



Making an ImPACT on Siblings of Children with ASD

by Kate Forster

According to research conducted as part of the Baby Sibling Research Consortium, younger siblings of children with autism spectrum disorder (ASD) are at a higher risk for developing ASD than those whose older siblings do not have ASD. As much as 19% of later born siblings of children with ASD receive an ASD diagnosis. In addition, another 20% of these younger siblings have some delays in language and/or cognitive development. To complicate matters further, making an early diagnosis in younger siblings is challenging because some children don't show the full range of symptoms until after 24 months of age. This is potentially problematic because the age a child is diagnosed with ASD has important practical implications as it allows well established and effective early intervention programs to begin as early as possible. When intervention is applied before a firm diagnosis is established, it can take advantage of developmental malleability and prevent or minimize later adverse effects.



Wendy Stone is applying the behavioral intervention, ImPACT, to younger siblings of children with ASD, who are at greater risk of being diagnosed with the disorder.

This is what Wendy Stone, Ph.D., professor of psychology and CHDD research affiliate, wants to demonstrate. She is also on the Steering Committee for CHDD's Consortium on Early Childhood Intervention where she will take a leading role in fostering early intervention research for children with ASD. Stone is collaborating with researchers at Vanderbilt University to evaluate the use of a behavioral intervention that parents of children with ASD can use with a younger sibling, even before any concerns or symptoms are present. The intervention is called ImPACT (Improving Parents as Communication Teachers), and it is a cost-effective, evidence-based program that teaches parents how to promote their child's social-communication skills during daily routines and activities. The CHDD Core services Stone is using for this study include the Behavioral Evaluation Center and the Clinical Translational Core.

ImPACT and the research methodology

ImPACT uses a combination of developmental and naturalistic behavioral strategies to teach children social engagement, language, imitation, and play. It is one of a class of interventions called Naturalistic Developmental Behavioral Interventions (NDBI) that are implemented in a natural setting, that take advantage of natural opportunities for learning, and that use a variety of behavioral strategies to teach developmental skills. "We chose ImPACT in particular because it covers the areas that are important for treating children with ASD, such as imitation and social communication," said Stone. "Parents can use it during their everyday routines at home or in the community, and it's relatively inexpensive and easy to teach." ImPACT is designed to improve the child's social-communicative skills and reduce the symptoms of ASD. Because

it targets these core impairments, children with ASD can make substantial progress.

The goal of this study is to evaluate ImPACT as a preventative intervention in young siblings who are at risk for ASD, whether or not they are showing early warning signs. “We want to give children a preventative intervention that can potentially attenuate the development and progression of symptoms,” said Stone. “We want to introduce the intervention early in the child’s life, when the brain is undergoing rapid development. This is a time when the right intervention can be most effective and efficient in terms of changing the architecture of the brain, and we want to take advantage of that.”

The participants will comprise a total of 90 younger siblings of children with ASD and their parents. They will be between 12–18 months old and divided into sets of fifteen unique participants each year over the course of three years at both the UW and the

Vanderbilt sites. At the start of the study, Stone’s team will assign an ASD “risk index” to each child by looking at such factors as gender, the number of older siblings with ASD, and a score on an ASD screening questionnaire. Families will be randomly assigned to the ImPACT treatment condition or a control condition in which they will not receive ImPACT training. All children will be assessed four times over a nine-month period. For the intervention group, members of the research team will provide instruction and coaching on ImPACT in the parent’s home twice a week over the course of 12 weeks. Parents will be asked to use the intervention for at least one hour a day for five days a week for the duration of the study.

At the end of the study, the research team will measure not just whether the ImPACT intervention was effective, but also for whom it was most effective. They will assess how each ASD risk factor, taken separately and cumulatively, contributes to the effect of the intervention on each child. They will also examine the extent to which the intervention works by improving pivotal skills, which include social communication, imitation, and object play. To ensure the assessments are unbiased, the examiners will not be aware of who was in the ImPACT treatment group and who was in the control group.

Looking forward

“If we find positive behavioral outcomes, we would like to understand first who the intervention works best for, and second, how the intervention produces its effects. The two questions go hand-in-hand,” said Stone. “This way, we can eventually match the child, based on their risk factors, to the type of intervention they need in order to treat and mitigate their symptoms most effectively.” The strategies used in the ImPACT intervention can benefit both children who do and don’t have emerging ASD. “We’re trying to improve social communication development for all younger siblings because we can’t yet predict who will eventually develop ASD or for whom this particular treatment will work best,” said Stone. “Our ultimate goal is to identify who will benefit most from this intervention by understanding how it works or which pivotal skills are associated with the greatest overall improvements. We hope this study will help us learn how to identify intervention approaches that are best suited to meet the needs of individual children. No single intervention will work for everyone, so we want to better understand which children will benefit most from this specific treatment.” The parents can also use the strategies of the ImPACT intervention with their older child with ASD. “The strategies we teach the parents can make them feel more efficacious in their parenting skills given the challenges that their children may present. They can help the parent feel more involved in helping their younger child during that critical and potentially stressful time while they are wondering or worrying about a possible ASD diagnosis.”



ImPACT encourages social-emotional skills through imitation and other behavioral strategies.

CHDD is an interdisciplinary center dedicated to the prevention and amelioration of developmental disabilities through research, training, clinical service, and community outreach. CHDD includes the University Center of Excellence in Developmental Disabilities and the Eunice Kennedy Shriver Intellectual and Developmental Disabilities Research Center.

CHDD Outlook

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