KE(EM Estimates) and  $Gillespie Average (N = 200, I0 = 20, nsims_pooled = 500)$ True Scaled:  $\beta_1 N = 2.4$ ,  $\beta_2 N^2 = 4.4$ Avg. Gillespie (1000 runs) 200 KE (True  $\beta_1, \beta_2$ ) KE (EM Estimates  $\hat{\beta}_1$ ,  $\hat{\beta}_2$ ) 175 150 Number of Infected (k) 125 100 75 50 25 0 10 Time (t)