ADDRESSING QUESTIONS ABOUT VACCINES AND AUTISM

WHAT IS AUTISM?

Autism is a neurodevelopmental condition defined by difficulties in social communication and restricted, repetitive behaviors, and interests. Autism is generally considered a lifetime disability although there is wide variability in the type and level of support needs of autistic individuals.

WHY ARE THERE QUESTIONS ABOUT VACCINES AND AUTISM?

In 1998, a paper was published by Andrew Wakefield suggesting a link between MMR vaccination and autism. The MMR vaccine protects against measles, mumps, and rubella. The study received a lot of media attention. Later, it was determined that the study data were falsified. As a result, 10 of the 12 original authors removed their authorship, the paper was withdrawn from publication, and Andrew Wakefield lost his medical license.

Following the Wakefield paper, dozens of studies were conducted in the US and abroad to determine if there was any link between the MMR vaccine and autism. Every one reached the same conclusion: **there is no evidence that vaccines cause autism**. What's more, the preservative originally claimed to be the cause of the link has never been included in the MMR vaccine, and has been removed from all other childhood vaccines in 2001.

In 2002, an Institute of Medicine Committee including experts from multiple fields reviewed all of the available evidence and determined there was no evidence for a causal association between the MMR vaccine and autism. Even after this report, other large studies have continued to show no association between the MMR vaccine or other vaccines and autism.

WHY ARE VACCINES IMPORTANT?

Vaccines prevent serious diseases like measles and polio. Measles is one of the most contagious conditions known (9 out of 10 people unvaccinated children exposed to the virus will contract it). Due to vaccines, many of these diseases had been eliminated (defined as the absence of sustained transmission of a given virus for more than 12 months in the US), but measles' high level of contagiousness means that at least 95% of the population needs to be vaccinated to prevent outbreaks. In areas with lower vaccination rates, even when 93% of the population is vaccinated, outbreaks have occurred.

Measles is a serious illness. It leads to severe outcomes, including blindness, brain encephalitis, pneumonia, death in approximately 1 out of every 1,000 cases, and And risk of hospitalization is higher in unvaccinated pediatric cases than in older individuals and those vaccinated. These severe outcomes are more likely when outbreaks occur, and among those not vaccinated.

ARE VACCINES SAFE?

Yes, vaccines are safe and effective. Vaccines undergo stringent safety and efficacy testing before they are available to the public. The MMR vaccine has been in use since 1971.

If you have questions about vaccines, talk to your pediatrician or healthcare professional. There is a lot of misinformation and disinformation about vaccines on the internet and social media sites, so it's important to receive information from a verified source.

WHAT DO WE KNOW ABOUT CAUSES OF AUTISM?

Autism has many causes. Autism-related disability is caused by a complex interplay between biology and environment. The specific factors that increase the likelihood that a person will be autistic are not fully understood. However, we know genetics plays a strong role, as hundreds of genes have been linked to autism and autism-related disability.

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IF YOU WANT TO READ MORE

WHAT IS AUTISM?

- Autism diagnosis: DSM 5, CDC Clinical Testing and Diagnosis for ASD
- About Autism: About ASD, CDC

FALSIFIED STUDY

- The MMR Vaccine and Autism
- Retraction statement made by study authors.

STUDIES OF VACCINES & AUTISM

Review of current evidence

- Vaccines are not associated with autism: an evidence-based meta-analysis of case-control and cohort studies
- Immunization Safety Review

US Studies

- Time trends in autism and in MMR immunization coverage in California

International studies

- No evidence for links between autism, MMR and measles virus
- MMR-vaccine and regression in autism spectrum disorders: negative results presented from Japan
- A population-based study of measles, mumps, and rubella vaccination and autism

Studies with children who have a sibling with autism

- Autism occurrence by MMR vaccine status among US children with older siblings with and without autism

IMPORTANCE OF VACCINES

- Reasons to Vaccinate
- About Measles
- Measles (World Health Organization)
- About Measles (CDC)

VACCINE SAFETY

- Immunizations (Health & Human Services)
- Measles, Mumps, Rubella (MMR) Vaccine Safety

WHAT WE KNOW ABOUT CAUSES OF AUTISM?

- Genetics of autism spectrum disorder: an umbrella review of systematic reviews and meta-analyses
- A assessment of the effects of parental age on the development of autism in children: a systematic review and a meta-analysis
- Prevalence of autism spectrum disorder diagnosis by birth weight, gestational age, and size for gestational age: a systematic review, meta-analysis, and meta-regression
- The association between gestational diabetes and ASD and ADHD: a systematic review and meta-analysis
- Hypertensive disorders of pregnancy and occurrence of ADHD, ASD, and epilepsy in the child: A meta-analysis
- Prenatal Folic Acid Supplements and Offspring's Autism Spectrum Disorder: A Meta-analysis and Meta-regression
- Maternal exposure to pesticides and autism or attention-deficit/hyperactivity disorders in offspring: A meta-analysis
- The epidemiological evidence linking exposure to ambient particulate matter with neurodevelopmental disorders: A systematic review and meta-analysis

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