

The current project, part of the project BEHAVE-MOD, aims at developing, simulating and analysing models for the dynamics of epidemic models, in which behavioural components are included.

In particular, the work will focus first on a model for influenza transmission, incorporating factors such as vaccine hesitancy, timeliness of vaccination, differential uptakes among transmitters, the likelihood of self-isolation during the symptomatic phase, adaptability to behaviours from past influenza seasons and compliance with public health measures. The modelling framework will span multiple influenza seasons, allowing for a comprehensive exploration of time-varying behavioural changes and contextual policy measures. The model will be validated on data on seasonal influenza in Italy in the recent years.

The second main objective will a model for dengue infection in different regions will be developed, relying on estimated abundance of *Aedes albopictus* and possibly *Aedes aegypti*, in view also of scenarios of climate change. The model will be tested on available data on outbreaks in Italy and other European countries, and will be extended to include different behavioural dimensions such as compliance to possible vaccine recommendations and to specific actions to control the vector in at-risk local territories.