

## Vaccines Do Not Cause Autism

BY PAUL OFFIT

**IT HAS BEEN ALMOST 20 YEARS** since a paper published in the *Lancet* gave birth to the notion that vaccines caused autism. Since then, more than two dozen studies have refuted the claim, and the original paper has been retracted.

For the most part, the money and time devoted to studying the vaccine-autism hypothesis have been worth it. First, media outlets no longer carry this story under the false mantra of balance, telling two sides when only one is supported by the science. Now the story is one of a disproved claim proposed by a discredited doctor. Second, most parents no longer believe that

vaccines cause autism. A recent study showed that 85 percent of parents of children with autism do not believe that vaccines were the cause.

Unfortunately, despite the mountain of evidence refuting the association, a small group of parents still believe that vaccines might cause autism. Their failure to vaccinate their children not only endangers the children but also weakens the “herd immunity” that keeps disease outbreaks contained. There are several plausible reasons why they feel this way.

One possibility is that the cause or causes of autism remain unknown—the same situation that applied to diabetes in the 1800s, when no one knew what caused it or how to treat it. At the time, people proposed a variety of crazy causes and heroic cures. Then, in 1921, Frederick Banting and Charles Best discovered insulin, and all these false beliefs melted away. Until a clear cause and cure for autism emerge, the vaccine hypothesis will be hard to put completely to rest.

Another possibility is that the notion that vaccines cause autism is comforting—certainly far more comforting than studies that have shown a genetic basis. If autism is caused by events occurring outside the womb, then parents can exercise some form of control. If the disorder is genetic, there is no control.

And everyone loves a bogeyman. It is nice to be able to point a finger at an evil force causing autism, especially if it is big pharma or big government. Conspiracy theorists argue that the only reason studies have shown that vaccines do not cause autism is that a vast international conspiracy is hiding the truth. Although only a small group of parents hold this belief, their voices are disproportionately represented on the Internet.

Finally, parents of children with autism often perceive them as developing normally up to about 12 months of age. Then, after receiving a series of vaccines, the child misses speech, language, behavior and communication milestones typically seen in the second year of life. In fact, several studies examining videotapes taken in the first year of life show that these children were not developing normally. But from the parents’ perspective, they were.

The most encouraging aspect of the vaccine-autism controversy has been the emergence of academics, clinicians, public health officials and parents who have taken to the Internet, the airways and the print media to represent the science that has exonerated vaccines. As a consequence, the tide has turned. We now hear the voices of parents who are angry that other parents, by choosing not to vaccinate, have put all children at risk.

This societal outcry in favor of vaccines was made all the more immediate by the 2015 measles outbreak, which began at the Disney theme park in southern California and spread to 189 people, mostly children, in 24 states and the District of Columbia. Unfortunately, nothing educates better than the virus. Invariably, it is the children who suffer our ignorance.



**Paul Offit** is a professor of pediatrics in the Division of Infectious Diseases and director of the Vaccine Education Center at the Children’s Hospital of Philadelphia.



**CRIME SEEN**—Or rather, not seen. Criminal activity does not increase during the full moon. It can seem that way, even to police officers, because you notice things that confirm your expectations. But despite a handful of suspicious-looking studies, most research says the idea is lunacy.



**RATATOUILLE**—Treat-so in humans. Animal tests hear that a cure based on

SCIENTIFIC AMERICAN ONLINE The presidential candidates answer science questions at [ScientificAmerican.com/nov2016/sciq](http://ScientificAmerican.com/nov2016/sciq)