

Covid-19, Kids, and Vaccination

Dr. John Merrill-Steskal

As the Coronavirus pandemic spreads across the United States and our world, I worry about friends, family, and my community in general. The virus has the potential to be truly devastating, with the potential to cause thousands of deaths, especially among the elderly. Fortunately there is a ray of good news: the virus does not seem to cause severe disease in children.

While the elderly are at risk for developing severe and life threatening infections, children and young adults are more likely to have mild symptoms such as nasal congestion, sore throat and a mild cough. The good news is that our children seem to be spared, but there is a down side as well: since children have mild symptoms, they have the potential to easily spread the coronavirus to adults. Not only should adults stay home when ill, but it is also vital that children stay home and not interact with other children even if they may only seem to have a “mild cold.” In addition to staying home when sick, the concept of avoiding close person-to-person contact, also known as “social distancing,” is an essential measure to slow the spread of the virus.

But how do we *stop* the virus? The coronavirus pandemic will stop when enough people are immune to prevent spread, social distancing efforts have paid off enough to interfere with spread, or an effective vaccine is created. I am confident that science will come to our rescue with a vaccine to prevent coronavirus infection. The big question is how long it will take to create and produce enough of the vaccine for Americans to receive; the time frame currently cited in the medical community is that it make take a year.

While we hope for and envision a successful vaccine to combat the coronavirus, it is an important time to reflect upon and learn from other vaccination efforts to prevent adult deaths from infections. Namely, to stop the virus and prevent adult deaths, it may be most important to vaccinate children. A pneumonia vaccine called the “PCV13” as well as the influenza vaccine are examples of how vaccinating children saves adult lives. Known as the “PVC-13,” the pneumococcal conjugate vaccine protects against 13 different strains of the pneumococcus bacteria, and was first recommended in 2000 to protect children from pneumonia and blood stream infections. The vaccine has been a tremendous success and has saved pediatric lives. The miracle of this vaccine however, was the surprise finding that by vaccinating children, researchers also saw a dramatic drop in adult deaths from pneumonia even though the adults had not received the vaccine. In other words, by reducing the infection in children, the bacteria could not be transmitted to adults, and as a result adults benefited as well. Five years ago, the CDC decided to try giving the PCV13 vaccine to adults with the hope of preventing even more adult pneumonia infections. After studying the effects of this intervention however, they found that vaccinating adults did not have the same benefit. Unfortunately, vaccinating adults with PCV-13 did not further reduce adult disease.

Similarly, recent research has shown that giving the influenza vaccine to children may be more effective at preventing adult influenza deaths- more effective than vaccinating the adults themselves.

There are two important reasons why vaccinating children can be more helpful than vaccinating adults in preventing adult disease. First, children are an extremely important way that disease spreads. Kids play with kids, don't wash their hands very well, and are in general very good at sharing germs. By preventing infections in kids, we effectively prevent the spread of infections to everyone else.

Second, and importantly, the immune systems of children respond much better to vaccination than those of adults. As a result, vaccines are better at preventing infections in children compared to adults. As adults age, they experience a process called "immunosenescence," which is an aging process for the immune system such that responses to infections and vaccines are slower and weaker. When older adults are given a vaccine, they are less likely to develop a protective immune response compared to children. Meanwhile, children typically develop an immune response to vaccines quickly and in a robust manner.

In summary, what does this mean for us today as we worry about the spread of coronavirus?

1. To stop the spread of virus now, we need to use the only tool available to us: social distancing. Stay home and wash your hands frequently. Don't spread the infection; don't get the infection.
2. Children thankfully appear to be spared severe disease and death, but are an important way the virus can spread to adults and other children.
3. When a vaccine becomes available, vaccinating our children may be critical to saving adult lives, and stopping the Coronavirus Pandemic.