

1020-37-177

Jianjun Paul Tian* (tianjj@mbi.osu.edu), MBI, the Ohio State University, Columbus, OH 43210, and **Jin Zhou**, MBI, the Ohio State University, Columbus, OH 43210. *Mathematical Models for Evolution and Dynamics of Avian Influenza*. Preliminary report.

The first pandemic of avian influenza in 21 century is coming with many signs. Scientific community is focusing on experimental research of all kinds of different candidates of avian influenza viruses. H5N2 is a major candidate. Based on observations and experimental data, we put forward a differential equation model and a stochastic process model to study the evolution and dynamics of avian influenza virus (H5N2). The models include the mutation from low pathogenic avian influenza viruses (LPAI) to high pathogenic counterparts (HPAI), which is a common biological fact. The models also include the spreading of HPAI into human population. Our models give reasonable answers to several questions posted by a biologist group in the Netherlands. It is a new model in disease ecology, which is different from traditional SIR or SI models. (Received August 27, 2006)