

Early diagnosis and intervention key with autism improvement

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Quinn, an autistic boy, and the line of toys he made before falling asleep. Repeatedly stacking or lining up objects is a behavior commonly associated with autism. Credit: Wikipedia.

The prevalence of autism in the U.S. has soared in recent decades. There is no single verifiable cause and no magic pill for treatment. But new research suggests earlier diagnosis is possible and, with that, hope for a better outcome.

"The earlier we start good targeted [intervention](#), the better chance we have at molding some of the brain circuits that we know are important for language and social interaction and the things that are impaired in autism," said Dr. Shafali Jeste, an autism expert at the University of California, Los Angeles.

There is no blood test to quickly alert parents that their young children need help. Instead, diagnoses often don't come before age 4 or 5 and are made when behaviors seem atypical or when childhood milestones are missed.

Beyond regular developmental screenings by doctors, the U.S. Centers for Disease Control and Prevention encourages parents to contact their doctors if they suspect a problem with the way their child plays, learns, speaks, acts or moves.

Last year the CDC raised its autism prevalence estimate to 1 in 68 American children from 1 in 150 in 2000. The advocacy group Autism Speaks says that the number of children in the U.S. with autism has increased tenfold in 40 years.

As with many things in the world of autism, there is controversy about the reasons for the increase. Some of the increase likely can be attributed to changes in the way the disease is diagnosed. In 2013, the American Psychiatric Association changed the guidelines for diagnosing autism, putting Asperger syndrome and childhood disintegrative disorder, among others, under one category now known collectively as [autism spectrum disorder](#), or ASD. A Danish study published in *JAMA Pediatrics* suggests that much of the increase is due to such a broadening of the criteria for diagnosis. But the authors also noted that the changes don't account for all of the increase.

Figures aside, the ability to make an early diagnosis is improving. While

the CDC reports that the median age for [autism diagnosis](#) is after a child's 4th birthday, there is evidence that use of a simple questionnaire for parents and pediatricians can reduce that age by about two years.

Diana Robins, who heads a research program at the A.J. Drexel Autism Institute, has developed, with others, the M-CHAT-R (Modified Checklist for Autism in Toddlers, Revised). Robins reports in a recent study in the journal *Pediatrics* that use of the tool can reduce the diagnosis age to about 25 months. An earlier diagnosis means intervention can begin earlier, and that's the good news.

"Kids who start treatment earlier have a better chance of developing fluent language," Robins said. "They have a better chance of being integrated into a typical classroom in elementary school, and they have a better chance of long-term success in terms of independence, the ability to go into higher education or be part of the work force."

But early intervention is no panacea, Robins added.

"It's complicated because some kids who get the very best early intervention are not able to be in a typical classroom and do not develop fluent language," she said.

Jeste, the UCLA behavioral child neurologist studying the biological and psychosocial basis of autism, noted that the disorder typically is diagnosed based on a list of symptoms that don't show up until a child's second or third year, sometimes later. But over the last decade, she said, it's become more evident that doctors should be able to find some signs of autism, either through behavioral examination or through brain markers, before a formal diagnosis is made.

"We know that brain development is very dynamic and is constantly changing in response to environment in the first few years of life," Jeste

said. "And we know that any kind of experience modulates brain development."

Researchers at Yale School of Medicine have reported spotting deficits in 6-month-old infants who later developed ASD.

Using video of a woman trying to engage a group of babies, researchers studied the infants' eye movements, comparing 67 infants at risk for developing ASD and 50 low-risk infants. Compared with the control group, the at-risk infants later diagnosed with ASD looked less at the video and spent less time watching the woman's face.

"This study highlights the possibility of identifying certain features linked to visual attention that can be used for pinpointing infants at greatest risk for ASD in the first year of life," said Katarzyna Chawarska, associate professor at the Yale Child Study Center, in a press release. "This could make earlier interventions and treatments possible."

Some recent studies of small groups of children have shown successful results from interventions with children as young as 6 months.

At the University of California, Davis, a treatment known as Infant Start was provided to seven infants aged 6 months to 15 months who had shown symptoms such as decreased eye contact, lack of social engagement or repetitive movement patterns.

"Most of the children in the study, six out of seven, caught up in all of their learning skills and their language by the time they were 2 to 3," said Sally J. Rogers, professor of psychiatry and behavioral sciences and lead author of the study. "We have speeded up their developmental rates and profiles, not for every child in our sample but for six of the seven."

Published in September 2014 in the *Journal of Autism and Developmental Disorders*, the treatment was based on the Early Start Denver Model intervention, which coaches parents on best practices to optimize attention and engagement. Treatment began with 12 one-hour sessions with infant and parent, followed by six weeks of biweekly visits and follow-up assessments at 24 and 36 months. When compared with infants who had similar symptoms but did not get the therapy, the study group had significantly lower autism severity scores at 18 and 36 months.

A small study published in February by researchers at the University of North Carolina at Chapel Hill found that simple strategies known as Adapted Responsive Teaching (ART) that are used by parents can be effective for 12-month-old infants at risk for ASD.

Grace Baranek, the study's author and an autism researcher at UNC's School of Medicine, said researchers worked with individual parent-baby pairs to teach parents strategies that promote playful engagement and social interaction.

"We were very encouraged that this novel intervention, using relatively simple strategies on a daily basis, improved both parental interaction styles and important child-development outcomes," Baranek said.

"Infants who received ART were generally more attuned to the environment around them and showed significantly better socialization and communication skills than those who did not receive ART."

And, in a study published in January in *The Lancet Psychiatry*, professor Jonathan Green of Britain's University of Manchester, said video-based therapy aimed at coaching parents improves [infants'](#) engagement, attention and social behavior.

"Children with autism typically receive treatment beginning at 3 to 4

years old," he said. "But our findings suggest that targeting the earliest risk markers in [autism](#) - such as lack of attention or reduced social interest or engagement - during the first year of life may lessen the development of these symptoms later on.

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