Style Publishing Group
P.O. Box 1676
Frisco, Texas 75034
Phone: 972.335.1181
Toll Free: 877.781.7067
Fax: 214.722.2313
E-mail: info@friscostyle.com
Web: www.friscostyle.com

Ad Sales: (972) 335-1306

photo from Dreamstime.com

No Pain, No Gain: The World of Childhood Immunization

By Debbie Vallejo

A CAREGIVER DREADS the well-visit requiring a child to have a bunch of needles stuck in their legs. How does a mother explain to a screaming baby that the large needles jabbed into her legs are really for her own good…that the resulting Band-Aids stuck on his legs are more badges of honor than representations of some serious jolts of pain…and oh, by the way, there are more where those came from?

Immunizations are one of those necessary evils, a painful means required for a positive end. Pediatricians credit vaccines with lowering the incidence of childhood diseases such as measles, mumps, rubella, and chicken pox, and for eliminating some serious childhood illnesses altogether. Yet, few know how vaccines work, where they come from, or how the Centers for Disease Control (CDC) came up with the immunization schedule doctors stick to like glue. As a new school year begins and parents rush children in for last minute check-ups, it seems like the time to explore the quagmire of medical data and mythology that makes up the world of the dreaded "shot."

A BRIEF HISTORY

The word "vaccine" is derived from the Latin word "vacca" which means cow, in reference to the first vaccine created by Edward Jenner in 1796. Dr. Jenner was a British physician who noticed milkmaids were less likely than the average citizen to contract smallpox. Knowing that milkmaids often contracted cowpox, a less serious form of smallpox, Dr. Jenner wondered if the less serious disease led to protection from the more severe. In an experiment, Dr. Jenner took a few drops of fluid from the skin sore of a milkmaid with cowpox. He inserted the fluid into the skin of a healthy eight-year-old boy, who contracted cowpox and recovered. A couple of months later Dr. Jenner injected smallpox into the boy predicting that he would not contract the disease. Dr. Jenner was correct in his hypothesis. The previous cowpox injection created an immune response that protected the child from the smallpox virus. The first vaccine was born. The list of available vaccines has expanded to include polio, diphtheria, measles, rubella, mumps, tetanus and pertussis (whooping cough). Kids may receive up to twenty shots before the ripe old age of one.

How exactly do vaccines work? Here's the very short and not so sweet version. When germs enter the body they reproduce, making a person sick. The immune system makes proteins called "antibodies" to destroy the germs and help the body heal. The antibodies remain in the bloodstream and will defend the body against attack from similar germs in the future, preventing illness. This is called "immunity." The brilliance of the vaccine is the ability to provide immunity without getting sick first. Since vaccines are made from weakened or dead versions of the germs that cause infections, a person receiving an injection does not become ill or feel serious symptoms of the virus. When a vaccine is injected, antibodies attack and kill the germs just as they would a live virus, and then stay in the body providing immunity. Ingenious.

WHY VACCINATE?

The main reason a child is vaccinated is, of course, to protect him or her from particularly infectious and potentially lethal

illnesses. Dr. Jane Seagal is a professor of Pediatrics at UT Southwestern and the Chair of Infection Control at Children's Medical Center Dallas. "Vaccines work, they're safe and they prevent disease," says Dr. Seagal. "They help us protect our children by keeping them safe and healthy."

The other reason for vaccinating your child is a little more altruistic. Each community has high-risk individuals who are not able to receive vaccines because of age limitations or medical reasons. The lower the percentage of a community's population that is covered from immunizations, the higher the potential for an outbreak. Each individual not vaccinated puts at risk other members of the population who cannot receive vaccines, such as the elderly, infants or those with major health concerns. When these high-risk individuals are infected they have a much harder time fighting off a virus than the average person.

The final reason for immunization is the risk of acquiring a disease from outside the country, or from someone who travels beyond the U.S. borders and brings home a virus. Measles was declared eliminated from the U.S. in 2000, and yet just last year a 17-year-old girl contracted measles while in Romania. The day after flying home to Indiana she attended a church gathering and infected 16 other people, who then infected others. Out of the 34 people who became sick, 32 were not vaccinated. Three people were hospitalized. Parents cited concern for potential side effects of immunizations as reason for not vaccinating their children.

Dr. Christopher Newton and a young patient *photo by Chris Fritchie*

VACCINE FEARS

In his autobiography, Benjamin Franklin explains how the loss of his four-year-old son by small pox caused him to regret bitterly not giving him the available vaccine, which was still feared by the public;

"In 1736 I lost one of my Sons a fine Boy of 4 Years old, by the Small Pox…I long regretted bitterly and I still regret that I had not given it to him by Innoculation; This I mention for the Sake of Parents, who omit that Operation on the Supposition that they should never forgive themselves if a Child died under it; my example showing that the Regret may be the same either way, and that therefore the safer should be chosen."

Dr. Seagal is convinced that parents who choose not to vaccinate their children are uneducated as to the risks and potential ramifications of the decision. The recent outbreaks of otherwise eliminated diseases like whooping cough and measles demonstrate how easily an illness can occur in an area where the vaccination coverage is low. The national measles epidemic of 1989 and 1990 is an example. Many children died and still more were hospitalized during measles outbreaks all over the country, including Dallas and Houston. "Parents and caregivers need to research and find enough information so they know vaccines are safe for their children," says Dr. Seagal. The CDC initiated the Vaccines for Children Program in 1994 as a result of the measles outbreak.

Some feel vaccines containing the mercury compound thimerosal can cause autism or have other negative health impacts. "There are now many studies that clearly do not link autism to the administration of vaccines," explains Dr. Seagal. In fact, the individual study that supposedly linked the MMR (measles, mumps, rubella) vaccine to autism has now been refuted by many leading researchers in the field.

The mumps outbreak of last year demonstrates how fear of a vaccine leads to lower immunization rates, which in turn may contribute to the spread of a vaccine-preventable disease. It's an all too common problem that doctors are constantly battling. Dr. Christopher Newton is a pediatrician for Centennial Pediatrics in Frisco. "As the vaccines work and a disease becomes less likely to occur, people stop worrying about the disease and start worrying about the vaccine itself," says Dr. Newton. "Parents stop getting kids vaccinated, the coverage level goes down and the disease reappears and with it the possibility of an epidemic."

THE SCHEDULE

The Centers for Disease Control and Prevention provides an immunization schedule for doctors and caregivers. The schedule is a guideline for optimal time frames for administration of each available vaccine. "It is important that kids not only get vaccinated, but get vaccines on schedule so they prevent diseases when they are most susceptible to them," explains Dr. Newton. "The two-, four-, and six-month vaccinations are for diseases that have the worse potential impact the younger they occur."

The number of shots a child receives is a little overwhelming, so how does a caregiver possibly keep up with it all? Drs. Newton and Seagal both agree that finding what the medical community has dubbed a "medical home" is a good start. "It is ideal for a child to receive his or her medical care and immunizations in one place so there is continuity in care and everyone knows them," explains Dr. Seagal. "This is the best thing for any child."

The Childhood Immunization Schedule has only nine vaccines listed, including

influenza. So how does a child end up with almost twenty shots by their first birthday? One word – booster. Dr. Newton explains the need for additional doses. "Each vaccine will gain a stronger immune response," says Dr. Newton. "You get the number of doses you need to cover most people, but no one is fully covered. That is why it is important for as many individuals to be vaccinated as possible."

But what about those who cannot afford the care provided by a doctor or who are not covered by insurance? There is an affordable alternative to the pediatric doctor's office. The Vaccines for Children Program created in 1994 makes vaccines available to any child who needs them, regardless of payment ability. The goal is for 90 percent of any community's children to have up-to-date immunizations by the year 2010. Program participation information is available online at the Centers for Disease Control website – www.cdc.gov.

THE FLU SHOT

The influenza vaccine is updated each year to include new strains of the flu, hence the need for a yearly immunization run. The flu shot is not required for entrance into school, so, the debate among caregivers rages on as to whether it is really necessary to expose a child to yet another injection. It is not uncommon to hear arguments such as "I got the flu shot and then had the flu two days later."

So how does a child end up with almost twenty shots by their first birthday? One-word: booster. Each vaccine will gain a stronger immune response.

It is impossible to acquire influenza from the flu shot. The injection is an inactivated, or killed, version of the virus. The nose spray is a weakened version of the flu and is considered live, so carries a small risk of side effects. It is still possible to catch the flu even after receiving the vaccine. "The vaccine greatly decreases your chance of getting the flu, but it does not make it zero," explains Dr. Newton. However, Dr. Newton recommends the flu vaccine for everyone unless there is a shortage and a need to prioritize. "A person will spend just as much money on over the counter meds and missed work as they would on getting the vaccine first."

"Approximately 36,000 people die from influenza each year," states Dr. Seagal. That statistic alone is enough motivation to vaccinate all members of the family.

The CDC is expanding the recommended age group for children who should receive flu shots from two years and under, to five and under. Doctors order influenza vaccines a year in advance, so the recent increase in age range may cause a shortage in supply at some doctors' offices. Best advice, call early and reserve your shot. Retail outlets such as Walgreens, Sams and Costco also provide flu shots, but may not have the pediatric dose available.

Debbie Vallejo is a freelance writer living in Frisco.