proceeds. The most recent statistics suggest that the prevalence of autism spectrum disorders is on the rise. In fact we now estimate that 1 in 88 children in the United States have an autism spectrum disorder. In honor of autism awareness, this issue focuses on helping improve awareness of early warning signs, evidence-based assessment and evidence-based treatment.

It's April. Time for spring showers and Autism awareness. The Autism Society has been celebrating National Autism Awareness Month in April since the 1970's in an effort to educate the public about autism and issues associated with the disorder. We've learned a lot about autism in the last 40 years, but there is still so much that we have yet to learn about the disorder: the causes, treatment, support, and associated problems. The most recent statistics suggest that the prevalence of autism spectrum disorders is on the rise. In fact we now estimate that 1 in 88 children in the United States have an autism spectrum disorder. In honor of autism awareness, this issue focuses on helping improve awareness of early warning signs, evidence-based assessment and evidence-based treatment.

The Earliest Red Flags of Possible ASD

Signs of an Autism Spectrum Disorder (ASD) can now be identified in children as young as 12 months old. While ASD cannot currently be diagnosed until 16 months old, assessments are improving at identifying this disorder at an increasingly younger age. It has become even more important for parents, relatives, and teachers of young children to know age-appropriate developmental milestones, as well as the early signs of ASD. Research has shown that the best gains are made when ASD is diagnosed early and the child can begin treatment.

Early Signs of Autism Spectrum Disorders:
- No smiling by 6 months old
- No back-and-forth sharing of smiles or facial expressions by 9 months old
- No babbling by 12 months old
- No back-and-forth gestures, like pointing, showing, or waving, by 12 months old
- No words by 16 months old
- No meaningful 2-word phrases by 24 months. This does not include imitating or repeating what other people say.
- Loss of speech or social skills at any age

This information is adapted from the Autism Speaks (http://www.autismspeaks.org/what-autism/learn-signs) and First Signs (https://www.firstsigns.org/) websites; please visit these websites for more information.

—Tyler Hassenfeldt
Diagnostic Assessment

You suspect that your child has an autism spectrum disorder and you've pursued or been referred for a diagnostic assessment. Some of the most common questions parents ask when coming to our clinic are: what should I expect? What does the assessment look like? How can I prepare? Also, you may be wondering, what should you ask for to get an evidence-based assessment.

What should I expect?

In a diagnostic assessment for autism spectrum disorders (ASD), you should expect to discuss your child’s development with the clinician. Further, your child may be asked to interact with the clinician during different play/observation tasks. You may also be asked to complete various questionnaires about your child’s development (e.g., social, motor, and language development). At the Virginia Tech Autism Clinic, our assessments are typically comprised of two 3-hour sessions, on two separate days.

What to do I ask for?

Ask your clinician if he/she will be administering “gold-standard” diagnostic assessments to your child. Both the Autism Diagnostic Observation Schedule (ADOS) and the Autism Diagnostic Interview – Revised (ADI-R) are “gold standard” assessment tools for assessing ASD. These assessment measures have been studied extensively and are currently the best measures for diagnosing ASD across ages, developmental levels, and language skills. Further, it is important that your child’s cognitive ability also be assessed (e.g., via the Wechsler Intelligence Scale for Children). However, these scales are not always necessary to obtain a diagnosis, even though they are the gold-standard. At the very least, you should expect your clinician to interact with your child and gather information about your child’s current and past development through questionnaires and/or interview.

What should the assessment look like?

At our clinic, there are two sessions: one with the child present and the other with the parent(s)/caregiver(s) present. For the child session, the child will engage in semi-structured play situations with the clinician on the ADOS. Additionally, an IQ test will be administered to the child. During your child’s session, you may be asked to complete questionnaires (e.g., the Social Responsiveness Scale). During the parent session, the clinician will interview you regarding your child’s developmental and behavioral history. At this session, it can often be helpful to bring a baby book or journal regarding your child’s development. After all the information has been obtained and measures scored, you’ll engage in a feedback session with your clinician(s) to review the results and diagnosis.

—Michelle Patriquin

ASD in Teens and Adults

Many children with high-functioning autism spectrum disorders (ASD) may go under the radar as children, but begin to have more difficulties as they reach adolescence when social rules become less concrete and social demands become greater. Additionally, many older people with ASD can be diagnosed with a myriad of other psychological disorders over the course of their life. If you or your adolescent child are having difficulties, it may be worth looking into a spectrum diagnosis. Here are some symptoms to be aware of in adolescence and adulthood:

- Difficulty making and keeping friends of the same age
- Difficulty contributing to a conversation with on-topic comments and questions
- Difficulty paying attention in social situations in both structured (classroom, work, etc.) and unstructured (hanging out with friends, parties, etc.) settings
- Odd or inappropriate behaviors in social settings
- Difficulty functioning in a classroom or keeping a job

All of these symptoms can be associated with other disorders, but if you or your child generally have difficulty navigating the social world, a diagnostic assessment may be worthwhile.

—Katrina Ostmeyer
Evidenced Based Early Intervention

After parents learn that their child has autism, several questions might come to their mind, including, what do I do next? How do I help my child? What are treatments available? There is no one answer for these questions because each child might have different needs that might require an individualized treatment. However, identifying effective interventions might be one of the most difficult tasks that parents might face in order to allocate resources. In 2009, the National Autism Center (NAC) identified 11 treatments that have shown to be effective in children with ASD alone or combined into a total treatment package (NAC, 2011). A brief description of each treatment is presented below.

Antecedent Package: This intervention includes modifying child’s environment before the appropriate behavior is likely to happen.

Behavioral Package: The main characteristic of this intervention is that is based on behavioral principles and examines the environmental triggers of the problem behavior as well as what is likely to occur after it occurs with the goal of changing the environment that give rise to the behavior.

Comprehensive Behavioral Treatment for Young Children: This is an early treatment designed to address difficulties associated with autism, including communication, social, and educational skills.

Joint Attention Intervention: Joint attention is described the mutual attention on an object or event by two individuals. This intervention focuses on developing sharing behaviors in children to promote social and communication engagement.

Modeling: the focus of this intervention is to demonstrate appropriate behaviors and to provide feedback to until the behavior has been learned.

Naturalistic Teaching Strategies: the goal of this intervention is to include child-directed interactions to teach new skills in different settings, such as home, schools, and community.

Peer Training Package: this intervention focus on teaching typically developing peers how to respond and help children with ASD during social interactions.

Pivotal Response Treatment (PRT): the goals of this intervention are to identify and create situations in the natural environment that facilitate the development of appropriate skills, such as verbal abilities and social interactions.

Schedule: This strategy involves identifying an activity and the steps needed to complete it during a specific amount of time.

Self-management: the goal of this intervention is to aid individuals with ASD to evaluate their own performance when completing an activity without others’ help.

Story-based Intervention Package: this intervention includes the development of a script for a situation that is problematic in which appropriate and expected behaviors are described (e.g., Social Stories™).

Previous treatments are often described as “established treatments” or “evidence based treatments” because they have some scientific evidence that demonstrates their effectiveness. Notably, children with autism might also experience other difficulties associated with mood, eating problems, nutrition (e.g., diet, supplements), allergies, immune function, gastro-intestinal problems, sleep, and behavioral problems (Rogers & Vismara, 2008), and they might also need additional interventions not described here.

—Nuri Reyes

Evaluating Treatments

Regardless of the type of intervention you choose to pursue for your child, you should be able to evaluate the treatments. There are several key questions you should ask when finding a provider to treat your child.

Service Providers Qualifications
What qualifications (e.g., BCBA, Ph.D., M.A., etc.) does the service provider have?
How long has the service provider been providing these types of services?
How many individuals with autism has this provider treated?
What are the outcomes of their clients?
What will their exact role in your child’s treatment be (e.g., overseeing program, conducting therapy, etc.)?
How many hours a week/month will the service provider see your child?
Can he/she provide three other referrals? Can you contact them?
If there is an emergency, can you contact them, and how?

Program Quality
General
Is the program based on current research findings?
Does the program keep up with current research findings?
Are the hours of therapy recommended consistent with research findings? Note: For most treatments, 25-40 hours a week has been shown to be most effective.
Is consistency ensured (e.g., frequent consultation with the family, teachers, and other people who may interact with the child on a frequent basis.)?
Is the program appropriate for nonverbal children?

Individualized Treatment
Is the program individualized to your child’s progress or is a “cookbook” approach used?
How does the program measure progress?
How often is your child’s progress reviewed?
What happens if your child is not progressing on a particular skill?
Is there emphasis put on generalizing skills?
Can the program be specialized to my child’s strengths and interests?
Can the program target reduction of negative behaviors, such as hitting, biting, etc.?
Any treatment you receive should be provided by qualified individuals, based on current research and best practice, and individualized for your child and your family.
Current research suggests that individuals with ASD may be more likely to have co-occurring medical and psychological disorders and difficulties including several of the following:

**Gastrointestinal disorders**
Did you know there are more serotonin receptors in your gut than in your brain? Considering that autism is a neurological disorder, it is not that surprising that up to 50% of children with ASD also have difficulties with gastrointestinal disorders.

**Sensory Problems**
Sensory over and undersensitivities are both common in autism. Many people describe the feeling that they are getting all sensory input in their environment at 100% all the time. Others describe feeling like they need additional sensory input such as a good squeeze.

**Seizures and Epilepsy**
25% of individuals with autism may develop a seizure disorder at some point in their life. These do not necessarily start when they are young children, but rather, may begin in adolescence.

**Intellectual Disability**
Many individuals with autism may also have a co-occurring diagnosis of intellectual disability or mental retardation. This is often debated in the field as difficulties understanding language and the social nature of many intellectual tests may have an effect on the scores on these measures. While many people with autism may have normal intellectual functioning, they may be exhibit high proficiency with a specific skill (savant) or may have difficulty with other skills such as processing speed.

**Difficulties with Attention**
Many individuals with ASD may have difficulties focusing and paying attention, especially in social situations. This may manifest itself as social environments become more structured, such as in the classroom or on the job.

**Hyperactivity**
Many individuals with ASD may seem to be on the go all the time. They can have difficulty sitting still. This becomes a problem in social situations where sitting still is necessary, such as in a classroom.

**Anxiety**
Anxiety comes in many forms including generalized anxiety characterized by chronic worrying, anxiety in social situations, obsessions and compulsions, and specific fears. Individuals with ASD are more likely to suffer from all types of anxiety, especially in adolescence.

**Mood Disorders**
Many individuals with ASD also suffer from feelings of depression, especially if they have a history of rejection from peers and recognize that they may be different from others. This is especially true in the adolescent years. In addition to depression, many individuals with ASD may be at increased risk for bi-polar disorder which includes both depression and mania where they have an elevated mood, impulsivity, and may make poor decisions.

—Katrina Ostmeyer

The Virginia Tech Autism Clinic in the Psychology Department of Virginia Tech, opened in the Fall of 2005 to provide clinical services to individuals with Autism Spectrum Disorders and their families in the surrounding New River Valley. Our vision for this facility began in the Fall of 2004, as the Virginia Tech Autism Research Group met to discuss the available services for children with Autism Spectrum Disorders in the New River Valley, a largely rural area. Through an extensive survey assessing existing services throughout the Commonwealth of Virginia, it was brought to the attention of the group that many parents were concerned about both the availability and quality of services they were receiving.

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**“Improving quality of life for people with Autism Spectrum Disorders through intervention, education, and research.”**

**Associated Disorders and Issues**

**Ongoing Research at VTAC**

**Mother-Child Interaction Study**
A new study is examining mother-child interactions in children with a diagnosis or concerns of an Autism Spectrum Disorder (ASD) - please consider participating!

Who: Children ages 4 - 11 with an ASD (Autism, Asperger’s, or PDD-NOS) or concerns of an ASD
What: Age-appropriate play-based tasks involving mother and child (1 visit)
When: Flexible scheduling - daytime, evening, or weekend appointments available.

A brief summary of the autism and cognitive assessments is available upon request. If you are interested in participating, please contact Tyler Hassenfeldt at thassen@vt.edu or (412) 600-8304.

To learn about or participate in other ongoing projects please visit http://www.psyc.vt.edu/outreach/autism/research.