PARENTS PACK

MONTHLY UPDATES ABOUT VACCINES ACROSS THE LIFESPAN

August 2025

FEATURE ARTICLE — WHAT'S YOUR BEST MEMORY?

We all have favorite or cherished memories. Those ones that instantly put us in a good mood, make us smile, and sometimes transport us from the "here and now" to a happy, funny or special time. Most often, those memories involve loved ones or close friends. Most often, they bring a picture to mind. If we are lucky, we have physical images or mementos that offer tangible reminders of those moments.

Something you may not associate with memories are vaccines, but vaccines and memories are necessarily intertwined. Vaccines are tangible items that induce memories — even if not commonly associated in our minds. In this article, we consider three ways that vaccines intertwine with memories and discuss each briefly. If you think of other ways, we'd love to hear from you! Also, check the end of the article to vote for your favorite poster celebrating the role of vaccines in cherished memories and consider sharing your own special memory!

Vaccines induce immunologic memory.

The immune system is pretty amazing. Each of us is born with this system that operates 24 hours a day, seven days a week, patrolling for things that shouldn't be in our bodies. Viruses and bacteria that cause diseases are examples of immune system targets, and so are vaccines.

The realization that an uninvited guest is present causes the immune system to be activated. During this process, part of the immune response involves making sure that if this uninvited guest drops by again, it is recognized even more quickly and removed even more forcefully the next time. This is done through the development of memory cells. These cells are long-lived and specialized, so they are prepared to respond very quickly if repeat offenders arrive.

As mentioned, vaccines are also targets. When a person gets a vaccine, their immune system realizes it is an uninvited guest and responds in the same way it would if the person encountered viruses or bacteria in the community. However, the advantage of vaccines compared with viruses and bacteria encountered in the community is the opportunity to control when and how these unwelcome guests arrive. Do we want these guests? No. But if there is a chance they are going to show up anyway, isn't it better if we "invite them" at a time and in a way that works best for us? That way, if they show up unannounced in the future, our immune system is ready to quickly and forcefully respond — sometimes without us ever even knowing the uninvited guest arrived at all.

Vaccines allow us to gain immunologic memory in a convenient and controlled way.

Vaccines make memories of diseases.

As described, people can gain immunologic memory from infections or vaccines. When few people in a community have immunologic memory, it is easier for viruses and bacteria (i.e., pathogens) to remain in the community moving from person to person. In this situation, many people will get ill. Some will end up hospitalized. Some will die.

Without an intervention, the pathogen will remain in the community for some time, and people will become familiar with the disease. They'll know what symptoms suggest a person is infected. They'll likely know of people who got more severely ill or died. In essence, the pathogen becomes a familiar member of the community. In some cases, the pathogen may become so familiar that people seem willing to coexist, normalizing the disease and death it causes. In other cases, the pathogen will incite fear and concern, and people will want to get the pathogen out of their community as quickly as possible. Vaccines offer a way to get the pathogen out of a community, so that neither normalization nor fear become necessary.

When a vaccine is available, it offers an alternative to the pathogen spreading through the community at will. As more people are vaccinated, fewer are susceptible to the infection. Over time, this decrease in the number of susceptible people leads to decreased numbers of cases. With community success, the disease may eventually disappear. The longer the disease goes undetected, the less familiar people will be with the symptoms, and the less likely they will know someone who became severely ill or died from the infection.

In this manner, vaccines make memories of diseases.

TRIVIA CORNER

Why are multiple doses of some vaccines necessary?

A. The vaccine doesn't work for all people after one dose.

B. Frequent outbreaks of disease are circulating in the community.

C. Doctors prefer to give multiple doses of those vaccines.

D. Increasing doses works the best.

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Vaccines enable cherished memories.

Now, think back to those memories that came to mind when you started reading this article. Some likely occurred long ago; others may be more recent. As a humanity, we now live longer, so we accumulate more memories.

We live longer because of scientific progress and better medical treatments. We also live longer because of public health measures that enable us to live in more sanitary communities, drink clean water, and control our exposure to some infectious diseases through measures like vaccination. In fact, vaccination has completely eliminated smallpox from the face of the earth. Smallpox used to kill 1 of every 3 people it infected. Vaccination has also eliminated the spread of diseases like polio, rubella and, in some places, measles. Because we live in better conditions with lower chances for exposure to several infectious diseases, we live longer.

Said another way, vaccines give us more opportunities to make cherished memories together.

Which poster is your favorite?

Recently, the Vaccine Education Center decided to celebrate the cherished memories that vaccines enable, so we released two posters reminding everyone that "Vaccines Make Memories." Which one do you like better and what is your most cherished memory?

Vote here!

For links to resources, please visit *bit.ly/aug2025FA*.

FEATURED VIDEO: MAURICE HILLEMAN, THE MAN BEHIND THE SCIENCE

In August 1919, a baby was born on a farm in Montana. His twin sister died shortly after his birth. Sadly, so did his mother. That baby, Maurice Ralph Hilleman, was raised by his aunt and uncle, living next door to his father and older siblings. Against the odds, Maurice grew up to become a successful scientist — a scientist who most people have not heard of, but whose work continues to touch almost every life because he helped to create more than half of the vaccines routinely recommended for children. It's estimated that his work saves 8 million lives every year.

As we remember Dr. Hilleman during his birthday month, please enjoy this special 16-minute film that includes appearances by Dr. Hilleman, his wife, and his two daughters.

Watch the video, *bit.ly/3IU5nQF*.

NEWS & NOTES

Diphtheria cases in Europe

Diphtheria is not a disease we think much about in the U.S. Infants are protected against this disease when they get the DTaP vaccine at 2 months, 4 months, and 6 months of age, with booster doses at 15-18 months and 4-6 years of age. Typically, less than one case per year occurs in the U.S.

However, diphtheria continues to occur in other places. Recently, the European Centre for Disease Prevention and Control provided an update regarding cases of diphtheria occurring in Europe. Following a larger outbreak in 2022 when more than 300 cases occurred, diphtheria cases have decreased, but they have not gone away. From 2023 through July 2025, 82 cases of diphtheria occurred in six European countries: Austria, Czechia, Germany, Norway, Poland and Switzerland. Because of high vaccination rates in Europe, cases have been limited. However, these cases serve as a reminder that the pathogens that cause diseases we don't hear much about are still waiting for opportunities to return.

- Find out more about the situation in Europe.
- Find out more about diphtheria and the vaccines to prevent it.

Why children get so many vaccines

Recently, Vox interviewed Dr. Paul Offit, Director of the Vaccine Education Center, for a video story related to the vaccine schedule. The 8 1/2-minute video reviews why the schedule is set up the way it is, why infants are more susceptible to several vaccine-preventable diseases, and why characteristics of the disease and the baby's immune system are relevant to the design of the immunization schedule.

Watch the video.

For links to resources, please visit bit.ly/aug2025NN.

TRIVIA ANSWER

The correct answer is A. Multiple doses may be necessary for a few reasons. First, some people may not respond to a single dose. Varicella vaccine is an example. Second, some vaccines require multiple doses to become protective. DTaP vaccine is an example. Babies need all three doses (2 mo, 4 mo, and 6 mo) to gain protective immunity. Third, immunity may wane, requiring additional doses to "remind" the immune system of the pathogen. The fourth and fifth doses of DTaP vaccine (at 15 to 18 months and at 4 to 6 years) are examples.

Go to vaccine.chop.edu/trivia to play Just the Vax, the Vaccine Education Center's trivia game, where you can find this question and others like it.

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