1077-92-1871 **Petra Klepac*** (pklepac@princeton.edu), 106a Guyot Hall, Ecology and Evolutionary Biology, Princeton University, Princeton, NJ 08544. *To eradicate or not to eradicate: Economic optima for spatial immunizing infections.*

The vaccination threshold required to interrupt transmission of an immunizing infection like measles is predicted by epidemic theory to depend only on transmission rates. From the economic perspective, a control strategy is effective if its benefits exceed the costs. Considering economic constraints and assuming that vaccination will have to continue after disease elimination to maintain herd immunity, we look for optimal vaccination coverage that minimizes combined infection and vaccination costs. Surprisingly, the optimum for disease control in a single population is determined mainly by relative costs of infection and control, rather than transmission rates. Adding a spatial dimension can reduce or increase optimal vaccination levels depending on the balance of costs and benefits. For weakly coupled populations, local optimal strategies (Nash optima) agree with the global cost-effective strategy; however asymmetries in costs can lead to divergent control optima in more strongly coupled systems. We conclude by delineating when it is locally optimal to share vaccination resources with other populations. (Received September 21, 2011)