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Influenza Evolution and Vaccine Effectiveness in 2014/2015
MICHAEL DEEM, Rice University — I discuss evolution of the influenza virus, in the context of the 2014/2015 season. Typically a quasispecies of related influenza strains is responsible for the majority of virus in the human population. The virus evolves, however, and this is the reason for the yearly updates to the influenza vaccine. The selection pressure on the virus to evolve arises from immune history in the population due to prior infection or vaccination, which provide protection against closely related strains. This immune protection is well described by the p_{epitope} theory of vaccine efficacy for both H3N2 and H1N1 influenza. The 2014 flu season provides an interesting example of the emergence of new flu strains, which are not protected against by the vaccine. I will discuss how the emergence of these new strains can be detected and predicted, making use of theory of the immune system. I discuss the significantly different strain of the virus that is likely to dominant in the 2015/2016 flu season.

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