Autism and Vaccines

Time Trends in Autism and in MMR Immunization Coverage in California,

Study Purpose
(What questions are the researchers trying to answer?)

The researchers wanted to find out if the Measles, Mumps, Rubella vaccine, also called the MMR vaccine, causes autism.

Because we don’t know what causes autism, researchers are trying to find scientific information that will help us learn why some kids have autism. Research was carried out by a medical group in Great Britain (Europe) in the 1990's that suggested that the MMR vaccine, given to children, might cause autism. Other scientists have studied this and not everyone agrees. The MMR was first given to young children in the United States in 1971. In 1999 the California Department of Developmental Services (DDS) wrote about the increase in MMR vaccines given to children from 1987-1998. Some scientists reported that the information was the same as the study conducted in Great Britain in the 1990's. Researchers gave this information to the media (TV, newspapers). The TV and newspapers told the public that MMR was probably the cause of autism.

There are no simple medical tests a doctor can use to diagnose autism. Most tests are based on observations of a child’s behavior, communication, and social relationships. It is possible that a child can be given the MMR vaccine at the same time that autism appears. Doctors give the MMR vaccine when a baby is 12-15 months old. Children at this age usually begin walking and talking. Parents may see that their child is not able to do some of the things other children do. The MMR vaccine is given at the same time that most toddlers are developing. Most parents, of children with autism, usually notice that something is wrong with their child around this same age.

The DDS report said that other factors can be the reason why the number of children with autism went up in California. Just because two events happen at the same time (increase in autism and MMR vaccine) doesn’t mean that one causes the other. The first study in the
article was conducted in Great Britain. The DDS data were from children in California. We know that children in different countries can be different from each other. The ingredients in the MMR vaccine have not changed since 1980.

It is possible that other things can happen to a child when he is 12-15 months old that might cause autism. And, it is also possible that a child can have autism when he is born. Scientists need to look at all possible causes for autism besides the MMR vaccine.

**Research Design**
(What did the researchers do?)

Each year the 21 Regional Centers in California provide DDS with the number of children who have autism. These are children who receive services from the Regional Centers. Children with other pervasive developmental disorders (PDD) are not counted. DDS gave the researchers the total number of children with autism for each year from 1980-1994. Researchers looked at DDS autism data and children who received the MMR vaccination in California.

MMR immunization records were collected from the California Department of Health Services (CDHS). State law in California requires that children be immunized before they can start school. Families take a copy of their child’s immunization record to the school. The researchers looked at the immunization records when children were 5 to 6 years old. The immunization records they looked at were from past years. This is called a retrospective study.

The researchers looked at two groups. The first group was children who were given the MMR vaccine by 17 months of age. The second group they looked at was children who were given the MMR vaccine before they turned 2 years old (24 months). The researchers wanted to look at children who were 17 months old because most parents see problems in their child’s development by this age. Age 2 years, or 24 months, is used because some children are late getting their vaccinations, even though they should be given before the child is 17 months old.

**Results**
(What did the researchers find?)

First, the researchers found only a very small change in the number of children who were given the MMR vaccine each year (1980-1994) in California. In 15 years, only 10% more children were getting the MMR vaccine. See the orange bar in Figure 1. By 1994, 8 out of 10 children were getting the MMR vaccine. In 1980, there were 176 children with autism in California’s regional center.
system. If children are getting autism because of the MMR vaccine, there should have been 10% more children with autism in 1994 (194 children). However, this study found there were 1182 children with autism, which is a 572% increase from 1980—see the blue bar in Figure 1.

After doing this study, the researchers felt they did not find good evidence that the MMR vaccine causes or was related to autism.

Research studies usually test an idea or a question. It is important that the researcher who does a study controls for all the things that might affect their results. If an experiment is done carefully, the results will provide evidence that the researcher’s idea may be true or not. When the researcher cannot control for everything that might affect their results, they describe what are called “limitations of the study.” In this study, there were three limitations that might have affected the results. First, the researchers stated they did not know how many children in California had autism—only the ones who were served by regional centers. So, of the children who got vaccinated, they did not know if they missed some who were not in the regional center system. Second, they also did not know if the children with autism during the 15 years of their study were born in California and were likely to have gotten their MMR vaccine here. Some of the children in the regional center may have moved here from another state—the researchers did not know if they got their MMR vaccine in another state. Third, the researchers stated that because doctors have changed the way they diagnose autism. So the increase in children with autism from 1980 to 1994 might have to do with how we diagnose autism.

What does this mean for my child and my family?

We still do not know all the things that might cause autism.

The MMR vaccine keeps your children and other children from getting measles, mumps or rubella. If your child is infected with one of these diseases he/she could get very sick. If you have questions about whether the MMR vaccine is safe, talk to your child’s doctor.
Glossary of Terms

Measles-Mumps-Rubella (MMR) Vaccine — An immunization, or shot, given to children between 12 and 15 months of age to increase their immunity and protect them from getting the measles, mumps, or rubella virus.

California Department of Developmental Services (DDS) — This program provides services and care coordination to children with autism and other developmental disabilities and their families in California. Any child, regardless of the family’s income, with an eligible condition can get services from the Regional Center in their community.

Cause — This is when one thing directly leads to another.

Data — This is information (numbers) that the study researchers gather that allows them to look at and compare information as part of the study.

Pervasive Developmental Disorders (PDD) — This is a type of developmental disorder that includes delays in the development of basic human functions, such as socialization and communication. These include autism, atypical autism, Asperger syndrome, Rett syndrome, and childhood disintegrative disorder.

California Department of Health Services (CDHS) – California Department of Health Services (CDHS) – This program uses state and federal funds to provide health and related services for California residents. They also oversee disease outbreaks and collect data on childhood immunizations.

Immunization — This is another word for vaccine. Provides the person with immunity to the virus so they don’t get sick in the future.

Retrospective study — This means that the authors went back in time to look at medical records or other records to discover something that happened in the past.

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