



## A CUP OF HEALTH WITH CDC

### *Autism Spectrum Disorders*

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[Announcer] This podcast is presented by the Centers for Disease Control and Prevention. CDC – safer, healthier people.

[Matthew Reynolds] Welcome to *A Cup of Health with CDC*. A weekly broadcast of the MMWR, the Morbidity and Mortality Weekly Report. I'm your host, Matthew Reynolds.

We're all concerned about children's health and development, so there's some important information we want to talk about today. You might have heard about autism on the news or in magazines, or even from personal experience with a friend or family member. It's one of the autism spectrum disorders, or ASDs. These disorders can be complicated for parents, teachers, and even doctors to understand. We don't know what causes ASDs, and children with the disorders can display a wide range of symptoms. But one thing we know for sure - the sooner we can begin getting help for a child affected by autism spectrum disorders, the better.

Today, we want to share what we do know about ASDs, and raise awareness about how to recognize the signs of ASDs. To help us, we have Dr. Catherine Rice with us in the studio. Dr. Rice is with the National Center for Birth Defects and Developmental Disabilities at CDC. It's great to have you here today, Dr. Rice.

[Dr. Rice] Thank you, Matthew. It's great to be here.

[Matthew Reynolds] Dr. Rice, what is autism and what are autism spectrum disorders?

[Dr. Rice] Well autism is a developmental disability, and by developmental disability, I mean a difference in how a child progresses in terms of talking, moving, playing, interacting, or learning. Autism is one of several autism spectrum disorders, or ASDs as they are known for short, and they include autism or autistic disorder, which is often called classic autism; Asperger's disorder; or atypical autism, which the official name for is pervasive developmental disorder not otherwise specified or PDDNOS; quite a mouthful so people usually say atypical autism. All of the ASDs that I mentioned share some of the same symptoms. And the key symptom that they all share is impairments in social interaction - having a very difficult time in interacting with other people, and that can range from not being interested in other people, all the way to being interested, but not really knowing how to go about interacting. In addition, most people with an ASD also have severe impairments in communication in terms of not being able to use verbal language to talk, all the way on the more milder end - to being able to have a conversation in a very extensive vocabulary in some cases, but not really being able to have a conversation, to take someone else's perspective. So you're not really communicating; you're talking more at somebody than with them. Another symptom that most people with ASDs also share are unusual behaviors or interests. So some of the things we typically think of when we hear autism or see somebody with autism, we

might be looking for some of the behaviors like body movements – like rocking, or flicking your fingers or doing the same things over and over again. But that could also take the form of being interested in very specific activities or topics. For instance, being so interested in Titanic that you know all of the facts about it, but you really have a hard time having a true conversation about something someone else is interested in. So it could be a very narrow range of interests. In addition, many people with autism have unusual ways of learning or paying attention or reacting to sensations – things like sounds or textures might be too intense or not intense enough for them so they have a hard time interacting in the typical world that way.

[Matthew Reynolds] You've described a number of symptoms associated with ASDs. For parents that are concerned that their child might have an ASD, what do you recommend and are there tests to either confirm it or rule it out?

[Dr. Rice] Well, one of the challenges in identifying the presence of an ASD is that the severity of symptoms can be a range, from very mildly affected to more severely affected. And it's not really one single behavior that identifies a child with ASD. It's a pattern of behaviors that help us see that this child's mind is working in a different way in terms of how they communicate, play, learn, interact with others – particularly during the toddler years. There's no medical test. We can't take a blood sample; we can't do a brain scan at this point and say, "Ah-ha – this is autism." What we really need to do is listen to the parents about their early concerns. There has been some research that shows that if a parent spontaneously brings up concerns about social development in the toddler years, more often than not they should be listened to and that there is a true concern there. So ideally what we would want to have happen is that the parents are paying attention to a range of development milestones. So we often are very attuned to the way – when is our child walking; are they getting their immunizations – and that's an important milestone in terms of our health care. But sometimes we don't pay attention to some of the health care milestones that are more on the social and behavioral side of things. So what we would like to do is have parents and health care providers paying attention to the ways that their child is interacting with other people. What are they interested in when they're playing? Are they pretending at certain ages? Are they able to communicate in a way that makes sense to other people? And one of the things that we've done at CDC is we've worked with a variety of national partners on a campaign called "*Learn the Signs. Act Early.*" So if someone is concerned about some of the early developmental milestones from birth to age 5, we have some tools available – some checklists and materials that you can find on our website or get print materials at [www.cdc.gov](http://www.cdc.gov) – that can help you look for some of these early symptoms. So what you would want to do is once there is a concern, either the pediatrician or the parents saying "I'm concerned that Johnny's just not talking the way other kids are talking, so let's check into this." You can do a developmental screen, a test that helps compare how one child is developing compared to what most children do. And most developmental screens then have good rules that help you say "OK, here's a flag that we need to follow up on." The next step after a screening, if there is a concern, would be a more thorough evaluation to see does this child need intervention. For instance, if not speaking is the problem, does that child need speech therapy – not necessarily for articulation about

how they say something – but some kids can benefit from speech therapy who are not using words that should be using words.

[Matthew Reynolds] Based on what you're describing, it doesn't sound like you can go to your doctor's office and get an instantaneous diagnosis or rule out an ASD. So, on average, how long does it take to diagnose an ASD?

[Dr. Rice] Well, I think that's one of the biggest challenges and frustrations for the family. Because often they have a sense that something is not right with their child, but because autism is not necessarily a physical disability that you can point to – you have to look at behaviors – getting a diagnosis can be quite a journey. And that's to put it mildly from what a lot of families go through. I think an important step is it can be sped up if that routine developmental screening is happening with the pediatrician and then, when there is a concern, that the child is referred to some of the appropriate intervention services that are out there. For instance, every state has an early intervention program where children from birth to three are able to get intervention for particular needs. So even without an official diagnosis, you can still get that intervention. So part of what we want to encourage people to do so is not always wait for the diagnosis to go ahead and start the intervention. Intervention can't hurt. Waiting may delay your child's ability to get the help that they need. After either a developmental screening is done or intervention is warranted, another important step in the process is seeing a specialist such as a developmental pediatrician, a neurologist, or a psychologist. In different communities there are different professionals that have expertise, but those are the types of professionals that typically can provide the follow-up evaluation and diagnostic examination that's needed to confirm a diagnosis of autism.

[Matthew Reynolds] Do we know what causes autism spectrum disorders?

[Dr. Rice] Unfortunately, we don't know what causes autism spectrum disorders. Although they do seem to be modern disorders, there are accounts throughout history of individuals that once you read the description sound a lot like they have autism but we didn't have an official word or classification until the 1940's, and that's when autism was first identified by Leo Kanner. So though we don't know for sure, we also believe that there are potentially multiple causes for ASDs, and it's a very complex interaction between genetic and environmental factors. And that's a very broad answer to say we don't know, but it's not going to be a simple answer. But family studies have shed the most light on a possible genetic link. Parents who have one child with an ASD have a higher risk of having a second child with an ASD. We also know that if there are identical twins, and one of the twins has autism, there is about a 75% chance that the second twin will also have autism. We do know, however, that autism is not caused by the way parents interact with their child. It's something in the biology of the child's brain that affects the way he or she communicates, learns, and interacts with others.

[Matthew Reynolds] Well, how many people have autism spectrum disorders, doctor?

[Dr. Rice] CDC has been working to answer that question by forming the Autism and Developmental Disabilities – or ADDM – network. The ADDM network recently reported in the CDC report that on average 6.7 per thousand children were born in 1992, and eventually were diagnosed or identified with an ASD. For children born in 1994, an average of 6.6 per thousand children were eventually identified with an ASD. Or another way of looking at it is that an average of 1 in 150 children in those two study years had an ASD. These reports identified ASDs in specific areas of the country and don't necessarily apply to every community in the United States, but help us get a very good idea of how many children we should expect to have an ASD in recent times. Autism was once thought to be a rare condition occurring in about 4 to 5 per 10,000 children, so the recent estimates of closer to 6 to 7 per 1,000 children – or 1 in 150 – is certainly a concern and CDC sees autism as a very urgent public health condition. So to compare ASDs with other childhood diseases and conditions, ASDs are more common than Down syndrome and juvenile diabetes. So using this data from ADDM we estimate that up to 560,000 individuals between the ages 0 and 21 have an autism spectrum disorder in the United States.

[Matthew Reynolds] What is CDC doing to help?

[Dr. Rice] Like I mentioned earlier, we have been working to get an accurate picture of the number of children affected by ASDs in communities in the United States. CDC has been tracking the prevalence of developmental disabilities since the 1980's and autism since the mid-90's. CDC has also established six centers around the country to specifically study potential causes of autism. These centers are working together on a large study to address gaps in our understanding of potential risk factors for autism. Also, as I mentioned earlier, we've been trying to help with the early identification and awareness of the signs that need to be observed very closely and followed up upon if they are concerned with the *"Learn the Signs. Act Early"* campaign.

[Matthew Reynolds] How would you characterize where the science is right now on autism spectrum disorders?

[Dr. Rice] Well, even though in most cases we don't know why autism spectrum disorders occur, we know much more than we did ten years ago. As we continue to look for answers, we also recognize that it's important to do our best to look for the early signs of developmental delays, including ASDs. And we know that from research that early intervention can make a huge difference in a child's life. It doesn't necessarily mean bringing a child from having an impairment to being typical, although people have reported that in certain cases. Unfortunately, that is more rare than we hope it would be. We do know that early intervention can make a big difference, though, in helping children learn the skills that they need to interact more naturally and more in their typical environment. Most children with ASDs will show behaviors during the second and third years of life. However diagnosis is often not until later, usually after age 4, and in some cases even later until school age. It doesn't help to delay identifying a child's developmental needs. It's important for us to recognize those signs and work together as parents and professionals to make sure that children receive appropriate

interventions as soon as possible. We certainly recognize that parents want answers. They want to know how to protect their children and what to do to keep them healthy. So if their child has an ASD they want to know: what caused it, what's the most effective treatment, and how they can lower their risks if they plan to have other children? This is perfectly understandable, but unfortunately, we don't have as many answers as we'd like, in terms of causes and the cures for the debilitating symptoms of autism. That's why CDC does believe it's so important to continue monitoring the rates of the autism spectrum disorders and researching possible causes, so we can understand how to best help the many children and adults who are living with ASDs today. CDC recognizes that ASDs are conditions of urgent public health concern. And we hope that the information that we provide on the numbers of children affected with an ASD would be part of the larger public and private effort to understand the impact of ASDs, the causes of the disorders, and the most effective interventions to provide in order to help each child reach their full potential.

[Matthew Reynolds] Well Dr. Rice, thank you so much for talking with us today.

[Dr. Rice] You're welcome, Matthew. It was a pleasure to be here.

[Matthew Reynolds] Well, that's it for this week's show. Don't forget to join us next week. Until then, be well. This is Matthew Reynolds for *A Cup of Health with CDC*.

[Announcer] To access the most accurate and relevant health information that affects you, your family and your community, please visit [www.cdc.gov](http://www.cdc.gov).