

SAFE AND EFFECTIVE: VACCINES WORK!

Vaccines work with the natural immune system

Vaccines use the body's natural defense system to help create immunity.

Vaccines trigger the same immune response that a germ might trigger, but do not cause illness. While the body is responding to these antigens, it creates memory cells that will be able to defeat an invasion of disease in the future. In this way, vaccines¹ are quite natural.

Prevention is better than a cure. If we are asked to choose between getting a vaccine or contracting a disease, the vaccine is the obvious winning choice. Disease makes you sick. Illness comes with risk of complications, disability, hospitalization, and even death. While 6 out of 100 children who develop measles end up with pneumonia and 2 out of 1,000 people will die, the risk of a severe reaction to the vaccine is one in a million.² Measles illness also feels really, really terrible for a week or more. Children should not be subjected to suffering through preventable illness. After all, we take simple precautions like washing our hands and staying away from ill people in order to prevent our children from getting sick. Vaccines offer us an active way of preventing sickness.

Our children can be free of the diseases that plagued previous generations. Childhood diseases were a terrible rite of passage. Older generations who lived through these diseases help us remember how frightening polio season or a bout of measles truly was. Some people may dismiss such a perspective, saying, "I lived through that disease, and I survived." While most people did survive measles or polio or other now preventable diseases, those who didn't survive are not around to offer their testimony. Before vaccines, 450 children died each year from measles in the United States³, and children filled polio wards in hospitals. Even chickenpox killed as many as 100 people and hospitalized approximately 11,000 people per year⁴. Since the vaccine became available, hospitalizations and deaths from chickenpox have declined by about 90%.⁵

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Vaccines are a healthy choice

Children who receive vaccines are almost always as healthy as they would have been had they not received vaccine with one key advantage: they are far less likely to contract a vaccine preventable disease.⁶

Scientists have studied vaccines exhaustively and determined that chronic health, neurological, and learning disabilities are not caused by vaccines.^{7 8} All reputable science points supports the idea that the vast majority of children who are vaccinated have only positive outcomes.⁹

We can prevent many diseases through vaccination

Many of us were received vaccines to protect us from only a small number of diseases. Our children are fortunate to have protection against many other diseases that killed or disabled our peers and created illness among so many of us.¹⁰

A baby's immune system is ready to handle multiple immunizations.

The entire childhood schedule contains 150 antigens (antibody stimulating substances) that present a challenge to a child's immune system. This challenge is far less than the one a baby's immune system face from grandma's kisses, the germs on the playground equipment, or even breastmilk. Each day, a child's immune system faces up to 6,000 pathogens.¹¹ It can handle a few antigens from several vaccines without problem.

Vaccines are safe for babies. A baby's body is capable of meeting the challenges a vaccine presents. After all, babies do not readily succumb to the far larger amounts of germs and debris from the toys they mouth or the air they breathe. What a baby breathes, touches, or has injected into him does not reach the brain since the blood-brain barrier begins developing before birth and is working at birth.¹²

Vaccine ingredients are safe

If you look at the ingredients list for a vaccine, the multisyllabic ingredients would likely be overwhelming. Most of us kissed chemistry goodbye long ago, and the names of the ingredients sound alarming. However, these ingredients are not nearly as strange as they sound since most of them are already around us, and babies are naturally exposed to them.

An important question about ingredients, however, is not just “Which ones?” but also, “How much?” It’s important to know that vaccines contain miniscule amounts of what they do contain, just enough to do the job they are meant to do. The amounts of the ingredients in vaccines are easy for the body to handle and pose no health risk to children or adults. Also remember, in the United States vaccines are rigorously tested and in order for a vaccine to be licensed it must be proven safe and effective. It is then reviewed thoroughly by members of the Advisory Committee on Immunization Practices before it can be added to the immunization schedule. What is unsafe is leaving children vulnerable to disease.

Thimerosal: an organic mercury compound which has been used in vaccines as a preservative. Thimerosal was removed from routine childhood immunizations (except for some influenza vaccines) as a precaution before further research was done. Studies completed since then have shown that thimerosal is cleared from the body quickly and poses less of a health risk than other mercury-containing compounds. In the amounts that used to be found in vaccines, thimerosal was safe.¹³

Formaldehyde: an organic compound used during the manufacturing of some vaccines to kill the live organism so that your body can create an immune response without getting sick. While very high doses of formaldehyde may pose some risk to people, our bodies can handle lower doses.

For example, a pear may contain 600 times more formaldehyde than a vaccine.¹⁴ Even our bodies produce formaldehyde as a natural byproduct of metabolism.¹⁵

Aluminum: the third most common mineral in the earth’s crust, aluminum salts (not elemental aluminum) are used as an adjuvant in vaccines. Adjuvants help the body’s immune system respond to the antigens in the vaccines so that lower amounts of antigens need to be used in our vaccines. Aluminum is ubiquitous in our lives—in the air we breathe, the food we eat, and the breastmilk or formula we feed our babies. The amount of aluminum salts in vaccines is quite small and easily handled by even an infant’s body.¹⁶

Vaccines work!

Most of us take for granted that we don't get measles or polio any more. Since 1924, vaccines have prevented 103 million cases of many serious diseases.¹⁷ *Vaccine doses and boosters are timed to protect as many people as possible.* The need for boosters depends on the vaccine. The immunity from some vaccines (such as tetanus) declines after a certain period of time¹⁸ Boosters help remind the body how to respond to an invasion from these diseases. Other vaccines, like the measles vaccine, offer lifelong immunity, and two doses of the MMR vaccine ensure that 99% of people vaccinated with it will be immune to measles for life.^{19,20} The influenza vaccine changes each year because different strains of influenza circulate. A new influenza vaccine provides the body with a more specific immune response.²¹

History shows us that vaccines eliminated disease. An honest look at the number of cases of a disease before vaccines shows that these diseases were a menace until after the vaccine was licensed. Sometimes, the death rate from a disease declined before a vaccine^{22,23} was licensed, but the disease continued to cause illness, suffering, and disability. And while death rates may have declined, they were unacceptably high. Measles vaccination has resulted in elimination of measles from the Western Hemisphere - all of the few measles cases that occur in the US derive from importations from other countries.

Many times, vaccines are the only way to prevent disease. Some illnesses, like typhoid and cholera, are waterborne and better water, hygiene, and sanitation were able to eliminate them in many places.²⁴ However, improvements in water and sanitation do not account for the decline in vaccine-preventable disease. After all, the United States already had excellent water quality and sanitation when the measles vaccine was licensed in 1963, when the chickenpox vaccine was licensed in 1995, and when the Rotavirus vaccine was licensed in 2006. These diseases are spread through droplets in the air. Each time those vaccines were used widely, we saw a dramatic reduction in the diseases they prevent.

Vaccination is Everyone's Business

We care about vaccination rates and worry about children who remain unvaccinated for nonmedical, or philosophical, reasons. While vaccines work well, they do not work perfectly.

Other safety precautions, such as seat belt and bike helmets, also offer us imperfect protection, and we still happily use them. In truth, we do not know if our child is among the small percentage of children who do not respond to vaccines. However, if all the people around our children are vaccinated and have responded to the vaccine, then our child is protected.

But pro-vaccine parents don't just care about our own children. We care about our communities, including the babies too young to be vaccinated, the children with medical conditions that make them more vulnerable to disease, the people undergoing chemotherapy who are at great risk for disease, and anyone with immune system challenges. Voices for Vaccines receives many stories from parents whose children were born with immune system challenges or who are transplant recipients or who simply need the help of the community to keep their children safe.²⁵ Decisions about vaccines are not just individual decisions - they have implications for those around us. Vaccinating is a socially conscious choice, and we care about immunizations because we care about our communities.

1 <http://www.niaid.nih.gov/topics/vaccines/understanding/pages/howwork.aspx>

2 <http://www.cdc.gov/vaccines/vacgen/6mishome.htm#risk>

3 <http://www.cdc.gov/vaccines/vacgen/whatifstop.htm#measles>

4 <http://www.cdc.gov/vaccines/vacgen/whatifstop.htm#varicella>

5 <http://www.cdc.gov/vaccines/pubs/pinkbook/downloads/varicella.pdf>

6 <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3057555/>

7 <http://pediatrics.aappublications.org/content/111/3/653.full>

8 <http://www.autismsciencefoundation.org/autismandvaccines.html>

9 <http://www.iom.edu/Reports/2011/AdverseEffectsofVaccinesEvidenceandCausality.aspx>

10 <http://www.vaccineinformation.org/diseases/>

11 <http://www2.aap.org/immunization/families/safety.html>

12 http://link.springer.com/chapter/10.1007/9781607612872_4

13 <http://www.chop.edu/service/vaccineeducationcenter/vaccinesafety/vaccineingredients/thimerosal.html>

14 http://www.cfs.gov.hk/english/whatsnew/whatsnew_fa/files/formaldehyde.pdf

15 <http://www.chop.edu/service/vaccineeducationcenter/vaccinesafety/vaccineingredients/formaldehyde.html>

16 <http://www.chop.edu/export/download/pdfs/articles/vaccineeducationcenter/aluminum.pdf>

17 W. G. van Panhuis, et al, "Contagious Diseases in the United States from 1888 to the Present,," NEJM 369 (2013): 21528

18 <http://www.immunize.org/catg.d/p4220.pdf>

19 <http://pediatrics.aappublications.org/content/101/1/129.full>

20 <http://www.cdc.gov/vaccines/vpdvac/measles/vaccinshort.htm>

21 <http://www.cdc.gov/flu/protect/keyfacts.htm>

22 <http://www.cdc.gov/vaccines/vacgen/whatifstop.htm>

23 <http://www.immunize.org/catg.d/p4037.pdf>

24 <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1775538/>

25 <http://op12no2.me/stuff/herdhis.pdf>