

Veterinary Vaccines: The Miracle of All Time

Ahmed Adel Seida*

Department of Microbiology and Immunology, Faculty of Veterinary Medicine, Cairo University, Egypt

***Corresponding Author:** Ahmed Adel Seida, Microbiology and Immunology Department, Faculty of Veterinary Medicine, Cairo University, Giza, P.O. 12211, Egypt.

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Veterinary vaccines till yet are the topic which did not take the real concern from the medical, veterinary, and public health communities. However, the world's first vaccine developed by Edward Jenner in 1796 to describe the inoculation of humans with the cowpox virus to confer protection against the related human smallpox virus and illustrates the close bond between human and animal infectious disease sciences [1]. It is estimated that veterinary vaccines are available for over 400 diseases affecting mammals, birds and fish, including farm animals, pets and wildlife [2,3]. Through protecting animals from highly infectious diseases via using animal vaccines this will have a direct impact on the animal health, animal welfare, public health and economical, industrial, enabling efficient production of food animals to feed the growing human population, and greatly reducing the need for antibiotics to treat food and companion animals. There are several zoonotic animal diseases can be transmitted to humans, and control of these diseases, is beneficial to public health [4].

Animal Vaccines are the most cost effective method to prevent and eradicate animal diseases, enhance the efficiency of food production, and prevent transmission of zoonotic and food borne infections to people. Safe and effective animal vaccines are essential to modern society. It is big challenge to produce enough animal protein to feed the nearly 7 billion people on earth without vaccines to prevent epizootics in food producing animals like sheep, goat, cattle, camel, seine, fish and poultry [4].

Without companion animal vaccines many people would not able to keep animals at their houses and would not experience the feeling of the human animal bond [4].

Veterinary vaccines have been called the core products of animal health, and have contributed to the eradication or control of many of the most devastating diseases of livestock, poultry and pet animals, such as foot and mouth, rinderpest, classical swine fever, Newcastle disease, canine distemper and parvovirus. In some instances, in the case of the use of flock specific vaccination to control established diseases, the amount of pharmaceutical treatments, such as antibiotics, can also be reduced. Moreover, veterinary vaccines are considered crucial tools in controlling infectious diseases such as brucellosis and rabies that can be transmitted from animals to man, and therefore, are of major concern for public health [5].

New diseases have emerged and old ones have reappeared. Moreover, these infections, more easily than in the past, can spread around the world favoured by factors such as the evolution of modern transportation and climatic conditions. In recent years, the biological and socio-economic impacts of animal diseases on human societies have had an extremely high profile, with the spread of diseases like BSE and foot and mouth among animal populations, as well as the transmission of diseases such as HIV, Ebola, SARS and Influenza from animal to humans [5].

Animal vaccines featured with using a wide variety of novel adjuvants that are not yet approved for human vaccines. Animal vaccines can be developed and licensed much more quickly than human vaccines which are in demand to protect humans from any expected public health problems [4].

Furthermore, veterinary vaccines have a distinct advantage they are more advanced in technology than human vaccines; they can be developed and licensed much more quickly and at much less cost than human vaccines. The ability to conduct safety and efficacy studies, including vaccination/challenge studies in the target species greatly facilitates licensing of veterinary vaccines. Liability issues associated with adverse reactions for manufacturers of veterinary vaccines are much less than for manufacturers of human vaccines [4].

I consider that veterinary vaccines are the miracle of all time because:

1. Control of zoonotic diseases which can affect humans.
2. Safe and efficient food production from livestock and poultry for human consumption.
3. Control of emerging diseases of animals and people.
4. Reduction of the need for antibiotics and residues in food.
5. Cost-effective than treating sick animals which has economic and industrial impact.
6. More advanced in technology of development and licensed quickly than human vaccine.
7. Bond between human and animal infectious disease sciences.

As mentioned in gates notes that Bill Gates believes that vaccines are the best investment we can make for improving health. I believe that there are several challenges facing the veterinary vaccines to be solved in the preparation, research, development, purity, safety, efficacy, and licensure, cost effectiveness to become more economic and widely used to achieve the goal of better animal and public health in the world.

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