Why Are Childhood Vaccines So Important?

It is always better to prevent a disease than to treat it after it occurs.

Diseases that used to be common in the United States and around the world, including polio, measles, diphtheria, pertussis (whooping cough), rubella (German measles), mumps, tetanus, rotavirus and *Haemophilus influenzae* type b (Hib) can now be prevented by vaccination.

Thanks to a vaccine, one of the most terrible diseases in history – smallpox – no longer exists outside the laboratory. Over the years vaccines have prevented countless cases of disease and saved millions of lives.

Immunity Protects Us From Disease

Immunity is the body's way of preventing disease. Children are born with an immune system composed of cells, glands, organs, and fluids located throughout the body. The immune system recognizes germs that enter the body as "foreign invaders" (called *antigens*) and produces proteins called *antibodies* to fight them.

The first time a child is infected with a specific antigen (say measles virus), the immune system produces antibodies designed to fight it. This takes time . . . usually the immune system cannot work fast enough to prevent the antigen from causing disease, so the child still gets sick. However, the immune system "remembers" that antigen. If it ever enters the body again, even after many years, the immune system can produce antibodies fast enough to keep it from causing disease a second time. This protection is called immunity.

It would be nice if there were a way to give children immunity to a disease without their having to get sick first.

In fact there is:

Vaccines contain the same antigens (or parts of antigens) that cause diseases. But the antigens in vaccines are either killed, or weakened to the point that they don't cause disease. However, they *are* strong enough to make the immune system produce antibodies that lead to immunity. In other words, *a vaccine is a safer substitute for a child's first exposure to a disease*. The child gets protection without having to get sick. Through vaccination, children can develop immunity without suffering from the actual diseases that vaccines prevent.

More Facts

- Newborn babies are immune to many diseases because they have antibodies they got from their mothers. However, this immunity goes away during the first year of life.
- If an unvaccinated child is exposed to a disease germ, the child's body may not be strong enough to fight the disease. Before vaccines, many children died from diseases that vaccines now prevent, such as whooping cough, measles, and polio. Those same germs exist today, but because babies are protected by vaccines, we don't see these diseases nearly as often.
- Immunizing individual children also helps to protect the health of our community, especially those people who cannot be immunized (children who are too young to be vaccinated, or those who can't receive certain vaccines for medical reasons), and the small proportion of people who don't respond to a particular vaccine.

Why Are Childhood Vaccines So Important?

- Vaccine-preventable diseases have a costly impact, resulting in doctor's visits, hospitalizations, and premature deaths. Sick children can also cause parents to lose time from work.

Why Immunize Our Children?

Sometimes we are confused by the messages in the media. First we are assured that, thanks to vaccines, some diseases are almost gone from the United States. But we are also warned to immunize our children, ourselves as adults, and the elderly.

Diseases are becoming rare due to vaccinations

It's true, some diseases (like polio and diphtheria) are becoming very rare in the United States. Of course, they are becoming rare largely because we have been vaccinating against them. But it is still reasonable to ask whether it's really worthwhile to keep vaccinating.

It's much like bailing out a boat with a slow leak. When we started bailing, the boat was filled with water. But we have been bailing fast and hard, and now it is almost dry. We could say, "Good. The boat is dry now, so we can throw away the bucket and relax." But the leak hasn't stopped. Before long we'd notice a little water seeping in, and soon it might be back up to the same level as when we started.

Keep immunizing until disease is eliminated

Unless we can "stop the leak" (eliminate the disease), it is important to keep immunizing. Even if there are only a few cases of disease today, if we take away the protection given by vaccination, more and more people will become infected and will spread disease to others. Soon we will undo the progress we have made over the years.

What if we stopped vaccinating?

So what would happen if we stopped vaccinating here? Diseases that are almost unknown would stage a comeback. Before long we would see epidemics of diseases that are nearly under control today. More children would get sick and more would die.

We vaccinate to protect our future

We don't vaccinate just to protect our children. We also vaccinate to protect our grandchildren and their grandchildren. If we keep vaccinating now, parents in the future may be able to trust that diseases like polio and meningitis won't infect, cripple, or kill children. Vaccinations are one of the best ways to put an end to the serious effects of certain diseases.

Sources: http://www.cdc.gov/vaccines/vac-gen/howvpd.htm#why; http://www.cdc.gov/vaccines/vac-gen/why.htm. Accessed July 22, 2015.