

The Measles, Mumps and Rubella (MMR) vaccine does not cause autism An updated vaccine statement from the UC Davis MIND Institute– April 2025

The UC Davis MIND Institute was established to carry out research to better understand autism and other neurodevelopmental conditions with the goal of decreasing disability and increasing quality of life. We are concerned that an increasing number of families are refusing vaccination because they are being told vaccines might cause autism. We have evaluated the evidence and concluded that vaccines, and the MMR vaccine specifically, do not cause autism. We believe that choosing to refuse vaccination to prevent autism is dangerous – it is exposing children to vaccine-preventable diseases that can be deadly.

We want families to have the best information available. As of the middle of April 2025, the number of cases of measles reported this year by the Centers for Disease Control reached 800 (with 11% requiring hospitalization). This is the second large surge in measles cases since 2000, when the disease was thought to be eliminated thanks to the MMR vaccine. Tragically, two unvaccinated children, 6 and 8 years old, have died due to measles.

Why is this happening?

The short answer is that misinformation about the MMR vaccine has led to the fear that the MMR vaccine causes autism. This untrue claim has resulted in vaccine delays or refusals, putting children at risk of contracting measles. Importantly, it increases the risk of measles for babies who are too young to receive vaccines, immunocompromised children who cannot receive vaccines, and children that have little or no access to health care and vaccinations. An excellent historical overview has been published as an [editorial in the *Journal of Child Psychology and Psychiatry*](#) (Fombonne, 2024), for those interested in more information.

Why do people think the MMR vaccine causes autism?

In 1998, a dishonest paper raised concerns about the MMR vaccine (Wakefield et al., 1998). This paper has been retracted because its results were found to be untrue, and the author had a financial conflict of interest. To address community concerns about the safety of the MMR vaccine, epidemiologists - scientists who study the spread and prevention of diseases - conducted several large-scale studies. They looked at thousands of children to examine whether autism diagnoses were linked to the MMR vaccine and overwhelmingly **found no link between the MMR vaccine and autism** (Demicheli, Rivetti, Debalini, & Di Pietrantonj, 2012; Hviid, Hansen, Frisch, & Melbye, 2019).

What do we know about what causes autism?

Over 30 years of modern autism research demonstrates that autism begins during fetal brain development, that is before the developing baby is even born. This means autism is caused by differences in brain development, mostly due to a mix of genetics and early life factors before birth (Bai et al., 2019). Even if people are not diagnosed until later, the differences in the brain that we see in autism are present by 6 months of age and well before the MMR vaccine is introduced.

So what about the MMR vaccine?

Before development and widespread use of effective vaccines in 1969, rubella epidemics occurred every 6 - 9 years. There are very serious consequences of measles or rubella infections, including death (Duxzak, 2009). There are also serious risks to babies born to mothers who experience illness during pregnancy. The MMR vaccine is effective at preventing these infections.

Moving forward

We urge parents to discuss vaccination with their children's health care provider and to use these highly effective medical interventions to protect from these deadly diseases.

For more information about the data:

Bai D. et al., (2019) Association of genetic and environmental factors with autism in a 5-country cohort. *JAMA Psychiatry* DOI: 10.1001/jamapsychiatry.

Berger, B. E., Navar-Boggan, A. M., & Omer, S. B. (2011). Congenital rubella syndrome and autism spectrum disorder prevented by rubella vaccination--United States, 2001-2010. *BMC Public Health*, 11, 340.

- Chess, S. (1971). Autism in children with congenital rubella. *J Autism Child Schizophr*, 1(1), 33-47.
- Demicheli, V., Rivetti, A., Debalini, M. G., & Di Pietrantonj, C. (2012). Vaccines for measles, mumps and rubella in children. *Cochrane Database Syst Rev*(2), CD004407.
- Duszak, R. S. (2009). Congenital rubella syndrome--major review. *Optometry*, 80(1), 36-43.
- Fombonne, E. (2024). Editorial: An autism case series, vaccine hesitancy, and death by measles. *J Child Psychol Psychiatry*, 65(11), 1403-1406.
- Hviid, A., Hansen, J. V., Frisch, M., & Melbye, M. (2019). Measles, Mumps, Rubella Vaccination and Autism: A Nationwide Cohort Study. *Ann Intern Med*, 170(8), 513-520.
- Wakefield, A. J., Murch, S. H., Anthony, A., Linnell, J., Casson, D. M., Malik, M., et al. (1998). Ileal-lymphoid-nodular hyperplasia, non-specific colitis, and pervasive developmental disorder in children. *The Lancet (RETRACTED)*.

Additional Studies

- Hinman AR, Orenstein WA, Bloch AB, Bart KJ, Eddins DL, Amler RW, Kirby CD. Impact of measles in the United States. *Rev Infect Dis*. 1983 May-Jun;5(3):439-44. doi: 10.1093/clinids/5.3.439. PMID: 6878996.
- Mrozek-Budzyn D, Kiełtyka A, Majewska R. Lack of association between measles-mumps-rubella vaccination and autism in children: a case-control study. *Pediatr Infect Dis J*. 2010 May;29(5):397-400. doi: 10.1097/INF.0b013e3181c40a8a. PMID: 19952979.
- Uno Y, Uchiyama T, Kurosawa M, Aleksic B, Ozaki N. The combined measles, mumps, and rubella vaccines and the total number of vaccines are not associated with development of autism spectrum disorder: the first case-control study in Asia. *Vaccine*. 2012 Jun 13;30(28):4292-8. doi: 10.1016/j.vaccine.2012.01.093. Epub 2012 Apr 20. PMID: 22521285.