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Interactions between serotypes of dengue highlight epidemiological impact of cross-immunity

The immunological interactions between serotypes of dengue are of central importance in understanding epidemiological dynamics and anticipating the impact of dengue vaccines. Using novel mechanistic models to represent different hypothesized immune interactions between serotypes, we analyzed time-series of serotype specific incidence from multiple locations. We found strong evidence that infection with dengue provides substantial short-term cross-protection against other serotypes (roughly 1-3 years). Using dynamical models, I show the dynamical impact of cross-protection and estimated seasonality in transmission of dengue.