

SUNDAY 26 MAY

Public Security Infectious Diseases and Public Health: Challenges in Emergent and Re-Emergent Diseases

The transmission dynamics and evolution of infectious diseases like influenza, or SARS, or Tuberculosis live in a world where massive local transportation and travel continuously now involve larger segments of the world's population. Addressing the challenges posed by a global and active network of interactions at the level of the individual, community, region, nations or the world requires the cooperation of teams of researchers capable of evaluating systematically and rapidly of a myriad of possible situations, including worst-case scenarios. These challenges cannot be addressed within the context of a single field of study and, in fact, require the collaboration of researchers in the biological, computational, mathematical and social sciences in an environment guided by epidemiologists and public health objectives.

A physician, Sir Ronald Ross, built the mathematical epidemiological framework still in use today in the study of the transmission dynamics and control of human diseases. Ross' framework or modifications are used in identifying, evaluating and ranking competing or co-supportive population-level intervention strategies in the presence of communicable, vector born or sexually-transmitted diseases. In this Lecture, modifications of Ross' formulation will be used to illustrate the evolution and transmission dynamics of disease like influenza. This lecture will illustrate the value of using models in the study and control of epidemic outbreaks.

Speaker: Carlos Castillo-Chavez is a Regents Professor and a Joaquin Bustoz Jr. Professor of Mathematical Biology at Arizona State University. He has co-authored over 200 publications. His work has been recognized with three White House Awards (1992,1997, and 2011), the American Mathematical Society Distinguished Public Service Award and the 2007 AAAS Mentor award. He is a fellow of the AAAS, SIAM, and AMS. Past appointments include a Stanislaw M. Ulam Distinguished Scholar at Los Alamos National Laboratory. He holds a Martin Luther King Jr. Professorship at MIT. He was a member of the President's Committee on the National Medal of Science (2010-2012).

Carlos Castillo-Chavez

Regents Professor and Joaquin Bustoz Jr. Professor, Arizona State University

10:00 – 11:30 am, Room 0006 TEL Building

York University

