

Abstract Submitted
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Preventing drug resistance in severe influenza HANA DOBROVOLNY, Texas Christian Univ, LUCAS DEECKE, University of Cologne — Severe, long-lasting influenza infections are often caused by new strains of influenza. The long duration of these infections leads to an increased opportunity for the emergence of drug resistant mutants. This is particularly problematic for new strains of influenza since there is often no vaccine, so drug treatment is the first line of defense. One strategy for trying to minimize drug resistance is to apply periodic treatment. During treatment the wild-type virus decreases, but resistant virus might increase; when there is no treatment, wild-type virus will hopefully out-compete the resistant virus, driving down the number of resistant virus. We combine a mathematical model of severe influenza with a model of drug resistance to study emergence of drug resistance during a long-lasting infection. We apply periodic treatment with two types of antivirals: neuraminidase inhibitors, which block release of virions; and adamantanes, which block replication of virions. We compare the efficacy of the two drugs in reducing emergence of drug resistant mutants and examine the effect of treatment frequency on the emergence of drug resistant mutants.

Hana Dobrovoly
Texas Christian Univ

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