

MOHSS

Montana Occupational Health & Safety Surveillance

August 2023

National Immunization Awareness Month

As stated by the Centers for Disease Control and Prevention, August is National Immunization Awareness Month ⁽¹⁾. This letter is intended to provide information about mechanisms of the body's immune response to dangerous germs and how vaccines stimulate immune protection and prevent illness.

Active vs. Passive Immunity:

Immunity to certain germs can be passed from mother to child during and shortly after pregnancy. This is known as "Passive Immunity" and helps infants fend off disease while their immune systems are developing. Later in life, when the body is exposed to disease-causing germs, the developed immune system gets involved by producing antibodies. These antibodies are tiny molecules that target viruses and bacteria that can make us sick. Generation of these antibodies is triggered when one becomes infected. Production of targeted antibodies is known as "Active Immunity". This process is crucial for preventing severe illness and/or death caused by dangerous pathogens. Active immunity involves a protective mechanism that can prevent future infections because our bodies' immune cells 'remember' the signature of certain germs and will produce these antibodies again, if/when needed. This happens naturally and is effective in preventing most disease-causing organisms from making us sick. However, sometimes the body's natural immune response isn't enough to prevent serious illness and/or death.

Vaccines are an effective way to trigger active immunity prior to becoming infected with disease-causing pathogens. Molecules that mimic those on the surface of a virus, for example, can be introduced into the body through vaccinations which stimulate antibody production and thus promote a protective barrier to infection. Examples of this include the Polio vaccine which has been very effective in eradicating the Polio virus from the human population. Others include combined vaccines to Measles, Mumps and Rubella (MMR). When administered to young children, this vaccine cocktail trains their immune systems to recognize all three viruses and thus prevents them from becoming infected.



Photo by Mufid Majnun on Unsplash



Although there can be rare adverse reactions to vaccines, scientific studies show they are generally safe and are extremely effective at preventing serious illness ⁽²⁾. By stimulating the body's immune system, vaccines can prevent infections to latent and emerging diseases.

In general, vaccines can be thought of as immune system boosters. They work with the body's natural mechanisms to stimulate an active immune response which can help to reduce illness. Please check the links below for more information on the topics of vaccines and vaccine research.

1. <https://www.cdc.gov/vaccines/events/niam/index.html>
2. <https://www.cdc.gov/vaccinesafety/research/index.html>
3. <https://www.cancer.net/navigating-cancer-care/how-cancer-treated/immunotherapy-and-vaccines/what-are-cancer-vaccines>

