PARENTS PACK

MONTHLY UPDATES ABOUT
VACCINES ACROSS THE LIFESPAN

FEATURE ARTICLE: THE RISKS OF DISEASE TODAY

September 2026

An emerging theme among the common questions we receive from families trying to make vaccine decisions relates to the current risk of disease. It attempts to distinguish between risk at the time when a vaccine recommendation was originally made and risk of the disease now. Because often people have not personally been affected by or known anyone with many of the vaccine-preventable diseases, the diseases seem absent. It then follows that the risk calculation comes down to taking a risk with vaccination for something extremely unlikely to happen. This calculation stacks the chance of vaccine side effects (many of which are overblown in public discourse) against perceived small risks of infection and even smaller risks of severe disease or complications. Unfortunately, this approach overlooks three important factors. Let's take a closer look.

#1: Risk assessment and the human brain

How many times have you purchased a lottery ticket because the winnings were larger than usual? If you're like me, many times. Virtually every report cites the size of the winnings while also sharing the low chance of winning — often 1 in hundreds of millions. But what do we tell ourselves?

> *"It's only a couple dollars for a chance to hit it big."*
>
> *"We can't win if we don't play."*
>
> *"It just takes one ticket."*
>
> *"Someone's got to win it."*

And, then we have fun thinking about how we would spend the money if we were that lucky winner. It's a slim chance that we are willing to take because of the low cost (a few dollars) and the potentially large positive outcome (up to hundreds of millions of dollars).

On the other hand, the question we are entertaining today related to the current risks of a disease is the opposite of the lottery approach. In this case, our inclination is to forgo a vaccination because of a perceived large risk compared with a perceived small or nonexistent benefit.

In the first situation, we focus on our small chance of winning the lottery to do something. In the second, we focus on a perceived small chance of disease to avoid doing something. Unfortunately, our brains trick us because the chance for infection with one of these diseases is greater than that of either a severe side effect from vaccination or of winning the lottery. For example, about 3.6 million babies are born each year in the U.S. This means there are about 64.8 million children in the U.S. If we use that to consider disease risks, here is what we find:

- Each year, about 50 children die from influenza. If we do that math, a child has about a 1 in 1.3 million risk of dying from influenza. In 2024-2025, the influenza season was particularly deadly for children with almost 300 deaths; that year, the risk was about 1 in 216,000.
- Rates of measles vary by year. Over the last 10 years, excluding 2020 and 2021 when COVID-19 altered daily living and, therefore, disease transmission, recorded cases have numbered between 59 to more than 3,100 (current year). This means the chance for measles each year varied anywhere from 1 in 1.1 million to 1 in about 21,000 (based on early September 2026 numbers of around 3,100). Notably, recorded death rates from measles are about 1-2 per 1,000 cases. In late August, two deaths from measles occurred in PA — the first in the state in 35 years. In 2025, the U.S. had almost 2,300 cases of measles, and three people died. Prior to these five deaths, the last deaths from measles in the U.S. occurred in 2015 (1 death) and 2003 (2 deaths).

Compare these rates to severe side effects from vaccines, such as severe allergic reaction, which is often around 1 in 1 million, and the 1 in hundreds of millions of chances when it comes to winning the lottery. We shouldn't, on one hand, hope to win the lottery, yet on the other hand, dismiss the chance for disease.

TRIVIA CORNER

Why is separating, spacing out or withholding some vaccines detrimental?

A. Infants will be susceptible to disease for longer periods of time.

B. It can increase the amount of stress a child may experience if they must return to the doctor more frequently than they would if the recommended vaccine schedule was followed.

C. There is an increased potential for administration errors.

D. All of the these.

continued >

#2: Risk changes

Another aspect of assessing risk is that risk for infectious diseases is not static. It is dependent on circumstances — not all of which are controllable.

- Health of the individual — We know that certain people are at greater risk for severe influenza based on pre-existing health conditions. However, about half of the children who die from influenza each year do not have pre-existing conditions that increase their risk.
- Vaccination rates — We know that high vaccination rates contribute to community immunity, but we can't know if we are around a group that has a particularly low vaccination rate. These so called "pockets" increase the risk that an outbreak starts, and the disease can spread to others, including those who were vaccinated but for whom the vaccine didn't work. Studies have shown that immunized people in relatively unvaccinated communities are at greater risk for infection than unimmunized people in highly vaccinated communities.
- As herd immunity erodes, the number of outbreaks increases. This raises the chance of randomly encountering someone infected with a vaccine-preventable disease.

And while we are talking about risk and the role of herd immunity, we would be remiss if we didn't acknowledge that in every community there are individuals who rely on the rest of us to keep outbreaks at bay. These include:

- Infants too young to be vaccinated
- People with medical conditions or allergies who can't be vaccinated (i.e., those with medical exemptions)
- People with immune-compromising or other conditions that limit their ability to be vaccinated (e.g., pregnancy)
- Those receiving treatments that limit the effectiveness of vaccines in the short or long term (e.g., patients undergoing treatment for cancer)

At some point, every family includes members who rely on strong community immunity to protect them.

#3: Developing immunity takes time

Even if a family decides to hold off immunizing until, or unless, a disease starts making headlines, immunity takes time to develop. It typically takes about two to four weeks after a single dose of vaccine for processing to be complete, and some vaccines require multiple doses to generate protective immunity.

While a few diseases have long enough incubation periods that vaccinating after exposure can help, most do not. Further, waiting until an outbreak means not only taking a chance on immunity developing in time but also competing with limited resources in the form of appointments, healthcare personnel, and time on the part of both the family and the medical system.

In sum

As families consider whether to vaccinate, they should remember that the "current-risk-of- disease" calculation is not a straightforward one. Many nuanced issues come together to determine what is at best a changing risk over time. Further, developing immunity takes time, so the window of opportunity for vaccination may pass before the reality of an uptick in risk becomes clear. Two things we know for sure are that the pathogens that cause infectious diseases are still present — waiting for their opportunity among the susceptible people in a community — and vaccines are the tools that give us control over them. Opting out of vaccination is like leaving the most impactful tool for controlling risk on the table.

For links to resources, please visit *bit.ly/Sept2026FA*.

FEATURED VIDEO: WHY SEPARATING AND SPACING OUT VACCINES IS BAD ADVICE

Recently, President Trump has suggested separating and spacing out vaccines. Unfortunately, these suggestions are not based on science. Dr. Offit reviews the history behind these ideas and discusses why parents should reconsider this advice.

Watch the video, *bit.ly/4A6IEGQ*.

NEWS & NOTES

Check out the online version for:

- Three things to know about COVID-19 as we head into the fall
- Season 4 of VEC Vaccine Notes

Please visit *bit.ly/Sept2026NN* to learn more.

TRIVIA ANSWER

The correct answer is D. The correct answer is D. Separating, spacing out or withholding some vaccines can be detrimental because infants will be susceptible to diseases for longer periods of time. The recommended vaccine schedule is designed to make sure that vaccines are given at times that will allow infants and children to be protected when they are most likely to get the diseases. Administration errors, such as giving the wrong vaccine or not allowing enough time between doses, may also occur if vaccines are separated, spaced out or withheld.

Children's Hospital of Philadelphia®
Vaccine Education Center

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