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BOOK OF ABSTRACTS

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A13: L. Adamu and F. A. Oguntolu

Role of Frequency-dependent transmission function in vaccine-induced backward bifurcation in some Typhoid models

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Abstract

The phenomenon of backward bifurcation in disease models, where a stable endemic equilibrium co-exists with a stable disease-free equilibrium when the associated reproduction number is less than unity has important implications for disease control. The classical requirement of the reproduction number being less than unity becomes only a necessary, but not sufficient condition for disease elimination. This paper addresses the role of the choice of density-dependent function in a vaccine-induced backward bifurcation in Typhoid models. This result is independent of the type of vaccination program adopted. These results emphasize the need for further work on the density-dependent functions used in Typhoid models. Keywords: Typhoid; Standard incidence; Vaccine; Mathematical model; Equilibrium; Stability; Backward bifurcation
