residents came from top-ranked medical schools

## Fellowships

*NYU Langone's psychiatry fellowships offer highly focused postdoctoral training in key subspecialties:*

- Addiction Psychiatry
- Forensic Psychiatry
- Geriatric Psychiatry
- Psychosomatic Medicine
- Reproductive Psychiatry/Women's Mental Health
- Public Psychiatry
- Child and Adolescent Psychiatry

### CHILD AND ADOLESCENT PSYCHIATRY FELLOWSHIP

NYU Langone's Child and Adolescent Psychiatry Fellowship program is one of the nation's oldest, accepting 10 candidates per year and receiving applications from more than one-third of U.S. general psychiatry residents pursuing child and adolescent psychiatry.

*Psychology Postdoctoral Fellowships in Child and Adolescent Psychiatry:*

- Autism Spectrum Disorder
- Pediatric Neuropsychology
- Anxiety and Mood Disorders
- Empirically Derived Assessment and Treatment

## UPCOMING CONTINUING MEDICAL EDUCATION COURSES

NYU Langone/Bellevue Hospital Center Psychopharmacology Annual Review • Managing Psychiatric Emergencies in Children and Adolescents  
For more information or to register for our CME courses, visit [nyulmc.org/cme](http://nyulmc.org/cme)

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Total Number of Beds

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Full-Time Faculty

**4,000+**  
Publications

**650**  
MD Candidates

**77**  
Operating Rooms

**1,047**  
Part-Time Faculty

**550,000**  
Square Feet of Research Space

**70**  
MD/PhD Candidates

**35,666**  
Patient Admissions

**2,500+**  
Voluntary Faculty

**\$245MM**  
NIH Funding

**252**  
PhD Candidates

**1,061,552**  
Hospital-Based Outpatient Visits

**120**  
Endowed Professorships

**\$285MM**  
Total Grant Funding

**415**  
Postdoctoral Fellows

**5,422**  
Births

**2,515**  
Physicians

**2,053**  
Inventions

**1,155**  
Residents and Fellows

**2,000,000**  
Faculty Group Practice  
Office Visits

**2,953**  
Registered and Advanced  
Practice Nurses

**936**  
US Patents Issued

**550+**  
Allied Health Professionals

**475**  
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