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In celebration of April 19-26, which was National Infant Immunization Week, I'd like to highlight the history of immunizations and discuss the importance of continuing with immunizations.

Immunizations have significantly improved our children's health in several ways. The importance of immunizations continues to increase with a global economy and reintroduction of previously controlled diseases.

Mumps

Just last week I received a notification from the State of Nebraska regarding mumps. There has been an outbreak of mumps in Columbus after an alumni basketball tournament.

Mumps is a viral illness with a trademark parotitis, or tenderness and swelling of the parotid glands (located on the cheekbone around the level of the ear). It may cause orchitis (testicular inflammation) and meningitis as well as fever, muscle aches, headache, and decreased appetite.

Mumps was actually described by Hippocrates and was considered a common childhood illness in the days when it was not uncommon to have several children in a family die in childhood.

The live attenuated vaccine first became available in 1967 and decreased mumps cases from 212,932 in 1964 with 50 deaths to 6,584 cases with no deaths in 2004.

Smallpox

Smallpox has been around for thousands of years. It may have originated in Africa, then spread to India and China. Small amounts of virus from scabs were given to people to try to give them immunity.

This did decrease the number of deaths, although the death rate from the practice was 2-3 percent.

Smallpox reached Europe around 500 AD. The protective effects of cowpox (a similar virus found in cows) were noted by Dr. Jenner around 1800 in milkmaids who did not contract smallpox.

He was able to prove protection against smallpox in a boy who received cowpox.

Smallpox vaccination continued throughout the world, and in 1980 was declared eradicated.

Diphtheria

Diphtheria is characterized by sore throat, low fever, and an adherent membrane (a pseudomembrane) on the tonsils, pharynx, and/or nasal cavity.

The membrane could cause airway obstruction and death in 5 to 10 percent of patients.

Therapy from animal blood was developed in 1890 by Dr. von Behring. He was awarded the Nobel Peace Prize for this—back when it meant a significant achievement had already been

accomplished. He also developed a vaccine in 1913, and by 1924 the mortality rate had begun to improve.

Diphtheria is very rare today (three cases in the US for the last 10 years).

Pertussis

Pertussis, or “whooping cough” had been mostly controlled through vaccination in the 1990s. It has made a comeback due largely to unvaccinated immigrants within the last 10 years.

Adult tetanus shots now include not only diphtheria but also pertussis to protect against this disease. The cough of the whooping cough is a deep, painful spasm.

Dr. Annunziato writes, “It was a horrendous disease that was called a six-week disease: two weeks coming, two weeks staying, and two weeks going.

To watch these infants whooping in spasms and screaming in between was frightening, frustrating, and unforgettable.”

Measles

Measles is a highly contagious virus causing fever, cough, nasal inflammation and conjunctivitis initially, and a rash a few days later. Serious respiratory or gastrointestinal complications occurred in 5 percent to 15 percent of patients in the United States.

Encephalitis (infection of the brain) could be lethal but was less common. The live attenuated vaccine was licensed in 1963 and decreased the incidence and complications from measles drastically.

In 1990, requiring two vaccinations for measles improved these numbers again. There have been measles outbreaks, many starting in Japan (which continues to have measles as a childhood illness.)

Polio

Polio was first noted in New York in 1916. Also called poliomyelitis (infantile paralysis), it was a frightening disease which disabled previously healthy children.

It started with a fever which lasted a week, along with varying degrees of paralysis. Swimming pools were closed for fear of contracting polio.

Hospitals used the “iron lung,” which decreased the pressure inside the lung so that children could inhale—because in some cases the disease paralyzed the diaphragm so that they could not breathe. In 1954, Dr. Salk introduced the inactivated polio vaccine (a vaccine made of dead particles of the virus).

Dr. Sabin introduced the attenuated live oral polio vaccine in 1961. The last case of polio in the United States was in 1979.

Tetanus

Tetanus was first described by Hippocrates, is found in feces of animals and in soil. It enters the body through wounds (or cracks in skin) and causes spasms of the largest muscles of the body.

The classic arched back in tetany occurs because the larger back muscles are stronger. It has a 20 percent mortality rate. The vaccine started to be highly used in the 1940s and has

decreased the number of cases to 50 cases a year.

Hib

Hib (haemophilus influenza B) epiglottitis and meningitis was the cause of nightmares for parents and resident doctors prior to routine vaccination.

Imagine a parent waking up to see her child unable to breathe, leaning forward and drooling because even that act of swallowing closes off their airway.

Imagine as a young doctor in training, knowing that a tube had to be put down a child's throat to save his life, but seeing an opening that had swollen so much that there was no way to put it down.

Or a child with a fever that progressed rapidly to meningitis and then to needing ICU care with ventilator, monitors, and medicines to keep the vital organs going.

Often Hib meningitis resulted in death despite appropriate treatment with antibiotics and supportive care. Doctors who saw these cases were shocked at how rapidly this occurred and describe them as nightmare cases that make them believers in vaccination.

In short, immunizations have significantly improved our children's health in several ways. The importance of immunizations continues to increase with a global economy and reintroduction of previously controlled diseases.

