

INSIDE FALL 2008

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Probing the Link Between Structure, Function

Bruce McCandliss, PhD, recently received a commendation from the President of the United States in the form of a presidential Early Career Award for Scientists and Engineers. Dr. McCandliss' award-winning research focuses on the connection between brain systems and the development of mental skills such as reading, speech perception, attention, and memory.

"Our brain research in reading seeks to understand what it is about the brains of some children that makes it so difficult for this reorganization, and to create special software to help struggling readers focus their attention on the link between letters and speech sounds," said Dr. McCandliss.

He has also applied a new magnetic resonance imaging (MRI) technique, diffusion tensor imaging (DTI), to study how the integrity of white matter tracts affects cognitive functions such as reading, attention, and memory (Figure). DTI measures the diffusion of water through white matter tracts, enabling investigators to relate differences in white matter structures to differences in mental skills.

"In children, when we compare good readers to those with reading disability, we find one white matter tract correlates with reading, but not short-term memory. At the same time, a different white matter tract correlates with short-term memory, but not reading. These 2 relationships are independent, creating a 'double dissociation' that provides powerful insight into how specific cognitive functions load onto specific white matter tracts," said Dr. McCandliss. "Interestingly, we are finding these brain-behavior relationships in children with skills in the typical range, and these same relationships extend to more extreme ranges of skill,

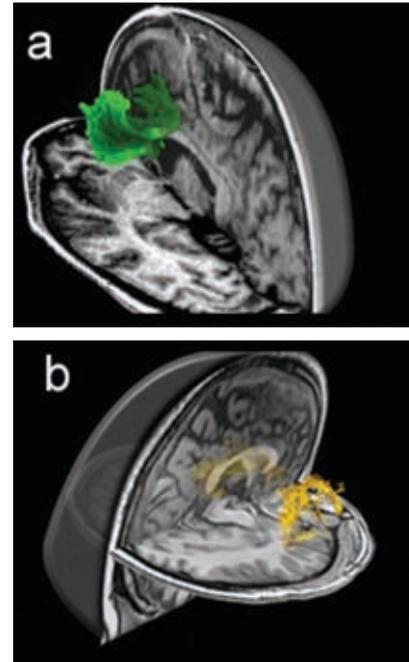


Photo courtesy of Sammi Niogi, PhD.

Figure. Diffusion tensor imaging tractography of the anterior corona radiata, a white matter tract in the frontal lobe (in green) and the uncinate fasciculus (in yellow).

including disabilities. This pattern suggests a way to understand disabilities along a continuum of structure and function relationships."

According to Dr. McCandliss, reading, unlike speaking and listening to speech, is a relatively new cultural invention dating back only about 6,000 years. "Learning to read involves novel patterns of connecting brain regions that are already functional

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Researchers Examine Brain Circuitry of ADHD

The view that 20th-century kids diagnosed with attention-deficit/hyperactivity disorder (ADHD) are just misbehaving is "antiquated, anachronistic, and wrong," according to Bradley Peterson, MD. His research includes the identification of anatomical abnormalities, including an enlarged hippocampus (*Arch Gen Psychiatry* 2006;63[7]:795-807) and abnormal morphology in the frontal cortices in children and adolescents with ADHD

(*Lancet* 2003;362[9397]:1699-1707).

Dr. Peterson believes that stimulant medication, one of the mainstays of ADHD treatment, can actually attenuate the anatomical abnormalities in the brain that underlie ADHD. "We don't know how it changes brain anatomy, but we believe that it is likely through the effects of the medication on activity within nerve cells, which ultimately

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College Suicide on Rise: Identifying Students at Risk

A new questionnaire, the Columbia-Suicide Severity Rating Scale (C-SSRS), developed by Kelly Posner, PhD, and colleagues, may help identify college students who are at risk for suicide. The questionnaire evaluates suicidal ideation and suicidal behavior.

“Suicide is the second leading cause of death in college students. Ninety-five percent of students who committed suicide were suffering from some form of mental illness, usually depression,” said Dr. Posner, who is the Founder and Principle Investigator of the Center for Suicide Risk Assessment at NewYork-Presbyterian Hospital/Columbia University Medical Center. “We know how to effectively treat depression, but we first have to identify people at risk. The Columbia-Suicide Severity Rating Scale is a tool that can be used by all clinicians, including nurses and other non-mental health professionals, not just psychiatrists. It typically requires only a few minutes to administer, yet allows us to systematically assess suicidality, which is the first step toward treatment and prevention.”

Since 1983, the Department of Psychiatry at NewYork-Presbyterian/Columbia has provided services to young adults in college or on medical leave through its College Student Program, a part of the Columbia Day Program for Intensive Group Therapy. David Kahn, MD, oversees the quality of care in the clinical programs, supervises staff, consults on patients with difficult problems, and develops new clinical programs.

With respect to the problem of suicide among college students, Dr. Kahn said, “If we step back from the formality of psychiatric diagnosis, we can see that we are dealing with young adults at a very critical juncture in their lives where many of them have left home for the first time. Many grappled with psychiatric problems while living at home, but now have greater stress and less structure; others develop a psychiatric illness for the first time, while coping with the challenges of college life.”

The program addresses anxiety and bipolar disorders, depression, first psychotic episodes, as well as special problems of this age group, such as attention-deficit/hyperactivity disorder, body image and eating disorders, substance abuse, self-injurious behavior, and suicide. The eating disorders component of the College Student Program will expand to include nutritional counseling, meal preparation, and behavioral responses to eating

in order to address the increased demand for these services.

“Many psychiatric day-treatment programs are geared for people with more lasting disabilities, but our patients are generally people who can return to school or work, so it’s a transition rather than a permanent program of care, which is relatively unique,” said Dr. Kahn. “We are unusual in the range of treatments that we offer, including dialectical behavior therapy [DBT], a well-researched psychotherapeutic treatment that helps people with suicidal thoughts hold those feelings at a distance and gain control over them. DBT is very pragmatic, focused on what a person can do in the here and now.”

“Approximately 45% of completed suicides see their primary care doctors 1 month before they commit suicide. What a wonderful opportunity for us to intervene. We should ask questions regarding suicide risk just like we monitor blood pressure. This is one important place where we can make a difference.”

—Kelly Posner, PhD

Patients receive individualized treatment and/or group therapy from a multidisciplinary evaluation and treatment team that includes psychiatrists, psychologists, substance abuse therapists, and others. There is also a modern, comfortable inpatient psychiatric evaluation and treatment service.

“Suicide is not a diagnosis,” said Dr. Kahn. “It is a symptom that is present across a wide range of psychiatric illnesses. It’s most often associated with depression and manic depressive illness, substance abuse, eating disorders, and borderline personality disorder. In order to reach students at risk of

suicide, we network with a lot of colleges in the Northeast—through therapists and word of mouth—all of these ways of getting people to know about the work that we do.”

Dr. Posner added, “Approximately 45% of completed suicides see their primary care doctors 1 month before they commit suicide. What a wonderful opportunity for us to intervene. We should ask questions regarding suicide risk just like we monitor blood pressure. This is one important place where we can make a difference.”

The C-SSRS is the prospective version of another rating tool, the Columbia Classification Algorithm of Suicide Assessment (C-CASA) (*Am J Psychiatry* 2007;164[7]:1035-

1043). The FDA commissioned Dr. Posner and colleagues to develop the C-CASA to help make sense of drug safety questions. The C-CASA retrospectively categorizes suicidality as an adverse event using data from previous clinical trials. C-CASA has been mandated and applied to antidepressant, anticonvulsant, and endocannabinoid drug trials, as well as montelukast sodium (Singulair), providing the data for these critical drug safety evaluations. Dr. Posner emphasized that the C-CASA does not provide information on causality, but may demonstrate
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alters gene expression and the proteins that determine brain structure,” he said. “The circuit that we think is really important for controlling motor activity and unwanted impulses runs from the frontal cortex to the basal ganglia, the thalamus, and back to the frontal cortex. ADHD children have prominent abnormalities in the basal ganglia and thalamus that stimulants seem to normalize.”

Currently, Dr. Peterson studies the effects of stimulant medication on the neural systems underlying the disorder at NewYork-Presbyterian Hospital/Columbia University Medical Center. Using functional magnetic resonance imaging (fMRI), Dr. Peterson and his colleagues have been able to show that stimulant medication can improve brain function in children with ADHD.

“Children with ADHD taking stimulant medication seem to be normalizing neural

systems that either permit or suppress mind-wandering,” said Dr. Peterson. “When children with ADHD are not taking stimulant medication, they are unable to suppress the mind-wandering circuits—but when they take the stimulant medication, they are able to shut these off.”

In addition to anatomical and fMRI methods, two sophisticated MRI techniques are used by Dr. Peterson to study children with ADHD: diffusion tensor imaging, which allows the imaging of nerve fibers, and magnetic resonance spectroscopy, which allows measurement of chemical compounds such as *N*-acetyl aspartate, a neuronal marker. Dr. Peterson recently co-authored a chapter on the neurobiology of impulsivity and self-regulatory control in children with ADHD (in press).

Margaret Hertzog, MD, reflected on the large number of children treated for ADHD in modern society: “Although criteria for the diagnosis of ADHD are clearly established, the contribution of social factors and expectations is still a somewhat gray area. To determine when these criteria are met still involves considerable clinical judgment.” At NewYork-Presbyterian/Weill Cornell Medical Center, she emphasizes the importance of proper diagnosis. “When I teach residents about ADHD, I point out that one of the most important considerations in the differential diagnosis is normal variation. Many ADHD symptoms are extremes of such temperamental attributes as activity level, intensity, distractibility, attention span, and persistence. But when we make the diagnosis of ADHD, these are children who have both these characteristics and impairment in their ability to function in school and with peers and with adults, mostly their parents,” said Dr. Hertzog.

Dr. Hertzog lauded the Child and Adolescent Psychiatry Residency Training Program at NewYork-Presbyterian Hospital, affiliated with both Columbia University College of Physicians and Surgeons and Weill Cornell Medical College, for utilizing the resources of both campuses to provide clinical experience and training opportunities for residents in child psychiatry who treat children with ADHD and other disorders. At NewYork-Presbyterian/Weill Cornell, there is an all-purpose child psychiatry clinic; NewYork-Presbyterian/Columbia has subspecialty clinics.

“The fact that we have different approaches to the assessment and treatment of children enriches the experience of residents in important ways. Both approaches are important to

the educational training experiences of future child psychiatrists,” she said.

Dr. Peterson added that although the current neurobiological concept of ADHD is that it is a brain disorder, the environment is also crucial. For example, prenatal factors, such as smoking during pregnancy, substantially increase the rate of ADHD. Early childhood experience, such as competent and authoritative caregiving, can help modify the expression and severity of this disorder. Having parents who help kids stay on task and attend to activities, provide appropriate stimulating environments, and help them organize their thoughts and behavior are important for these children. That does not mean that ADHD is caused by parental neglect or dysfunction, but the combination of certain styles of upbringing and life experience with a genetic

predisposition appears to increase the rates of ADHD.

“Anxiety and depressive disorders may also be comorbid with ADHD,” Dr. Hertzog added. “In addition, there is a great deal of overlap and controversy on the question of the relationship between ADHD and the manic, hypomanic, and mood labile states of bipolar disorder.”

ADHD is a syndromic designation based on certain sets of observable behaviors. These clusters of symptoms include inattention/distractibility, impulsivity, and hyperactivity. Children may have symptoms that are primarily one or the other of these types or a combination of both inattention/distractibility and impulsivity/hyperactivity.

Contributing faculty for this article:
Margaret Hertzog, MD, and Bradley Peterson, MD

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Department of Psychiatry
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NewYork-Presbyterian Hospital/
Columbia University Medical Center
622 West 168th Street
New York, NY 10032

NewYork-Presbyterian Hospital/ Allen Pavilion

5141 Broadway
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Weill Cornell Medical College

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Chairman, Department of Psychiatry
Barklie McKee Henry Professor of Psychiatry
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Department of Psychiatry
E-mail: pwilner@med.cornell.edu

To Access Programs and Services: Weill Cornell Psychiatry (888) 694-5700

NewYork-Presbyterian Hospital/
Weill Cornell Medical Center
Payne Whitney Westchester
The Westchester Division
21 Bloomingdale Road
White Plains, NY 10605

NewYork-Presbyterian Hospital/
Weill Cornell Medical Center
Payne Whitney Manhattan
525 East 68th Street
New York, NY 10065

Affiliate: New York State Psychiatric Institute

1051 Riverside Drive, New York, NY 10032 (212) 543-5000

Clinic Serves Mental Health Needs of Children With HIV

If there is one disease of this century, it is HIV, according to psychiatrist Warren Ng, MD.

“When I started medical school it was about the time when HIV became identified—it was hard not to see how important it was as a phenomenon, not only as a medical disease, but also as a social experience for people to learn about and understand how to treat infected individuals,” said Dr. Ng, Director and Chief Psychiatrist of The Special Needs Clinic at NewYork-Presbyterian Hospital/Columbia University Medical Center.

The disease is especially important in the state of New York, which has the third highest prevalence of HIV infected women and adolescents in the country (Figure 1). In order to improve the mental health of these patients, Claude Ann Mellins, PhD, and Jennifer Havens, MD, founded The Special Needs Clinic in 1992 within the Department of Pediatric Psychiatry at NewYork-Presbyterian/Columbia, one of the first and largest family-based mental health clinics, to treat individuals and their families affected by HIV. The idea for the clinic emerged from their postdoctoral research at the HIV

Center for Clinical and Behavioral Studies at the New York State Psychiatric Institute, which identified high rates of mental health problems in children infected with HIV, their unaffected siblings, and their caregivers. The clinic grew rapidly and treated 100 patients within 4 months. Currently directed by Drs. Ng and Mellins and Sheila Ryan, CSW, MPH, the clinic has provided care to more than 1,500 patients.

infection to a chronic yet highly stigmatized and still transmittable disease. A new set of psychosocial problems arose as children infected with HIV began to live longer, reaching adolescence, a time when psychiatric disorders may emerge and youth may experiment with sexual and drug behavior. They must learn self-management skills, develop autonomy, and transition to adulthood. Successfully addressing

“We are trying to learn the role of HIV in influencing mental health and risk behavior by comparing perinatally HIV-infected youth to youth who were perinatally exposed but didn’t acquire the virus.”

—Claude Ann Mellins, PhD

Although much of the stress of HIV in infected individuals and their families initially had to do with multiple medical morbidities and early death, Dr. Mellins explained that the advent of highly active antiretroviral therapy (HAART) in 1996 changed HIV from an acute life-threatening

these challenges may be compromised by neurocognitive deficits arising from HIV infection of the central nervous system, as well as a host of factors related to poverty, urban stress, and familial risk factors.

In a pilot study, Dr. Mellins and her colleagues determined that 55% of youth

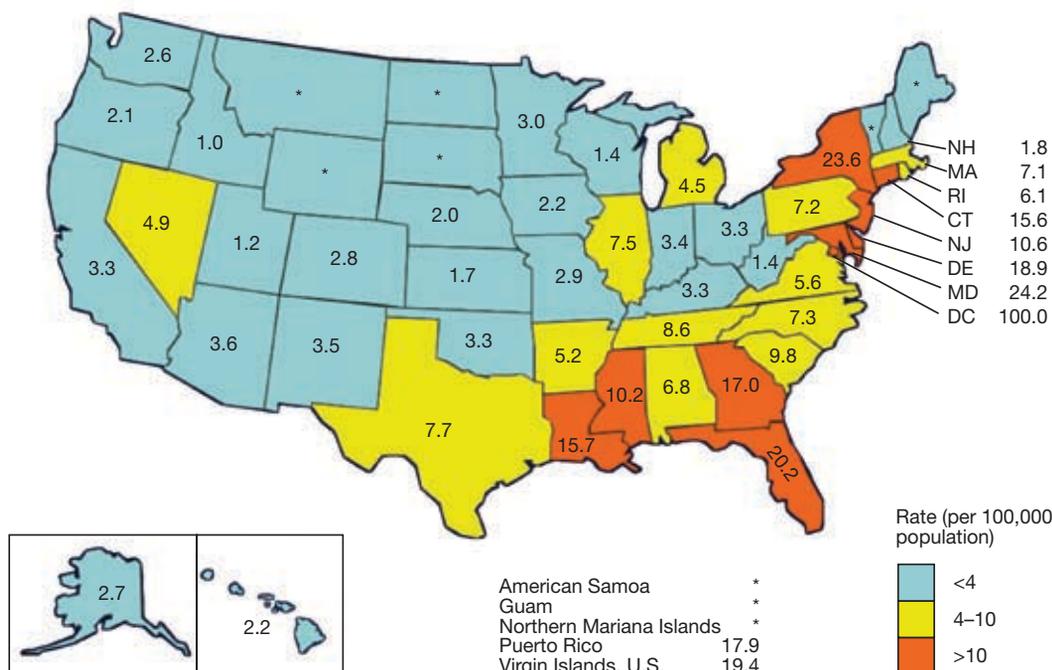


Figure courtesy of the Centers for Disease Control and Prevention.

Figure 1. Rates of reported AIDS cases per 100,000 female adults and adolescents are shown for each state, the District of Columbia, and U.S. dependent areas. The highest rates were found in the District of Columbia, Maryland, New York, and Florida. Rates were lowest in states in the Midwest. Nearly every state reported some AIDS cases among females in 2005.

perinatally infected with HIV in The Special Needs Clinic met criteria for a psychiatric disorder (*Pediatr Infect Dis J* 2006;25[5]432-437). The most prevalent were anxiety disorder (40%), attention-deficit/hyperactivity disorder (21%), conduct disorder (13%), and oppositional defiant disorder (11%). Currently, Dr. Mellins is the principle investigator of one of the largest US-based studies of mental health and risk behavior in adolescents perinatally infected with HIV, the Child and Adolescent Self-Awareness and Health Study (CASAHS), funded by the National Institute of Mental Health.

“We are trying to learn the role of HIV in influencing mental health and risk behavior by comparing perinatally HIV-infected youth to youth who were perinatally exposed but didn’t acquire the virus. The study design controls for many of the factors that might affect these outcomes, such as sociodemographic characteristics and mother’s illness,” said Dr. Mellins. “We hope to identify which factors lead to more mental health problems and risky sexual and drug behaviors, as well as identify the protective factors that result in kids doing well.” Drs. Mellins and Havens have recently authored a textbook chapter on the psychiatric aspects of HIV and AIDS (in press).

Fifty-five percent of youth perinatally infected with HIV in The Special Needs Clinic met criteria for a psychiatric disorder.

Dr. Mellins and her colleagues also began several studies to examine factors affecting adherence in mothers and children. HAART has to be taken multiple times per day and requires virtually 100% adherence, a goal that few patients achieve. In the study, psychiatric disorders and substance abuse were the strongest predictors of mothers’ adherence. Age and family functioning variables such as parent–child communication predicted youth adherence. Older youth and adolescents had the greatest struggle with adherence. Dr. Ng noted that adolescents in The Special Needs Clinic often reject HIV medication because of the stigma it carries or eschew medication in acts of caregiver

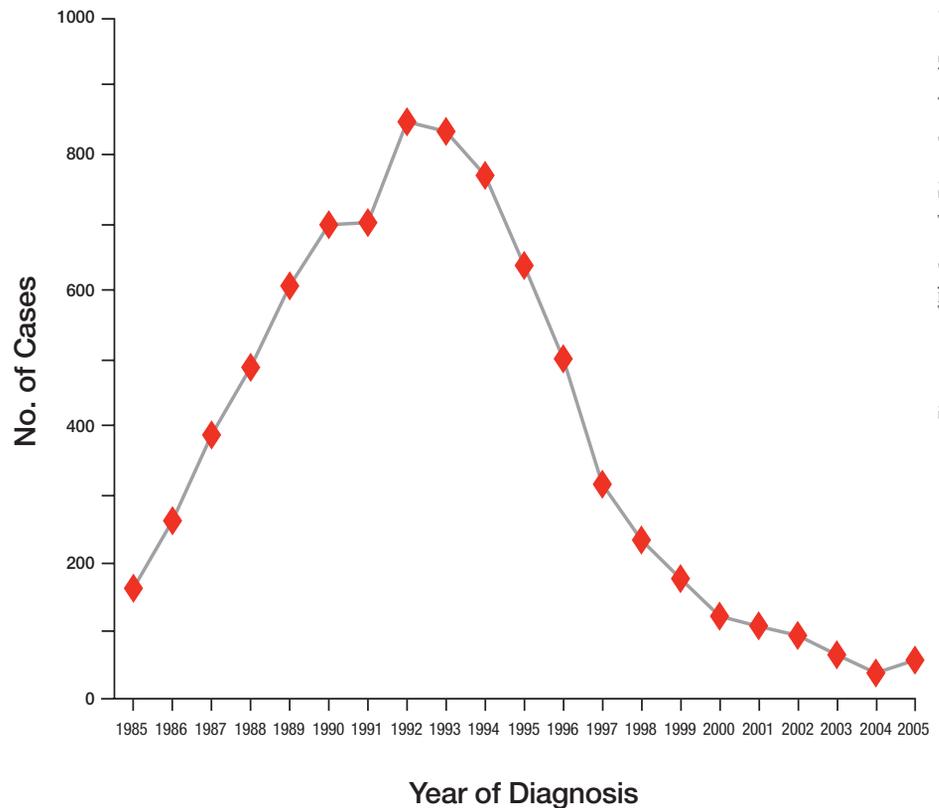


Figure 2. The estimated number of AIDS cases diagnosed among persons perinatally exposed to HIV peaked in 1992 and has decreased in recent years.

defiance. Nonadherence needs to be treated to prevent medical morbidity and mortality from HIV, as well as the development and transmission of resistant HIV strains. One solution to improve adherence may be to address the mental health of the entire family, another advantage of the all-inclusive approach of The Special Needs Clinic.

Improvement in the medical treatment of women with HIV has dramatically decreased the rate of perinatal HIV transmission, resulting in fewer infected children in the United States (Figure 2). Although the number of children newly infected with HIV has dramatically decreased in the United States, this is not the case in other areas of the world, such as South Africa. According to worldwide data from the Joint United Nations Programme on HIV/AIDS, there are 33.2 million people living with HIV, including 2.1 million children (www.unaids.org). Because resource-intensive approaches like The Special Needs Clinic are not suitable for such large numbers of patients in resource-poor countries, Dr. Mellins has been collaborating with Elaine Abrams, MD, and Mary McKay, PhD, a social worker at Mount

Sinai Medical Center, on CHAMP+ (Collaborative HIV Prevention and Adolescent Mental Health Program), which is supported by the National Institute of Mental Health. CHAMP+ promotes resilience in perinatally infected HIV-positive adolescents before they engage in high-risk behavior, and the researchers are currently adapting it for use in South Africa.

Dr. Mellins said, “The Special Needs Clinic has an extraordinary group of social workers, psychologists, psychiatrists, and case managers. With the results of the family studies research performed here and at other clinics across the country, hopefully we will begin to make a difference.”

Dr. Ng concluded, “At The Special Needs Clinic, I’m working with a group of like-minded people who feel committed to the work of caring for the mental health and medical needs of HIV-affected children and their families. Success is all about a collaborative effort, and that’s what keeps me in the field to work with these dedicated, inspired people.”

Contributing faculty for this article:
Claude Mellins, PhD, Warren Ng, MD

Hospital Advances the Diagnosis and Treatment of Autism

Margaret Hertzog, MD, noted that children with characteristics of autism were first described in a medical journal, *The Nervous Child*, in 1943. The children had the following constellation of symptoms: an impaired ability to relate to other people, problems in using language effectively for communicating, and very narrow and restricted interests, with an insistence on sameness.

“These attributes of impairments in social relations and communication with narrow, restricted interests are the hallmark of what we currently call *pervasive developmental disorder*,” said Dr. Hertzog.

Currently, Dr. Hertzog is working with Nim Tottenham, PhD, at the Sackler Institute of Developmental Psychobiology at Weill Cornell Medical College to examine functional anatomic abnormalities in children and adults with autism. They are particularly interested in looking at the amygdala

and hippocampal areas of the brain, which are known to be actively involved in the processing and interpretation of information with emotional salience. In the study, subjects respond to 3 different tasks that include information with emotional content. Their responses are measured with functional magnetic resonance imaging (fMRI). The study is still in the data collection stage but will enroll 60 subjects—30 with autism and 30 controls. Drs. Tottenham and Hertzog are studying the neuroimaging differences between the 2 groups, focusing particularly on the amygdala and hippocampus.

In addition to conducting research, child psychiatrists at the Hospital collaborate closely with clinicians from other services, such as gastroenterology and otorhinolaryngology, to care for children with autism. “Many children with autism have medical illnesses that interact in important ways with their behavioral problems, noted Bradley

Peterson, MD. “For example, because the children can’t communicate their discomfort, gastrointestinal disturbances can produce behavioral outbursts. Another example is earaches, which can cause discomfort that translates into problem behavior. It requires a multidisciplinary team effort to care for these children,” said Dr. Peterson.

The child psychiatry clinics at NewYork-Presbyterian Hospital/Weill Cornell Medical Center and Columbia University Medical Center offer considerable clinical expertise in all areas, as opposed to specialized clinics. “Children with autism are cared for at an all-purpose child psychiatry clinic, which serves as a training site for our residents and fellows. We also see children with ADHD (attention-deficit/hyperactivity disorder), anxiety and depression, and other childhood psychiatric problems,” said Dr. Hertzog.

Dr. Peterson explained the diagnostic approach used at NewYork-Presbyterian/Columbia. “A very detailed and structured history is taken from the parents or caregivers about the early developmental history and social interactions of the child. In addition, the child with suspected autism is observed directly interacting within a highly structured series of social ‘presses,’ or paradigmatic social interactions. In this way, the child’s understanding of social interactions as well as the pragmatics of actually engaging in the social interaction can be closely observed. It’s rare to have these very detailed assessment instruments incorporated into routine clinical practice because they are lengthy and not well reimbursed financially, and few people are trained to administer them. This type of clinical assessment provides a very rigorous diagnosis with hard, observational data. It is a gold standard diagnostic interview,” said Dr. Peterson.

“In addition, the children receive cognitive testing because a large portion of children with autism have cognitive impairments, if not frank mental retardation. Children also receive detailed assessments of psychiatric symptoms, problem behaviors, and neurologic functioning,” he said.

Autistic children also undergo detailed neurologic assessments to identify underlying causes, such as metabolic syndromes, mitochondrial disorders, specific genetic syndromes like fragile X syndrome, neurofibromatosis, Rett syndrome, and tuberous

“It’s rare to have these very detailed assessment instruments incorporated into routine clinical practice. ... This type of clinical assessment provides a very rigorous diagnosis with hard, observational data. It is a gold standard diagnostic interview.”

—Bradley Peterson, MD

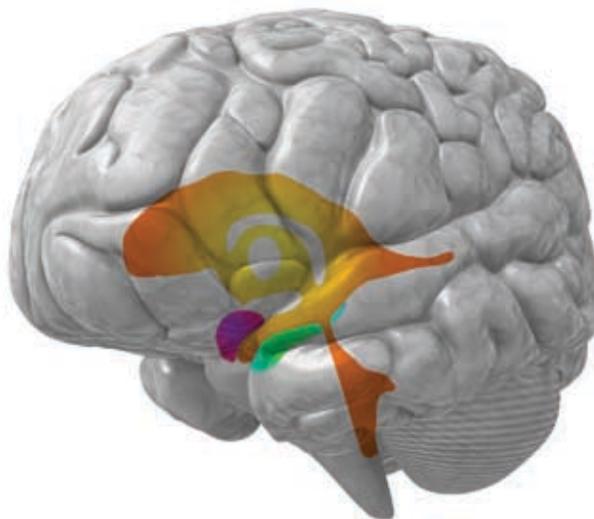


Figure. Researchers are using neuroimaging to study the amygdala and hippocampal areas of the brain in children with autism.

sclerosis. These disorders make up a small but important set of causes of autism in children. In addition, seizure disorders develop in more than 40% of autistic children, which may need to be treated with antiepileptic medication. Dr. Hertzog added that systematic epidemiologic studies have revealed that there is no basis for concern about vaccinations as a cause of autism.

In terms of treatment, Dr. Hertzog stressed the importance of early intervention. Pediatricians can use a 10-item screening test to detect autism in children, the Childhood Autism Test (CHAT), which can identify developmental problems in children as young as 18 months. Dr. Hertzog stressed that even if a physician cannot make a specific diagnosis of autism, but senses that development is not proceeding as expected, it is important to institute early intervention; the

more intensive the intervention, the better. Behavioral therapies that use an individualized approach to treating young children in a stepwise fashion can improve and facilitate attention, focus, and concentration, as in making eye contact and listening.

Dr. Peterson noted that an autistic child's interaction with the environment may significantly affect the severity of the disorder. For example, the child may have behavioral problems that create constant strife and conflict in families and schools, which in turn negatively affect the child's experience. The child may become even more socially disengaged as people in the environment give up on him or her. Secondary problems like anxiety and depression may develop. This vicious cycle of behavioral worsening may become hardwired in the brain and even extend to the genetic level, as the

life experience is known to alter chromatin, a protein that changes the conformation of DNA. Modifications of chromatin have an enduring influence on gene expression, which in turn determines the anatomic and functional properties of nerve cells and neural systems, and ultimately of brain structure and function.

Dr. Peterson concluded, "Our primary mission for the treatment of autism—and every disorder that we study and treat—is meant to be a dynamic collaboration between expert clinicians and researchers to understand the causes of these disorders, to improve their treatment, and to provide the best possible training for clinicians and scientists of the new generation."

Contributing faculty for this article:
Margaret Hertzog, MD, and Bradley Peterson, MD

continued from **Reading**, page 1

for doing other things. Learning to read can be understood as wiring object recognition systems and speech perception systems together, creating new functionality in the brain," he hypothesized.

In his work on speech perception, Dr. McCandliss collaborates extensively with Jason Zevin, PhD. The 2 researchers study how the ability to acquire a second language changes over the life span, and how experience may change language circuitry. Dr. McCandliss explained, "Learning the sounds of a non-native language is often thought to show a 'sensitive period' effect, in which the life stage of the learner profoundly influences the quality of learning. One of the most striking examples is that of Japanese natives who come to the United States as children, teens, or adults. Their age at arrival has a profound impact on their mastery of hearing *R* versus *L* sounds in English. The question is why?"

At the Sackler Institute for Developmental Psychobiology at Weill Cornell Medical College, Drs. Zevin and McCandliss are applying state-of-the-art technology in an effort to answer this question (*Behav Brain Funct* 2005;1[1]:4). Functional MRI (fMRI) allows them to study where in the brain specific systems are sensitive to speech contrasts, such as *ra* and *la*. They also use electrophysiologic techniques, in which the subject's head is surrounded with electrical sensors to determine how quickly left and right temporal brain systems make these distinctions in real time. Together, such measurements help

investigators determine how brain circuitry that supports speech perception changes with age and experience.

Dr. McCandliss has extended his interests in relating brain structure and mental function to new questions about how cognitive function changes following the most common form of brain injury—mild traumatic brain injury. The major cause of cognitive deficits resulting from mild traumatic brain injury is damage to white matter tracts.

Dr. McCandliss, together with his student Sumit Niogi, PhD, and a team of collaborators in the Cognitive Neurobiological Research Consortium (CNRC), tested patients with mild traumatic brain injury by asking them to quickly press a button indicating the direction of an arrow that pointed left or right. They used a computer program to measure the patients' reaction time in milliseconds. They then assessed "cognitive control," a measure of frontal circuit function, by testing how the patients' performance of this simple task slowed when they had to ignore a set of arrows that pointed in an irrelevant direction.

MRI with DTI revealed that subtle disruptions in the frontal white matter tracts

known as the anterior corona radiata are systematically related to slowing on the cognitive control test (*AJNR Am J Neuroradiol* 2008;29[5]:967-973). On conventional MRI, these abnormalities are invisible.

Dr. McCandliss has also identified an independent relationship between subtle disruptions of the uncinate fasciculus and impaired formation of long-term memories. "This is where it gets exciting for physicians," he said. "The 2 most common symptoms in mild traumatic brain injury are trouble focusing attention and trouble remembering. Our studies link these 2 different symptoms independently to 2 different white matter tracts. Such specific findings may lead the way to early detection, tracking, and rehabilitation attempts in patients who otherwise go untreated."

Dr. McCandliss concluded, "I hope these new insights will soon lead to new research-based intervention strategies to address some of the diverse challenges faced by children struggling with reading, adults struggling to learn in domains that appear to be easier for children, and people with head trauma."

Contributing faculty for this article:
Bruce McCandliss, PhD

"I hope these new insights will soon lead to new research-based intervention strategies to address some of the diverse challenges faced by children struggling with reading...."

—Bruce McCandliss, PhD

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an association between suicidality and the drugs under study.

The FDA often recommends or requires the inclusion of the C-SSRS in clinical trials involving a broad range of medications in order to assess whether suicidality is an adverse effect.

Dr. Kahn explained that Dr. Posner's work in developing the C-SSRS and C-CASA is part of a larger approach to suicide research

at NewYork-Presbyterian/Columbia that includes biology, epidemiology, and the role of medications.

"Future use of the C-SSRS in clinical trials will remove ascertainment bias during data collection, and lead to more informative data regarding the suicide risk—or potential benefits—of medications," said Dr. Posner.

The C-SSRS has a range of applications that extend far beyond research settings. The scale is being used on college campuses, in

emergency rooms, community clinics, hospitals, and clinical practices to better assess and track suicidal ideation and behaviors. It has been translated into 90 languages, reflective of the pressing need for suicide risk assessment. The C-SSRS can identify individuals or populations at risk of suicide, which is critical for suicide prevention.

Contributing faculty for this article:
David Kahn, MD, and Kelly Posner, PhD

Contributing Faculty

The following is a list of the doctors quoted in this issue of the *NewYork-Presbyterian Psychiatry* Newsletter. For more information on their work, please contact them at the e-mail addresses listed.

NewYork-Presbyterian Hospital

Columbia University College of Physicians and Surgeons

David Kahn, MD

Vice Chair for Clinical Affairs
Department of Psychiatry
Clinical Professor of Psychiatry
E-mail: dak1@columbia.edu

Claude Mellins, PhD

Associate Professor of Clinical Psychology
Departments of Psychiatry and Sociomedical Sciences
Research Scientist
HIV Center for Clinical and Behavioral Studies, New York State Psychiatric Institute
E-mail: cam14@columbia.edu

Kelly Posner, PhD

Associate Professor of Clinical Psychology
E-mail: yyn2@columbia.edu

Warren Ng, MD

Director, Special Needs Clinic
Assistant Clinical Professor of Psychiatry
E-mail: yyn2@columbia.edu

Bradley Peterson, MD

Director, Child and Adolescent Psychiatry
Director, MRI Research
Suzanne Crosby Murphy Professor in Pediatric Neuropsychiatry
E-mail: petersob@childpsych.columbia.edu

Weill Cornell Medical College

Margaret Hertzog, MD

Attending Psychiatrist
Interim Director, Division of Child and Adolescent Psychiatry
Professor of Psychiatry
E-mail: mehertzi@med.cornell.edu

Bruce McCandliss, PhD

Associate Professor of Psychology in Psychiatry
Sackler Institute for Developmental Psychobiology
E-mail: bdm2001@med.cornell.edu



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