



Update

Research Newsletter December 2014

Milestones

By Stephen Kanne, Executive Director

Every year, we learn more about autism and the many other neurodevelopmental disorders we see in our patients. Each study brings us a few steps closer to earlier diagnosis, more individualized treatments, and, we hope, more fulfilled lives for our patients and their families.

Thanks to the hundreds of families

who share their experiences by joining one of our research studies, we know more this year about measuring improvement in autism symptoms, access to healthcare for children and youth, transition to adulthood, biological screenings for autism, and limiting aggression in social relationships, to name just a few.

We shared much of our research with our peers this summer at the annual International Meeting for Autism Research, where researchers from around the world discuss the latest findings and improve the collective understanding of the causes of autism spectrum disorder and possibilities for new treatments.

Translating this new knowledge into better care for our patients and their families is always our priority. I hope you'll enjoy

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reading about what we learned this year and how we hope it can help you and your family. You'll also find a current listing of studies planned for next year, where we hope to continue to partner with families to create a better understanding of autism and neurodevelopmental disorders.



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Dr. David Beversdorf, left, of the Thompson Center, assembled 18 colleagues from the U.S. and Canada to discuss the future of interdisciplinary autism research during the Autism Research Summit, which featured a keynote presentation by Dr. David Amaral, right, of the University of California-David MIND Institute.

Autism Summit

Experts explore integrating research to develop new treatment options

Where can we look for the next big leap in autism treatment? Integrating genetic information, environmental factors, biological data and ASD symptoms, researchers hope to define subtypes of autism patients who share sets of overlapping characteristics in these areas for the ultimate development of individualized treatment approaches.

Thompson Center Cognitive Neurologist Dr. David Beversdorf gathered experts from around the country in October to discuss

how research institutions can use this integrative model to lead to new treatments for newly identified autism subtypes.

A public lecture during the Autism Research Summit by Dr. David Amaral, research director of the MIND Institute at University of California-Davis, illustrated how MRIs can be analyzed for variations in brain structures as one classifying data point for potential subtypes. He hopes biomarker data can also lead to earlier diagnoses.

"If children can be diagnosed very early on," said Amaral, meaning by 12 months, "some children, by the time they're 6, if they've had intensive behavior therapy, actually lose the diagnosis."

IMFAR 2014

Fifteen Thompson Center faculty and graduate students presented collaborative research at the 13th annual International Meeting for Autism Research (IMFAR) in May in Atlanta, Ga. With 1,800 attendees from more than 30 countries, IMFAR is the world's premier showcase for current findings in autism research.

Attendees from the Thompson Center presented 13 posters this year, reflecting research collaborations with 55 other researchers across campus and in peer institutions

across the country. In addition, Dr. Micah Mazurek presented a talk on her research on aggression as it relates to restricted, repetitive and stereotyped behaviors in children with ASD.

"We're very proud of the level of participation among our faculty and students," said Thompson Center Director Stephen Kanne. "IMFAR is a great arena in which to showcase our work."

For IMFAR 2015 information, visit www.autism-insar.org



Pet Project

Study shows benefits of pets other than dogs

Several studies over the past two years have shown benefits of dog ownership to children with autism. But, what about other pets? MU School of Veterinary Medicine researcher Gretchen Carlisle looked at a group of patients with autism spectrum disorders and discovered that, while dogs do help these children with social skills, the benefits are strongest when any kind of pet is in the home.

Children with pets, not just dogs but also cats, rabbits, fish, rodents, birds and even farm animals or spiders, had stronger social skills in the area of assertiveness. Carlisle hypothesizes that this holds true because the pets act as a social catalyst, allowing the children to have practice engaging with others over a topic with which they are comfortable and enjoy sharing – their pet. The benefits were strongest when pets were

acquired at a young age and over a longer period of time, possibly leading to a stronger attachment with the child.

Carlisle's advice? The best pet for you will be one that suits your family's, and child's, temperament, sensitivities and lifestyle. If you're considering a pet for your child, dogs can be wonderful, but you have more than just canines as an option that could benefit your child's social skills.

Intervention helps “mean girl” behavior

Mean girls aren't just in the movies. Adolescent girls engage in relational aggression, a form of bullying, through nonphysical aggression that includes gossip, rumors, exclusion and rejection of peers. But how can parents and teachers help?

Three MU researchers, including the Thompson Center's Connie Brooks, developed a 10-week intervention to address these behaviors. The GIRLSS (Growing Interpersonal Relationships through Learning and Systemic Support) program, which included weekly counseling sessions with teens ages 12-15 as well as weekly caregiver training and phone

consultation, showed a decrease in relationally aggressive behaviors among the participants.

“Good outcomes can happen when priorities are set by schools and families to prevent and eliminate relational aggression,” said Brooks, who co-authored the study with Dr. Melissa Maras in MU's Department of Educational, School and Counseling Psychology and lead author Joni Williams Splett, who was a doctoral student in the department at the time.



New light-reflex device is easier on kids' eyes

In the last few years, researchers have been searching for biological tests that could alert us to the diagnosis of autism at younger ages when therapy is most beneficial. One test studied by Thompson Center's Judith Miles and her MU colleague

Gang Yao, professor of biological engineering, is the pupillary light reflex (PLR).

By measuring how long it takes the pupils to constrict following a light flash the test provides a measure of how fast nerve impulses travel in the brain. The PLR shows that for children with autism and other neurodevelopmental disabilities, the time is longer. Because young children and children with autism have trouble sitting still for the test, Dr. Yao and Randima Dinalankara

recently developed a new device which incorporates eye-tracking and motion-sensing capabilities.

The new device can remotely locate the pupil and test constriction from across the exam room where the child is sitting on the parent's lap.

The remote PLR has the potential of expanding testing to toddlers and even infants who would be expected to benefit from early diagnosis and early intervention therapies.

FACIAL STRUCTURE ANALYSIS FINDS SUBGROUPS OF AUTISM

Using a 3D camera to take pictures of the faces of 42 boys with autism, researchers Judith Miles and Nicole Takahashi from the Thompson Center and Ye Duan and Tayo Obafemi-Ajayi in MU's College of Engineering measured differences in their facial structure, such as the distance between the eyes.

Using robust clustering analyses, they found 12 distances which separated the boys into three distinctive subgroups. When the three groups were analyzed for autism symptoms, one group had symptoms of severe classical autism and early regression, one appeared milder, like Aspergers, and the third was more diverse overlapping with typically developing controls.

By identifying biological markers that predict ASD severity and regression the researchers hope to identify gene changes specific to each subgroup. When tied to genetic data, these biomarkers may help clinicians tailor specific treatments to subgroups of patients with similar symptoms.



The 3DMD camera makes a “map” that helps calculate even very small differences in distances between facial features that aren't recognizable to the naked eye.



participation.
y for adulthood
project,
@missouri.edu

the University of Missouri-Columbia
nse, grant number AR130405

Eligibility:

- age 2-8
- diagnosis of autism spectrum disorder, autism, Asperger's, or pervasive developmental disorder
- Child must receive at least 6 hours per week of early intensive behavioral intervention (EIBI).

Research Opportunities

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WANT TO HELP? JOIN A STUDY!

Autism Improvement Measure recruiting behavioral intervention group

Children ages 2-8 with an autism diagnosis and receiving at least 6 hours of early intensive behavioral intervention may be eligible to join this study to help develop a tool to track improvement in autism symptoms.

Trauma study recruiting children in foster care

Has your foster child experienced trauma?

If so, and your child is not currently in therapy, you are wanted for a research study. Wellness interventions and trauma-focused therapy will be provided to children who have experienced traumatic events overseen by a licensed psychologist.

Transition to adulthood study focusing on healthcare issues

Is your child transitioning to adulthood? You can help researchers identify issues related to optimal management of healthcare during this time of transition.

Autism Impact Measure

Second phase of study focuses on treatment outcomes

After a successful pilot and first round of data collection to develop a questionnaire to accurately measure improvement in autism symptoms, Dr. Micah Mazurek's \$3.8 million NIH-funded study is moving into its second year.

Mazurek and Thompson Center Executive Director Stephen Kanne developed the tool, called the Autism Impact Measure (AIM), to help clinicians determine whether their treatments for autism symptoms are effective. In this study, AIM will be tested across several different treatments for autism.

A current focus of the study is to learn

how the AIM is working for children with autism spectrum disorder (ages 2 - 8) who are receiving early intensive behavior intervention.

Mazurek hopes the measure will help therapists and families accurately track the progress children are making in therapy, leading to more effective and individualized treatments.

"We are so grateful to all the families and clinicians who are participating in this study - we hope that this new measure will help improve outcomes for children with autism spectrum disorder and their families."

To join the AIM study or for more info., contact Jill Akers, akersji@missouri.edu.

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