From ODE-PDE to DDE models in Epidemiology

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Abstract

Many complex processes in biology are described by ordinary and partial differential equations (ODE-PDE) but this type of model is not very clear when it is required to consider effects occurring after historical after a historical influence.
For this reason, we must find other alternatives and they are the Functional Differential Equations and at the center of these the Delay Differential equations. We are going to introduce this type of equations in a very natural way and we will apply this new concept to population dynamics.

In this talk we will make a tour of the temporal models in epidemiology that aim to consider that the history of a disease influences the dynamics of the epidemiological phenomenon to be studied. Coincidences and differences. Approaches to their qualitative analysis. Those more complex models can introduce different scenarios to answer the questions of public health stakeholders, policy makers and society as a whole.