

# Pediatric infectious disease expert sheds light on vaccine myths

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Credit: National Cancer Institute

According to the Centers for Disease Control and Prevention, vaccines have saved more than 732,000 lives in the past two decades and studies have repeatedly shown that they are the best way to protect our communities from some of the deadliest illnesses. Still, there is a lot of confusing information about the safety and effectiveness of vaccines and it can be difficult to discern fact from fiction.

"Anti-[vaccine](#) movements are as old as vaccines themselves. With the creation of the first [smallpox vaccine](#) in the 19th century came criticism, disbelief and fear of the unknown. Vaccine safety has come a long way since those early days and undergoes intense scrutiny and trials to ensure efficacy and safety before being approved," said Nadia Qureshi, MD, pediatric infectious disease physician at Loyola University Health System and assistant professor in the Department of Pediatrics at Loyola University Chicago Stritch School of Medicine.

Qureshi sheds light on five of the most common myths about vaccines.

## **The MMR vaccine causes autism**

"This myth began in 1998 when an English surgeon published a study in *The Lancet* Journal claiming the MMR vaccine was associated with autism and inflammatory bowel disease. No other studies have been able to replicate or validate these results. Later, it was discovered that he had fabricated and plagiarized clinical records and even was found to have patented a single vaccine for measles so the research finding would benefit him financially. Also, to prove his theories the author performed procedures on children that were not necessary nor approved by the hospital's ethics committee. His medical license was revoked and paper was retracted. Still, the unfounded fear has been instilled in many parents' minds and continues to result in vaccine hesitancy resulting in wide-spread outbreaks," said Qureshi

## **Too many vaccines at one time is dangerous**

"The immune system is constantly being challenged from what infants place in their mouths to even the air they breathe, every day they are exposed to thousands of germs and antigens. Vaccines are like a drop of water in a swimming pool. Extensive research has been done to ensure

the [vaccine schedule](#) is safe and effective. If parents wait too long to give the vaccines, they miss the window when children are most vulnerable and more likely to have complications if they are infected with a virus. This is especially true for pertussis or whooping cough when infants have a higher death rate," Qureshi said.

## **Vaccines contain toxic substances**

"The three ingredients that most commonly concern parents are thimerosal, aluminum and formaldehyde. Since 2000, thimerosal has been removed from almost all vaccines in response to popular fears that remain scientifically unproven. Aluminum is used to help create a better immune response and the amount in a vaccine is 1/100th of our daily consumption. Formaldehyde is naturally found in plants, animals and humans. The level of formaldehyde found naturally in the body is greater than 100 times that which is found in a vaccine. A pear has 50 times more formaldehyde than a vaccine," said Qureshi.

## **Immunity through infection is better than through a vaccine**

"In some cases the opposite is true. For instance, vaccines for HPV, Hib and tetanus provide better immunity than if a person gets the infection. Thanks to vaccines we often forget that many of these diseases can cause lasting complications, even death. Hib meningitis can lead to mental retardation, polio can cause paralysis and measles can kill. The risk of having a serious adverse reaction to a vaccine is 1 in a million, the risk of complications from a vaccine-prevent able infection is closer to 1 in 100 to 1 in 1000," Qureshi said.

## **I had chicken pox as a kid and it wasn't a big deal**

"Chicken pox is interesting that it is more likely to have complications if a person gets the infection in adulthood. Still, the complications of chicken pox for children are dangerous such as encephalitis, which causes the brain to swell, pneumonia and even death. Ninety percent of children who die from chicken pox do not have identifiable risk factors for severe chicken pox. If a child gets the [chicken pox](#) he or she will have a greater risk of getting shingles later in life," Qureshi said.

According to Qureshi, it's important for doctors and parents to have an open dialog about vaccines and listen to each other's concerns

"Both parents and doctors have the same goal, to keep a child healthy. And the best way to keep a child safe is through vaccinations," Qureshi said.

Provided by Loyola University Health System

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