Health & Wellness

Understanding Vaccines

Recognizing National Immunization Awareness Month

August is National Immunization Awareness Month, created to raise awareness about vaccines and their benefits. The Centers for Disease Control and Prevention (CDC) has created a recommended schedule for immunizations according to age: Childhood and Adolescent Schedule (birth-18) and Adult Schedule (over the age of 18). These schedules, readily available from the CDC website or from your doctor's office, list the vaccines and specific ages that the dose should be given according to the recommendation. Here is some information about vaccines that you may not know.

How is the Immunization Schedule created?

Each year, pediatricians and disease experts meet to study any new applicable research and to review the recommendation schedule. If any changes are made, the announcement is made in January. The CDC, the American Academy of Family Physicians and the American Academy of Pediatrics together approve the recommended immunization schedule. The schedule is designed so that vaccines are given when the body's immune system will respond the best. The Advisory Committee on Immunization Practices routinely publishes new information about timing, precautions and administering vaccines. Their guidelines also include vaccine administration for special situations. You can find more information on that on the CDC website.

How do vaccines work?

Everyone is born with an immune system that sees germs as something to fight. The body produces antibodies to fight the germs, virus, or bacteria (also known as "antigens"). Once the antigens have been destroyed, the cells that helped produce antibodies remain. These cells — memory cells — remember the original antigen and can fight it again, creating immunity. Vaccines often contain killed or weakened antigens of common diseases. Some of the newer vaccine technology sends messenger RNA, a type of molecule that contains biological information, to create the same immune response our bodies would have to an actual virus. The vaccines cause the body to create the antibodies needed to fight the antigens, but they are not strong enough for the body to respond with the disease symptoms, though occasionally mild symptoms may be present. Thus, the vaccine creates immunity without actually producing the illness.

How are vaccines regulated?

The Food and Drug Administration (FDA) is responsible for the "safety, efficacy, purity and potency" of all drugs, including vaccines. Vaccines take, on average, a little over 10 years to go from development to your doctor's office. The steps include development, three clinical trial phases focused on safety and effectiveness, and two committee reviews, one by the FDA and one by the Advisory Committee for Immunization Practices. Based on the findings of both committees, a vaccine may receive FDA approval for manufacturing and distribution.

But the regulations don't end there. The Vaccine Safety Datalink project (established in 1990) gathers statistical information on vaccine safety and monitors side effects. The Clinical Immunization Safety Assessment Network (established in 2001) receives and reviews vaccine safety questions, conducts research and is also studying the role of genetics in vaccine safety. Also, as each vaccine batch is created, samples are given to the FDA for testing before they are distributed to the medical community.

In response to the pandemic, vaccines received Emergency Use Authorization (EUA) for distribution. EUA is used during public health emergencies. An EUA can only be submitted to the FDA after the first and second phase of the clinical trial has been completed and the third phase in process with an agreed upon midway point for evaluation. The evaluation of the authorization will include scientific analysis of the vaccine and close evaluation of the safety

and effectiveness studies. As with other vaccines, continued monitoring of safety and efficacy is done and vaccines can be paused and re-evaluated as needed.