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Some infectious disease models with population dynamics and general contact rates. (English)

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Differ. Integral Equ. 3, No. 5, 827-836 (1990).

Two models for infectious diseases are considered. One allowing recovery without immunity and the other allowing recovery with full immunity. These models, as usual, are represented by non-linear equations. It is shown that there is a single asymptotically stable equilibrium for diseases with recovery either with no immunity or with full immunity. The equilibrium is the disease-free equilibrium if the contact number is less than one and an endemic equilibrium if the contact number is greater than one.

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MSC:

92D30 Epidemiology

34K20 Stability theory of functional-differential equations

Cited in **6** Documents

Keywords:

spread of infectious diseases; nonlinear population dynamics; total population size dependent contact rates; variable infective periods; recovery without immunity; recovery with full immunity; single asymptotically stable equilibrium; disease-free equilibrium; contact number; endemic equilibrium