
JUNLING MA, University of Victoria

Estimation of cross-immunity between drifted strains of influenza A/H3N2

To determine the cross-immunity between influenza strains, we design a novel statistical method, which uses a theoretical model and clinical data on attack rates and vaccine efficacy among school children for two seasons after the 1968 A/H3N2 influenza pandemic. This model incorporates the distribution of susceptibility and the dependence of cross-immunity on the antigenic distance of drifted strains. We find that the cross-immunity between an influenza strain and the mutant that causes the next epidemic is 88 percent. Our method also gives estimates of the vaccine protection against the vaccinating strain, and the basic reproduction number of the 1968 pandemic influenza.