

Abstract

We offer a novel theoretical framework to study optimal vaccination policies. The key features of the model are that agents: 1) differ both in their potential exposure (x) to others and vulnerability (y) to severe illness, 2) exert negative externalities through interaction, and 3) can take voluntary preventative measures, for instance self-isolation. Our main result is a complete characterization of the second-best policy. Three striking features emerge. First, it is non-monotone -- people with intermediate y are vaccinated more than those with either low or high y . Second, it exhibits an exposure premium among those who do not self-isolate -- people with higher x require lower overall risk, xy , to be vaccinated. Third, for those who voluntarily self-isolate, it is invariant to y , depending only upon x .