

Vaccine Information

Preventing infectious diseases is one of the greatest accomplishments of modern medicine, and pediatricians have always been the most active practitioners in this area. Immunizing your children promptly is the single best thing that parents can do to insure their child's good health. If you have questions about the risks and benefits of vaccines, please read the following information or contact us.

Online Resources

For detailed informational sheets published by the Centers for Disease Control and Prevention (CDC), please visit www.cdc.gov/nip/publications/VIS/default.htm. For additional information, please see our Web Links section on the For Parents page of our website. There are a number of websites listed under Immunizations that are helpful.

What Would Happen if We Stopped Vaccinations?

The viruses and bacteria that cause vaccine-preventable disease and death still exist. They have not disappeared. Vaccines have dramatically reduced the number of people who get infectious diseases and the complications these diseases produce. Without vaccines, epidemics of vaccine-preventable diseases would return, resulting in increased illness, disability and death. Vaccine-preventable diseases also have a costly impact, resulting in doctor's visits, hospitalizations, and lost time from work for many parents.

Polio

Polio virus causes acute paralysis that can lead to permanent physical disability and even death. Before polio vaccine was available, annual epidemics of polio often left thousands of victims, mostly children, in braces, crutches, wheelchairs, and iron lungs. Development of polio vaccines and implementation of polio immunization programs have eliminated paralytic polio caused by wild polio viruses in the US and the entire Western hemisphere.

By the beginning of the 21st century, polio had decreased dramatically around the world. However, in today's global economy, importation of wild polio virus is only an airplane ride away. In 1994, wild polio virus was imported to Canada from India, but high vaccination levels prevented it from spreading in the population.

If we were to discontinue polio vaccination in the US, immunity to polio would decline, leading to the risk of polio epidemics similar to those that occurred in the past. In addition, there have been polio epidemics in Asia and Africa recently due to local political or religious resistance to immunization. In 2004, polio cases increased worldwide from 700 to 1,200, in part because tribal leaders in Nigeria told people that the eradication effort was a plot to sterilize their daughters and give their sons HIV.

Measles

Before measles immunizations were available, nearly everyone in the US got measles. There were approximately 3 to 4 million measles cases each year. An average of 450 measles-related deaths were reported each year between 1953 and 1963. In industrialized countries, up to 20% of persons with measles are hospitalized, and 7% to 9% suffer from complications such as pneumonia, diarrhea, or ear infections. Some persons with measles develop encephalitis, resulting in brain damage. It is estimated that as many as 1 of every 1000 persons with measles will die.

Widespread use of the measles vaccine has led to a greater than 95% reduction in measles compared with the pre-vaccine era.

Measles virus is common throughout the world and is frequently imported into the US. In 1996, 47 cases were known to have been imported by people traveling to the US from other countries. According to the World Health Organization, more than 500,000 people worldwide, mostly children, died from the disease in 2003. If vaccinations were stopped, 2.7 million deaths could be expected.

Stopping measles vaccination would be expected to lead to massive epidemics similar to those that occurred in the pre-vaccine era. Between 1989 and 1991, the number of reported measles cases in the US increased sharply, with more than 55,000 cases, 11,000 hospitalizations, and 120 deaths reported. Some of us at Wheaton Pediatrics remember taking care of patients with measles, including some who ended up with encephalitis, lifelong brain damage, and even death. The major cause of this epidemic was low rates of vaccination among preschool children. Currently, in Great Britain, there has been a dramatic increase in measles cases due to declining rates of vaccination.

Haemophilus Influenzae Type B (Hib)

Before Hib immunizations became available, Hib was the most common cause of bacterial meningitis in US infants and children. Before the vaccine was

developed, there were approximately 20,000 invasive Hib cases annually, and two-thirds of these cases were meningitis. Up to 8,000 additional cases of life-threatening invasive Hib disease (bacteremia, pneumonia or epiglottitis) also occurred annually. One of every 200 US children under 5 years of age got Hib disease. Hib meningitis killed 600 children each year, and left many survivors with deafness, seizures or mental retardation.

Since the introduction of conjugate Hib vaccine in 1987, the incidence of Hib has declined by 97% to 99%. This preventable disease was still a common, devastating illness as recently as 1990. Now, most pediatricians just finishing training have never seen a case. If we were to discontinue immunization, we would likely soon return to the pre-vaccine numbers of invasive Hib disease cases and deaths.

Pertussis (Whooping Cough)

Before pertussis immunizations were available, nearly all children developed pertussis. In the US, prior to immunization, between 150,000 and 260,000 cases of pertussis were reported each year, with up to 9,000 pertussis-related deaths. Pertussis can be a severe illness, especially in infants and young children, resulting in prolonged coughing and vomiting spells that can last for weeks. These spells make it difficult for a child to eat, drink and breathe. In infants, it can also cause pneumonia, and lead to brain damage, seizures and mental retardation.

The newer pertussis vaccine (acellular or DTaP) that has been available for use in the US since 1991 is associated with fewer adverse reactions when compared with the older (whole-cell DTP) vaccine. In the 1970's, Great Britain's and Japan's use of pertussis vaccine dropped significantly for various periods of time due to adverse publicity about the older vaccine. These countries experienced a resulting resurgence in pertussis disease. More than 100,000 cases and 36 deaths due to pertussis were reported in Great Britain during an epidemic in the mid-1970's. In Japan in 1979, more than 13,000 cases and 41 deaths occurred.

Pertussis cases occur throughout the world. If we were to discontinue pertussis immunization in the US, we would experience a massive resurgence of pertussis disease. In fact, pertussis immunity declines over time, and that is the reason for the recent surge in pertussis cases among teens in the US. In the last decade, there has been a 740% increase in pertussis cases among those 10-19 years old. For this reason, official recommendations are to immunize teens with a newly approved acellular pertussis vaccine designed just for teens and adults. This vaccine is available at Wheaton Pediatrics.

Varicella (Chicken Pox)

Though most parents think of chicken pox as a benign, self-limited disease, it can be very serious. One out of every 1,000 infected children will develop severe pneumonia or encephalitis. And one of every 50 women infected during pregnancy will give birth to infants with birth defects (including mental retardation and shortened or atrophied limbs). Also, a bacterium called Group A streptococcus, also known as the “flesh eating” bacteria, can enter through the skin during a chicken pox infection and cause severe and sometimes fatal disease.

Since the introduction of the varicella vaccine in 1995, the cases of varicella in the US have decreased by 90%. In the pre-vaccine years, chicken pox was responsible for 10,000 hospitalizations and 100 deaths per year.

Hepatitis B

Hepatitis B infection is often referred to as the “silent epidemic,” because many people don’t know they are infected, and symptoms may not develop for many decades. Infection with this virus can cause hepatitis, cirrhosis and even cancer of the liver. Every year in the US, 5,000 people will die from hepatitis B soon after getting infected, and another 10,000 will go on to develop long-term hepatitis, putting them at high risk for cirrhosis, liver failure, and cancer.

Hepatitis B is often thought of as an “adult” disease by many parents, because the traditional risk factors of infection include sex, IV drug use and tattooing. But casual contact (sharing toothbrushes or hand towels) can also lead to infection because the virus is also found in the saliva. Before the vaccine became available, 18,000 children in the US got hepatitis B before they were 10 years old. About half of them received the virus from their mothers during pregnancy and childbirth, but the other half became infected from household contacts or other sources, most of whom didn’t know they were infected themselves.

In the early 1980’s, the strategy in the US was to vaccinate the “high risk” groups only: health care workers, IV drug users, etc. But ten years later, there was no change in the incidence of hepatitis B disease. So the strategy was changed in the 1990’s to vaccinate all infants, which has finally resulted in a declining incidence of hepatitis B disease.

Hepatitis A

Hepatitis A is a liver disease caused by the hepatitis A virus, and is separate from the hepatitis B disease. Hepatitis A can affect anyone. In the US, hepatitis A can

occur in situations ranging from isolated cases of disease to widespread epidemics. Good personal hygiene and proper sanitation can help prevent hepatitis A.

Hepatitis A vaccine was first licensed in the US in 1995. During the 1980s and 1990s, an average of 26,000 cases of hepatitis A was reported annually. The actual number of infections per year was estimated to be around 270,000 because there are many infections without symptoms, particularly among children, who then may pass the infection on to adults.

In 1999, the Advisory Committee on Immunization Practices (ACIP) of the Centers for Disease Control and Prevention (CDC) recommended routine hepatitis A vaccination for children living in 11 states with the highest rates of hepatitis A. During the period before vaccine was available, the average incidence of hepatitis A in these states (Alaska, Arizona, California, Idaho, Nevada, New Mexico, Oklahoma, Oregon, South Dakota, Utah and Washington) had been at least 20 cases per 100,000 people, about twice the national average. In 1999, the ACIP also recommended that vaccination be considered in an additional six states (Arkansas, Colorado, Missouri, Montana, Texas and Wyoming) where the average incidence had been between 10 and 20 cases per 100,000 people. During the period before vaccine was available, each year about two thirds of all hepatitis A cases nationwide were reported in these 17 states.

This campaign was so successful that the number of cases in the US dropped from 26,000 annually to 5,683 in 2004. However, now two thirds of all the hepatitis A cases are in states in which hepatitis A vaccination was not recommended. To further reduce the incidence of the disease, the ACIP has recommended that all children receive the vaccine in a two dose schedule between 1-2 years of age.

The information above covers seven of the 13 vaccine-preventable diseases against which children are routinely vaccinated. Stopping vaccination would also cause major increases in diphtheria, tetanus, mumps, rubella, and infections with meningococcus and pneumococcus.