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*How does vaccination affect transient population dynamics?*

The talk focuses on the following question: if disease spread in a population is a dynamic process, how will that be affected by vaccination? By exploring transient dynamics and nonlinearities in disease spread within a population and actions of vaccination as an external impulse or force that modifies population dynamics, it is possible to evaluate the impact of the vaccination program and also to compare different vaccination strategies and schedules. We investigate all these using suitable vaccination models (stochastic and/or deterministic) with an eye on optimizing the impact of vaccination on disease spread. In particular, we seek to determine ways the system can be made to converge to a stable equilibrium point where the number of infected individuals is small or zero. Some pertinent modeling questions associated with the use of pulse vaccination are also enumerated.

This is joint work involving Dragos Calitoiu and Zachary Jacobson, Health Canada.