

No Evidence Multiple Vaccines Raise Autism Risk, CDC Says

'Too Many Vaccines Too Soon' Not a Valid Concern

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The number of childhood vaccines administered, either in a single day or during the first 2 years of life, has no bearing on autism risk, new research from the Centers for Disease Control and Prevention (CDC) shows.

The case-control study of more than 1000 children showed that there were no significant differences between those who did and those who did not have an autism spectrum disorder (ASD) in total antigens from vaccines received by age 2 years or in the maximum number of antigens received on a single day.

In addition, increasing exposure to antibody-stimulating proteins or polysaccharides from vaccines from the age of 3 months to 2 years was not associated with risk of developing an ASD.

"Our study found no relationship with the number of vaccine antigens received and overall ASD, autistic disorder, or ASD with regression," lead author Frank DeStefano, MD, MPH, director of the Immunization Safety Office at the CDC in Atlanta, Georgia, told *Medscape Medical News*.

The investigators noted in a release that although the current routine schedule contains more childhood vaccines than were administered a couple decades ago, "the maximum number of antigens that a child could be exposed to by 2 years of age in 2013 is 315, compared with several thousand in the late 1990s."



**Dr. Frank
DeStefano**

"Because different types of vaccines contain varying amounts of antigens, this research acknowledged that merely counting the number of vaccines received does not adequately account for how different vaccines and vaccine combinations stimulate the immune system," they add.

The study was [published online](#) March 29 in the *Journal of Pediatrics*.

Lingering Concerns

According to the investigators, almost one third of parents express concern that vaccines may cause autism, and nearly 1 in 10 parents therefore refuse or delay vaccinations recommended by the CDC.

Initial concerns stemmed from a now-disputed study by Andrew Wakefield that linked autism to the measles, mumps, and rubella vaccine.

Numerous follow-up studies by other research groups and a 2004 review by the Institute of Medicine have led to the rejection of Wakefield's suggestion of possible causal associations. In addition, a 3-part series of articles and editorials in the *BMJ* in 2011, [as reported](#) at the time by *Medscape Medical News*, charged that Wakefield's study was "an elaborate fraud."

Nevertheless, concerns persist — especially regarding the question of whether infants and children are receiving too many vaccines too soon, report the investigators.

The investigators evaluated combined data from 3 managed care organizations for 256 children with an ASD and 752 age- and sex-matched healthy peers ("control group"). All of the children were born between January 1994 and December 1999.

Total cumulative exposure to antibody-stimulating proteins and polysaccharides was determined by adding together the antigen content of each vaccine received. The association between this exposure and ASD was determined at birth to 3 months, birth to 7 months, and birth to 2 years.

In addition, maximum number of antigens from vaccines received in a single day was determined.

Further analysis also evaluated the association between these exposures and the subcategories of autistic disorder or ASD with regression.

MDs Influential

Results showed that the adjusted odds ratio (OR) of an ASD associated with each 25-unit increase in total antigen exposure was 0.999 for cumulative exposure to age 3 months, to age 7 months, and to age 2 years (95% confidence interval [CI], 0.994 - 1.003; 0.997-1.001; and 0.998-1.001; respectively). In other words, none of the associations were significant.

There was also no risk for an ASD associated with single-day antigen exposure.

"Similarly, no increased risk was found for autistic disorder or ASD with regression," write the investigators.

Additional analyses found no association with any of the disorders and exposure to thimerosal or whole-cell pertussis vaccines.

"The study found that the total number of antigens in vaccines received were the same between children with ASD and those who did not have ASD," said Dr. DeStefano.

"These results indicate that parental concerns that their children are receiving too many vaccines in the first 2 years of life or too many vaccines at a single doctor visit are not supported in terms of an increased risk of autism," add the researchers.

Dr. DeStefano noted that despite the fact that many parents still have these concerns, "the good news is that the majority are still taking their children to be vaccinated. And we have high vaccination coverage in this country."

"I'd tell pediatricians and other healthcare providers that they are the most important influence on parents' decisions to vaccinate their children. So having good information that they can provide is key to parental acceptance of vaccines."

Eases Worries



Dr. Louis Cooper

Louis Z. Cooper, MD, professor emeritus of pediatrics at Columbia University in New York City and a past president of the American Academy of Pediatrics, told *Medscape Medical News* that he thought the study was interesting, had a thoughtful design, and was "a lot of work."

"It really demonstrated the many different ways the vaccine safety data link program allows us to look at children and vaccines. And it was an interesting way to address one of the allegations that appears regularly among folks who are worried that we give too many vaccines too often too early," said Dr. Cooper, who was not involved with this research.

"I don't think this study or any other will satisfy the folks who have these types of concerns, but it certainly adds to my understanding of some of the qualitative and quantitative aspects of how much we're really giving to the children."

However, he noted that the results are still something that clinicians can at least raise with concerned parents.

"I think that's one of the potentially significant uses of this study. Our practicing doctors can say when this issue comes up, 'Well, there was a careful effort to look at the amount of antigens given to kids and whether that has any relationship to the presence or absence of developing an ASD. And there was no evidence of that at all,'" he concluded.

The study was supported by a contract from the CDC to America's Health Insurance Plans. The study authors have reported no relevant financial relationships.

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