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Mathematics of avian influenza spread in human population

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Avian influenza virus poses risks to both bird and human population. In primary strain, mutation increases the infectiousness of avian influenza. A mathematical model of avian influenza for both human and bird population is formulated. We have computed the basic reproduction number R^h_0 and R^b_0 for both human and bird population respectively and we prove that the model is locally and globally asymptotically stable for disease-free equilibrium point when $R^h_0<1$ and $R^b_0<1$. We also prove that the unique endemic equilibrium point is globally asymptotically stable in bird population when $R^b_0>1$. Extensive numerical simulations and sensitivity analysis for various parameters of the model are carried out. The effect of vaccination and quarantined class with recovered class are critically analyzed.

Biography

Durgesh Sinha is an Adjunct Assistant Professor at five institutions; Temple University, Strayer University, Rowan College at Burlington County, Mercer County Community College and Community College of Philadelphia. She has received her Doctorate degree in Applied Mathematics from Vinoba Bhave University, India and Master's degree in Environmental Engineering from Temple University, USA. Her recent publication is "Hydro-magnetic flow of rarefied gas between two parallel flat plates with external circuit, 1999" and "Delayed epidemic model on the attack of Computer virus in network" communicated to *IJITCS*. Her current research interest is on epidemic model applicable in human life, environment and cybercrime.

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Notes:

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Page 41