Mathematical Models Describing the Interspecies Transmission of Disease

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ABSTRACT

We shall be concerned with mathematical models varied complexity that describe the inter species transmission and spatio-temporal spread of viruses among the human population of particular interest are the Zika Virus and the Ebola Virus. The Zika virus is a mosquito borne flavivirus that normally has mild effects on those infected. However, it is menace to public health on account of its linkage to birth defects. Additionally it has been associated with increased risk of Guillian-Barre Syndrome. The Ebola Virus also known as Ebola Hemorrhagic Fever is a filovirus that exhibits a very high pathogenicity among humans and other primates. It is also carried by fruit bats which putatively serve as a natural reservoir. Our models involve coupled systems of systems of partial differential equations that may include both reaction diffusion and reaction diffusion transport equations

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