Why your child still needs vaccines, even if you may not know someone with the disease

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At the turn of the 21st century, the Centers for Disease Control and Prevention published an article about the 10 greatest public health achievements over the past 100 years, from 1900-1999. One of them

was vaccination, which likely has saved millions of lives over the past 100 years.

Yet, in more recent years, some parents of infants and children have questioned the necessity and safety of vaccines. Grossly inaccurate information that wrongly linked vaccination to autism was a key factor. That claim has now been thoroughly debunked by countless high-level studies, but there is still skepticism about vaccination.

In addition to misinformation about safety, vaccination today faces questions from a new corner. Some parents have begun to question whether children still need vaccination for diseases that many of us never even see.

This reasoning is inaccurate and can be dangerous. The viral and bacterial pathogens that cause these diseases still exist. Only one disease – smallpox – has ever been eliminated from Earth.

Bottom line: We have vaccines that have prevented misery in millions of children. Vaccination not only works; it is a godsend. Why is there resistance to these? As a professor of pharmacy who specializes in pediatrics, I will try to explain.

When things get good, we forget when things were bad

Ironically, vaccines have been the victim of their own success.

When was the last time that you met or heard of someone in the United States with polio? Diphtheria? Rubella? Likely, never. However, morbidity statistics indicate that in the 20th century, each year in the United States, more than 16,000 were ill from polio, more than 21,000

were ill from diphtheria and more than 47,000 were ill from rubella.

In 2015, 0 cases of polio (a 100 percent reduction), 0 cases of diphtheria (a 100 percent reduction) and 10 cases of rubella (a more than 99 percent reduction) were reported in the U.S. These dramatic differences are a testament to the effectiveness and importance of vaccines in improving public health.

Many of the diseases listed in the 2017 pediatric immunization schedule have not been so dramatically reduced, however. In 2012, 48,277 cases of pertussis (whooping cough) were reported in the U.S., resulting in 20 deaths, with 18 of these deaths occurring in infants and children. In 2014-2015, 855 cases of measles were reported.

A decline in the number of cases of a disease does not mean that the diseases do not exist, as shown by the measles outbreak and others.

Vaccine skepticism gets a presidential booster shot

What should be a settled scientific matter – that vaccines prevent disease and that they do not cause autism – still arises from time to time as a contentious, emotional issue. Nonscientists are usually the ones fueling the confusion.

President Trump has stated repeatedly that he thinks there could be a link between vaccines and autism.

Trump even hosted perhaps the most vocal critic of vaccines, whose controversial study that falsely claimed a link between vaccines and autism was later retracted – at an inaugural ball. That author, Andrew Wakefield, said the night of the ball that a "huge shakeup" is needed at the Centers for Disease Control and Prevention.

Wakefield, incidentally, was additionally investigated for ethical violations and professional misconduct, and has since lost his license to practice medicine in the United Kingdom. He currently lives in Texas, and he continues to promote the false premise that the MMR vaccine causes autism.

When I began my career in 1989, the bacterial pathogen Haemophilus influenzae type b (Hib) was one of the most common causes of bacterial meningitis in children 5 and younger. I can recall young children admitted for meningitis to the pediatric hospital I was associated with.

Thousands of children in the U.S. were similarly treated then for meningitis resulting from Hib. In 2015, only 29 cases of serious illness from Hib were reported in children 5 and younger. Effective vaccines to prevent serious illness from Hib were licensed for use at about the time I began my career. They are now routinely recommended.

Mercury misunderstanding contributes to confusion, too

Another scapegoat for a cause of autism has been thimerosal, a preservative agent that had been used in some vaccines, but never in MMR vaccines. Thimerosal contains ethylmercury and differs chemically from methylmercury, the form of mercury commonly found in the environment, including some fish.

Although mercury can be dangerous to humans in high amounts, ethylmercury differs, as it is eliminated from the body quicker than methylmercury.

Although some had suggested that thimerosal was a cause of autism, a 2013 review of the scientific literature has demonstrated that this is not

true.. Even so, pharmaceutical companies removed thimerosal from the majority of pediatric vaccines in 2001, and it remains in only a few multi-dose influenza vaccine products.

Vaccine safety is carefully studied

Vaccine products, similar to other pharmaceutical products, are evaluated for safety and efficacy over many years, prior to their public use as allowed by the Food and Drug Administration (FDA).

Because of their therapeutic importance for disease prevention, vaccines are additionally evaluated for safety after the FDA has granted their approval for public use. Several monitoring systems carefully track vaccine product safety, including the Vaccine Adverse Events Reporting System, the Vaccine Safety Datalink and the Post-Licensure Rapid Immunization Safety monitoring system. These programs help ensure that vaccine products remain safe, once they have been made available for public use.

Because of the importance of vaccines in preventing many serious infectious diseases, the medical community has carefully and thoroughly reviewed the science of vaccines and their potential adverse effects. Vaccines, as any pharmaceutic drug product, have risks – a potential to result in adverse effects, such as a sore arm or leg. The majority of these adverse effects are not serious. The benefits of vaccines – the prevention of fatal infectious diseases – greatly outweigh their risks for the vast majority of infants and children.

As a parent, if you have concerns about giving a vaccine to your child, talk with your child's pediatrician or physician. Ask specific questions and express your concerns. Good internet sites, with accurate, easy-to-read information you can additionally read, are the Centers for Disease Control website on vaccines; the website for the American Academy of

Pediatrics; and the Immunization Action Coalition. Pediatric health care professionals, such as myself, desire infants and children to be as healthy as possible. This includes your children. Vaccines are a safe and effective means to accomplish this.

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