

## AMSC/MATH 420, Spring 2013 Modeling Epidemics: Team Homework 7

due Monday April 22

Please submit an outline or “skeleton” draft of your final project report with preliminary results. Below is a discussion of goals for the final report.

The previous assignment gave a way to illustrate dependence of the optimal intervention strategy (according to the model) on the relative cost between type  $a$  and type  $b$  interventions, given values of the transmission parameters  $p_{11}, p_{12}, p_{21}, p_{22}$  and a budget  $K_{\max}$  (with suggested value 0.04 on the previous assignment).

Each team is considering additional parameters for the cost function, intervention strategy, or intervention start time. Let’s call the parameters a practitioner would not have control over – transmission parameters, cost function parameters, budget amount, and start time – the “scenario parameters”. A broad goal is to describe how the optimal intervention parameter values, and the impact they achieve, depend on the scenario parameter values.

One way to quantify the dependence is to look for correlations between scenario parameter values and the intervention/impact values and develop a linear or otherwise simple model that relates at least some of these values. While a linear model that provides reasonable guidance can be valuable, a finding that no linear model fits the relationship well is also significant.

So far you have investigated intervention strategies for two sets of transmission parameter values, and as with past projects it’s important to get a broader sense of how these parameters affect the results. Again, you can augment your scenarios using fits to other metropolitan areas in the same region as your non-San-Francisco city.