**Rotavirus Modeling Exercise**

Instructions

Make appropriate changes to the rotavirus modeling code to answer the following questions. The standard population for this exercise has the following properties:

Age Composition (number of people):

* 0-1 Months: 2
* 2-3 Months: 2
* 4-6 Months: 4
* 6 to 59 Months:72
* Over 5 Years: 1920

Questions

1. Simulate a rotavirus epidemic in the standard population for 20 years. What is the prevalence of rotavirus infections in each of the five age categories in the last year of the simulation?
2. Vary the age-composition of the population in the simulation: Simulate a rotavirus epidemic in the standard population for 20 years. Simulate a second epidemic, where 20% of the population is children under the age of 5. What is the average annual incidence of rotavirus in the last 5 years of each simulation? Compare.
3. Vary the birth rate of the population: Simulate a rotavirus epidemic in the standard population for 20 years. Increase the birth rate to (32/1000) and compare the average annual incidence of rotavirus in the last 5 years of each simulation.
4. Increase the beta (and thereby, increasing the R0). What happens to the prevalence and age patterns of infection?
5. Increase and decrease the parameter values of the protection (“imm\_single\_inf” and “imm\_two\_inf”) conferred by natural infection. What happens to the prevalence and age patterns of infection?