COVID-19

COVID-19 MODELING EXERCISE

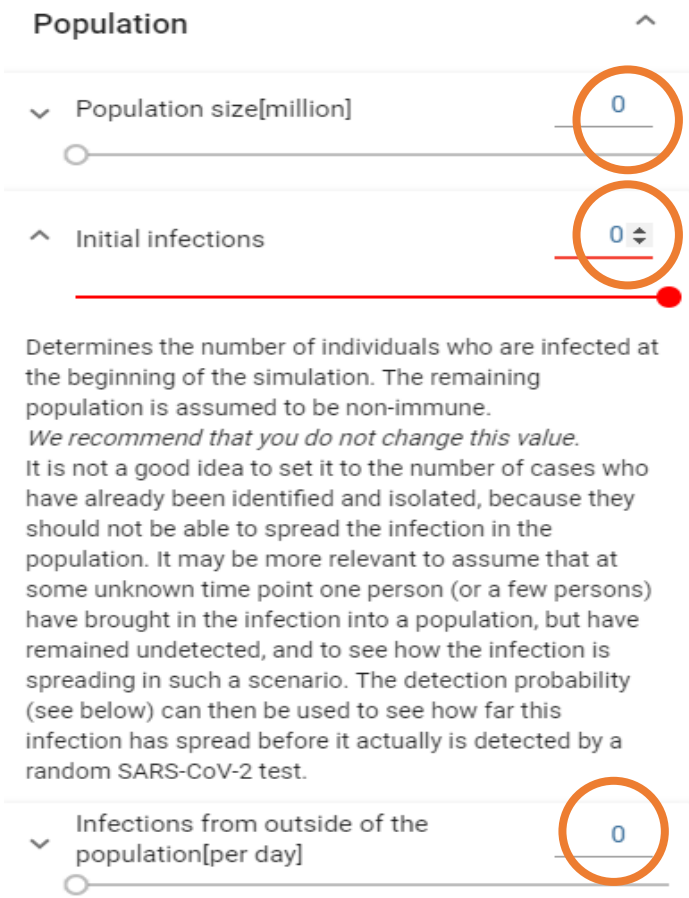
A "HOW TO" GUIDE for CovidSIM

Projections with ***covidSIM.eu***

➔ Go to http://www.covidsim.eu/ or http://www.covidsim.de

Step 1:

Enter population parameters



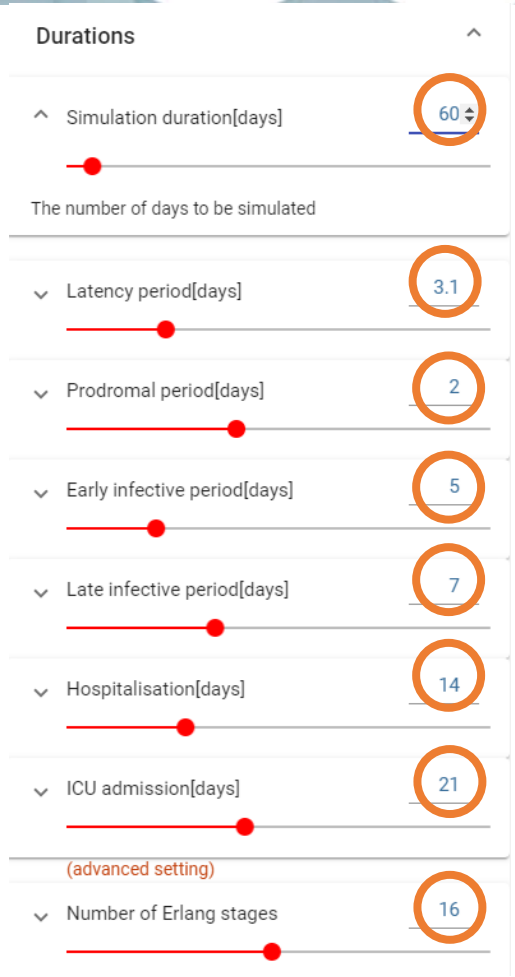
Size of population you want to model

Cumulative number of new infections over the 7 days prior the date we want to start modelling from

Should be 0 if it is assumed that all transmission is local

Step 2:

Enter Time Periods



It is recommended to perform short-median term projections e.g. 60 days

3.1 (do not change)

2 (do not change)

5 (do not change)

7 (do not change)

14 (suggested)

21 (suggested)

16 (default)

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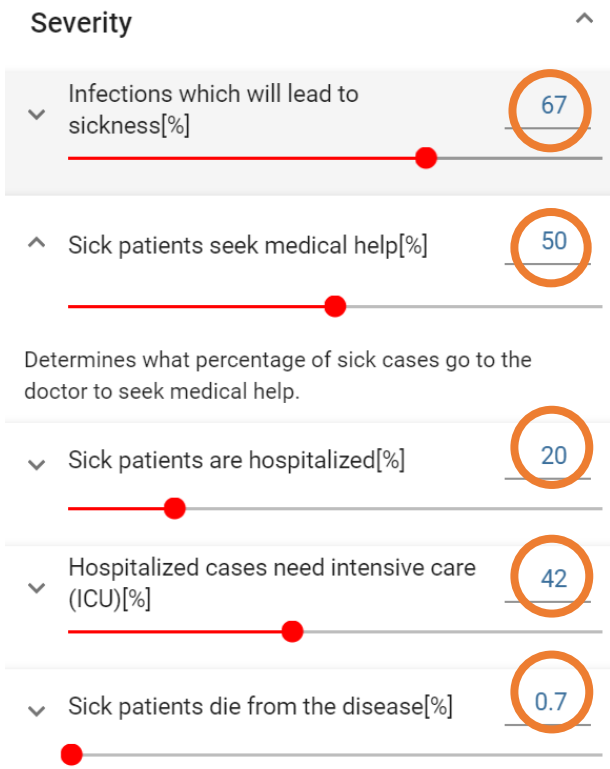
Step 3:

Enter Severity



67% (P. N. Wilson et al., 2020)

50% (by default but can be changed to reflect country reality)

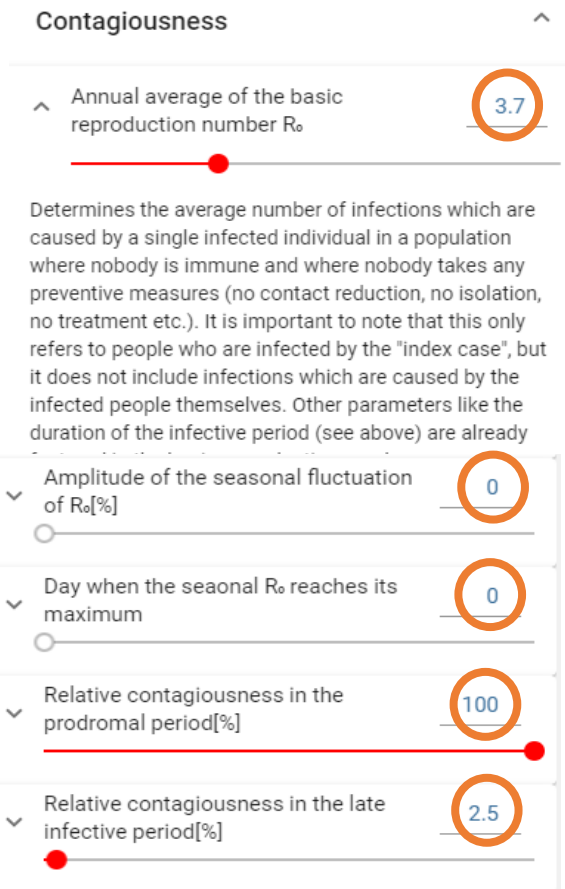
20 (European Center for Disease Prevention and Control, 2020. It can be modified to reflect country reality.)

42 (European Center for Disease Prevention and Control, 2020. It can be modified to reflect country reality.)

0.7 (European Center for Disease Prevention and Control, 2020; Oke & Heneghan, 2020. This parameter varies substantially across the literature and should be modified to reflect country reality.)

Step 4:

Enter Contagiousness



3.7 (do not change)

0 (not modeled)

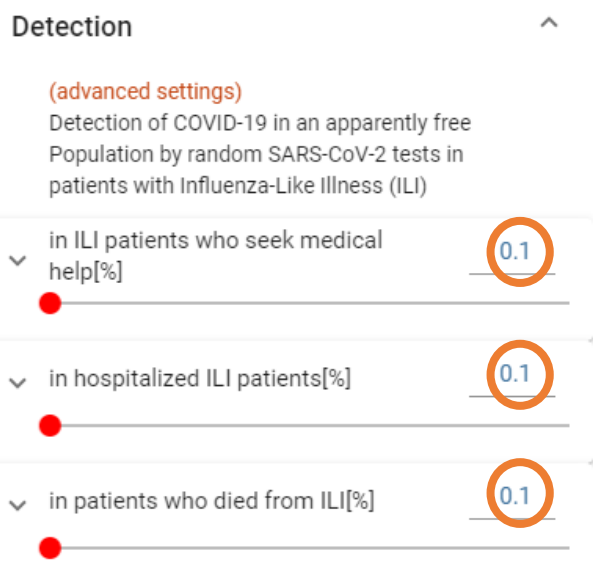
0 (not modeled)

100% (do not change)

2.5% (do not change)

Step 5:

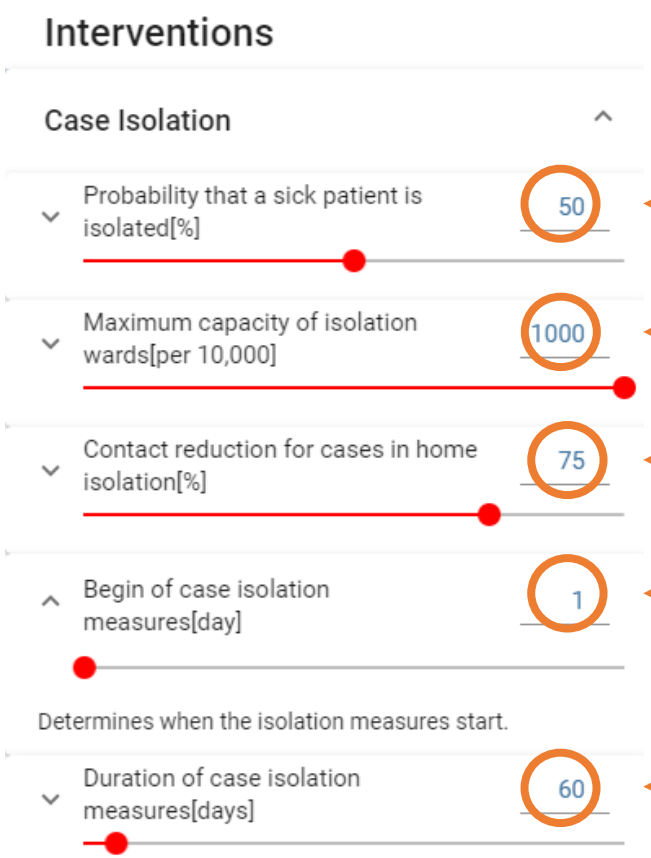
Enter Detection



Leave all parameters as set by default in the model (at 0.1).

Step 6:

Enter Interventions – Case Isolation



50% (suggested but can be changed based on country information)

Assume large capacity (e.g. 1000)

75% (suggested but can be changed based on country information)

1 day

The entire duration of the modeling period entered in Step 1 (e.g. 60 days)

With the parameters suggested here we can quantify the impact from the intervention "case isolation."

For example, assuming that 67% of the cases get sick, 50% of sick patients are isolated, and there is a 75% contact reduction for cases in home isolation, the resulting R_0 would be 0.82.

Thus, the initial R_0=3.7 considered is corrected according to the public health and social measures on contact reduction, resulting in a R_t of 3.

Step 7:

1

Lifting measures scenario: state the "contact reduction duration" (in days) up to the date at in which you want to simulate the lifting of measures.

Enter General Contact Reduction

A further intervention to reduce the R_0 is to adjust the R_t obtained in Step 6 for contact reduction. This will allow us to achieve the observed R_t (the one obtained on EpiEstim in Phase 1).

Examples :

- Hence, if we have a R_t of 3 and we want a further reduction to a R_t of 2. To obtain that we assume a further reduction of the in the Rt by 33%, through the parameter "contact reduction".
- Likewise, if we have a R_t of 3 but want to model a R_t of 1.5, we would a contact reduction parameter of 50%.
- Finally, to obtain a R_t of 1, we would need a contact reduction parameter of 66%.

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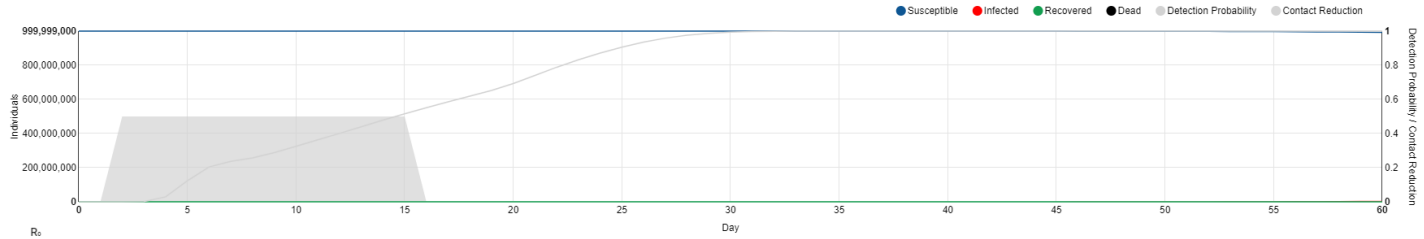

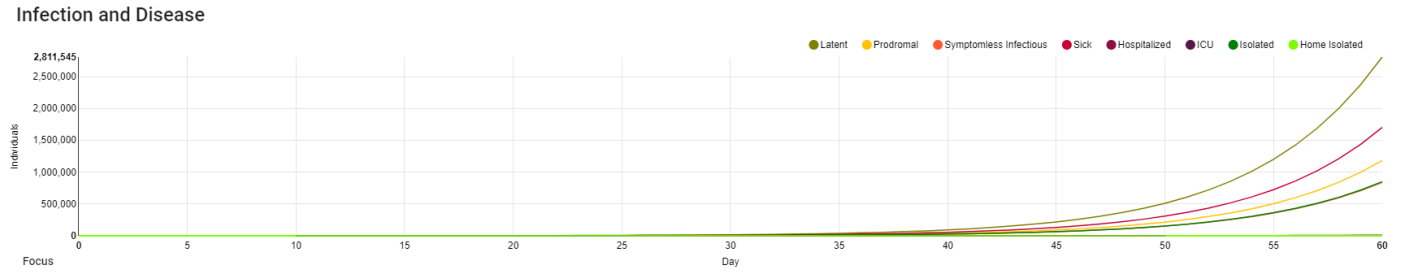

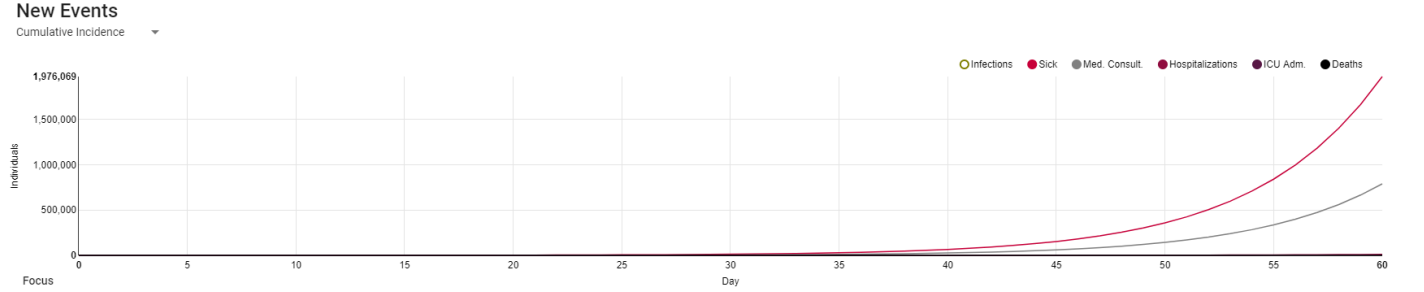

Thank you