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Hidden Structure in Lyapunov Functions for Epidemic Models

Recent work by Korobeinikov and Maini has shown that it is feasible to try to find Lyapunov functions of a certain type which can be used to demonstrate the global stability of a positive equilibrium of epidemic models.

In constructing similar Lyapunov functions for two tuberculosis models, we came across systems of inequalities that must be simultaneously satisfied by a set of parameters. In each case, there are more inequalities than there are free parameters and yet a unique solution exists, implying an underlying structure to the method.