

- (01) Asymptomatic ratio=
0.3
Units: **undefined**
- (02) Daily Cases=
"V1 - Daily Infections"+"V2 - Daily Infections"
Units: **undefined**
- (03) Daily Deaths=
Total Daily Resolution*Rate of Fatality
Units: **undefined**
- (04) Daily effective Vaccinations=
Daily Vaccinations*Efficacy of Vaccine
Units: **undefined**
- (05) Daily Vaccinations=
Percentage Fully Vaccinated*(Susceptible Population)
Units: **undefined**
Exogenous data
- (06) Efficacy of Vaccine=
0.1
Units: **undefined**
- (07) FINAL TIME = 648
Units: Day
The final time for the simulation.
- (08) Immunized Population= INTEG (
Daily effective Vaccinations+Immunized Population due to Infection Resolution
,
0)
Units: **undefined**
- (09) Immunized Population due to Infection Resolution=
Total Daily Resolution*Percentage immunized after resolution of infection
*(1-Rate of Fatality)
Units: **undefined**
- (10) Immunized Population Fraction=
Immunized Population/(Total Population-Total Active Diagnosed)
Units: **undefined**
- (11) Impact of Stringency Index=
1

Units: **undefined**

Scale 0-1

(12) INITIAL TIME = 0

Units: Day

The initial time for the simulation.

(13) Normal Contacts per day per person=

1

Units: **undefined**

(14) Percentage Fully Vaccinated

Units: **undefined**

Vaccinated here means fully vaccinated, have linearly interpolated missing values in ovid data #take in data for this

(15) Percentage immunized after resolution of infection=

0.6

Units: **undefined**

(16) Rate of Fatality=

0.1

Units: **undefined**

(17) Rejoining Population after Infection Resolution=

Total Daily Resolution*(1-Percentage immunized after resolution of infection)*(1-Rate of Fatality)

Units: **undefined**

(18) Resolution Period post Diagnosis=

7

Units: **undefined**

(19) SAVEPER = 1

Units: Day [0,?]

The frequency with which output is stored.

(20) Share of V2 in Total cases=

"V2 - Infected & Undiagnosed"/("V2 - Infected & Undiagnosed"+"V1 - Infected & Undiagnosed")

)

Units: **undefined**

(21) Stringency Index

Units: **undefined**

Exogenous data

- (22) Susceptible Population= INTEG (
 Rejoining Population after Infection Resolution-
 Daily effective Vaccinations-
 "V1 - Daily Infections"-
 "V2 - Daily Infections",
 1e+06)
 Units: **undefined**
- (23) Susceptible Population Fraction=
 Susceptible Population/(Total Population-Total Active Diagnosed)
 Units: **undefined**
 Subtracting Total Active Diagnosed because they're assumed to be
 quarantined
- (24) Time of Variant Emergence=
 300
 Units: Day
- (25) TIME STEP = 0.125
 Units: Day [0,?]
 The time step for the simulation.
- (26) Total Active Diagnosed=
 "V1 - Active Diagnosed"+"V2 - Active Diagnosed"
 Units: **undefined**
- (27) Total cases= INTEG (
 Daily Cases,
 0)
 Units: **undefined**
- (28) Total Daily Resolution=
 "V1 - Daily Resolutions from Diagnosed" +
 "V2 - Daily Resolutions from Diagnosed"
 Units: **undefined**
- (29) Total Deaths= INTEG (
 Daily Deaths,
 0)
 Units: **undefined**
- (30) Total Population=
 1e+06+2
 Units: **undefined**

- (31) "V1 - Active Diagnosed" = INTEG ("V1 - Daily Cases Detected" - "V1 - Daily Resolutions from Diagnosed", 0)
Units: **undefined**
- (32) "V1 - Daily Cases Detected" = DELAY3I("V1 - Daily Infections" * (1 - Asymptomatic ratio), "V1 - Infection Duration", 0)
Units: **undefined**
- (33) "V1 - Daily Infections" = Susceptible Population * "V1 - Infected Contacts / Day" * "V1 - Infectivity Rate"
Units: **undefined**
- (34) "V1 - Daily Resolutions from Diagnosed" = "V1 - Active Diagnosed" / Resolution Period post Diagnosis
Units: **undefined**
- (35) "V1 - Daily Resolutions from Undiagnosed" = DELAY3I("V1 - Daily Infections" * Asymptomatic ratio, "V1 - Infection Duration", 0)
Units: **undefined**
- (36) "V1 - Infected & Undiagnosed" = INTEG ("V1 - Daily Infections" - "V1 - Daily Cases Detected" - "V1 - Daily Resolutions from Undiagnosed", 1)
Units: **undefined**
- (37) "V1 - Infected Contacts / Day" = (Susceptible Population Fraction) * "V1 - Infected Fraction" * Normal Contacts per day per person * (1 - SMOOTHI(Stringency Index, 14, 0) / 100) * Impact of Stringency Index
Units: **undefined**
- (38) "V1 - Infected Fraction" = "V1 - Infected & Undiagnosed" / (Total Population - Total Active Diagnosed)
Units: **undefined**
Subtracting Total Active Diagnosed because they're assumed to be quarantined)
- (39) "V1 - Infection Duration" = 10
Units: **undefined**

- (40) "V1 - Infectivity Rate"=
0.3
Units: **undefined**
- (41) "V2 - Active Diagnosed"= INTEG (
"V2 - Daily Cases Detected"- "V2 - Daily Resolutions from Diagnosed",
0)
Units: **undefined**
- (42) "V2 - Daily Cases Detected"=
DELAY3I("V2 - Daily Infections"* (1-Asymptomatic ratio), "V2 - Infection Duration"
,0)*Variant Switch
Units: **undefined**
- (43) "V2 - Daily Infections"=
"V2 - Infectivity Rate"*Susceptible Population*"V2 - Infected Contacts / Day"
*Variant Switch
Units: **undefined**
- (44) "V2 - Daily Resolutions from Diagnosed"=
"V2 - Active Diagnosed"/Resolution Period post Diagnosis
Units: **undefined**
- (45) "V2 - Daily Resolutions from Undiagnosed"=
DELAY3I("V2 - Daily Infections"*Asymptomatic ratio, "V2 - Infection Duration"
,0) * Variant Switch
Units: **undefined**
- (46) "V2 - Infected & Undiagnosed"= INTEG (
"V2 - Daily Infections"- "V2 - Daily Resolutions from Undiagnosed"- "V2 - Daily Cases
Detected"
,
1)
Units: **undefined**
- (47) "V2 - Infected Contacts / Day"=
(Susceptible Population Fraction)*
"V2 - Infected Fraction"*
Normal Contacts per day per person*
(1 - SMOOTHI(Stringency Index, 14,0)/100)*Impact of Stringency Index
Units: **undefined**
Check formula
- (48) "V2 - Infected Fraction"=
"V2 - Infected & Undiagnosed"/(Total Population-Total Active Diagnosed)

Units: **undefined**

Subtracting Total Active Diagnosed because they're assumed to be
quarantined)

(49) "V2 - Infection Duration"=

14

Units: **undefined**

(50) "V2 - Infectivity Rate"=

0.8

Units: **undefined**

(51) Variant Emergence Threshold=

10000

Units: **undefined**

(52) Variant Switch=

IF THEN ELSE(Total cases/Variant Emergence Threshold<1:OR:Time<Time of Variant
Emergence

,0,1)

Units: **undefined**