

Dengue Vaccines: An Update

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Currently, dengue is the fastest growing mosquito-borne disease in the world, according to the World Health Organization (WHO). Dengue causes nearly 400 million infections every year. Climate changes that increase the range of the dengue mosquito vector, mobility of populations, and increased urbanization have created dengue expansion. Presently, dengue is endemically spreading in 128 countries. These endemic countries have been called on by the WHO to decrease dengue morbidity by 25% and mortality by 50% by 2020. If 20% of the population in the ages 9 and above indication, we could potentially decrease the dengue burden by 50% in 5 years, indicated by disease impact modelling results. A tetravalent dengue vaccine completed phase III clinical studies in 2014, and are currently ongoing long-term follow - up studies of the vaccine. This trial vaccine demonstrated reducing dengue due to all four serotypes in the two - thirds of the participants. Pooled efficacy analysis of this trial vaccine revealed that the vaccine prevented 9 out of 10 severe cases and 8 out of 10 hospitalizations in volunteers aged 9 - 16 who participated in the two Phase III 25-month efficacy studies. The Federal Commission for the Protection against Sanitary Risks (COFEPRIS) has approved this vaccine for the prevention of dengue disease caused by all four dengue virus serotypes in preadolescents, adolescents and adults, 9 to 45 years of age living in endemic areas. Additionally, the Mexican authorities have granted marketing authorization to this vaccine in 2015, and making it the first vaccine to be licensed in the world for the dengue prevention. Several vaccine candidates are underdevelopment, including live chimeric virus vaccines, inactivated virus vaccines, live recombinant DNA and subunit vaccines, and live attenuated virus vaccines. The live chimeric virus vaccine is undergoing a phase III clinical trial, whereas other vaccine candidates have been evaluated in preclinical animal models or are being prepared for clinical trials.

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