Eighth Workshop Dynamical Systems Applied
to Biology and Natural Sciences DSABNS 2017
Évora, Portugal, January 31st - February 3rd, 2017

POTENTIAL IMPACT OF DENGUE VACCINATION IN DIFFERENT ENDEMIC SETTINGS

Laurent Coudeville* and Nicolas Baurin

Vaccination Value Modeling,
Sanofi Pasteur, Lyon, France

Laurent.Coudeville@sanofi.com

With about 100 million symptomatic infections occurring each year, dengue is a major international public health concern. A tetravalent dengue vaccine demonstrated its protective efficacy in two large multi country phase III efficacy studies which subsequently led to its registration in 13 countries to date. Countries have now to define how to make the best use of this new vaccine.

Data collected during phase 3 studies were used to fit an age-structured, host-vector and serotype-specific compartmental model (Coudeville et al. [2016]). Here we investigated the potential vaccination impact in different endemic settings. Several vaccination programs, including routine vaccination at different ages completed or not by catch-up campaigns, were investigated. We also considered vaccination strategies including the use of serotesting for selecting individuals having experienced dengue infection prior to vaccination. Results indicated that vaccination translate into significant reduction of dengue cases in most transmission settings both at the population and individual level. Lower impact was obtained when serotesting was used notably if the test used lacks sensitivity. We finally compare our results with those presented in recent publication (Flasche et al. [2016], Aguiar et al. [2016]).

The analysis performed suggests that dengue vaccination has the potential to have a significant public health impact in most endemic settings.

 ISBN: 978-989-98750-3-6