UNC
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Inside the Institute

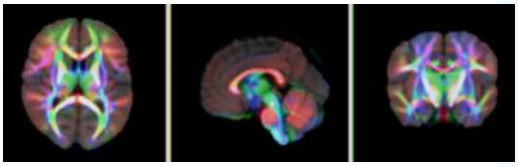
CIDD Studies Named in Top Ten Autism Advances of 2012

Autism Speaks annual "Best of" recognizes a top 10 list of the most significant science achievements to have impacted autism during the previous year. CIDD research is featured prominently in highlights of the year with the discovery of pre-symptom markers of autism and the finding that an intensive early intervention program for toddlers with autism improves brain activity related to social responsiveness.

Discovery of Pre-symptoms Markers of Autism

While autism's core behaviors tend to emerge near or after a baby's first birthday, researchers have long searched for earlier signs. A clear biomarker could lead to earlier therapy that promotes brain development in the crucial first year of life. Identifying early differences in brain biology could also increase understanding of what causes autism spectrum disorder (ASD). In some cases, the biomarker itself might become a target of treatment to prevent or ease debilitating symptoms.

This year, researchers found distinctive differences in brain circuits in infants who went on to develop ASD. These differences appeared as early as 6 months and continued through 2 years of age. The study, Differences in White Matter Fiber Tract Development Present From 6 to 24 Months in Infants With Autism, led by Jason Wolff, Ph.D., and Joe Piven, M.D.,



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Newsletter Highlights

NC AAC/AT Interdisciplinary Assessment Team Initiative

The Augmentative and Alternative Communication (AAC)/Assistive Technology (AT) Interdisciplinary Assessment Team Initiative is a collaborative effort between the Exceptional Children Division of the NC Department of Public Instruction (NCDPI) and the CIDD. The goal of this ongoing project is to establish a network of local education agency teams that have the capacity and capabilities to effectively assess children with significant communication difficulties and to determine their need for alternative or augmentative communication systems or devices.

Drs. Reinhartsen and Pretzel and the Dare County INTERACT team work collaboratively to facilitate AAC strategies to optimize Lauren's communication.

With contractual support from DPI and in collaboration with Julie Kagy, NCDPI Consultant for Visual Impairment and Assistive Technology, the CIDD LINK team -- speech-language pathologist, Debbie Reinhartsen, Ph.D., CCC-SLP; psychologist, Becky Edmondson Pretzel, Ph.D.; and occupational therapist, Sue Porr, M.Ed., M.S., OTR/L -- organize and conduct trainings focused

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A University Center for Excellence in Developmental Disabilities Education, Research, and Service (UCEDD) with core funding from the Administration on Developmental Disabilities (ADD)

A Developmental Disabilities Research Center (DDRC) with core funding from the Eunice Kennedy Shriver National Institute of Child Health and Human Development (NICHD)

A Leadership Education in Neurodevelopmental and Related Disabilities (LEND) Program with core funding from the Maternal and Child Health Bureau (MCHB)

NC Postsecondary Education Capacity-Building Summit

The NC Postsecondary Education (PSE) Alliance and Beyond Academics at UNC-Greensboro will host the Second PSE Capacity-Building Summit at UNC-Greensboro, Elliott University Center on Monday, March 11 and Tuesday, March 12, 2013. Registration is now open.

The theme for this year's Summit is "*Leading the Way.*" Participants will learn about North Carolina's nine options for inclusive postsecondary education for students with intellectual/developmental disabilities and how we can expand PSE opportunities across the state. Educators, disability support service professionals, transition coordinators, administrators, students, counselors, families, and community members supporting PSE development are invited to attend.

Registration Now Open

Registration closes February 25. Space is limited.

Click here to Register

For more information:

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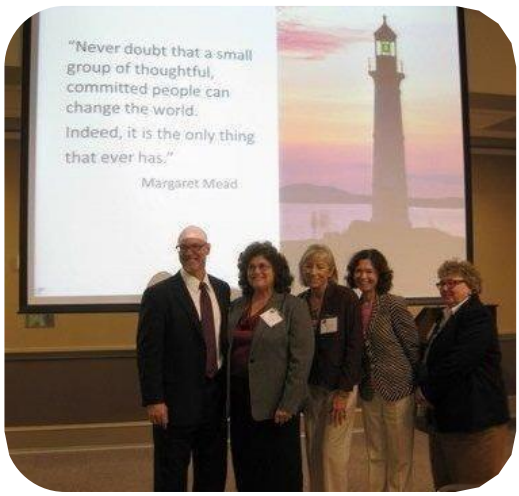


Pictured left to right is Tom Sannicandro, MA State Senator, Freda Lee, NC DPI, Donna Yerby and Deb Zuver, CIDD; and Karen Yerby, NC Community College System. The photo was taken at the first NC PSE Capacity-Building Summit held last March at Wake Tech.

The NC PSE Alliance is a diverse group consisting of emerging leaders with developmental disabilities, representatives of state agencies and organizations, legislators, educators, and families and other advocates. The group's mission is to expand the options for postsecondary education for individuals with intellectual/developmental disabilities throughout North Carolina. With funding support from the College Access Challenge Grant (CACG), the PSE Alliance and Beyond Academics bring together stakeholders from across the state for this second annual capacity-building summit.

This two-day summit will include small and large group discussions, presentations, breakout sessions and national keynote speakers: **Stephan Hamlin-Smith**, executive director of AHEAD (Association of Higher Education and Disability) *The Next Frontier: PSE Possibilities* and **Cate Weir**, coordinator of Think College, Institute for Community Inclusion, UMASS. *PSE Success Through National Standards.*

Ann Palmer – New CIDD Faculty Member

Ann Palmer is the new Family Faculty member for the Leadership Education in Neurodevelopmental and Related Disabilities (LEND) program at the CIDD. Ms. Palmer has spent the last 20 years working with families of individuals with autism. She has been the Parent Support Coordinator for Division TEACCH (Treatment and Education of Autistic and related Communication handicapped CHildren and adults) where she coordinated a volunteer parent mentor program at five TEACCH Centers across the state, providing support to over 800 families in North Carolina.

As Director of Advocacy and Chapter Support for the Autism Society of North Carolina, Ms. Palmer established and coordinated over 50 parent support groups across the state. In addition, she is the author of "A Friend's and Relative's Guide to Supporting the Family with Autism: How Can I Help?"; "Realizing the College Dream with Autism or Asperger Syndrome: A Parent's Guide to Student Success"; and the co-author of "Parenting Across the Autism Spectrum: Unexpected Lessons We Have Learned," the 2007 Autism Society of America's Outstanding Literary Work of the Year. All three books are published by Jessica Kingsley Publishers.

Ms. Palmer is also the parent of an adult son with autism.

CIDD Awarded $4.9 Million to Conduct Interdisciplinary Training

The Carolina Institute for Developmental Disabilities (CIDD) was awarded $4.9 million from the Maternal and Child Health Bureau to conduct interdisciplinary training. The Leadership Education in Neurodevelopmental and Related Disabilities (LEND) Training Program, under the directorship of Drs. Stephen Hooper and Angela Rosenberg, is designed to improve the health of infants, children, and adolescents with disabilities and special health care needs. This goal is accomplished by preparing trainees from diverse professional disciplines to assume leadership roles in their respective fields. The North Carolina LEND Program will address five key goals: (1) Advancing the knowledge and skills of the full range of child health professionals to improve health care delivery systems for children (and adults) with Autism Spectrum Disorder (ASD) and related intellectual/developmental disabilities (I/DD); (2) Providing high-quality interdisciplinary education to health professionals which emphasizes the integration of services supported by the state, local agencies, organizations, private providers, and communities; (3) Providing a wide range of health professionals with the skills needed to foster a community-based partnership of health resources and community leadership; (4) promoting innovative practice models that enhance cultural competency, partnerships among disciplines, and family-centered approaches to care; and (5) demonstrating that the proposed interdisciplinary training opportunities will increase diagnosis of, or rule-out, individuals with ASD or other I/DD.

To accomplish these goals, the North Carolina LEND Program has worked collaboratively with numerous departments, divisions, and other institutes on campus, created significant partnerships with key state agencies (e.g., Division of Public Health, Department of Public Instruction), and established innovative interdisciplinary clinical services at the CIDD and in the community to provide important developmental services to underserved populations and children with special health care needs. The LEND Program also provides funding for graduate students from a wide range of departments across the university, training for postdoctoral scholars in both clinical and research endeavors, and continuing education programs that serve state, regional, and national audiences interested in intellectual/developmental disabilities and children with special health care needs. A key component of the LEND Program is its devotion to leadership training, such that all trainees are groomed to be leaders in their respective fields and to work from the lens of an interdisciplinary perspective. Dr. Hooper noted, "This funding will continue our outstanding interdisciplinary training to a wide range of graduate and post-graduate trainees, and it will serve our outreach efforts throughout the UNC system and to our state and national partners. Further, the LEND Program will contribute to the development of our next generation of leaders in the broad field of intellectual/developmental disabilities." The LEND Program at the CIDD has been funded for five years. For additional information on the North Carolina LEND Program, please contact Dr. Stephen R. Hooper, Director of Training and Education at the CIDD (Stephen.hooper@cidd.unc.edu).

The Autism Speaks Toddler Treatment Network

The Autism Speaks Toddler Treatment Network (ASTTN) was formed in 2007 to bring together a group of researchers funded by Autism Speaks to conduct intervention research with toddlers under age two either at-risk for or diagnosed with autism. Holding annual meetings for 7 funded groups, including two from UNC, the ASTTN collaborated to establish better ways to measure outcomes in toddlers, improve knowledge of methodological considerations among investigators, promote junior investigator involvement, and share results and challenges associated with this work.

In 2012, the group held its first open meeting, inviting researchers to a one-day conference in Toronto, Canada prior to the International Meeting for Autism Research to share their findings on the earliest of autism intervention.

CIDD Investigator Dr. Lauren Turner-Brown served as chair of this meeting, which was attended by 60 researchers. Topics discussed at the meeting included intervention for babies who are at high risk for autism, and working with community providers to ensure that research knowledge reaches the early intervention system and families in underserved areas. Dr. Turner-Brown will serve as chair again when this group gathers in San Sebastian, Spain in May 2013.

Service and Community Based Training in Guatemala

This past summer Dr. Debbie Reinhartsen, Speech and Language Pathology Section Head at the CIDD and Associate Professor at UNC's Division of Speech and Hearing, traveled to Guatemala with a group of UNC speech and language and audiology graduate level students and professors. This yearly community-based learning trip is organized by Lisa Domby, M.S., CCC-SLP, Assistant Professor and Clinical Education Coordinator at the Division of Speech and Hearing. It was Dr. Reinhartsen's third summer traveling with the group.

In Guatemala, students experienced hands on learning for working with the local population. They assisted in speech, language, and hearing screenings throughout Antigua and Guatemala City, advancing Spanish skills and cultural competence. Dr. Reinhartsen, along with Ms. Domby and Kathy Davis, M.A., Speech-Language Pathologist in private practice, provided training in autism assessment methods and interventions, supervised students as they implemented approaches in preschool and school age programs throughout the area and provided training and consultation to the local classroom teachers.

In addition, Dr. Reinhartsen brings to this annual service, learning and cultural excursion, her expertise in the areas of augmentative and alternative communication (AAC) and implementation of aided language communication strategies. "The addition of aided language communication materials has been a significant contribution to our work in Guatemala. They have enabled our students to immediately engage with children in the sites we visit," said Ms. Domby. "We have also provided workshops to Guatemalan speech therapists on use of these materials, and donated them for future use there. I'm very grateful to Dr. Reinhartsen for introducing this component to our community based learning projects in Guatemala."

These types of service and training opportunities develop competencies in working with culturally and linguistically diverse populations; create strong connections and relationships; and improve resources, education, and treatment to families in Guatemala.

Graduate student Erika Rowgawski uses an aided language stimulation board to facilitate interaction with children while reading a book.

Scientists Seek to Identify Mechanisms that Regulate Development of Neural Connectivity

Dr. Patricia Maness and the scientists in her lab are shedding light on the basic mechanisms of neurodevelopment important for understanding inherited brain disorders, such as autism spectrum disorders (ASDs) and related syndromes. One of her current projects aims to identify mechanisms regulating synaptic connectivity in the neocortex of mouse models and to understand more clearly how their deficiency causes abnormal brain wiring relevant to neurodevelopmental disorders such as ASDs. The research seeks to provide insight into a novel mechanism for spine and synapse regulation involving NrCAM (Neuron-Glial Related Cell Adhesion Molecule), a risk factor for ASD, which is important for development of excitatory circuits in the neocortex.

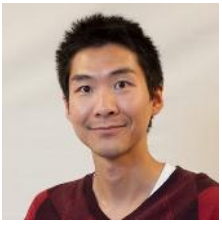
Dr. Maness is examining a new concept that NrCAM regulates spine development by interacting with repellent guidance molecules Semaphorin3F (Sema3F), Neuropilin-2 (Npn-2), and PlexinA3 (PlexA3), and that NrCAM deficiency leads to hyperexcitability in neocortical circuits. The central hypothesis she is investigating is that NrCAM/Npn-2/PlexA3 comprises a receptor complex for Sema3F that constrains or remodels dendrite spines of pyramidal neurons in the neocortex for appropriate excitatory balance. The outcome of her investigation is expected to have an important positive impact, because it will delineate novel molecular mechanisms of spine morphogenesis that control sensory cortical connectivity and function, and may provide insight into molecular mechanisms targeted in ASDs.

Electrophysiological studies with Dr. Paul Manis and Dr. Xuying Zhang indicate that prefrontal cortical brain slices from NrCAM knockout mice are hyperexcitable, suggesting that the increased spines are functional. The laboratory also collaborated with Dr. Ben Philpot's group at UNC to show that NrCAM deletion in mice causes impairment in visual cortical processing. Moreover, the Maness lab jointly published with Dr. Sheryl Moy that NrCAM knockout mice have sociability impairment and cognitive ridigity. Hyperexcitability, increased spine density, social deficits and defective processing are phenotypic traits associated with autism spectrum disorder.

Autism Speaks Awards Translational Postdoctoral Fellowships

Autism Speaks Postdoctoral Fellowships in Translational Research help turn scientific discoveries into treatments that improve lives.

In the inaugural year of the Autism Speaks Translational Postdoctoral Fellowship Program, **Portia Kunz (McCoy), Ph.D.**, was awarded a two-year fellowship to examine the effects of a novel drug candidate, Topotecan, in reversing synaptic deficits in a mouse model of Angelman syndrome, a neurodevelopmental disorder with high comorbidity with autism. Under the mentorship of Joe Piven, M.D., and Ben Philpot, Ph.D., Portia will continue to work at the bench in this mouse model, but will also be introduced into the clinical settings at the CIDD, thus bridging the gap between basic and clinical science. Her project titled "Functional and anatomical recovery of synaptic deficits in a mouse model of Angelman Syndrome" has the potential to interpret the biological underpinnings of an autism spectrum disorder and to link this to a potential therapeutic outcome. This information will help identify the best practice for translating basic research knowledge into the pathophysiology of an autism spectrum disorder back to the bedside.



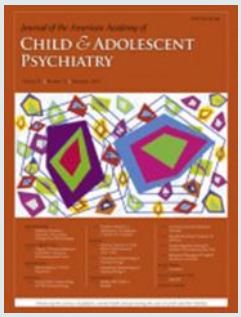
Brian Teng, Ph.D., was awarded a two-year fellowship to examine the effects of oxytocin receptor agonists in mouse models of autism spectrum disorder (ASD) phenotypes. Under the mentorship of Sheryl Moy, Ph.D., and Michael Jarstfer, Ph.D., Brian will evaluate the ability of the prosocial hormone oxytocin (OT) and an OT-related drug (Cmpd 39) to reduce the social deficits exhibited by three ASD-like mouse models developed by the research team. If these drug treatments are successful, it would demonstrate that these models are scientifically relevant for ASD drug discovery and that OT-related drugs might be effective in treating core ASD symptoms. Currently, very little is known about the ways in which OT is able to promote social behavior in mammals. One way that OT works is by turning on or off genes, but the identities of these genes in the brain are unknown. Using a method called microarray, Brian will assess how OT treatment in ASD-like mouse models changes the expression of genes in brain regions important for social behavior. In addition, Brian will work with a third mentor, Linmarie Sikich, M.D., on her new clinical project to evaluate the therapeutic efficacy of intranasal OT in children and adolescents with ASD. Overall, this fellowship will contribute to the development of promising new treatments based on OT and OT-related drugs, which may have unique prosocial effects, and advance our understanding of ASDs and how to treat them.

Congratulations to Jason Wolff, Ph.D., and his research team on the publication of their study in and on the cover of the December 2012 issue of the Journal *of the American Academy of Child & Adolescent Psychiatry*!

The study, Evidence of a Distinct Behavioral Phenotype in Young Boys With Fragile X Syndrome and Autism, profiled behaviors in fragile X autism versus idiopathic autism and found important differences between these variants of autism. Radar graphs used in the article to show behavioral patterns were the inspiration for the cover art for the month's issue of the journal.

Fragile X syndrome (FXS) is the most common known inherited cause of intellectual disability. The behavioral phenotype of FXS includes many classically "autistic" features, including repetitive and self-injurious behavior, social avoidance, poor eye contact, and odd or delayed speech. Because of overlap with idiopathic autism (iAut), FXS is increasingly considered a subtype of autism or itself one of the "autisms." Approximately one third of boys with FXS meet criteria for autism, with nearly a third more meeting criteria for a pervasive developmental disorder.

Dr. Wolff's study examined the patterns of repetitive and social behavior in two groups of young boys with autistic disorder – those with iAut (i.e., without FXS) and those with FXS. Although there were similarities in some aspects of repetitive and social behaviors, several key differences were identified. The behavioral patterns of FXS + autism and iAut are most similar with respect to lower-order (motoric) repetitive behaviors and social approach deficits, but differ in more complex forms of restricted, repetitive behaviors and some social response behaviors.



This study adds to evidence suggesting that key distinctions may be made between FXS and autism. Previous work by Drs. Heather Hazlett and Joseph Piven, for example, identified differences in brain development between young children with FXS + autism and iAut. Dr. Wolff's findings extend this work by identifying similar differences in patterns of behavior. Together, such studies may help to disentangle the heterogeneity associated with autism and provide clues about the development of specific forms of atypical behavior.

NIH T32 Postdoctoral Research Training

The research arm of the Carolina Institute provides state-of-the-art training for post doctorates working in the field of developmental disabilities. The mission of the Postdoctoral Research Training Course is to develop researchers with expertise in both the biological basis and clinical manifestations of neurodevelopmental disorders. This broad-based and integrated perspective enables researchers to better relate across disciplines and maximizes the potential for major research advances in understanding the pathogenesis and treatment of these disorders. The Carolina Institute is thrilled to have three new post docs this year.

Kelly Jones, PhD, received her doctorate in Neuroscience from Northwestern University in Evanston, Illinois. There she worked with Dr. Peter Penzes in the Department of Physiology at Northwestern University's Feinberg School of Medicine, studying autism-associated molecular mechanisms that regulate synaptic and dendritic structure of cortical neurons. She is an author on publications in *Journal of Neuroscience*, *PLoS Biology*, and *PNAS*. Dr. Jones will be working with Dr. Ben Philpot, examining circadian behavior and circadian-related molecular signaling in a mouse model of Angelman syndrome. Her work will aim to inform our understanding of sleep disturbances that occur in many Angelman syndrome patients, and potentially provide insight into novel therapeutic strategies for addressing sleep disturbances in these patients.

Brandon Pearson received his Ph.D. in Behavioral Neuroscience in the Blanchard Lab at the University of Hawaii and studied the neurobiology of social and defensive behaviors in rodent models. His dissertation focused on sociability and fear as well as brain extracellular matrix endophenotypes in mice with a mutation in MeCP2, the gene mutated in most cases of Rett Syndrome. Prior to Ph.D. research, Brandon worked at the Laboratory of Molecular Pathophysiology under Dr. Husseini Manji working on the development of improved mood stabilizing drugs. At the CIDD, Brandon is working with Dr. Mark Zylka on characterizing pharmaocokinetic properties of novel topoisomerase inhibitors- a class of drug known to unsilence the paternal allele of Ube3a in rodent models and shows therapeutic potential for patients diagnosed with Angelman syndrome and other genetic imprinting disorders. Brandon will also perform transcriptome sequencing and analysis in rodent and human samples (with the guidance of Dr. Joe Piven) to characterize signatures of gene expression in response to multiple classes of chemicals. The ultimate goal is to gain insight into pathophysiology of autism and other related disorders but also avenues for detection and treatment of developmental disabilities by using advanced molecular and pharmacological approaches utilized and developed in the Zylka lab.

Sarah Schipul, Ph.D. received her doctorate in Psychology at Carnegie Mellon University, working with Dr. Marcel Just. Dr. Schipul's dissertation examined changes in brain activation and synchronization during learning in individuals with autism. She published similar work in Cerebral Cortex, as well as a review of underconnectivity findings in autism in Frontiers in Systems Neuroscience. Dr. Schipul joined the CIDD T32 to study children with autism using EEG, under the guidance of Drs. Ayse Belger and Grace Baranek. She has joined a project examining EEG correlates of sensory processing in young children with autism, in order to elucidate what parts of the sensory processing stream are disrupted in the disorder. Dr. Schipul also plans to use this data to examine neural synchrony and adaptation in individuals with autism. This will add to her previous fMRI research showing disruptions in connectivity and neural adaptation in adults with autism, by examining these measures on a different timescale and at a different point in development.

UNC Ranked #1 Public Institution in the World for Autism Research

The Interagency Autism Coordinating Committee (IACC) is a federal advisory committee that coordinates all efforts within the Department of Health and Human Services (HHS) concerning autism spectrum disorder (ASD). In July 2012 the IACC published "*Autism Spectrum Disorder Research Publications Analysis Report*: *The Global Landscape of Autism Research*." Conducting a review of all published, peer-reviewed research in 2010, this report listed the 25 most frequent contributors to the research literature on autism. Ranked #2 overall, UNC was the premier public institution worldwide in the publication of research papers on autism.

The CIDD is proud to be a member of the UNC autism research community and proud of the contributions we have and continue to make in helping individuals with autism and their families. Learn More!

The First Year Inventory Identifies 12 – Month-Old Children at Risk for Autism

The American Academy of Pediatrics recommends that all toddlers be screened for autism spectrum disorder in the first two years of life. The First Year Inventory, a 10-minute questionnaire filled out by parents after a child's first birthday, was developed as a tool that could identify 1-year-old children who are showing early signs of ASD.

A recent study demonstrated that the FYI shows promise in early identification of ASD. Lead author of the study and CIDD Investigator, Lauren Turner-Brown, PhD, along with co-authors Grace Baranek, Linda Watson, Elizabeth Crais, and Steve Reznick, found that that 31 percent of children identified as at risk for autism spectrum disorders (ASD) at 12 months on the FYI received a confirmed diagnosis of ASD by age 3 years. In addition, 85 percent of the children found to be at risk had some other developmental disability or concern by age three. These results were based upon a longitudinal study of 699 children whose parents completed the FYI when they were 12 months of age. This study involved recontacting the families when the children were 3 years of age to conduct additional screening and diagnostic evaluations for a subset of children.

Results indicate that an overwhelming majority of children who screen positive on the FYI indeed experience some delay in development by age three that may warrant early intervention. Identification of children at risk for ASD at 12 months could provide a substantial number of children and their families with access to intervention services months or years before they would otherwise receive a traditional diagnosis. Given that many children do not receive a diagnosis of ASD before the age of 4, research on early screening tools could prove quite helpful to families.

Ongoing studies conducted by this team of researchers include a study examining the effects of a parent-mediated intervention on toddlers who screen positive on the FYI. Preliminary results suggest that toddlers who complete this intervention between 14 and 22 months show improvement in both social communication and sensory regulatory domains relative to toddlers who do not receive the intervention. In addition, this team is conducting a study to revise the FYI to continue to refine and improve its utility in early autism screening.

CIDD Launches Community Talk Series

Join us to learn about recent advances in developmental disabilities.

All are welcome! Click here for more details on the entire semester.

Here are details about the next two coming up.

February 13th: Robert Christian, M.D. will speak on the Benefits and Risks of Psychiatric Medication Usage in the Context of Developmental Disabilities. He will discuss various classes of medication used to aid the treatment of severe behavioral and emotional challenges in the context of developmental disabilities.

March 13th: Stephen Hooper, Ph.D.'s talk is entitled "Pediatric Traumatic Brain Injury in North Carolina: State of the State." He will review findings about pediatric traumatic brain injuries with respect to definition, targeted neurodevelopmental outcomes, and the importance of family factors with respect to post-injury recovery and functioning.

NIH Awards $12.6 Million Autism Centers of Excellence Grants for New Research

Drs. Joe Piven and Linmarie Sikich have each been awarded $12.6 million grants in the latest round of funding from the National Institutes of Health's Autism Centers of Excellence (ACE) research program. UNC, which was ranked No. 2 among the top 25 institutions in the world publishing autism research in 2010 by the Interagency Autism Coordinating Committee, is one of only two institutions that have received more than one Autism Centers of Excellence grant. "These grants are further evidence that UNC has become one of the premier autism research institutions in the world," said Dr. Joseph Piven, recipient of a grant for a new round of research in the ongoing Infant Brain Imaging Study (IBIS) Network.

The grant to Dr. Piven, Director of the CIDD and Kenan Professor of Psychiatry, will be used to fund longitudinal brain imaging of a combined sample of 600 infants who are at high risk for later developing autism by virtue of having an older sibling with autism. The Infant Brain Imaging Network, or IBIS, which is led by UNC and includes clinical study sites at Children's Hospital of Philadelphia, the University of Washington in Seattle and Washington University in St. Louis, will conduct the study. "The identification of early brain markers in infants who later develop autism, during a period when children may benefit maximally from early detection and intervention, has the potential to significantly improve the lives of autistic individuals," Piven said.

Dr. Linmarie Sikich, associate professor of psychiatry and Director of the Adolescent and School-age Psychiatric Intervention REsearch Program (ASPIRE), has been awarded a $12.6 million grant to establish a new research network, the ACE SOARS Network , to develop and test new treatments for autism spectrum disorders (ASD). Dr. Sikich will direct the ACE SOARS Network and provide overall project coordination.

The first project the ACE SOARS network will undertake is a 5-year study of oxytocin nasal spray in children and adolescents (ages 3-17) with an autism spectrum disorder called SOARS-B (Study of Oxytocin in Autism to improve Reciprocal Social Behaviors), which will be conducted at treatment centers at UNC, Harvard University, Mount Sinai School of Medicine, Vanderbilt University and University of Washington with genetic analyses done at Duke University. The SOARS-B study will determine if oxytocin improves social functioning in ASD, evaluate oxytocin's safety in children, and identify factors that influence a child's response to oxytocin. The study is the largest treatment study to date and will ultimately include 300 individuals with an autism spectrum diagnosis. It is also one of the first studies that will focus equally on both verbal and nonverbal individuals on the spectrum.

"We are very grateful for our government's support of autism research and are excited to be a part of efforts to develop safe and effective treatments to improve the core symptoms of autism," Sikich said. "At least 1.5 million Americans suffer from autism, but options for treatment are currently limited."

"Our SOARS-B study is a great example of translational science to develop new treatments," Sikich said. "A large clinical trial is needed to really figure out whether oxytocin works in autism and is only possible with the support of the National Institutes of Health and the cooperation of medical centers across the country since no U.S. pharmaceutical companies are currently marketing intranasal oxytocin."

Dr. Piven said that UNC research on autism "covers that gamut from basic neurobiology to clinical research on pathogenesis to applied research on intervention. The breath of the IBIS and ACE SOARS research networks, one focusing on brain development in infants at risk for autism and the other conducting research on a novel therapeutic intervention for autism, are examples of the depth and range of autism research at UNC."

CIDD Postdoc & Trainee Accomplishments and News

Antoinette Sabatino Awarded the *Francis J. and Patti Meyer Summer Research Fellowship*

Antoinette Sabatino is a doctoral candidate in Developmental Psychology at UNC. She is mentored by Drs. Steve Reznick and Gabriel Dichter at the CIDD. This past summer, Antoinette was awarded the Francis J. and Patti Meyer Summer Research Fellowship. The award allowed Antoinette to work throughout the summer on collecting and analyzing data for her dissertation. Her dissertation, *Cognitive Control of Attention in Response to Social and Non-Social Stimuli*, aims to extend current findings regarding atypical patterns of attention to social and nonsocial information in children with autism. Antoinette is investigating visual exploration and cognitive control over attention of images related to circumscribed interests, skills essential for behavioral and brain development in children with autism spectrum disorders. Patterns of reflexive and consciously controlled visual attention are being studied to determine if circumscribed interests in autism are associated with unique patterns of visual attention not seen in typical developing children. Antoinette presented her research this past spring at the 11th Annual Graduate Research Symposium held at the College of William & Mary. She will finish up data collection this fall and defend her dissertation in March 2013.

A Visiting Scholar Protocol for AUCD Trainees: In May, LEND trainee Megan Kovac spent one week visiting the LEND program at the Children's Hospital of Philadelphia (CHOP). The visit was part of a Pilot Visiting Scholar Protocol for AUCD trainees, which was developed by Megan, with input from the AUCD Virtual Trainee and LEND Training Director, Dr. Stephen Hooper. The Protocol is an innovative way for trainees to enhance their experience by spending time at an AUCD program outside of their home center..

During her week at CHOP, Megan observed multidisciplinary clinics, participated in trainee-led community outreach projects, toured transition programs, and participated in the LEND Research Symposium. The visit enhanced Megan's exposure to programs that serve children with developmental disabilities and it prompted dialogue among faculty and trainees about how different LEND programs operate across the country. It was an invaluable training experience and hopefully one that will be pursued by future LEND trainees.

Megan will be presenting the Pilot Visiting Scholar Protocol (VSP) at this year's AUCD Conference. The protocol will be available in the "Trainee Corner" of the AUCD website and a reflection on the pilot visit will be appear in the December issue of the Early Career Professionals blog (http://www.aucdecp.org).

Postdoctoral Award for Research Excellence: Dr. Jason Wolff is a postdoctoral fellow in the CIDD under the mentorship of Drs. Joseph Piven and James Bodfish. Each year, the Postdoctoral Scholars Awards for Research Excellence are given in recognition of the research promise demonstrated by individual postdoctoral scholars. The award is designed to recognize research potential and to assist postdoctoral scholars in their continued professional development.

Dr. Wolff's research focuses on a combined neurobehavioral approach to characterize the emergence of behavioral excesses and deficits in young children with autism or fragile X syndrome. His ultimate aim is to leverage neurobehavioral data to inform targeted early intervention.

Featured article by Cara Damiano on the Autism Speaks Blog:

Cara, a UNC Clinical Psychology graduate, received an Autism Speaks Weatherstone Predoctoral Fellowship in 2011 and was featured on the Autism Speaks Blog in July 2012. This fellowship will provide Cara with training in the collection and analysis of fMRI data from children with autism, and Cara's research project will examine the behavioral and neural correlates of reward motivation in children with autism. Cara presented initial findings funded by this award at IMFAR in May of 2012. Cara's research advisor is CIDD Investigator Dr. Gabriel Dichter.

CIDD Studies Named in Top Ten Autism Advances of 2012 continued

was published in the June issue of the *American Journal of Psychiatry*.

This paper was also selected as a favorite by the editors of the *American Journal of Psychiatry* in their 2012 in Review. "Not only do such findings generate tremendous scientific interest, but they allow clinicians and neuroscientists to join in their search for signs of abnormal infant development," writes *Journal* editor, Daniel S. Pine, M.D. "This joint search provides a nidus around which attempts to develop novel treatment might converge."

Early Intervention Program Alters Brain Activity in Children With Autism

This year researchers delivered compelling evidence that the Early Start Denver Model (ESDM), an Intensive early intervention program for toddlers with autism, improves brain activity related to social responsiveness. These exciting findings have been named in TIME magazine's top 10 medical breakthroughs of the year. The study is also recognized in Autism Speaks top 10 autism research advances of 2012.

Geraldine Dawson, Ph.D., professor of psychiatry at UNC and chief science officer at Autism Speaks is lead author on the paper; Early Behavioral Intervention Is Associated With Normalized Brain Activity in Young Children With Autism, published in the November issue of the *Journal of the American Academy of Child & Adolescent Psychiatry*.

Dr. Dawson and Dr. Sally Rogers, professor and researcher at the University of California, Davis - MIND Institute, developed the ESDM therapy program in the 1990s. ESDM is an early intervention program that focuses on social motivation and engagement. It combines developmental, play-based, relationship-based methods and the teaching methods of applied behavioral analysis. Dawson and Rogers previously reported the primary behavioral outcomes of a randomized controlled trial of the ESDM intervention with young children with ASD. Children receiving the ESDM intervention demonstrated significant improvements in IQ, language, adaptive behavior, and autism diagnosis. In this year's report, the research team published a secondary outcome from this trial, EEG activity.
During reciprocal social interactions, engagement with a social partner such as a parent, caregiver, or therapist is believed to stimulate brain activity associated with the ability to recognize and perceive social information and language. The team monitored the children's brain activity by use of EEGs (electroencephalograms), which evaluated brain activation when the children looked at social stimuli, such as people's faces, and non-social stimuli, such as toys. Children who received the ESDM intervention exhibited greater brain activation when viewing faces rather than objects, a response that was typical of the normal children in the study, and the opposite of the children with ASD who received other interventions.

These exciting findings underscore the dynamic and plastic nature of early brain development in ASD and provide evidence that early intervention can alter the course of both brain and behavioral development in young children with ASD toward a more positive developmental trajectory.

NC AAC/AT Interdisciplinary Assessment Team Initiative continued

on best practice in interdisciplinary AAC/AT assessment of students in the schools. Regional INTERACT teams (Interactive TEchnology Reaching All CommunicaTors) are trained in how to assess students with a range of communication needs using the INTERACT model that is designed to utilize already existing school personnel and resources. In addition, the CIDD LINK team provides ongoing technical assistance through onsite visits, resources posted on a dedicated AAC webpage, and web conferencing.

"This collaboration between CIDD and NCDPI has produced working teams across the state that can assess students and make informed decisions about accommodation needs. The tiered assessment model that Drs. Reinhartsen and Pretzel and Ms. Porr have developed for this project encourages the emphasis of the assessment to be on the students' needs rather than the technology," noted Ms. Kagy. "This provides for more functional student support." Currently, the AAC/AT Assessment Team Initiative includes 27 teams across the state with new teams to be added yearly.

Announcements:

⇒ Congratulations to **Becky Edmondson** for being selected to serve another term as **Act Early Ambassador** for the state of North Carolina! This program is funded by the Centers for Disease Control and Prevention (CDC), the Health Resources and Services Administration (HRSA), and the Maternal and Child Health Bureau. The primary objective of each State Ambassador is to support innovative State programs, which serve to strengthen state and community systems for early identification and intervention for children with signs of autism spectrum disorder and other developmental disabilities.

⇒ The Angelman Syndrome Foundation (ASF) has awarded the Joseph E. Wagstaff **Postdoctoral Fellowship** to **Angela Mabb, Ph.D.,** from the University of North Carolina-Chapel Hill. This prestigious two-year award will fund promising Angelman syndrome research and will allow continued investigation into a potential treatment for AS. The research Dr. Mabb will conduct builds upon previous ASF-funded research and further evaluates topoisomerase inhibitors for their therapeutic effectiveness for individuals with AS. For more information about AS and the ASF, please visit www.angelman.org.

⇒ **Angela Rosenberg**, PT DPH was inducted into the National Multiple Sclerosis Society's 2012 **Health Professionals Hall of Fame**. Angela realized the paucity of physical therapists trained in the treatment of MS after her own MS diagnosis several years ago. She encouraged the Greater Carolinas Chapter of the National MS Society to team with UNC Physical Therapy to develop this groundbreaking scholarship and education program, now designated as the MS Standardized Training and Education Program with University Partners.

Angela is pictured her on the far right.

⇒ **CIDD paper published on the cover of Neuron:** Neuroligins (NLGs) and Neurexins (NRXs) have emerged as critical regulators of synapse development and function. Several mutations in both protein families have been linked to autistic spectrum disorders (ASDs) and schizophrenia, highlighting their importance for human brain function. However, the mechanisms regulating NLGs at synapses have remained unclear. In a collaboration between Ben Philpot's Lab (UNC), including Angela Mabb and Portia Kunz, and Mike Ehlers' lab (Pfizer), researchers elucidated the regulation of NLG1 during cortical development and further highlight its importance for proper synapse function. Given the association of NLG and NRX mutations with ASDs, this work may thus contribute to the understanding of synaptic dysfunction in ASDs. The study "Transsynaptic signaling by activity-dependent cleavage of neuroligin-1" was recently featured on the cover of the journal ***Neuron***. Click here to learn more about the article published last October.

⇒ **CIDD In the News**: Click here to see an article by WBTV of Charlotte entitled Autism: Answers and Understanding featuring CIDD researchers.

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