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Lai-Sang Young* (lsy@cims.nyu.edu), Courant Institute of Mathematical Sciences, 251 Mercer Street, New York, NY 10012. *Isolation as a means of epidemic control.*

There are few options in the face of an unforeseen epidemic outbreak; isolation is one of them. When implemented in full and without delay, isolation is very effective. Flawless implementation, however, is seldom feasible in practice. I will present in this talk a simple epidemic model called SIQ with an isolation protocol, focusing on the consequences of delays and incomplete identification of infected hosts. The continuum limit of this model is a system of Delay Differential Equations, the analysis of which reveals clearly the dependence of epidemic evolution on model parameters such as disease reproductive number, probability and speed of identification of infected hosts, recovery rates and duration of immunity. Our model offers estimates on critical response capabilities needed to curb outbreaks, and predictions of endemic states when containment fails. (Received August 19, 2019)