## A serial cross-sectional serologic survey of 2009 pandemic (H1N1) in Hong Kong: Implications for future pandemic influenza surveillance

Joseph Wu School of Public Health The University of Hong Kong joewu@hku.hk

## Abstract

At the start of a global influenza pandemic, an urgent public health priority is the estimation of the transmissibility and severity of the pandemic strain. This is complicated because many influenza infections are subclinical. Population serologic surveillance can allow accurate estimates of infection attack rates, and can provide accurate estimates of severity when combined with clinical data on hospitalizations and deaths associated with the new virus. During the 2009 pandemic we established a detailed serologic surveillance study in Hong Kong. Based on a combined analysis of around 15000 serum specimens from blood donors, 1000 from a community study and 4000 from outpatients, we estimated that the basic reproductive number was 1.35 and the case-hospitalization rate was U-shaped across age groups from 0-12 yo to 60-79 yo. Serologic data before and after the first wave are sufficient to estimate attack rates and severity. We used computer simulations to estimate the number of specimens per day needed to provide accurate estimates of transmissibility and severity early in a pandemic. Serologic monitoring should be a key part of updated pandemic plans.