Early Warning Signs of Autism Spectrum Disorder

Endorsed by the American Academy of Pediatrics and the Society of Developmental and Behavioral Pediatrics

Developed in partnership with
Health Resources and Services Administration
Maternal and Child Health Bureau

CDC

Early Warning Signs of Autism Spectrum Disorder

Abstract

At a family function, your cousin asks your advice about the development of her 2-year-old son. She has noticed that he has a hard time communicating, is rigid in his behavior, and often has temper tantrums. Her pediatrician does not seem very concerned, but she wants your opinion given that you are working in pediatrics.

Case Goal

Early warning signs alert providers to the risk of a possible autism spectrum disorder (ASD). Recognizing these warning signs is necessary in order to know when to screen or further evaluate children for ASD and how to appropriately counsel families. *After completion of this module, learners will be able to:*

1. Identify key social-emotional and language milestones through 24 months of age
2. Recognize the major early warning signs of ASD

Three Steps to Prepare - In 15 Minutes or Less!

1. Read through the Facilitator's Guide and make copies of the case and learner worksheet for distribution.
2. Identify the key topics you wish to address. Consider:
   - Knowledge level of learners
   - Available time
   - Your familiarity with the subject
3. Select and prepare the optional teaching tools you wish to use. *Each case provides a variety of **optional** materials to enhance the learning environment, support facilitator style, focus on different themes, or accommodate different time limitations. These materials are optional for facilitators to use at their discretion.*
   - Handouts: select any you wish to use and make copies for distribution
   - PowerPoint: decide if you wish to use and confirm necessary technical equipment
   - Video: review embedded video and video library, decide if you wish to use, confirm necessary technical equipment, and conduct test run

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Key Learning Points of This Case

1. *Identify key social-emotional and language milestones through 24 months of age*
   a. Describe typical social skills that are present in children from birth through 24 months (Prompt1.1 and Handout I: First Signs Hallmark Developmental Milestones)
   b. Identify expected language milestones from birth through 24 months (Prompt 1.3 and Handout III: Your Child at 2 Years)
   c. Identify expected play skills by age (Prompt 2.1 and Handout V: Play Skills)
2. *Recognize the major early warning signs of ASD*
   a. Identify key red flags for ASD (Prompt 2.3 and Handout VI: Red Flags of ASD)
   b. Recognize the difference between a typical temper tantrum and one of a child with an ASD (Handout IV: Temper Tantrums)

Only Have 30 Minutes to Teach? :30

Focus your discussion on recognizing typical and atypical behavior and development, particularly social and play milestones, as well as the red flags of ASD. Use:

- Handouts: III Your Child at 2 Years and VI Red Flags of ASD
- Videos: “Response to Name” and “Nathan & Ben Playing”
- Potential Prompts: 1.3 and 2.3

Materials Provided

- Case Worksheet for Learners
- The Case Study: Part I, II, and III (available in Facilitator’s Guide and on CD)
- Optional Teaching Tools
  - PowerPoint with Embedded Videos (available on CD)
  - Handouts (available in Facilitator’s Guide and on CD)
    - Handout I: First Signs Hallmark Developmental Milestones
    - Handout II: Shy Temperament vs. ASD
    - Handout III: Your Child at 2 Years
    - Handout IV: Temper Tantrums
    - Handout V: Play Skills by Age
    - Handout VI: Red Flags of Autism Spectrum Disorders
- Video Library (available on CD)*
- References

**There are many potential videos for this case in the video library that demonstrate red flags and milestones. Please review the library for additional videos.*

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Getting Started

This case is designed to be an interactive discussion of a scenario residents may encounter in their practices. Participation and discussion are essential to a complete learning experience. This Facilitator's Guide provides potential prompts, suggestions for directing the discussion, and ideas for incorporating the optional teaching tools. It is not designed as a lecture.

Case study icons:

Call-out: step-by-step teaching instructions

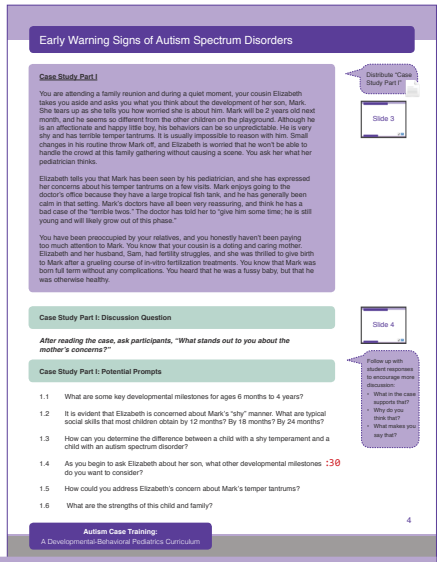
Note: tips and clarification

Slide: optional slide, if using PowerPoint

Filmstrip: optional slide contains an embedded video

Paper: potential place to distribute an optional handout

:30 Digital clock: tips if you only have '30 Minutes to Teach'


Early Warning Signs of Autism Spectrum Disorders

Case Study Part I

You are attending a family reunion and during a quiet moment, your cousin Elizabeth takes you aside and asks you what you think about the development of her son, Mark. She tears up as she tells you how worried she is about him. Mark will be 2 years old next month, and he seems so different from the other children on the playground. Although he is an affectionate and happy little boy, his behaviors can be so unpredictable. He is very shy and has terrible temper tantrums. It is usually impossible to reason with him. Small changes in his routine throw Mark off, and Elizabeth is worried that he won't be able to handle the crowd at this family gathering without causing a scene. You ask her what her pediatrician thinks.

Elizabeth tells you that Mark has been seen by his pediatrician, and she has expressed her concerns about his temper tantrums on a few visits. Mark enjoys going to the doctor's office because they have a large tropical fish tank, and he has generally been calm in that setting. Mark's doctors have all been very reassuring, and think he has a bad case of the "terrible twos." The doctor has told her to "give him some time; he is still young and will likely grow out of this phase."

You have been preoccupied by your relatives, and you honestly haven't been paying too much attention to Mark. You know that your cousin is a doting and caring mother. Elizabeth and her husband, Sam, had fertility struggles, and she was thrilled to give birth to Mark after a grueling course of in-vitro fertilization treatments. You know that Mark was born full term without any complications. You heard that he was a fussy baby, but that he was otherwise healthy.

Distribute "Case Study Part I"

Slide 3

Case Study Part I: Discussion Question

After reading the case, ask participants, "What stands out to you about the mother's concerns?"

Slide 4

Case Study Part I: Potential Prompts

1.1 What are some key developmental milestones for ages 6 months to 4 years?

1.2 It is evident that Elizabeth is concerned about Mark's "shy" manner. What are typical social skills that most children obtain by 12 months? By 18 months? By 24 months?

1.3 How can you determine the difference between a child with a shy temperament and a child with an autism spectrum disorder?

1.4 As you begin to ask Elizabeth about her son, what other developmental milestones do you want to consider? :30

1.5 How could you address Elizabeth's concern about Mark's temper tantrums?

1.6 What are the strengths of this child and family?

Follow up with student responses to encourage more discussion:
- What in the case supports that?
- Why do you think that?
- What makes you say that?

4

Autism Case Training:
A Developmental-Behavioral Pediatrics Curriculum

Why is This Case Important?

Evidence-based educational and interventional strategies can help children learn and build competency in areas of need. Many of these strategies are most effective when introduced early. It is important to be proactive regarding developmental concerns, and it is imperative pediatricians be able to detect early warning signs of developmental delays. In the United States, autism spectrum disorder (ASD) is usually diagnosed in children between 3 and 7 years of age. However, studies have shown that parents usually have concerns about their child's development, especially social development, at or before 18 months of age.

Introduce the session goal and format of the case study

The risk factors for receiving a later diagnosis of an ASD include:

- Having many primary care providers rather than seeing one consistent provider
- Living in a rural area compared with an urban setting
- Living in a near-poor household versus a wealthy household

Slide 1-2

Children who have severe language deficits and/or display the symptoms of hand flapping or toe walking are more likely to be diagnosed earlier.

Cultural Competence

It is important for clinicians to understand how different childrearing practices and cultural norms may influence key decisions that parents make regarding their child including obtaining evaluations and treatment, future planning, and acceptance of the child's diagnosis. Clinicians can approach parents openly and honestly by asking them about their unique style of parenting and how the information or recommendations provided are received.

See the curriculum introduction for additional information on cultural competence and potential discussion questions.

This case does not take place in a clinical setting. This unique setting and the role of the physician in addressing family medical concerns may provide an interesting line of discussion.

Case Study Part I

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You have been preoccupied by your relatives, and you honestly haven't been paying too much attention to Mark. You know that your cousin is a doting and caring mother. Elizabeth and her husband, Sam, had fertility struggles, and she was thrilled to give birth to Mark after a grueling course of in-vitro fertilization treatments. You know that Mark was born full term without any complications. You heard that he was a fussy baby, but that he was otherwise healthy.

Distribute "Case Study Part I"

Case Study Part I: Discussion Question

After reading the case, ask participants, "What stands out to you about the mother's concerns?"

Case Study Part I: Potential Prompts

Follow up with student responses to encourage more discussion:

- What in the case supports that?
- Why do you think that?
- What makes you say that?

1.1 What are some key developmental milestones for ages 6 months to 4 years?

1.2 It is evident that Elizabeth is concerned about Mark's "shy" manner. What are typical social skills that most children obtain by 12 months? By 18 months? By 24 months?

1.3 How can you determine the difference between a child with a shy temperament and a child with an autism spectrum disorder?

1.4 As you begin to ask Elizabeth about her son, what other developmental milestones do you want to consider? :30

1.5 How could you address Elizabeth's concern about Mark's temper tantrums?

1.6 What are the strengths of this child and family?

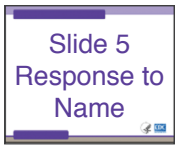
Supporting Information for Potential Prompts

1.1 What are some key developmental milestones for ages 6 months to 4 years?

- 6 Months
  - Responds to own name
  - Responds to other people's emotions and often seem happy
  - Copies sounds
  - Likes to play with others, especially parents
- 12 Months
  - Uses simple gestures, like shaking head "no" or waving "bye-bye"
  - Says "mama" and "dada" and exclamations like "uh-oh!"
  - Plays games such as "peek-a-boo" and "pat-a-cake"
  - Responds to simple spoken requests
- 18 Months
  - Plays simple pretend, such as feeding a doll
  - Points to show others something interesting
  - Likes to hand things to others as play
  - Says several single words
- 24 Months
  - Says sentences with two to four words
  - Follows simple instructions
  - Gets excited when with other children
  - Points to things or pictures when they are named
- 36 Months
  - Shows affection for friends without prompting
  - Carries on a conversation using two to three sentences
  - Copies adults and friends
  - Plays make-believe with dolls, animals, and people
- 48 Months
  - Tells stories
  - Would rather play with other children than by themselves
  - Cooperates with other children

1.2 *It is evident that Elizabeth is concerned about Mark's "shy" manner. What are typical social skills that most children obtain by 12 months? By 18 months? By 24 months?*

:30



I. Hallmark Dev. Milestones

- 6 months:
  - Knows familiar faces and begins to know if someone is a stranger
  - Likes to play with others, especially parents
  - Responds to other people's emotions and often seems happy
  - Likes to look at self in mirror
- 12 months
  - Points and responds to name
  - Is shy or nervous with strangers
  - Cries when mom or dad leaves
  - Has favorite things and people
  - Shows fear in some situations
  - Hands you a book when he wants to hear a story
  - Repeats sounds or actions to get attention
  - Puts out arm or leg to help with dressing
  - Plays games such as "peek-a-boo" and "pat-a-cake"
- 18 months
  - Likes to hand things to others as play
  - May have temper tantrums
  - May be afraid of strangers
  - Shows affection to familiar people
  - Plays simple pretend, such as feeding a doll
  - May cling to caregivers in new situations
  - Joint attention: expresses an enjoyment in sharing an object or event with another person by looking back and forth between object and caregiver
  - Explores alone but with parent close by
- 24 months
  - Copies others, especially adults and older children
  - Gets excited when with other children
  - Shows more and more independence
  - Shows defiant behavior (doing what he has been told not to)
  - Plays mainly beside other children, but is beginning to include other children, such as in chase games

1.3 How can you determine the difference between a child with a shy temperament and a child with an autism spectrum disorder?

II. Shy Temperament vs. ASD

Shy children are hypervigilant, and scan the environment, although they avoid direct eye contact with the examiner. However, they look up to the mother or caregiver for social referencing and hover around or cling to the caregiver.

Children with an ASD are not vigilant and do not look up to the caregiver for social referencing. They may not cling to the caregiver, although go up to them for succor. However, some cling to the caregiver because of extreme anxiety.

In general, shy children are shy in some environments, or with some people, and not with others. Selective mutism and its partial forms can be challenging to differentiate from ASD.

SHY TEMPERAMENT	*AUTISM SPECTRUM DISORDER*
Quiet and withdrawn in new settings	Lack of spontaneous seeking to share enjoyment, interests, or achievements with others
Slow to develop friends and play with others	Failure to develop peer relationships appropriate to developmental level; even with closest peers, prefers to play alone
Tends to look away from others or look down	Marked impairments in use of eye-to-eye gaze even with familiar people and family members
Takes a long time to become comfortable in group settings	Lack of emotional or social reciprocity, does not understand the back and forth of communication

1.4 As you begin to ask Elizabeth about her son, what other developmental milestones do you want to consider?

:30

III. Your Child at 2 Yrs.

Language Domain

- Points to things or pictures when they are named
- Knows names of familiar people and body parts
- Says sentences with two to four words
- Follows simple instructions
- Repeats words overheard in conversation
- Points to things in a book

Behavioral Domain

- Stands on tiptoe
- Kicks a ball
- Begins to run
- Walks up and down stairs holding on
- Climbs onto and down from furniture without help
- Throws ball overhand
- Makes or copies straight lines and circles

Cognitive Domain/Play Behaviors

- Finds things even when hidden under two or three covers
- Begins to sort shapes and colors
- Completes sentences and rhymes in familiar books
- Plays simple make-believe games
- Builds towers of four or more blocks
- Might use one hand more than the other
- Follows two-step instructions such as "Pick up your shoes and put them in the closet"
- Names items in a picture book such as a cat, bird, or dog

These milestones are from the Centers for Disease Control and Prevention website http://www.cdc.gov/ncbddd/actearly/milestones/milestones-2yr.html and the First Signs website http:///www.firstsigns.org/healthydev/milestones.htm.

1.5 How could you address Elizabeth's concern about Mark's temper tantrums?

IV. Temper Tantrums

Although temper tantrums are often a stage of normal development, if they are severe or persist beyond about 4 years of age, they may indicate a behavioral or developmental problem. Children who have difficulty communicating with others, or those with rigid expectations, may have increased temper tantrums due to frustration. Temper tantrums are often very disruptive and upsetting for parents; therefore, it is always important to take parents' concerns about temper tantrums seriously. Talk to parents about strategies for decreasing the likelihood of temper tantrums and how to help their children stay safe when tantrums do occur.

1.6 What are the strengths of this child and family?

It is always important to explore the strengths of a child with an autism spectrum disorder or developmental delays. Parents and clinicians may become so focused on the deficits and, in some cases, the behavioral issues that a child is having, that they aren't able to notice what the child does well. By asking a family about what a child is good at, and what their positive traits are, one is able to frame recommendations for intervention and treatment in the context of these strengths. In addition, asking about what a child likes can be used when discussing next steps. Finally, in addition to exploring the strengths of the child, it is helpful to think about the strengths of the family and how these can be used when discussing options and next steps for treatment. It is always helpful for

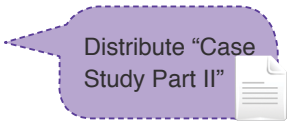
clinicians to take the time to note changes and improvements in functioning and positive features of the child and narrate these observations to parents.

Some of Marks' strengths include:

- The child is described as affectionate and happy
- The parent is known to be doting and caring
- Motor milestones were attained typically
- Cognitively, the child appears to be bright – having learned many of his letters and an ability to count to 10 in Spanish
- His mother perceives him to be a smart little boy

Case Study Part I: Discussion Question

Before moving to Part II, ask participants, "What would you say to Elizabeth?"



Case Study Part II

During your conversation, you find out that Mark attained his motor milestones typically. By 1 year of age, he was walking. Now he is climbing on everything. He has started to repeat words and, thanks to a beloved DVD, he has learned many of his letters and can count to 10 in Spanish. You ask about how Mark communicates and gets what he wants. Elizabeth says that he is very smart and that he usually tries to get things himself. She cannot recall a time that he pointed or gestured to get his needs met.

At that moment, Mark wanders into the room. He starts to run back and forth while verbalizing "fast, fast, fast." You call him many times, but he doesn't seem to hear you. Elizabeth says that he is a very busy, active boy and that he acts this way a lot. He stops his playing and begins to spin the wheels of a toy train. You are beginning to get concerned. These aren't normal play behaviors. You even think back on your family history and can't recall anyone with an ASD.
was otherwise healthy.

Case Study Part II: Discussion Questions

After observing Mark, how has your initial reaction changed?

Case Study Part II: Potential Prompts

2.1 What are appropriate play skills for a child Mark's age?

2.2 What are the concerning aspects of language development in this case, and what would you optimally like to see in a child's language skills by 24 months of age?

2.3 There are many red flags in Mark's language, social, and behavioral profile. What are the early warning signs for autism spectrum disorder? :30

Supporting Information for Potential Prompts

2.1 What are appropriate play skills for a child Mark's age? :30

- Uses objects symbolically; for example, uses a crayon to pretend to give baby a bottle
- Uses toys as complete objects rather than becoming preoccupied with one part of the toy
- Is excited about the company of others and imitates the behaviors of others

V. Play Skills

2.2 What are the concerning aspects of language development in this case, and what would you optimally like to see in a child's language skills by 24 months of age?

- **Pre-Speech:** Communication delays consisting of the absence of speech are usually fairly obvious. However, more subtle abnormalities with pre-speech can be early warning signs of an ASD. These include:
  - lack of appropriate gaze
  - lack of alternating back-and-forth babbling
  - decreased use of pre-speech gestures (such as waving)
  - lack of expressions such as "uh-oh"

  As children develop speech, early warning signs of an ASD include scripted speech, echolalia, and using words out of context.
- **Scripted Speech**: A child repeats a word or phrase he has heard elsewhere, such as from a television program or movie. The child uses the phrase out of context, and it is not used in an attempt to communicate.
  - For example, when a child is asked, "How are you doing?" he may state, "Don't worry, tomorrow we'll be back for more frolic and fun," which is a quote from a television show.
- **Echolalia**, sometimes called parroting: The repetition of someone else's speech. When the repetition occurs immediately it is called "immediate" and when it occurs hours, days, or weeks later it is called "delayed." The child may repeat the speech in the same intonation in which it was heard.
  - An example of this is that the child may hear his mother say, "Do you want juice?" and then the child promptly says "juice?"

- It is important to note that typically developing children often go through a period of repeating the last word or phrase they have heard during their normative explosion in word learning. One distinction is that the typically developing child will state "juice!" with an emphatic declarative intonation, while the child with an ASD will state "juice?" with the same questioning intonation that he heard. For typically developing children, the period of word repetition associated with the vocabulary boom may last several months in the second year of life; for children with ASD, this word repetition may continue.
- Using **words out of context** (using "pop-up" words): Words are said without any communicative intent and without any stimulus. A child may use one "pop-up" word for several days or weeks and then stop using it.
  - For example a child may state "train" several times per day for a period of time, and then, suddenly stop using the word. The child does not direct his speech toward others when saying the "pop-up" word.

For a typically developing 2-year-old child, you would like to see the child:

- Use language for communicative purposes
- Use and understand about 50 words
- Speak spontaneously and use the words he knows to convey needs and desires to others
- Direct his speech toward others
- Put words together, into short phrases of two to four words in length
- As he learns new words, he may briefly repeat them and then should quickly begin using them on his own in the appropriate context

2.3 *There are many red flags in Mark's language, social, and behavioral profile. What are the early warning signs for autism spectrum disorder?* :30

The early warning signs for an ASD include concerns about a child's social skills, communication, and restricted or repetitive patterns of behaviors, interests, activities, and emotional regulation.

VI. Red Flags of ASD

Some red flags Mark shows include:

- Lack of response to name
- Deficits in joint attention
- Inappropriate play with a toy
- Lack of pointing
- Intolerance of changes in routine and schedule

Some other warning signs that indicate a child should be evaluated include:
Impairment in:

- Social Interaction
  - Inappropriate gaze
  - Lack of warm, joyful expressions

  - Lack of sharing interests
  - Lack of response to contextual cues
  - Lack of response to name
  - Lack of coordination of nonverbal communication
  - Impairment in communication
  - Lack of showing
  - Lack of pointing
  - Unusual prosody
  - Lack of communicative consonants
  - Using a person's hand as a tool
- Repetitive Behaviors & Restricted Interests
  - Repetitive movements with objects
  - Repetitive movements or posturing of body
  - Lack of playing with a variety of toys
  - Unusual sensory exploration
  - Excessive interest in particular toys
- Emotional Regulation
  - Distress over removing objects
  - Difficulty calming when distressed
  - Abrupt shifts in emotional states
  - Unresponsive to interactions

Developmental or behavioral regression should always be taken seriously. When regression occurs in association with an ASD, motor skills are generally preserved. Developmental or behavioral regression describes a significant loss of previously acquired milestones or skills. Although some debate exists regarding the accuracy of parental report regarding regression, it is generally believed that regression occurs in the minority of children with ASD. The mean age at which parents report autistic regression is 20 months. The most frequently reported aspect of regression is loss of language, followed by loss of social-emotional connectedness.

Distribute "Case Study Part III - Epilogue"

Case Study Part III Epilogue

After thinking over milestones, early warning signs, and what you know of Mark's behavior, you do have concerns about Mark. You commend your cousin for picking up these issues. Elizabeth tears up. She admits her sister thought it could be an ASD, but she wasn't sure. Why was this missed? Anyone who works with children is in a position to make valuable observations about a child's development, and they should be taken very seriously. Learn the signs!

Case Study Part III – Epilogue: Discussion Question

How would you apply the information in this case?

What did you learn through this case?

Case Study Part III – Epilogue: Potential Prompts

3.1 How does the conversation with Elizabeth end?

3.2 How involved does one get in a nonclinical situation? Does the pediatrician have an obligation to give the mother professional advice?

Supporting Information for Potential Prompts

3.1 How does the conversation with Elizabeth end?

- Do you discuss autism spectrum disorder?
- Do you recommend Elizabeth return to her pediatrician for the concern of autism spectrum disorder and ask for a referral to a specialist?

3.2 How involved does one get in a nonclinical situation? Does the pediatrician have an obligation to give the mother professional advice?

- Clinicians will encounter this informal type of consultation throughout their careers. It is important to thoughtfully consider issues that may come up as a result of this. For instance:
  - Acknowledge that this is a complex diagnostic workup and requires information, observation, and a team of professionals
  - Consider whether you can be objective and whether your advice can be objectively considered
  - Consider other ethical and legal ramifications of your involvement

Potential Next Case: "Screening for Autism Spectrum Disorder"

Case Goal

Early identification of autism spectrum disorder (ASD) and referral for subsequent specialized developmental services greatly improves long-term outcomes for children with ASD. The American Academy of Pediatrics (AAP) recommends ongoing developmental surveillance at every visit, developmental screening at 9, 18, and 24 or 30 months, and autism-specific screening at 18 and 24 months.

After completion of this module, learners will be able to:

1. Perform ASD-specific screening as recommended by the AAP
2. Develop an appropriate management plan based on autism screening results

Case Worksheet for Learners

Case Goal

Early warning signs alert providers to the risk of a possible autism spectrum disorder (ASD). Recognizing these warning signs is necessary in order to know when to screen or further evaluate children for ASD and how to appropriately counsel families.

Key Learning Points of this Case

1. *Identify key social-emotional and language milestones through 24 months of age.*
   a. Describe typical social skills that are present in children from birth through 24 months._____

   _____

   _____

   _____

   b. Identify expected language milestones from birth through 24 months._____

   _____

   _____

   _____

   c. Identify expected play skills by age._____

   _____

   _____

2. *Recognize the major early warning signs of ASD.*
   a. Identify key red flags for ASD._____

   _____

   _____

   b. Recognize the difference between a typical temper tantrum and one of a child with an ASD._____

   _____

   _____

   _____

Post Learning Exercise

1. Go to the website www.cdc.gov/ncbddd/actearly/milestones/index.html
2. Pull up the developmental page for different age groups.
3. Take turns testing each other on the developmental milestones for each age.

One interesting way to test your knowledge is to go into a waiting room and “borrow” a typically developing child (or two). Interact and observe the child/children and try guessing the age of the child.

Case Study Part I

You are attending a family reunion and during a quiet moment, your cousin Elizabeth takes you aside and asks you what you think about the development of her son, Mark. She tears up as she tells you how worried she is about him. Mark will be 2 years old next month, and he seems so different from the other children on the playground. Although he is an affectionate and happy little boy, his behaviors can be so unpredictable. He is very shy and has terrible temper tantrums. It is usually impossible to reason with him. Small changes in his routine throw Mark off, and Elizabeth is worried that he won't be able to handle the crowd at this family gathering without causing a scene. You ask her what her pediatrician thinks.

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Case Authors

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- **Carol Baum**, MD, Warren Alpert Medical School of Brown University
- **Yvette Yatchmink**, MD, PhD, Warren Alpert Medical School of Brown University

Case Study Part II

During your conversation, you find out that Mark attained his motor milestones typically. By 1 year of age, he was walking. Now he is climbing on everything. He has started to repeat words and, thanks to a beloved DVD, he has learned many of his letters and can count to 10 in Spanish. You ask about how Mark communicates and gets what he wants. Elizabeth says that he is very smart and that he usually tries to get things himself. She cannot recall a time that he pointed or gestured to get his needs met.

At that moment, Mark wanders into the room. He starts to run back and forth while verbalizing “fast, fast, fast.” You call him many times, but he doesn’t seem to hear you. Elizabeth says that he is a very busy, active boy and that he acts this way a lot. He stops his playing and begins to spin the wheels of a toy train. You are beginning to get concerned. These aren’t normal play behaviors. You even think back on your family history and can’t recall anyone with an ASD.

Case Authors

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Case Study Part III

After thinking over milestones, early warning signs, and what you know of Mark's behavior, you do have concerns about Mark. You commend your cousin for picking up these issues. Elizabeth tears up. She admits her sister thought it could be an ASD, but she wasn't sure. Why was this missed? Anyone who works with children is in a position to make valuable observations about a child's development, and they should be taken very seriously. Learn the signs!

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Handout I: First Signs Hallmark Developmental Milestones

Milestones enable parents and physicians to monitor a baby's learning, behavior, and development. The term "milestone" takes its name from a stone marker placed along the road that indicates the distance traveled. The following milestones help to mark progress along a child's developmental journey.

While each child develops differently, some differences may indicate a slight delay and others may be cause for greater concern. The following milestones provide important guidelines for tracking healthy development from 4 months to 3 years of age.

Before your child's next visit to the physician, please take the time to see if your child has met his/her key milestones. These milestones should not be used in place of a screening, but should be used as discussion points between parents and physicians at each well visit. If a child does not have the skills listed—or if there is a loss of any skill at any age—be sure to let your physician know.

Is Your Baby Meeting These Important Milestones?
Key Social, Emotional, and Communication Milestones for Your Baby's Healthy Development
By Stanley I. Greenspan, MD
Barry M. Prizant, PhD, CCC-SLP
Amy Wetherby, PhD, CCC-SLP
and First Signs, Inc.

Does Your Baby...

At 4 Months:
- Follow and react to bright colors, movement, and objects?
- Turn toward sounds?
- Show interest in watching people's faces?
- Smile back when you smile?

At 6 Months:
- Relate to you with real joy?
- Smile often while playing with you?
- Coo or babble when happy?
- Cry when unhappy?

At 9 Months:
- Smile and laugh while looking at you?
- Exchange back-and-forth smiles, loving faces, and other expressions with you?
- Exchange back-and-forth sounds with you?
- Exchange back-and-forth gestures with you, such as giving, taking, and reaching?

At 12 Months:

- Use a few gestures, one after another, to get needs met, like giving, showing, reaching, waving, and pointing?
- Play peek-a-boo, patty cake, or other social games?
- Make sounds, like “ma,” “ba,” “na,” “da,” and “ga”?
- Turn to the person speaking when his/her name is called?

At 15 Months:

- Exchange with you many back-and-forth smiles, sounds, and gestures in a row?
- Use pointing or other “showing” gestures to draw attention to something of interest?
- Use different sounds to get needs met and draw attention to something of interest?
- Use and understand at least three words, such as “mama,” “dada,” “bottle,” or “bye-bye”?

At 18 Months:

- Use lots of gestures with words to get needs met, like pointing or taking you by the hand and saying, “want juice”?
- Use at least four different consonants in babbling or words, such as m, n, p, b, t, and d?
- Use and understand at least 10 words?
- Show that he/she knows the names of familiar people or body parts by pointing to or looking at them when they are named?
- Do simple pretend play, like feeding a doll or stuffed animal, and attracting your attention by looking up at you?

At 24 Months:

- Do pretend play with you with more than one action, like feeding the doll and then putting the doll to sleep?
- Use and understand at least 50 words?
- Use at least two words together (without imitating or repeating) and in a way that makes sense, like “want juice”?
- Enjoy being next to children of the same age and show interest in playing with them, perhaps giving a toy to another child?
- Look for familiar objects out of sight when asked?

At 36 Months:

- Enjoy pretending to play different characters with you or talking for dolls or action figures?
- Enjoy playing with children of the same age, perhaps showing and telling another child about a favorite toy?
- Use thoughts and actions together in speech and in play in a way that makes sense, like “sleepy, go take nap” and “baby hungry, feed bottle”?
- Answer “what,” “where,” and “who” questions easily?
- Talk about interests and feelings about the past and the future?

The key social, emotional, and communication milestones were compiled from the following sources:

- Greenspan SI. Building Healthy Minds. Cambridge, MA: Perseus Books; 1999.
- Prizant BM, Wetherby AM, Roberts JE. Communication disorders in infants and toddlers. In: Zeanah C, ed. Handbook of Infant Mental Health. 2nd ed. New York: Guilford Press; 2000.
- Wetherby AM. Babies Learn to Talk at an Amazing Rate. FIRST WORDS Project. Florida State University; 1999.

Handout II: Shy Temperament vs. ASD

The following table displays some key differences between a child with a shy temperament and an autism spectrum disorder:

SHY TEMPERAMENT	*AUTISM SPECTRUM DISORDER*
Quiet and withdrawn in new settings	Lack of spontaneous seeking to share enjoyment, interests, or achievements with others
Slow to develop friends and play with others	Failure to develop peer relationships appropriate to developmental level; even with closest peers, prefers to play alone
Tends to look away from others or look down	Marked impairments in use of eye-to-eye gaze even with familiar people and family members
Takes a long time to become comfortable in group settings	Lack of emotional or social reciprocity, does not understand the back and forth of communication

Suggested Citation: Harstad L, Baum C, Yatchmink Y. Shy Temperament vs. ASD. Developed for the *Autism Case Training: A Developmental-Behavioral Pediatrics Curriculum*. 2013.

Your Child at 18 Months (1½ Years)

Child's Name | **Child's Age** | **Today's Date**

How your child plays, learns, speaks, and acts offers important clues about your child's development. Developmental milestones are things most children can do by a certain age. :30

Check the milestones your child has reached by the end of 18 months. Take this with you and talk with your child's doctor at every visit about the milestones your child has reached and what to expect next.

What most children do at this age:

Social/Emotional

- ❑ Likes to hand things to others as play
- ❑ May have temper tantrums
- ❑ May be afraid of strangers
- ❑ Shows affection to familiar people
- ❑ Plays simple pretend, such as feeding a doll
- ❑ May cling to caregivers in new situations
- ❑ Points to show others something interesting
- ❑ Explores alone but with parent close by

Language/Communication

- ❑ Says several single words
- ❑ Says and shakes head "no"
- ❑ Points to show someone what he wants

Cognitive (learning, thinking, problem-solving)

- ❑ Knows what ordinary things are for; for example, telephone, brush, spoon
- ❑ Points to get the attention of others
- ❑ Shows interest in a doll or stuffed animal by pretending to feed
- ❑ Points to one body part
- ❑ Scribbles on his own
- ❑ Can follow 1-step verbal commands without any gestures; for example, sits when you say "sit down"

Movement/Physical Development

- ❑ Walks alone
- ❑ May walk up steps and run
- ❑ Pulls toys while walking
- ❑ Can help undress herself
- ❑ Drinks from a cup
- ❑ Eats with a spoon

Act early by talking to your child's doctor if your child:

- ❑ Doesn't point to show things to others
- ❑ Can't walk
- ❑ Doesn't know what familiar things are for
- ❑ Doesn't copy others
- ❑ Doesn't gain new words
- ❑ Doesn't have at least 6 words
- ❑ Doesn't notice or mind when a caregiver leaves or returns
- ❑ Loses skills he once had

Tell your child's doctor or nurse if you notice any of these signs of possible developmental delay for this age, and talk with someone in your community who is familiar with services for young children in your area, such as your state's public early intervention program. For more information, go to **www.cdc.gov/concerned** or call **1-800-CDC-INFO**.

The American Academy of Pediatrics recommends that children be screened for general development and autism at the 18-month visit. Ask your child's doctor about your child's developmental screening.

Adapted from CARING FOR YOUR BABY AND YOUNG CHILD: BIRTH TO AGE 5, Fifth Edition, edited by Steven Shelov and Tanya Remer Altmann © 1991, 1993, 1998, 2004, 2009 by the American Academy of Pediatrics and BRIGHT FUTURES: GUIDELINES FOR HEALTH SUPERVISION OF INFANTS, CHILDREN, AND ADOLESCENTS, Third Edition, edited by Joseph Hagan, Jr., Judith S. Shaw, and Paula M. Duncan, 2008, Elk Grove Village, IL: American Academy of Pediatrics.

Handout IV: Temper Tantrums

Kids vary in their temperament and in their responses to frustrating experiences. Temper tantrums are a typical phase of development for most children and are often exacerbated when children are tired, hungry, and disappointed. Tantrums are likely related to children's struggle to express themselves and their need to assert control over their environment. Fortunately, most children's tantrums begin to subside in intensity and frequency by 3 years of age, when their language skills enable them to express their needs and wants, and their capacity for self-regulation has grown.

Temper tantrums might be cause for concern when –

- Child has more than 10 to 20 discrete tantrum episodes on separate days at home during a 30-day period.
- Child has more than five tantrums a day on multiple days while at school or outside of home/school during a 30-day period.
- Tantrums regularly last longer than 25 minutes on average.
- Child is unable to calm himself/herself (., frequently requires assistance from a caregiver) and shows very limited capacity for self-regulation regardless of tantrum intensity, frequency, or context.
- During tantrum, child consistently shows aggression (e.g., hitting, kicking, biting, spitting or throwing directed toward a caregiver or an object).
- Child attempts to hurt himself/herself (e.g., head-banging, scratching or hitting himself/herself) during tantrums.
- Tantrums are accompanied by other atypical behaviors, such as self-stimulating behaviors that may not be injurious, atypical social responses, or aspects of mood that seem unusual to the situation.
- Tantrums seem exaggerated (i.e., child has strong reaction to seemingly minor events or changes in routine) or without clear pattern or trigger (e.g., when the child is hungry or tired).

The presence of these signs does not necessarily suggest an ASD or even pathology. It does suggest that the child may warrant evaluation and further discussion, and possibly screening for behavior and developmental challenges is indicated.

Suggested Citation: Harstad L. Baum C, Yatchmink Y. Temper Tantrums. Developed for the *Autism Case Training: A Developmental-Behavioral Pediatrics Curriculum*. 2013.

Handout V: Play Skills by Age

12 months

- Plays social games like peek-a-boo or patty cake
- Uses a few social gestures, like waving or pointing
- Shows preference for certain toys

18 months

- Does simple pretend play, like feed a doll
- Looks at you when excited with a toy
- Recruits help from parent when playing with you, like looking at you and giving you the bubble wand to blow more bubbles

24 months

- Uses objects symbolically; for example, uses a crayon to pretend to give baby a bottle
- Uses toys as complete objects rather than becoming preoccupied with one part of the toy
- Is excited about the company of others and imitates the behaviors of others

3 years

- Completes puzzle with three or four pieces
- Pretends to play different characters with you or talk for dolls or figurines

4 years

- Engages in fantasy play
- Plays simple games that involve taking turns

Suggested Citation: Harstad L, Baum C, Yatchmink Y. Play Skills by Age. Developed for the *Autism Case Training: A Developmental-Behavioral Pediatrics Curriculum*. 2013.

Handout VI: Red Flags of Autism Spectrum Disorder

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The following red flags may indicate a child is at risk for an autism spectrum disorder, and is in need of an immediate evaluation.

In clinical terms, there are a few absolute indicators, often referred to as "red flags," that indicate a child should be evaluated. For a parent, these are the "red flags" that your child should be screened to ensure that he/she is on the right developmental path.

Red Flags of Autism Spectrum Disorders

Impairment in Social Interaction

- Inappropriate gaze
- Lack of warm, joyful expressions
- Lack of sharing interests
- Lack of response to contextual cues
- Lack of response to name
- Lack of coordination of nonverbal communication

Impairment in Communication

- Lack of showing
- Lack of pointing
- Unusual prosody
- Lack of communicative consonants
- Using person's hand as a tool

Repetitive Behaviors & Restricted Interests

- Repetitive movements with objects
- Repetitive movements or posturing of body
- Lack of playing with a variety of toys
- Unusual sensory exploration
- Excessive interest in particular toys

Emotional Regulation

- Distress over removing objects
- Difficulty calming when distressed
- Abrupt shifts in emotional states
- Unresponsive to interactions

McCoy D, Wetherby AM, Woods J. Screening children between 18 and 24 months using the Systematic Observation of Red Flags (SORF) for Autism Spectrum Disorders: a follow-up study. Oral presentation summary. International Meeting for Autism Research; Chicago; May 7-9, 2009.

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Other Useful Resources

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Zwaigenbaum L, Bryson S, Lord C, et al. Clinical assessment of toddlers with suspected autism spectrum disorder: insights from studies of high-risk infants. *Pediatrics.* 2009;123;1383-91.