

Abstract Submitted  
for the MAR15 Meeting of  
The American Physical Society

**Impact of cell regeneration in human respiratory tract on simultaneous viral infections** LUBNA JAHAN RASHID PINKY, HANA DOBROVOLNY, Texas Christian University — Studies have found that  $\sim 40\%$  of patients hospitalized with influenza-like illness are infected with at least two different viruses. In these longer infections, we need to consider the role of cell regeneration. Several mathematical models have been used to describe cell regeneration in infection models, though the effect of model choice on the predicted time course of simultaneous viral infections is not clear. We investigate a series of mathematical models of cell regeneration during simultaneous respiratory virus infections to determine the effect of cell regeneration on infection dynamics. We perform a nonlinear stability analysis for each model. The analysis suggests that coexistence of two viral species is not possible for any form of regeneration. We find that chronic illness is possible, but with only one viral species.

Lubna Jahan Rashid Pinky  
Texas Christian University

Date submitted: 11 Nov 2014

Electronic form version 1.4