
Vaccines: Analysis Of Safeness And Importance

In the decade before 1963 when a vaccine became available for the measles, nearly all children got it by the time they were 15 years of age. It was estimated that 3 to 4 million people in the United States were infected each year. Vaccines have helped people all over the world to avoid getting sick. In this article I will talk about what vaccines are, how they affect your immune system, the side effects, and how herd immunity protects people.

A vaccine is made of dead or weakened antigens. Antigens are the parts of the vaccine made from viruses or bacteria. Antigens challenge the immune system so it makes antibodies to fight the disease. Some vaccines contain whole bacteria or viruses. In these cases the virus will be severely weakened so they can't cause disease in healthy people or kill the person altogether. Most vaccines contain only parts of viruses or bacteria, usually proteins or sugars from the surface. This stimulates the immune system but can't cause the disease.

Vaccines are made by isolating the antigen from the cell, then the vaccine is made by adding adjuvant, stabilizers and preservatives. first you have to grow the viruses in primary cells or on continuous cell lines and bacteria is grown in bioreactors, then the antigen is isolated from the cells used to create it. Now you add adjuvant, stabilisers and preservatives. Adjuvants increase the immune response of the antigen; stabilizers increase the storage life; and preservatives allow for multi-dose vials.

"According to the Children's hospital of philadelphia vaccine education center vaccines are made of dead or weakened antigens."They can't cause an infection,but the immune system still sees them as an enemy and produces antibodies in response.After the threat has passed most of the antibodies will break down but immune cells called memory cells remain in the body.when the body encounters that antigen again,the memory cells produce antibodies faster and strike down the invader before it's too late.

Questions have been raised about the safety of some vaccines. For example the measles vaccine can cause a rash, cough, runny nose, fever, and white spots in the mouth (koplik spots). Another example is the Mumps vaccine. The actual disease can cause SSEP, encephalitis, and pneumonia. The mumps vaccine can cause fever, headache, swollen salivary glands, muscle pain, and pain when swallowing or chewing. However, the effects of the actual disease are inflammation of the testicles (orchitis) in males who have reached puberty; this may lead to a decrease in testicular size (testicular atrophy), inflammation of the ovaries (oophoritis) and/or breast tissue (mastitis)inflammation in the pancreas (pancreatitis), inflammation of the brain (encephalitis), inflammation of the tissue covering the brain and spinal cord (meningitis), deafness. Also the rubella vaccine (German Mumps) can cause rash, mild to moderate fever, red and inflamed eyes, swollen lymph nodes at the back of the neck, and arthritis (most commonly in women). Rubella can cause heart problems,loss of hearing and eyesight, intellectual disability, and liver or spleen damage.

Herd immunity describes how a population is protected from a disease after vaccination by stopping the germ responsible for the infection being transmitted between people. In this way, even people who cannot be vaccinated can be protected. For example, the bacteria

meningococcus and pneumococcus can cause blood poisoning (septicaemia) and meningitis. In most people the bacteria live harmlessly in the throat and do not cause disease, but sometimes they get into the bloodstream leading to these severe infections. They can live harmlessly in the throat of one person but if they spread to someone who is particularly susceptible (such as a young baby) they can cause severe disease. By being vaccinated an individual is not only protected from being infected themselves but they then also cannot pass this infection onto other people, where it may cause severe disease. However, for herd immunity to work a large proportion of the population need to be vaccinated.

After learning about the safety of vaccines we can see that vaccines have saved countless lives. If we continue to vaccinate our communities will be safer.

Works cited

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