Frequently Asked Questions about

The MMR Vaccine

MMR (Measles, Mumps, and Rubella) Vaccine

If these diseases have been nearly eliminated in the U.S., does my child need the vaccine?

At present, the U.S. has low rates of measles, mumps, and rubella, thanks to vaccination efforts. However, we know from experience in the U.S. a decade ago, and more recently in other countries such as Germany, Italy, the Netherlands, and Ireland, that when people stop immunizing, diseases will return in epidemic numbers.

Measles, mumps, and rubella can lead to very serious complications and permanent physical damage or death.

- Measles can lead to pneumonia, seizures, encephalitis (inflammation of the brain), permanent brain damage, and death. Prior to licensure of the first measles vaccine in 1963, virtually every person in the U.S. got the measles by age 20. Since the vaccine became available, there has been a 99% reduction in the incidence of measles in the U.S. However, cases of measles still occur here because of infections "imported" from other countries.
- Mumps can lead to deafness, meningitis (infection of the lining of the brain and spinal cord), inflammation and painful swelling of the testicles or ovaries, pancreatitis, and rarely, death. Before widespread vaccination, there were about 200,000 cases of mumps and 20 to 30 deaths reported each year in the United States.
- Children with rubella may spread the infection to susceptible pregnant women, which places the fetus at great risk of serious birth defects.

I have heard that the MMR vaccine causes autism. Is that true?

- No. Autism is a lifelong behavioral disorder that seems to have been diagnosed more and more often in recent years.[1] The causes of autism and the reasons for the increase in its diagnosis are not yet fully understood, but the best available evidence indicates that autism is most often a genetic disorder that usually begins before birth, and possibly as early as the first trimester of pregnancy.[2]
- Although autism usually begins before birth, in most cases its symptoms are first noticed between the ages of 12 and 18 months, around the same age when MMR vaccine is given. Understandably, this timing has led some parents of autistic children, and even some researchers, to assume that the immunization caused the symptoms.[3]
- Many studies have been done to determine whether the MMR vaccine causes autism. One of the early studies, which has now been shown to have serious errors in its research methods, suggested that there might be some link between MMR vaccine and autism.[4] However, a number of additional studies using a variety of methods have looked at this hypothesis and concluded that there is no evidence that MMR causes autism.[5-10]

- In 2001, the Institute of Medicine (a prestigious medical research organization that provides objective, timely, and authoritative health information to the government and the public) reviewed all available information and determined that MMR vaccine does not cause autism among the population as a whole. The American Academy of Pediatrics, the World Health Organization, and the British health authorities have all come to similar conclusions.[6,8]

Should my child receive the measles, mumps, and rubella vaccines individually rather than getting MMR?

- The theory that the MMR vaccine should be separated into three separate shots in order to prevent autism can be traced to a study of the possible role of measles and mumps infection (not vaccination) in the development of a inflammatory bowel disease (not autism).[11] In this review of the medical records of over 7,000 people born in England in 1970, fewer than 40 people who later developed an inflammatory bowel disease reported that they had both measles and mumps infection within the same year of life many years earlier. Some children with autism were noted to have a new form of inflammatory bowel disease. Although later studies failed to confirm that measles or mumps is the cause of inflammatory bowel disease, this single report became the basis for the notion that giving the measles, mumps, and rubella vaccines individually would prevent autism.[4] Because of the interest that this has generated in the press and on the Internet, some have advised that, even though this is an uncertain theory, children should get three separate vaccines against measles, mumps, and rubella. There is no credible science to support this theory.
- Giving children the three vaccines individually is no safer than giving them in combination. In fact, giving the vaccines individually increases a child's risk. The MMR vaccine, like all combination vaccines, was developed to reduce discomfort for the child, as well as to ensure that children are fully protected from these serious diseases at the earliest possible opportunity. The combination vaccine lessens the likelihood that a dose will be delayed or missed, reduces the costs of vaccination to the family, and reduces the number of visits to the doctor.
- The components of the MMR combination vaccine—measles vaccine, mumps vaccine, and rubella vaccine—are available in limited supply for people who cannot receive one of the components for a medical reason, such as severe allergy.

Sources:

1 Fombonne E. (2001). Is there an epidemic of autism? *Pediatrics, 107*(2), 411-412.

2 Rodier PM. (2000). The early origins of autism. *Scientific American, 282*(2), 56-63.

3 London D. (1998). The ABC's of MMR and DTP: Is there an association between vaccination and autism? *National Alliance for Autism Research, NAARative, 3*.

4 Wakefield AJ, Murch SH, Anthony A, Linnell J, Casson DM, Malik M, Berelowitz M, Dhillon AP, Thomson MA, Harvey P, Valentine A, Davies SE, and Walker-Smith JA. (1998). Ileal-Lymphoid-nodular hyperplasia, non-specific colitis, and pervasive developmental disorder in children. *Lancet, 351*(9103), 637-641.

5 Taylor B, Miller E, Farrington CP, Petropoulos MC, Favot-Mayaud I, Li J, and Waight PA. (1999). Autism and measles, mumps, and rubella vaccine: No epidemiological evidence for a causal association. *Lancet, 353*(9169), 2026-2029.

6 Kastner JL and Gellin BG. (2001). Measles-Mumps-Rubella vaccine and autism: The rise (and fall?) of a hypothesis. *Pediatric Annals, 30*(7), 408-415.

7 DeStefano F. (2001). Vaccines and autism. *Pediatric Infectious Disease Journal, 20*(9), 887-888.

8 Institute of Medicine. (2001). *Immunization safety review: Measles-mumps-rubella vaccine and autism.* Washington, DC: National Academy Press. Available online: www.iom.edu/IOM/IOMHome.nsf/Pages/mmr+report

9 Madsen KM, Hviid A, Vestergaard M, Schendel D, Wohlfahrt J, Thorsen P, Olsen J, and Melbye M. (2002). A population-based study of measles, mumps and rubella vaccination and autism. *New England Journal of Medicine, 347*(19), 1477-1488.

10 Makela A, Nuorti JP, and Peltola H. (2002). Neurologic disorders after measles-mumps-rubella vaccination. *Pediatrics, 110*(5), 957-963.

11 Montgomery SM, Morris DL, Pounder RE, and Wakefield AJ. (1999). Paramyxovirus infections in childhood and subsequent inflammatory bowel disease. *Gastroenterology, 116*(4), 796-803.

Recommended Web site on this topic:

Exploring Autism: A Look at the Genetics of Autism (www.exploringautism.org)