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Global Dynamics of Multigroup SIR Epidemic Models

For a class of multigroup SIR epidemic models with varying subpopulation sizes, the global dynamics are completely determined by the basic reproduction number R_0 . More specifically, if $R_0 \leq 1$, then the disease-free equilibrium is globally asymptotically stable; if $R_0 > 1$, then there exists a unique endemic equilibrium and it is globally asymptotically stable in the interior of the feasible region.