

# Rich dynamics in multi-strain epidemiological models: evolution towards criticality in accidental pathogens, reinfection threshold, and new dengue chaotic attractors

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**Abstract:** As compared to classical epidemiological models multi-strain models show a rich dynamic behaviour, reaching from new thresholds, namely the reinfection threshold in models of partial immunity, for example in influenza, to new deterministically chaotic dynamics, in dengue fever models, and can show evolution to critical thresholds including its large fluctuations for accidental pathogens, e.g. in *Neisseria meningitidis* epidemiology.

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