Understanding Early Signs of Autism & Effective Interventions

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There are four objectives to this tutorial. They are:

To review the milestones of early development and the differences in children with autism spectrum disorders.

To identify potential differences in early development that serve as “red flags” for additional evaluation.

To provide a brief summary of early childhood screening tools.

To illustrate the outcomes of the diagnostic and intervention process through sharing one child’s experience.
To meet diagnostic criteria for ASD, a child must present with significant concerns in socialization, communication, and behavior. While it’s not uncommon for many young children to demonstrate delays in one of these areas, children who are eventually identified with and autism spectrum disorder begin to experience them in all three.

A great way to learn more about the characteristics of autism spectrum disorders and the diagnostic process for evaluating it is to view Autism Spectrum Disorders: An Overview. This tutorial can also be found on the CARD website.

5 weeks after conception, cells with in the embryo specialize to form a nervous system. These cells move, and die as connections are formed until a network of 10 billion cells and 1 million billion connections are developed. In children with ASD the neurological connections responsible typical development have formed differently. Biological reason for tantrums: Early brain development develops from the rear forward where higher order thinking occurs (impulse control, reasoning, etc). The brain adapts the body to the environment.
Recent studies have shown that many children with autism have an increase in brain volume, due at least in part to an overgrowth of white matter.

To make a very simple analogy for this, think of an infant’s brain as a computer, with the developing gray matter as the circuit boards, and the white matter as the chords or connections between the circuit boards. If there are too many chords making connections in the computer, sometimes the information being processed will go where it’s supposed to go and at other times, it might not, or it will go to a different board.

These studies indicate the increase in growth of cerebral white matter is concentrated in areas of the brain that control what is known as executive functioning. Or the ability to integrate and associate new information or experiences with previous ones.

This leads to a problem with functional connectivity in language and cognitive development, or difficulty with coordinating those areas of the brain that need to be synchronized for higher order information processing and thought.
Throughout this tutorial, you’ll hear me using the term “red flag” in our discussion of developmental milestones in young children. What do I mean by using the term?

Well, the term Red flag refers to things to be aware of at certain points in a child’s development that could be a possible warning sign of a delay or even an indicator of an autism spectrum disorder. However, there are some important things to keep in mind with this term.

Children develop skills in a predictable sequence according to their developmental level, but how those skills are demonstrated and the specific age at which they may emerge has considerable range. So while we will be discussing child development in general and what you might expect a child to be capable of at a particular age, be sure to keep in mind that the presence or absence of a single red flag is not an indication of a problem in and of itself. It’s the pattern or combination of these red flags that should be concern, particularly if they are apparent at a significant point in time beyond what’s typical for general child development.

Atypical development of communication, social, and behavior skills can be clinically noted as early as 6 months. However the youngest child diagnosed with autism is 9-11 months. A firm understanding typical developmental milestones is critical to identifying children at risk.
for developing autism.

So now let’s begin to discuss what you should expect to see at early points in a child’s social, communication and behavior development and what some of the early red flags that could indicate areas of concern might be.

As a starting reference point, let’s take a look at a typically developing baby. The little boy in this clip as about 6 months of age.

As you saw, a typically developing baby as young as 6 months of age is already learning and demonstrating the foundations of social and emotional expression. Generally, babies of this age can usually:

- Communicate pain, fear, discomfort through their own facial expressions, body language and cries
- Recognize, respond to and look for familiar voices or sounds
- Focus on and reach for small objects such as crib mobiles or baby toys
- May present with a flat affect or lack of social smile
- May have limited interest in toys
- Doesn’t recognize himself in the mirror

At this point in the child’s
development, some red flags for concern could be if the baby:

- Has a flat affect. This means they don’t respond to or offer up a social smile or if they don’t respond to pleasant or unpleasant sounds and sensations like laughing when tickled or crying at a loud sudden noise.
- Has little or no interest in the usual baby toys such as rattles, noise makers, stuffed animals or other things that make engaging sounds and movements.
- Doesn’t seem to recognize him or herself or other familiar people like mom or dad when looking in a mirror.

Early language and communication skills should also begin to emerge around the time a baby is 6 months of age. Typically, babies begin to coo and make vocalizations at this point. You may hear them playing with sounds and experimenting with sound production and patterns, just like the little boy on the previous video clip.

Most babies of this age love to be held, cuddled and touched, which is the basis for the development of nonverbal expressive and receptive communication skills.

Some red flags that could be cause for concern in early communication development could be if the child:

- If the child is not making a variety of sounds in different pitches and patterns.
At 12 months of age, children are beginning to move from infancy to toddlerhood.

They recognize that parents are their caregivers and often become upset when they are separated from them.

They recognize themselves in held to a mirror or shown a picture

And they enjoy the attention and reaction they receive from adults, such as excited praise and applause, for things they do.

On the other hand, some red flags for concern at this developmental stage could be if the child:

If the child is difficult to soothe or cries uncontrollably for extended periods of time

Or doesn’t imitate adult actions or respond to attempts by adults to play

Or if they make no attempt to imitate even simple adult actions or sounds.

Doesn’t look in the direction of a parent’s voice
Or doesn't reach for interesting things or people such as toys, bottles or parents when they are slightly out of reach
By 12 months of age, a child’s early communication skills should be emerging and expanding rapidly. Typically a one year old can

Follow simple 1 step directions like “Wave bye-bye” or “don’t touch”

Consistently uses one word other than mama or dada, such as “Uh-Oh” or “baba” as a word for “bottle”

 Appropriately uses gestures, such as pushing something that is unwanted away or reaching for an item that has dropped on the floor.

Red flags that communication abilities aren’t developing in a typical fashion include when the child:

Avoids eye contact and doesn’t seem to be aware that another person is attempting to talk with them

Doesn’t follow 1 step directions like “sit down”

Only uses gestures to communicate, without also pairing simple words or sounds with them
Also at about one year, babies typically begin to explore their world through play and close observation of things happening around them. It’s not unusual to find the children of this age can:

- Play by themselves with toys or other small objects they can manipulate
- Enjoy opening & closing things like cabinet doors or pots and pans with lids
- Look at the person talking to him/her then often respond with their own facial expressions or reactions

On contrast to these typical signs of early play development children who eventually are diagnosed with ASD may begin to show so differences in their behavior at this age. Some of these behavioral red flags could be if the child:

- Doesn’t show an interest in common sorts of baby toys or if they show an unusual interest in a particular object, such as the television remote or a pet’s collar
- Lacks reciprocal play skills – that is if, they don’t respond or react to an adult’s attempt to play a simple game with them
- Appears to have an obsessive interest in repetitive actions such opening & closing doors or turning the light switch on and off
- Lacks or have only fleeting eye contact, especially with familiar
By 18 months, typically developing toddlers know and can do many new things, such as:

- Knowing names of familiar people and body parts
- Engaging in simple pretend games such as feeding a doll or pushing a car
- Becoming upset when separated from mother

At this age, some red flag warnings for possible developmental delays or ASD can be if the child:

- Engages in rigid, repetitive or non-functional play with toys and objects
- Shows no reaction or sign of distress when caregiver leaves an area
- Does not play simple pretend games
Communication skills by the age of 18 months should be rapidly developing. Some signs that language and communication development are on course include when the child:

Uses gestures and words to get needs met, such as when he or she points to a cup and says “juice!”

Has a vocabulary of approximately 5-20 words that are used consistently

Follows 2 step directions like “come her and sit down”

if there is concern about child’s language abilities by 18 months of age, look closely for the following read flags. Indicators of possible autism spectrum disorder in language development area may be evident if the child:

Does not use words, sounds, and/or gestures to get needs met

Has difficulty following 1-2 step directions

And does not have a spoken vocabulary of at least 5 words
Around the time a toddler is a year and half old, they typically begin to show early signs of emerging self care abilities. These will be noticed most prominently with feeding and dressing skills. For instance, typical children of 18 months begin to:

Feed themselves with their fingers and also by grasping a spoon and placing it in their mouth.

Children of this age show a great deal of variability when it comes to the amount and types of food they will eat. Many toddlers can be described as picky eaters. Quite often children will learn how to express their preferences through situations involving new foods with a range of tastes, textures and smells.

It’s also at about this time that children are typically able to remove or at least assist with taking off a piece of clothing like socks or a diaper.

In the case of children who become identified with Autism Spectrum disorders, other red flags in these emerging skill early self care skills may become apparent. Things to take notice of at this age is if the child:

Shows extreme resistance to different types of food and will only eat a few specific ones

Becomes agitated if repetitious behaviors like lining toys or crayons, are interrupted

Does not exhibit or show an interest
in beginning dressing and feeding activities

Anyone who’s ever had the experience of dealing with a two year old for much time clearly understands that children of this age are beginning to enter a new stage of their growth and development.

Typically developing two year olds are able to engage in pretend play and games that have more than one action or step to them.

Two year olds also begin to recognize that they have the ability to influence what happens around them. They learn to use the word “No!” as a way of resisting changes in activities or demands they would prefer to avoid.

Through this, they begin to gain a sense of personal identity as their own unique person.

On the other hand, some developmental red flags at this age would be if the child:

Shies away from peers and unfamiliar people or seems unaware of them
Engages with toys in a rigid, non-functional manner or familiar objects in a repetitive, rigid manner

Trouble relating to others in that he or she seems aware or interested in the activities of others, but doesn’t interact directly

By the age of 2 years or 24 months, the language development of most children is well underway.

Most 2 year olds can create and use sentences of at least 2 or more words.

They start using pronouns including me, you and mine

And they learn how to ask “why” as a reflection of their reasoning abilities and conceptual thinking

Delays in communication skills at this age should be fairly obvious. Indications of a delay in communication and language development at this point are evident if the child relies heavily on gestures, leading or other motoric means of communication or if they exhibit very little spontaneous speech, relying mainly on repetitive, prompted phrases and dialogue
Turning two is a time when children typically learn to exert both greater personal independence and control over their immediate environment. It’s not unusual for them to be able to put on and take off clothing

Resist adult direction or assistance

Give out orders and react strongly to interference

By the time a child is 36 months of age, or three years old, they’re typically learning and growing at an amazing rate

They begin to play side by side with other children and exhibit as great deal of imaginative play with toys

They notice and react to changes in routine and appear to be interested in gender differences between boys and girls

You probably won’t notice these things going on, at least to the same degree, with children who are diagnosed with an autism spectrum disorder. Instead, some of the red flags you may notice at this age include:

A Lack functional play skills as well as a lack of interest in peers

It’s also not uncommon for children with ASD to begin experiencing a great deal of difficulty with changes in routine or transitions between activities, especially if they are sudden or hurried.
Three year olds are typically well on their way with language development. Most children this age have a vocabulary of at least 50 words they use appropriately and on a regular basis. They can construct sentences of 3-5 words and can talk about their interests and feelings in both the past and the future.

In contrast to this, children who by this age are exhibiting other signs of ASD will also demonstrate delays or differences in their language development. You may notice that often their language, when it is present, is used primarily to express wants or needs, or it may be restricted to the child’s interests. Often their language lacks emotional intent – that is, they do not use it to express their feelings or respond to the feelings of others. They may also experience difficulty following spoken directions.

Most 3 year olds are also gaining further independence in their self care and cognitive abilities. Usually a 3 year old child is able to feed themselves and drink from a cup or glass without help. They are able to sustain the focus of their attention for increasing lengths of time and can imitate the activities and movements of peers and adults.

Children who only engage in few, if any, independent self help skills, or who seem very passive or disinterested in participating in self care activities may be at a higher risk for developing ASD. Also be
aware of those 3 year who are not actively imitating the things they see other children and adults doing.

So how do you know if a child is displaying enough red flags to warrant a more extensive formal diagnostic evaluation? In general, it’s a good idea to consider referring children over the age of 3 who are demonstrating a consistent pattern of behaviors, including combinations of the following:

Inappropriate gaze – *those children who do make or avoid eye contact or those who look at movement or objects with their peripheral visual rather than straight on*

Lack of sharing enjoyment or interest - *those children who do not seem interested in joining the activities of others or who only seem interested in repetitive activities they engage in by themselves*

Little or no response to name when called

Lack of coordinated facial expression, gesture, and sound

Lack of showing - *either by bringing an object to another person’s attention or by directing*
their attention to it

Unusual intonation and/or pitch of voice – do they make peculiar, repetitive noises or have an odd quality to tone of voice?

Repetitive movements of posturing of body, arms, hands, or fingers

Repetitive movements with objects

Now let’s watch a quick video clip of Jamal. How many of these red flags do you observe in it?

Slide 24

Children who are socially isolated, do not respond their name, and present with significant repetitive behaviors at 36 months are at risk for developing an ASD and should have a full assessment completed.

Slide 25

And finally, you should refer a child for a diagnostic evaluation immediately whenever the following red flags are present:

If the child is not babbling pointing or using other gestures to communicate, by 12 months

If the child is not using single words by 16 months of age

If the child has no 2-word spontaneous (not echolalic) phrases by 24 months of age
Or if there is ANY loss of ANY language or social skills at ANY age

Why is early screening for developmental delays or autism spectrum disorders so important? One of the most compelling reasons is that children who receive an early diagnosis and begin intervention at a young age have a much better prognosis for their future. Current research in early intervention indicates that intensive early intervention before age 3 results in greater impact after age 5. Specifically:

The brains of young children are still growing and expanding at a rapid rate. Because of this, intervention during those critical years is most effective at addressing delays as the develop and preventing them from intensifying.

There’s also documented evidence that children who receive early intervention services have better school placement outcomes.

And they also have a better chance of graduating from high school.

As they move into adulthood there is higher likelihood that they will live independently and the cost of
those early services has a significant positive economic impact over a life-time.

One simple screening tool that is of great use for identifying young children in need of a more formal diagnostic evaluation is the Modified Checklist for Autism in Toddlers, otherwise referred to as the MCHAT. The MChat Relies on information gathered from parents. It consists of 23 yes/no questions and is designed to be scored by the individual who is completing it. It takes 10-15 to complete and can be a very good starting point for identifying developmental problems in young children.

If you would like to know more about the MCHAT, you might want to view the CARD tutorial “Modified Checklist for Autism in Toddlers” (MCHAT). Contact us to request a copy of this tutorial.
In addition to the MCHAT, there are other screening tools that can be helpful for identifying children in need of a more formal diagnostic evaluation. These include:

- The Checklist for Autism in Toddlers (CHAT) (Baron-Cohen, 1992)
- Pervasive Developmental Disorder Screening Test (PDDST) (Siegel, 1998)

Regardless of the final outcome of a diagnostic evaluation, it’s really more important to understand that a diagnosis is just the starting point. Now comes the time to develop an individualized plan of interventions and supports that will extend the child’s current skills and strengths, address areas of deficit and extent support strategies across environments. For every child with autism spectrum disorder, what this looks like and how it is done will be a little bit different in every case.

Having said that, let’s meet a young man named Diego, who received a diagnosis of autism at the age of 20 months. He was Diagnosed with classic symptoms of autism at 20 months.

At the time of Diego’s diagnosis, he had no communication, significant behaviors concerns, and impaired social/play skills such that he could not tolerate a preschool placement. Diego’s progress is an example of the benefits of early screening, diagnosis, and intervention. Let’s see what supports were put in place.
A simple picture exchange system with vocabulary that was most relevant to Diego’s communicative needs and interests was created for him.
As Diego began to learn that using his picture exchange board as an effective, easy means of communication, his skills he also started generalizing his new skills in different ways at home. As this happened, he did not need to rely on problem behaviors to get his communication needs met. As a result, behavior concerns decreased as communication skills increased.

AS Diago grew and became more competent and comfortable communicating with his picture exchange system, his skills were generalized in to other situations and settings outside his home. Here’s a clip of him using his communication support in one of his one of Diego’s favorite places.

So you can see that anything is possible when a child receives a thorough diagnostic evaluation and is provided the appropriate supports and interventions. Here’s proof – this clip is of Diego now, using age appropriate communication skills and playing “Go Fish with his mom.
The following resources will provide additional information pertaining to child development issues and early signs of autism spectrum disorders.

Making decisions about intervention options should be a thoughtful and deliberate process that is based on a thorough understanding of the intervention itself and reflection of its potential impact on your child and family. If you still have questions or feel you would like further information or support, please feel free to contact the CARD Center in your area directly.

If you are interested in learning more, you might like to look at the following information and resources.
Slide 39

**Resources**


Slide 40

**Resources**