The Role of Vaccinations

Disease prevention

It is always better to prevent a disease than to treat it after it occurs. Diseases that used to be common in this country 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 can't 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

Vaccines contain the same antigens (or parts of antigens) that cause diseases. For example, measles vaccine contains measles virus. But the antigens in vaccines are either killed, or weakened to the point that they don't cause disease. However, they *are* [able] 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. [Vaccines are also important because]:

- 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.
- 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