Abstract

We develop a compartmental model of a chronic infectious disease to evaluate the cost and effectiveness of different levels of screening and contact tracing. The optimal strategy for this optimal control problem is to get infected individuals into treatment at the maximal rate until one reaches the equilibrium. At the optimal mix the marginal cost-effectiveness of the two interventions is equal. We apply our methods to a numerical example of Hepatitis B virus and discuss preliminary work on using contact tracing to identify HIV cases in Africa.