

What Causes Autism, & Do Vaccines Play A Role?

Dr. Todd Huffman, for the Eugene *Register-Guard*

Last month's column discussed the definitions of autistic spectrum disorders, and examined whether autism is truly on the rise. But what causes autism, and what, if any, role do vaccines have?

Evidence is overwhelming that the cause of autism has a substantial genetic component. Researchers are discovering a growing number of genetic abnormalities that correlate with susceptibility to autism. Perhaps as many as ten or more genes or chromosomal abnormalities may relate to the various symptoms of autistic spectrum disorders.

Evidence clearly shows a high degree of heritability within families. While the overall chance of having a child with an autistic spectrum disorder (ASD) currently stands at 0.6 percent, the chance of having a second child with an ASD lies between 15 and 20 percent.

Furthermore, twin studies demonstrate that if one non-identical twin has an ASD, the other will have it also about 10 percent of the time; for identical twins, the chance exceeds 90 percent.

However, the majority of autistic spectrum disorders occur in individuals without a family history of an ASD. Researchers therefore believe that some or many cases of autism are the result of new and spontaneous genetic mutations, but much more remains to be discovered about the genetic basis of autism.

But are there other causes of autism? This is where things get a bit tricky, especially when it comes to information read on the Internet, or heard on the morning talk shows or from friends and acquaintances.

It must be remembered that autism is not a singular thing. It is a spectrum – in other words, there are a wide range of symptoms or features of autism, and each of these features may range from mild to severe.

The diagnostic criteria for autistic spectrum disorders cast such a wide net that many children with other primary medical conditions or diseases that have developmental consequences, or lead to developmental regression, will be labeled as “autistic”, when in fact “autism” is not their primary disease, rather a consequence of their primary disease.

Confused? Even physicians get it a bit mixed up.

To put it a different way: some children early in childhood develop diseases, sometimes suddenly, that affect their development in such a way that it is slowed, stopped, or caused to regress. The resulting developmental disabilities can sometimes then fit into the criteria of an ASD, and the child is labeled “autistic”.

While in a sense they are, nonetheless autism is not their underlying condition. Rather, the child has a sort of “secondary autism”, if you will.

Conditions known to predispose children to developmental disabilities that meet diagnostic criteria for an ASD include epilepsy, Fragile X Syndrome, Inborn Errors of Metabolism, Rett Syndrome, Tuberculous Sclerosis, Prader-Willi Syndrome, severe lead poisoning, congenital rubella, and rare disorders of mitochondrial function, among others.

What about vaccines? Do they cause autism? In a word, no. The notion that vaccines cause autism has been clearly and soundly disproved. Still, the issue is reported in the media and across the Internet as a controversy.

It is understandable why parents might think vaccines create autism. Autism symptoms are usually first noticed between the ages of 12 months and 3 years. Of course, these are about the same ages when children receive a number of vaccines, though most are received before the first birthday.

In addition, we give many more vaccines to infants and toddlers now than we did in the past, though the number of antigenic particles – germ particles stimulating an antibody response – is a tiny fraction of the number of even three decades ago.

In 2004, the Institutes of Medicine – a branch of the non-partisan and non-governmental National Academy of Sciences – released a report concluding that no evidence exists linking vaccines with the development of autism. Since 2004, the scientific evidence against such a link has become even more overwhelming.

But isn't there mercury in vaccines? No longer. Even when there was, it was not the same "mercury" that we think of as that silver fluid in old-fashioned thermometers.

Instead, it was Thimerosal, a preservative used from the 1940s until 2001 as an additive to vaccines. It was very effective at preventing bacterial and fungal contamination, which was especially important for multi-dose vials entered and re-entered by medical professionals. Many routinely recommended childhood vaccines have never contained thimerosal, including the MMR (measles-mumps-rubella) vaccine.

Despite years of study around the globe, there has been found no evidence of a link between thimerosal in vaccines, and autistic spectrum disorders. Even still, as a precautionary measure thimerosal was removed in 2001 from all routinely recommended vaccines manufactured for administration to infants in the U.S.

The last batches of thimerosal-containing vaccines expired in January 2003.

Despite that thimerosal has disappeared, autism remains. Since 2003 the number of cases of children with autistic spectrum disorders has continued to rise. No better proof of the lack of a link between thimerosal and autism could indeed exist.

But what about the MMR vaccine? Here, again, is a "controversy" with no scientific merit.

More than 20 subsequent studies from around the globe have consistently found no link between this vaccine, and autistic spectrum disorders. Study upon study – from locales as diverse as the UK, Finland, California, Georgia, Denmark, and Japan – has confirmed that the rate of autism is the same in populations of children having received, and having not received, the MMR vaccine.

And yet, despite solid, consistent, reproducible scientific evidence from around the globe against a link between vaccines and autism, many parents remain fearful of vaccines. This is more than just a shame – it's a serious health risk to those children not vaccinated against germs, such as whooping cough, measles, and haemophilus, still in our everyday environment.

Too many children have died in recent years from vaccine preventable diseases, as a result of a conscious choice on the part of parents who've bought into the scaremongering perpetuated by the media, and by media-relations firms hired by personal-injury lawyers. Please don't let your child be one of them.