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The risk of autism is not increased by 'too many vaccines too soon'

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Although scientific evidence suggests that vaccines do not cause autism, approximately one-third of parents continue to express concern that they do; nearly 1 in 10 parents refuse or delay vaccinations because they believe it is safer than following the Centers for Disease Control and Prevention's (CDC) schedule. A primary concern is the number of vaccines administered, both on a single day and cumulatively over the first 2 years of life. In a new study scheduled for publication in *The Journal of Pediatrics*, researchers concluded that there is no association between receiving "too many vaccines too soon" and autism.

Dr. Frank DeStefano and colleagues from the CDC and Abt Associates, Inc. analyzed data from 256 children with autism spectrum disorder (ASD) and 752 children without ASD (born from 1994-1999) from 3 managed care organizations. They looked at each child's cumulative exposure to antigens, the substances in vaccines that cause the body's immune system to produce antibodies to fight disease, and the maximum number of antigens each child received in a single day of vaccination.

The researchers determined the total antigen numbers by adding the number of different antigens in all vaccines each child received in one day, as well as all vaccines each child received up to 2 years of age. The authors found that the total antigens from vaccines received by age 2 years, or the maximum number received on a single day, was the same between children with and without ASD. Furthermore, when comparing antigen numbers, no relationship was found when they evaluated the sub-categories of autistic disorder and ASD with regression.

Although the current routine childhood vaccine schedule contains more vaccines than the schedule in the late 1990s, 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. 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. For example, the older whole cell pertussis vaccine causes the production of about 3000 different antibodies, whereas the newer acellular pertussis vaccine causes the production of 6 or fewer different antibodies.

An infant's immune system is capable of responding to a large amount of immunologic stimuli and, from time of birth, infants are exposed to hundreds of viruses and countless antigens outside of vaccination. According to the authors, "The possibility that immunological stimulation from vaccines during the first 1 or 2 years of life could be related to the development of ASD is not well-supported by what is known about the neurobiology of ASDs." In 2004, a comprehensive review by the Institute of Medicine concluded that there is not a causal relationship between certain vaccine types and autism, and this study supports that conclusion.

More information: "Increasing exposure to antibody-stimulating proteins and polysaccharides in vaccines is not associated with risk of autism," by Frank DeStefano, MD, MPH, Cristofer S. Price, ScM, and Eric S. Weintraub, MPH, appears in The *Journal of Pediatrics* , DOI 10.1016/j.jpeds.2013.02.001

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