**To Do List**

**Generic Tasks**

* Identify which scenarios result in the 2nd SIR peak to overwhelm the 1st peak.
* Make the R compartment plots 2 separate lines

**SIR Model**

* Repeat the sensitivity analysis with RWC scenario parameters – and the 2 other scenarios (0.049 and 0)
* Fix the beta1/2 plots for the intervention timing scenario analysis.
* Refer to the intervention trigger as I(0) rather than the day.
* Sensitivity analysis comparing
  + Baseline SIR scenario with beta2 in phase 3 at full effect for 24 weeks
  + beta2 in Phase 3 tapered from no effect to full effect after 12 weeks + full effect for next 12 weeks
  + beta2 in Phase 3 tapered to full effect at 24 weeks

**SIS Model**

* Fix y-axis scaling – keep it the same as the SIR model, but just allow the SIS model trajectory to “take off”
* Explore the SIS model and the effect of indefinite length interventions – explore how we can prevent the SIS model taking off.

**SIRS Model**

* Alex and Paul – Independently implement the SIRS model and confirm Bram’s baseline trajectory plots
* Implement the RWC scenario and the alternative beta1 (0.064, 0.032 and 0) parameters for the SIRS model – identify the resulting trajectory plots
  + Vary the timeline to see if it reaches equilibrium
* Use 1/365 as the R -> S transition rate (immunity loss rate) rather than 1/364

**Optimisation**

* Optimisations of baseline SIR model for the 3 different start points.
* For the original SIR model we can optimise:
  + Relaxing to beta2=0.258 only in phase 4 [DONE]
  + Relaxing to beta2=0.258 in phases 3,4Relaxing to beta2=0.258 in phases 2, 3, 4
* SIRS Phase 2+3 intervention duration optimisation:
* Explore optimising the intervention duration for the 4 different scenarios RWC, and the previous 3 scenarios (phase 2 beta1: 0.064, 0.032 and 0)
* Explore the effect of optimising the SIRS model with differing trigger days (75, 100 and 125)

**Reminder of Phases**

|  |  |  |  |
| --- | --- | --- | --- |
| **Phase** | **Weeks** | **Beta1** | **Beta2** |
| **0** | Up to t=0 | 0.161 | 0.161 |
| **1** | 0-6 | 0.064 | 0.064 |
| **2** | 6-30 | 0.064/0.032/0 | 0.161 |
| **3** | 30 onwards | 0.161 | 0.161 |
| **(4) - Provisional** | If phase 3 “ends” | 0.258 | 0.258 |

RWC scenario

|  |  |  |  |
| --- | --- | --- | --- |
| **Phase** | **Weeks** | **Beta1** | **Beta2** |
| **0** | Up to t=0 | 0.161 | 0.161 |
| **1** | 0-6 | 0.097 | 0.097 |
| **2** | 6-30 | 0.097/0.049/0 | 0.161 |
| **3** | 30 onwards | 0.161 | 0.161 |
| **(4) - Provisional** | If phase 3 “ends” | 0.258 | 0.258 |

Note that the Beta1 = 0.097 Phase 1 Intervention is a RWC and should only be analysed with the Phase 2 Beta1 RWC 0.097 scenario

* Beta1 = 0.097 is equal to an R0 reduction to 0.9 rather than to 0.6