

## The Incidence of Autism in Olmsted County, Minnesota (1976-1997) January 2005

### *Introduction*

A recent article published in the *Archives of Pediatric & Adolescence Medicine* investigated the incidence of autism in Olmsted County, Minnesota, from 1976-1997. Previous studies have reported an increased prevalence of autism. Researchers believe that a population-based incidence study was needed to appropriately assess potential changes in the occurrence of autism. Incidence rate is defined as “the number of new cases of a disease in a population over a period of time” (p. 38). The authors used the data they collected to determine whether a true increase in autism is occurring or if the increase in autism prevalence is due to the introduction of less restrictive diagnostic criteria.

### *Research Design*

The researchers collected data on the incidence of autism based on medical and school records for residents of Olmsted County. The researchers considered Olmsted County ideal for a population-based study for several reasons. The county is mostly isolated in southeastern Minnesota. The majority of residents receive health care locally from the Mayo Clinic and Olmsted Medical Center (consisting of three affiliated hospitals). Medical records contained complete, detailed information of all primary and specialty care provided to residents. Well-child visits (routine developmental monitoring and screening) and school records were also well documented and available for review.

The study considered only residents that were 21 years or younger and had any diagnosis of developmental, neurological, or psychiatric disorders during the 1976 to 1997 time period. The initial search identified 3,109 residents who met the criteria. The researchers then used this population to identify children who met the following criteria for research-identified autism: (1) no diagnosis of Rett disorder, (2) presence of symptoms required for a *Diagnostic and Statistical Manual of Mental Disorders, 4<sup>th</sup> Edition (DSM-IV)* diagnosis of autism (including symptoms of impaired social interaction, impaired communication, and restrictive or repetitive behavior); (3) resident of Olmsted county and age of 21 years or younger; (4) no diagnosis of schizophrenia; (5) IQ of 35 or higher. Of the medical records reviewed, 124 children fulfilled the criteria for an incident case of research-identified autism.

### *Results*

The age- and sex-specific incidence rates were calculated from the 124 children who met the diagnostic criteria. The researchers found that the incidence of autism in Olmsted County increased from **5.5 per 100,000** children between 1980 and 1983 to **44.9 per 100,000** children from 1995 to 1997. From 1980 to 1983, the mean age at which the cases fulfilled the diagnostic criteria was 13.1 years. This age decreased to 5.1 years from 1995 to 1997, indicating a rise in autism in younger children. The median age at

which the first symptom was documented was 2.6 years, and most children had at least one symptom documented before age 3 years.

The researchers noted trends in the medical and school records of the children who met the diagnostic criteria. Medical professionals (pediatricians, child psychologists, child psychiatrists, and child neurologists) first observed 48.1% of the documented autistic symptoms; other documented observations were from school staff and parents or caregivers. Most children (90.3%) had some symptoms documented in school records.

### ***Discussion***

Previous studies have questioned whether or not there has been a true increase of autism cases. The authors of this study attempted to explain why they found an increase in the incidence of Olmsted County. They proposed two explanations:

1. "The findings may represent a true increase in the number of children affected by autism. This increase may be attributed to some known or unknown environmental factor" (p. 42).
2. "There may not have been a true increase in the incidence of autism; rather, increased awareness generated by the development of broader, more precise diagnostic criteria and the availability of educational and other services may have led more parents to bring their children's problems to the attention of health care professionals and schools" (p. 42).

The researchers considered immunizations as possible causes of the increase in autism. They found that the introduction of the MMR vaccine did not coincide with the increased incidence of autism in Olmsted County. The MMR vaccine was introduced in Minnesota almost 20 years before the increase in incidence of autism, suggesting that the MMR vaccine *did not* contribute to the rise of autism diagnoses. However, the researchers did find that the increase in autism coincided with the publication of broader, less restrictive diagnostic criteria. Moreover, the incidence in autism continued to rise when federal special education laws first included autism spectrum disorder as a disability category in 1991.

### ***Conclusion***

This study is unique in that it focused on a very specific population and found the same trends in autism prevalence that previous research has suggested. Based on the research design, the study cannot exclude the possibility that environmental factors caused this increase. However, the initiation of new diagnostic criteria and increased public autism awareness seem the likely cause of the increase in research-identified autism cases. More research must be conducted to explore the reasons behind the increase of autism incidence across the country.