

## VACCINE: DEVELOPMENT, FACTORS AND THERAPEUTIC OUTCOMES

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### COMMENTARY

A vaccine is a biological immunization that provides effective protection against a particular infectious disease. The vaccine usually contains an agent similar to infectious microorganism and is usually made from weak or killed microbes, its toxins, or one of the above proteins. The agent stimulates the immune system to view the agent as a threat, destroys it, and further detects and destroys any micro-organisms associated with that agent in the future. Some vaccines offer complete contraception, where infection is completely prevented. There is a surprising scientific consensus that vaccines are a safe and effective way to fight and eradicate infectious diseases. The immune system recognizes vaccine agents as foreign particles, destroys them and remembers them. When a dangerous type of agent is encountered, the body detects a coat of protein in the virus, and thus is ready to respond, first reducing the target agent before it enters the cells, and secondly by detecting and destroying the infected cells before that agent multiplies. Lack of response is usually caused by genetics, immune status, age, health or nutritional status. Even if the host makes antibodies, protection may not be enough; the immune system may develop very slowly to function in time, the immune system may not completely block the pathogen, or there may be many types of pathogen, not all of which are at the same risk of the immune response. However, even partial, delayed, or weakened defenses, such as the emergence of antibodies to a type other than the target type, may reduce infection, resulting in lower mortality, lower morbidity, and faster recovery. Some vaccines contain living, degraded microorganisms. Many of them are active viruses that are planted under conditions that impair their harmful structures, or that use less harmful organisms to produce a broader immune response. The oral polio

vaccine has been shown to be effective when the vaccine is administered by volunteers without formal training; the results also showed an increase in ease and efficiency of goal management. Effective oral vaccines have many benefits; for example, there is no risk of blood contamination. Vaccines intended for oral administration should not be liquid, and like solids, they are usually stable and not easily damaged in transport and storage. If two or more vaccines are mixed in the same way, these two vaccines can be disruptive. This usually happens with reduced vaccines, where one part of the vaccine is stronger than the other and suppresses the growth and immune response of the other parts. Vaccination of animals is used both to prevent the spread of the disease and to prevent the transmission of disease to humans. The vaccine dose contains many ingredients, the smallest active ingredient, immunogen. One dose may contain nanograms of viral particles, or micrograms of bacterial polysaccharides. Other ingredients are added to improve the immune response, ensure safety or assistance with storage, and a small amount of material is left over from the production process. Very rarely, these substances can cause allergies in people who are very sensitive to them. Both pets and animals raised as livestock are regularly vaccinated.

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### DECLARATION OF CONFLICTING INTERESTS

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