

MMR & AUTISM

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Which of the following statements is true?

1. An MMR-Autism connection does not exist
2. An MMR-Autism connection does exist
3. No one yet knows for sure and further research is urgently needed

The vaccine authorities everywhere are convinced that there is *no* MMR-Autism connection. It is unlikely they will ever change their minds because of concerns about the return of infectious disease epidemics and the unlimited funds available to make sure they maintain the *status quo*.

The Public Health campaign in support of MMR, presently in full swing in Ireland, England and Scotland will unquestionably be the most expensive ever and is certain to cost more than any autism research in progress or ever contemplated in the area. The authorities have and will invariably continue to state that Andrew Wakefield's study of only twelve children is neither conclusive nor convincing, that the present crisis is unfounded, and that the triple vaccine is safe and effective. They will forever keep quoting the epidemiological studies "proving" the safety of the MMR vaccine and will loudly attest that making the single vaccines also available is scientifically unwarranted and will, "without a doubt", kill children or damage them for life.

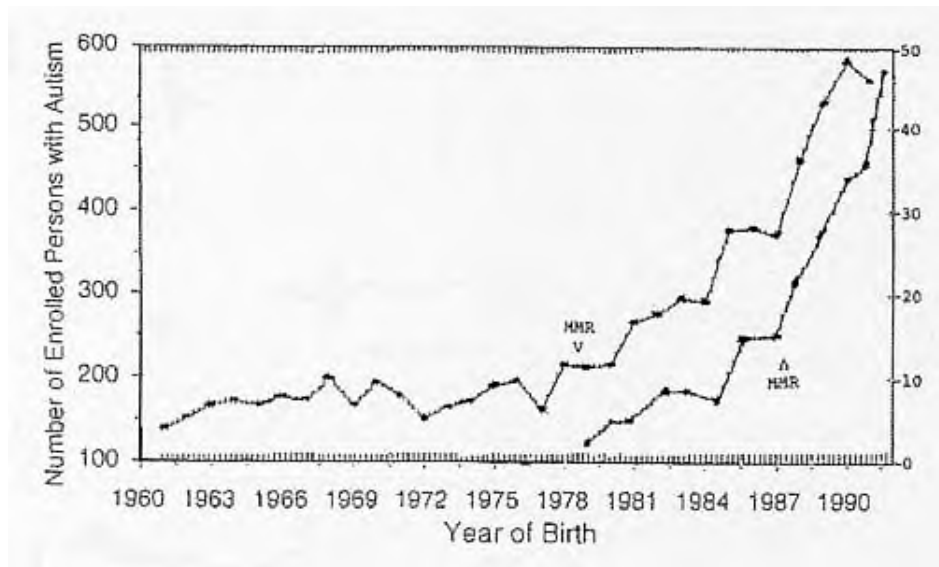
On the other hand, parents of children with regressive autism—who, to date, have never been interviewed by any public health body-- will forever remain convinced that vaccines were responsible for the drastic changes their previously normal and healthy children exhibited post-MMR. Their stories are shockingly similar: A child, four times to one a boy, who is developmentally, socially and verbally on par for his age, suddenly stops acquiring new words and skills after his MMR vaccination, and then regresses into the abyss of autism, losing speech, cognitive abilities and social dexterity.

The above two groups will remain polarized and each will be forever convinced that the other is wrong. Time and even legal confrontation will not change their minds.

The fact, a sad one indeed, is that, as of now, there is no unquestionable scientific proof of an autism-vaccine connection nor is there any credible proof that such a connection does *not* exist. The only absolutely true statement today is that, “No one yet knows for sure and research is urgently needed”.

There is agreement that a genuine autism epidemic is in full swing in the western world, an “Autism Explosion” as Dr. Bernard Rimland, President of the Autism Research Institute of San Diego, California likes to call it. (1)

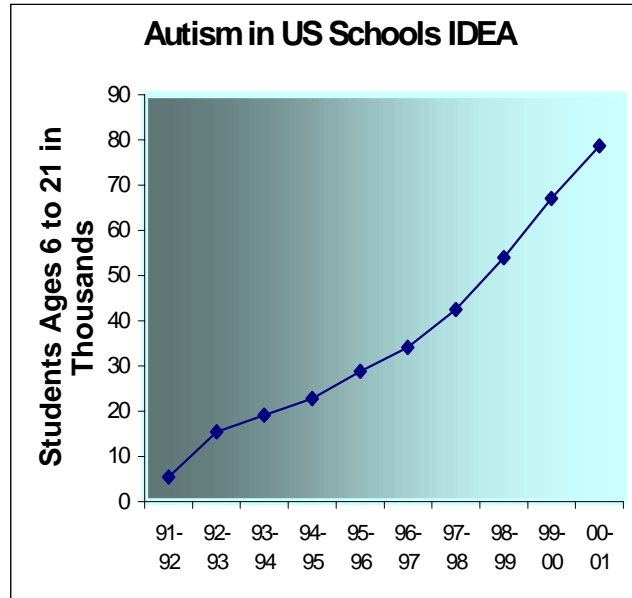
Dr. Rimland, who rules out genetics as the sole cause of such a sudden, exponential increase in autistic disorders, has questioned why autistic syndromes increased in such a similar and parallel fashion in California and ten years later in the UK (graph), when MMR vaccine became widely used.



Rising rates of autism in California (long curve) and in U.K. (short curve). Start of MMR vaccination shown by arrows (CA, 1978; U.K., 1988). (Reference on request)

A well-known California report, which was released in 1999, also described a 273% increase in autism in that State from 1987 through 1998 (2). Unrelenting increases were also documented in all States.

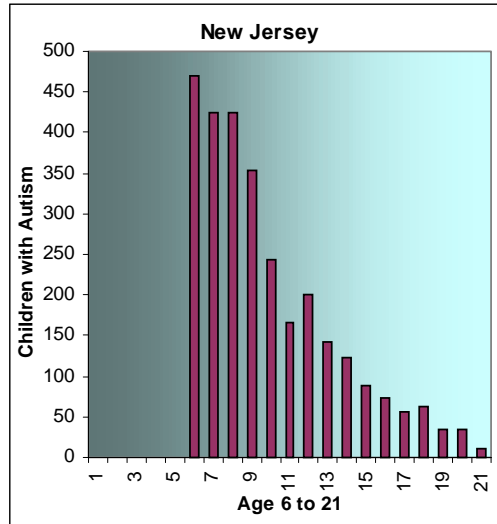
By mandate, the US Department of Education (DOE) has to report yearly to the US Congress, in accordance with IDEA, the Individuals with Disabilities Education Act. The listing of autism as a separate entity began in 1991. The number of children with autism age 6-21 in US schools rose steadily from 5,400



in 1991-1992 to 78,717 in 2000-2001(3).

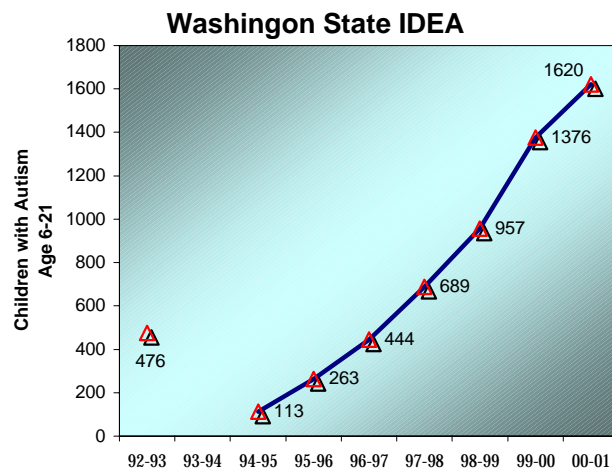
In the seven years between 1992-1993 and 1999-2000, autism in the US schools increased by 435% from 12,222 to 65,396 according to the Annual Reports to Congress. The increase in autistic syndromes was noted in all States but at different rates. Twenty-eight states (28) had increases of over 500%. Of those, eighteen states (18) had over 1,000% increases and in eight (8) autism increased by over 5,000% (3).

The incidence of autism will, in all probability, continue to increase as more and more children enter the educational system yearly, as shown in the following graph based on figures from the New Jersey DOE.



During the 1999-2000 school year, there were 470 6-year old children with a diagnosis of autism in the NJ school systems and only 15 who were 21 years old (4). By IDEA mandates, educational provisions for the disabled are provided till age 21.

The unquestionable epidemic increase in autism has been attributed by some to “better diagnosis”. This could have been possible earlier but would have been

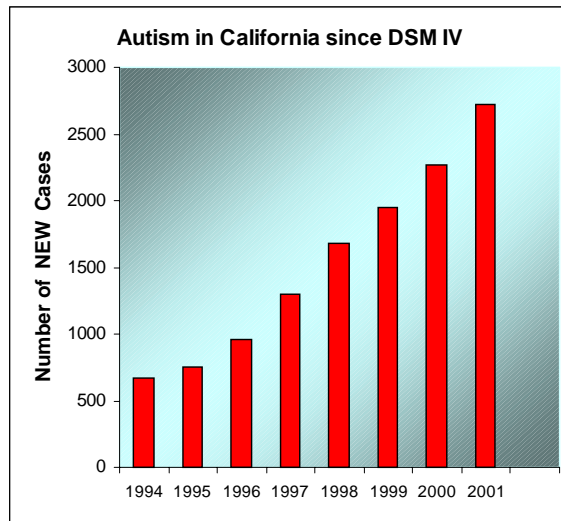


most unlikely after 1994 when DSM IV (Diagnostic and Statistical Manual, 4th edition) was introduced.

In fact, DSM IV criteria are more restrictive and in many States, such as Washington above, the incidence of autism *dropped* in 1994. The subsequent rise was in all probability genuine because the same medical, educational and developmental teams had to agree on the diagnosis. Autism is a diagnosis that

parents do not like and do not accept easily. Most certainly it is one that the different education departments would rather refuse as it instantly translates to thousands of dollars of services. In fact, the safe and sure statement about Autism in the US schools is that it is under diagnosed and that many cases listed as “Behavior Disorders” or “Speech and Language Defects” are really yet undiagnosed vs. misdiagnosed cases of autistic spectrum disorder.

The autism explosion after 1994 and DSM IV, is clearly documented in California where the Department of Developmental Services (DDS) regularly lists and reports all new cases of the disorder.



As shown in the graph, there were 633 new cases of DSM IV autism in 1994. Within 5 years (1999), the number of new cases in California had risen to 1,944 or 6 cases a day 7 days a week. In 2001, just two years later, 2,725 confirmed new cases of autism were added to the system, a daily increase of 7-8 cases. There were in fact more new cases of autism in California in 2001 alone than in 1994, 1995 and 1996, the first 3 years after DSM IV, and more cases (6,596) added in the last three full years than between 1970 and 1995, the first 25 years on record (6,527).

In its most recent quarterly report, DDS has confirmed that there were 812 new cases of autism in California between January 3 & April 4, 2002, a staggering 9 NEW cases a day.

Autism Incidence has similarly increased in most western countries and most physicians are seeing more affected children than ever before. In the UK, rates of 1:324 (5) and 1:175 (6) have been quoted. They may prove to be conservative, according to the National Autistic Society’s recently released figures.

A ten-fold increase between 1983 and 1999 was reported by the Autism Research Unit at Sunderland University and a 7-fold increase between 1988 and 1999 was reported by Kaye in a study published in the British Medical Journal last year (7). Services in the UK and Ireland are strained and necessary funds are scarce as the different localities attempt to deal with this incredible and sudden load.

The age of onset of symptoms has changed over the years. Figures from the Autism Research Institute Database, the largest anywhere, clearly show that earlier, most parents in the USA noticed autistic behavior shortly after birth and in infancy (Kanner's *infantile* autism) while after 1980, 66% of parents report that their children's autistic symptoms started at or after 18 months of age (*late-onset* or *regressive* autism).

In a study of 16,000 children in South London, 4 out of 5 subsequently diagnosed as having an autistic disorder appeared normal at 18 months, exhibiting good eye contact, imaginary play and pointing. *"This suggests that the previously rare regressive pattern of onset is now the most common presentation of the condition"*(8)

It is the mother of a boy with "regressive" autism who may have attracted the world's attention to the possible link between autism and vaccination. Her son, who was perfectly normal, stopped progressing after his MMR vaccination and then deteriorated markedly. After much insistence, Andrew Wakefield—a gastro-enterologist -- examined him and discovered unusual findings in his intestines. Several other children were then investigated and were also found to have similar findings.

In February 1998, Wakefield published his well-known study of 12 children with identical gut findings in The Lancet (9). He ended his publication by stating *"We have identified a chronic enterocolitis in children that may be related to neuropsychiatric dysfunction. In most cases, onset of symptoms was after measles, mumps, and rubella immunisation. Further investigations are needed to examine this syndrome and its possible relation to this vaccine"* and added that as of January 28, a further 40 patients had been assessed, 39 of whom had the same intestinal pathology.

The reaction to his paper was immediate, relentless and vitriolic, with not a day passing without someone somewhere repeating that Wakefield's study can not be relevant because it only included 12 patients and was not duplicated, both not so true statements. In September 2000, Wakefield published a follow-up study of 60 more patients with "autistic entero-colitis" in the prestigious and seriously peer-reviewed American Journal of Gastro-enterology (10). This study is almost never mentioned by the vaccine lobby and authorities, neither is the accompanying editorial by Eamonn, Quigley and Hurley, which ended with the statement: *"Wakefield et al. are to be congratulated on opening yet another window onto*

the ever-broadening spectrum of gut-brain interactions. Their findings raise many challenging questions that should provoke further much-needed research in this area, research that may provide true grounds for optimism for affected patients and their families” (11)

Wakefield now has over 200 cases with complete operative, pathological and viral documentation. Sabra at Georgetown University has described several children with a similar histo-pathological picture and published his findings in *The Lancet* (12). Timothy Buie (Harvard University/Massachusetts General Hospital) has investigated and confirmed in over 200 children with autism the presence of Ileal-lymphoid-nodular hyperplasia and non-specific colitis. (Oasis 2001 Conference for Autism, Portland, Oregon, November 2001)

Concomitantly, Professor John O’Leary and Associates, an independent group of researchers in Ireland, devised and carried out extensive and meticulous research in order to identify any viral etiology for the pathology described in the Wakefield studies.

Earlier this year, they reported (13) that:

- Measles virus genomic RNA was present in 82% of 91 children with autistic syndromes but in only 7% of 70 developmentally normal controls.
- and that over 95% of children had received MMR as the only documented exposure to measles.

The authors concluded that *measles virus may be an important immunological trigger in the pathogenesis of lymphoid hyperplasia and entero-colitis*

In a commentary in the same issue of the *Journal of Molecular Pathology* (14), Morris & Aldulaimi stated in part that, “*Epidemiology is a pretty blunt tool and the studies done do not rule out the possibility that there may be risk groups where a real link between MMR and autism/bowel inflammatory conditions exists*” and “*There is evidence that developmental disorders are associated with a functional disturbance of the brain-gut axis.*”

Tokyo University researchers, Kawashima and Associates (15) investigated the presence of measles genomic RNA in peripheral mononuclear cells in 8 patients with Crohn’s disease, 3 with Ulcerative Colitis and 9 with Autistic Entero-colitis. For controls, they examined healthy children and patients with SSPE, SLE, HIV-1, a total of eight cases.

Using elaborate and critically accurate identification techniques, the Tokyo researchers reported that, “*One of eight patients with Crohn’s disease, one of three patients with ulcerative colitis, and three of nine children with autism, were positive. Controls were all negative. The sequences obtained from the patients with Crohn’s*

disease shared the characteristics with wild-strain virus. The sequences obtained from the patients with ulcerative colitis and children with autism were consistent with being vaccine strains. The results were concordant with the exposure history of the patients.”

For the last decade, V.K.Singh, has carefully investigated measles, MMR and anti-neuronal antibody titers in children with autism and published his findings in several peer-reviewed journals. In an earlier study, Dr. Singh reported finding elevated measles antibody titers in 32 of 38 children with autistic spectrum disorders (ASD) and in 12 of 17 controls. 28 of the 32 children with ASD also had elevated Myelin Basic Protein (MBP) auto-antibody titers compared to none (0) of the control group. Similarly, 16 of 27 children (59%) with ASD had elevated MMR antibody titers compared to 2 of 20 controls (10%). MBP auto-antibodies were detected in 13 of the 16 children with ASD and in none (0) of the controls.

In another study, released in 2002, Singh reported that 75 of 125 children (60%) with ASD were positive for MMR antibodies compared to none (0) of the 92 developmentally normal children tested. *Over 90% of MMR antibody-positive autistic sera were also positive for MBP auto-antibodies which may suggest a causal association between MMR and brain auto-immunity in autism. The specific increase in Measles vaccine or MMR antibodies was related to measles hemagglutinin antigen (MV-HA), but not to the mumps or rubella viral proteins of the MMR vaccine.*

Thus, a significant number of autistic children have positive titers of measles and MMR antibody which in a vast majority of cases (81-88%) is associated with the presence of MBP autoantibody. In view of this correlation between serology and autoantibody, we suggest that a measles- and/or MMR-triggered autoimmune response to myelin may play a pathogenesis role in autism. Dr. Singh concluded, “Stemming from this evidence, we suggest that an “atypical” measles infection in the absence of a rash but with neurological symptoms might be etiologically linked to auto-immunity in autism”.

T. Zecca et al (16) also reported a 3-fold increase in measles titers in 16 children with autism in their practice as compared to normal controls and added, *“Subjectively, parents have stated that their children's developmental milestones deteriorated following MMR vaccination. Neurological sequelae following MMR are widely reported. MMR therefore may play a role in the pathogenesis of autism. The elevated titers of anti-measles antibodies in autistic children may signify a chronic activation of the immune system against this neurotropic virus.”*

The above studies are original works, worthy of serious consideration. They involved both actual patients and controls and their specific endoscopic, viral, and serological findings were all carefully obtained, and are all available for independent review.

The very expensive and extensive campaign against Andrew Wakefield (and the parents who dare question the MMR vaccine) repeatedly quotes four epidemiological studies: Two by Brent Taylor, one by Kaye and the last by Dales (and their associates). *In all four, not a single parent was interviewed or a single child examined & or investigated.* Realizing that the battle was slowly being lost, the “campaign” has lately included in its litany, the 2001 Institute of Medicine (IOM) Report on MMR and Autism, hoping to add “credence” and “prestige”.

The vaccine manufacturer and the vaccine authorities also never fail to mention the so-called “Finnish Studies” and the publications by Peltola and Associates: Specifically one published shortly after the original Wakefield paper in 1998 and another, in late 2000, in anticipation of an announced Wakefield publication.

The claim made by the authors in both was that during a national MMR vaccination program in Finland, in which 5 million doses of vaccine were administered, adverse events were followed for 14 years with no evidence of increased incidence of Autism or Irritable Bowel Disorders (IBD). The fact is that the “Peltola studies” are based on, and describe events, which occurred only between 1982 and 1996. They could not have possibly looked at any MMR-Autism connection because in those years, prior to 1998, and Wakefield’s original report, no one even considered any such link. Furthermore, the only adverse events followed for 14 years were acute events, which started within 4 weeks of vaccination. Autism would not appear so early.

When confronted, Peltola conceded that his group had not specifically looked at autism and IBD as adverse events. The fact that Merck, the vaccine manufacturer, funded the studies and related publications makes their value even more dubious.

Intriguingly, two pertinent and serious public health issues did occur in Finland during the 1982-1996 period. The fact that they are rarely mentioned should raise questions about the motives involved.

- A 300%-increase in Crohn’s disease between 1986 and 1991 (17)
- A striking rise in the incidence of autism in the Northern Provinces between 1991 and 1994, with a cumulative incidence in the 5-7 age group of 20.7/10,000 or > 1 in 500 (18)

Presently, another major pediatric health problem needs explanation and attention. Finnish children have the highest rate of type 1 diabetes mellitus in the world. (19)

There were two studies by Brent Taylor and associates in direct reaction to the Wakefield research. The first which was titled “Autism and measles, mumps,

and rubella vaccine: no epidemiological evidence for a causal association” was published in *The Lancet* in 1999 (20) and has received a lot of attention. It was applauded by an accompanying editorial and a CDC statement and has been often quoted by the vaccine authorities.

It has also now become infamous for possibly being the only epidemiological work published in *The Lancet*, *whose principal author has consistently refused to reveal, share or discuss the study’s raw data*. Evidence shows that Brent Taylor has refused to share any data with:

- Dr. Bernard Rimland, President, Autism Research Institute (refused twice)
- Dr. Jane Orient, Executive Director, The American Association of Physicians and Surgeons (also refused twice)

**Note: Both Drs. Orient and Rimland also contacted The Lancet, but were unsuccessful in obtaining Dr. Taylor’s raw data*

- US Congressman Dan Burton, Chairman of the Government Reform Committee at a Congressional Hearing on MMR and Autism, which was held in Washington, DC, April 6, 2000.

In the UK, Yvette Cooper, the Minister for Public Health, also turned down requests for the data by some Members of Parliament. The Medicines Control Agency funded the study and one can only guess why Brent Taylor, who is associated with Royal Free Hospital, where Dr. Wakefield worked, was selected.

It seems clear now that the study was funded, designed and carried out to “clear” the MMR vaccine and to destroy Wakefield’s credibility and not “*to test the hypothesis that MMR vaccination is causally associated with autism.*”

The study had many statistical problems. In fact, it is hard to believe that it was published in the first place in a prestigious journal such as *The Lancet*, when the authors themselves write, “*The study has some limitations: two of these are that we could not verify the diagnosis according to ICD10 criteria in some cases, and that the ascertainment may have been incomplete. The clinical notes were of variable quality and many did not contain systematic or regularly updated information which would have allowed independent validation of the diagnosis, particularly in the children with atypical autism or Asperger’s syndrome.*”

There have been many criticisms of the study’s design, methodology and results.

James Roger, Ph.D wrote in part “*Taylor et al (1999): What the study really tells us about a possible link between MMR vaccination and Autism*”.

“On 28 March 2000 I presented a talk to the Royal Statistical Society where I showed how currently published epidemiological data, including that from this study, are

consistent with an appreciable number of autism cases being triggered by MMR vaccination...

"The study does not find evidence to support an association between MMR and autism onset because of a flaw in the study design. This does not mean that such an association does not exist... Taylor et al conclude that "The study does not rule out the possibility of a rare idiosyncratic response to MMR. However if such an association occurs, it is so rare that it could not be identified in this large regional sample." This is not correct. Maybe a third to a half of the cases born after 1987 could have been triggered by MMR

"...Rather than use a conventional case-control approach, Brent Taylor's study used a case-series design. The problem is that autism does not have a recognizable primary event. It creeps up insidiously. The case-series approach is appropriate for investigating acute adverse events such as febrile convulsion but is not suitable for long term effects of vaccination. They did not observe an equivalent control group of healthy individuals so see whether MMR vaccination was more common in the autistic individuals than in some group of appropriately matched control individuals...

"It is not surprising that the study found no clustering of diagnosis within one or two years of immunization, when diagnosis would typically be delayed by more than two years. Both time of parental first concern and time of regression have highly grouped values at 12, 18 and 24 months of age. This reflects the slow progressive nature of onset of autism and the parent's difficulty in identifying a specific moment. It makes it unlikely that any true association could be spotted when looking at quite short intervals following immunization, typically 6 months. In fact parental first concern is significantly increased in the six months following immunization ($P=0.03$)...

"A few families describe an acute onset of autism following MMR vaccination. This study confirms that this rapid onset following vaccination is a relatively rare event in this population. On the other hand, it tells us nothing about the possibility that MMR is triggering chronic onset of autism, as one would expect from the Wakefield gastro-intestinal model." (End JR Quote)

Brent Taylor's presumptuous last statement, *"We hope our results will reassure parents and others who have been concerned about the possibility that MMR vaccine is likely to cause autism and that they will help restore confidence in MMR vaccine,"* seems less plausible as time passes.

The second Taylor study published in early 2002 in the British Medical Journal (BMJ) (21) has received very little sustained attention and is rarely quoted. The UK Department of Health funded the study and once again, Taylor refused to share his raw data when asked to do so by an official from the National Autistic Society.

According to the authors the purpose of the study was *“To investigate whether measles, mumps, and rubella (MMR) vaccination is associated with bowel problems and developmental regression in children with autism looking for evidence of a “new variant” form of autism”*. Once more, the authors presumptuously concluded that, *“ These findings provide no support for an MMR associated “new variant” form of autism with developmental regression and bowel problems, and further evidence against involvement of MMR vaccine in the initiation of autism.”*

The study was promptly and repeatedly criticized by numerous electronic responses in the BMJ (22). The letters by Blumsohn, March, and Solomon deal specifically with its statistical and epidemiological flaws.

The study by Kaye et al: “Mumps, measles, and rubella vaccine and the incidence of autism recorded by general practitioners: a time trend analysis” was also published in the BMJ (23).

The fact that the authors who are US-based reported on UK findings has been of interest. The study did not receive any direct funding, but Dr. Kaye is a member of the Boston Collaborative Drug Surveillance Program, which is supported in part by grants from AstraZeneca, Berlex Laboratories, Boehringer Ingelheim Pharmaceuticals, Boots Healthcare International, Bristol-Myers Squibb Pharmaceutical Research Institute, GlaxoWellcome, Hoffmann-La Roche, Janssen Pharmaceutica Products, R W Johnson Pharmaceutical Research Institute; McNeil Consumer Products, and Novartis Farmaceutica.

The authors summarized the study findings by stating: *“ The incidence of newly diagnosed autism increased sevenfold, from 0.3 per 10 000 person years in 1988 to 2.1 per 10 000 person years in 1999. The peak incidence was among 3 and 4 year olds, and 83% (254/305) of cases were boys. In an annual birth cohort analysis of 114 boys born in 1988-93, the risk of autism in 2 to 5 year old boys increased nearly fourfold over time, from 8 (95% confidence interval 4 to 14) per 10 000 for boys born in 1988 to 29 (20 to 43) per 10 000 for boys born in 1993. For the same annual birth cohorts the prevalence of MMR vaccination was over 95%.”*

The authors then concluded: *“Because the incidence of autism among 2 to 5 year olds increased markedly among boys born in each year separately from 1988 to 1993 while MMR vaccine coverage was over 95% for successive annual birth cohorts, the data provide evidence that no correlation exists between the prevalence of MMR vaccination and the rapid increase in the risk of autism over time. The explanation for the marked increase in risk of the diagnosis of autism in the past decade remains uncertain”*.

There were several critical comments in the BMJ including ours (24), in which we made the following points:

- A cohort of children born in the years 1988-1993 was chosen. MMR was introduced in the UK in 1988. Uptake of 90-95% would be unlikely from year one.
- By their selection, Kaye et al effectively excluded children born before 1988 who may have been vaccinated in or after 1988.
- The 114 boys who were selected were observed until age 71 months. Many of them could have succumbed after the second MMR (Booster) which is given between ages 4 and 5. The study fails to mention how many children in fact received two MMR vaccines.
- MMR vaccine was previously given ALONE at 15 months or later. Then the age was lowered to 12 months *and* other vaccines were administered concomitantly, increasing the immune antigenic insult at a younger more susceptible age, and effectively increasing the incidence of autism.
- The restriction of the cases in the main analysis to 114 boys is of concern.
- A breakdown of the 290 children in the 1990-9 birth cohorts by sex and year of birth would have been informative. A larger proportion of girls among the 176 cases excluded might have been relevant to the completeness of the autism figures.
- The fact that neither DSM-IV nor IC-10 was systematically used in the U.K. creates further doubts as to the significance of the findings.

The UK Department of Health Laboratory Services, quoting the DOH Statistics Division, officially cites immunization levels of only up to 92% since the inception of the MMR vaccination program (25).

“Time Trends in Autism and in MMR Immunization Coverage in California” by Dales et al is the last epidemiological study aimed directly at the Wakefield research. The authors of this US-based study are associated with the California Department of Health (26). The authors reported that “Essentially no correlation was observed between the secular trend of early childhood MMR immunization rates in California and the secular trend in numbers of children with autism enrolled in California’s regional service center system. For the 1980-1994 birth cohorts, a marked, sustained increase in autism case numbers was noted, from 44 cases per 100 000 live births in the 1980 cohort to 208 cases per 100 000 live births in the 1994 cohort (a 373% relative increase), but changes in early childhood MMR immunization coverage over the same time period were much smaller and of shorter duration. Immunization coverage by the age of 24 months increased from 72% to 82%, a relative increase of only 14%, over the same time period.”

Dales and Associates then authoritatively concluded *“These data do not suggest an*

association between MMR immunization among young children and an increase in autism occurrence”.

Michael Edwardes, PhD and Marc Baltzan, MD, FRCPC, Royal Victoria Hospital, Montreal, Quebec immediately challenged the Dales report. (27)

In a letter to JAMA they stated, “Dr. Dales and colleagues reported that there was “essentially no correlation” between rates of autism and measles-mumps-rubella (MMR) vaccine, but this conclusion is based on their Figure, which seems to be an optical illusion. We took the y-axis values directly from the Figure and computed the correlation coefficients, which are 0.73 and 0.90 between the total number of autism cases and the percentage of children receiving immunization by 24 months and 17 months, respectively. The illusion of no relationship is due to the vertically compressed graph...Furthermore, their data show that the age of immunization was becoming younger between 1981 and 1993. In our Figure 1, we plot the ratio of children immunized before age 17 months with those immunized between age 17 and 24 months. This ratio increased 200% from 1981 to 1993. Thus, if the total number of autism cases divided by the total number of births are near the true incidence rates for California, the data also suggest that the rate of early MMR immunization is correlated with the incidence of autism.”

Still unable to completely convince everyone that MMR vaccination and autism are absolutely unrelated, the US vaccine authorities asked the prestigious Institute of Medicine (IOM) to review the subject, hoping that the Institute’s stringent epidemiological criteria will help reject any such association.

A special committee of the IOM was convened and met in early March 2001. The Chairperson rushed to publish its findings by April 23rd, a historical record. Also unusual (and unprecedented) were the facts that,

- The Chairperson apparently “shared” the committee’s findings and conclusions with certain interested parties prior to publication and
- That she played an active and very vocal role in promptly and widely publicizing the results.

Her statement, *“It [MMR] is as safe as a vaccine can get,”* was used as an unquestionable seal of approval for the MMR and was translated in the lay press to “Vaccine is off the hook”. The subsequent further orchestrated publicity campaign about the “conclusive report by the Institute of Medicine” remains extensive in the US and abroad. The fact is that although indeed the report stated that *“...evidence favors rejection of a causal relationship at the population level between MMR vaccine and autistic spectrum disorders ...”* it did not *“exclude the possibility that MMR vaccine could contribute to ASD in a small number of children”* and it did state that more research and studies are needed.

These two last statements echo Andrew Wakefield's very own.

Historically, the IOM Committees' conclusions are strictly based on epidemiological data and therefore need large numbers of cases to justify one of the following classifications:

1. No evidence bearing on a causal relation.
2. The evidence is inadequate to accept or reject a causal relation.
3. The evidence favors rejection of a causal relation.
4. The evidence favors acceptance of a causal relation.
5. The evidence establishes a causal relation.

The fact that an MMR-Autism connection was placed in the third group (and may be closer to the fourth) is extremely unusual for a first examination. The criticism that was heaped on the report is almost sure to lead to a review in the not too-distant future.

The significance of the above 3+ classification is more appreciated by reviewing the IOM special report published immediately before the MMR-Autism report in question (28).

On April 19, 2001, the IOM published a special report on "Agent Orange" which was commissioned in 1991 & completed in April 2000. In it, the Committee finally moved **Diabetes Mellitus & Children's Myelogenous Leukemia** from Category 3 "*The evidence favors rejection of a causal relationship,*" to Category 4 "*The evidence favors acceptance of a causal relation*".

The undeniable fact is that since the Vietnam War, hundreds of veterans and a multitude of VA physicians have been thoroughly convinced that Diabetes and this particular form of Leukemia actually belong in Category 5 "*The evidence establishes a causal relation*". The results of this particular IOM report may only be described as "too little and too late".

Walter O. Spitzer is Emeritus Professor of Epidemiology, McGill University. After reviewing the epidemiological studies listed, Professor Spitzer commented: "*It is worth emphasizing that existing epidemiological research cannot rule associations between MMR and any form of autism in or out...Little research done. Most of it substandard... In particular, controls, the corner stone of sound biomedical research, have been lacking*". He concluded, "*There is a compelling mandate to search for better answers*".

Re the IOM report, Professor Spitzer commented in part (29): "*As an epidemiologist who has been a Member of the IOM since 1986, I have been proud of IOM reports in my field that I have examined or co-authored. I am embarrassed by the process*

of this latest Report and would urge President Shine of the IOM to retract the Report until the message has been clarified. What was released, the IOM Report or the McCormick Position?"

Conclusions

Autism is an epidemic of unprecedented proportions, and its wild increase should be the real concern of the health authorities globally. An infectious disease spreading at this rate would be headline news, and would require the mobilization of all available resources, to contain and reverse it.

An MMR–Autism connection has not yet been proved. It certainly has NOT been disproved either. Research into ALL causes of autism is urgently needed.

The continuing work of Dr. Andrew Wakefield—or any doctor whose research is peer-reviewed and able to be independently studied and replicated-- should not be condemned because its findings are unpopular. Researchers trying to duplicate Dr. Wakefield's work should be assured fairness and freedom. Opposing research has to be honest, accurate and able to withstand scrutiny, and must absolutely be clinical and include parental input and patients' evaluations.

To date, the vaccine and public health authorities have not convinced all parents that MMR is safe; until this is done, single vaccines should also be made available.

The authorities are solely responsible if the failure to provide single antigen vaccinations causes disease outbreaks.

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