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Vaccination in the Endemics

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About the Study

Vaccines give direct protection by making people less susceptible to sickness or infection. Following the publication of genetic sequence of SARS-CoV-2, the virus that causes COVID-19, sparked a surge in global research and development efforts to produce a vaccine to combat the disease. The enormity of the COVID-19 pandemic's humanitarian and economic effect propels the evaluation of next-generation vaccine technology platforms through novel development paradigms. It is imperative to develop various vaccine platforms and strategies in parallel as the immune responses is poorly understood and it is unclear which vaccine strategies will be most successful. A new paradigm for the development of the vaccine was suggested, which includes the development schedule from 10-15 to 1-2 years in order to address the urgent demand.

One key element of COVID-19's vaccination development platform is the gamut of technological platforms to be evaluated, which include nucleic (DNA and RNA), viruses, peptides, viral vector (replicating and non-replicating). Many of these platforms are still not used to develop licensed vaccines, but experience in disciplines like oncology is motivating developers to take use of advantages that next-generation techniques provide in terms of development and production speed. The safety of a vaccination is usually established based on the nature of the vaccine platform, adjuvant choice, vaccine administration method and route, vaccine age and immunity status. The features of the vaccines may be different and reliable proof of direct and indirect protection might contribute to a coordinated use of these vaccines.

COVID-19 Vaccine Strategies require further safety concerns relating to antibody-determined disease enhancement and the role of pro-inflammatory cytokines overproduction in respiratory immunopathology, as for other viral infections. Initially, influenza vaccine campaigns targeted elderly people, aimed at protecting the general population in a direct way but more subsequently, to improve indirect protection in part. Indirect protection is provided by vaccines by reducing the number of infection of people infected within the population. These vaccine effects can be evaluated by measuring their efficacy of disease prevention, infection control and infectiousness and by evaluating their indirect effects in clinical trials.

Observational studies can sometimes be useful, although generally, it is even harder to measure indirect vaccine effects than to discover direct impacts. Evidence of the impact of any proposed vaccination on infection is therefore urgently required, either before or shortly after approval, when random distribution can be justified. More stringent safety requirements will be required if live attenuated virus vaccines or a respiratory mucosal route of vaccination are chosen. In order to guarantee the equitable production and supply of promising late stage candidates to all affectable areas, particularly regions with poor resource resources, strong international coordination and cooperation will be needed among vaccine developers, regulators, policymakers, funding bodies and governments.