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Timothy Reluga* (timothy@reluga.org) and **Eunha Shim**. *Population viscosity reduces the risk of disease emergence.*

Infectious disease reservoirs in wild animals pose on-going risks to human populations. In the existing theory of zoonotic emergence, introduction events leading to epidemics are assumed to be independent of all preceding events. However, introductions are often correlated through ecological interfaces, leading to repeated exposures in bridge communities. Repeated exposures within bridge communities can induce immunity, which may in turn form a barrier preventing the emergence of zoonoses into the larger population.

We'll use simulations and math to illustrate how strong population viscosity that maintains correlation between contacts and introductions in bridge communities, in combination with immunity acquired through exposures, creates a localized herd-immunity barrier and reduces the number of opportunities for disease emergence. In some cases, reducing exposure rates has the counter-intuitive affect of increasing the risk of disease emergence because of off-setting reductions in immunity within a bridge community. (Received January 25, 2014)