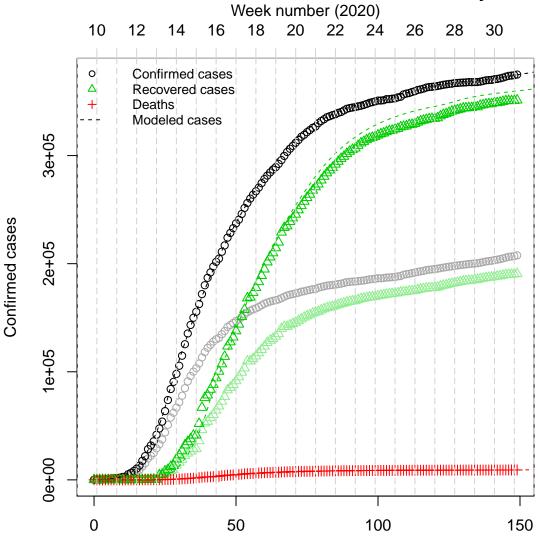
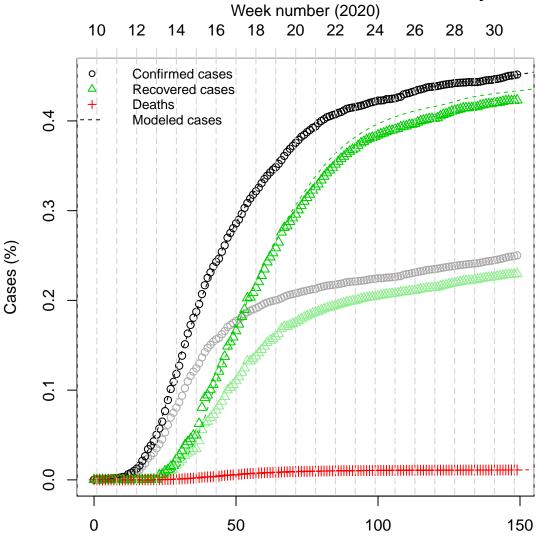
Situation vs Model COVID-19 in Germany



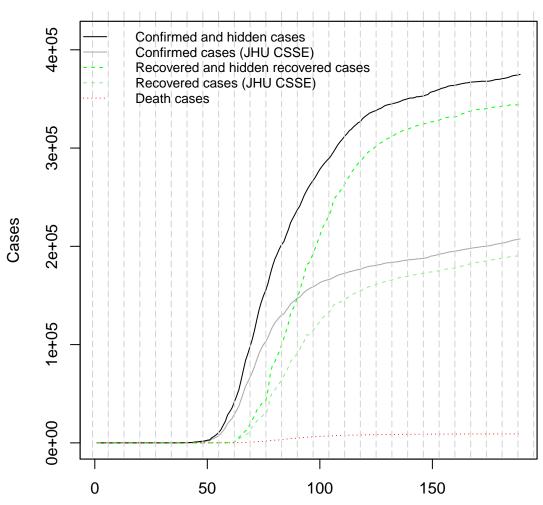
Days after 3/1/20 Created by Sören Thiering (07/30/2020). Email: soeren.thiering@hs-anhalt.de

Situation vs Model COVID-19 in Germany



Days after 3/1/20 Created by Sören Thiering (07/30/2020). Email: soeren.thiering@hs-anhalt.de

Week number (2020) 4 6 8 10 12 14 16 18 20 22 24 26 28 30 32



Days after 1/22/20

Created by Sören Thiering (07/30/2020). Email: soeren.thiering@hs-anhalt.de

12

19

 ∞

ဖ

 α

0

50

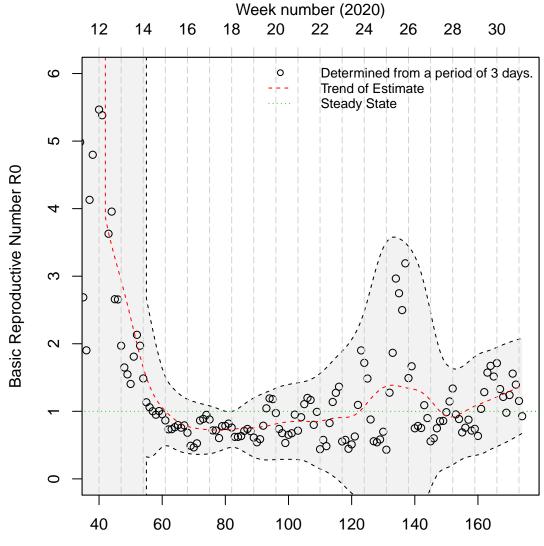
log_e(Cases)

Week number (2020) 16 18 20 12 24 26 28 30 Confirmed cases Recovered cases 1st phase (diffusion of growth)
2nd phase (unconvolled growth)
3rd phase (social distancing)
4th phase (lock own) 4th phase (locksown)

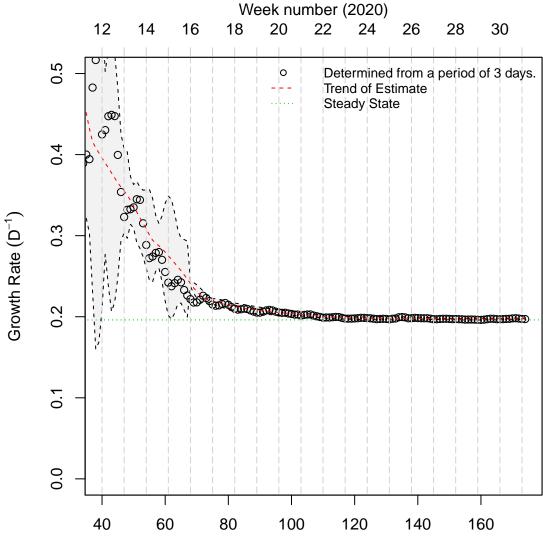
5th phase (exilorom lockdown)

100

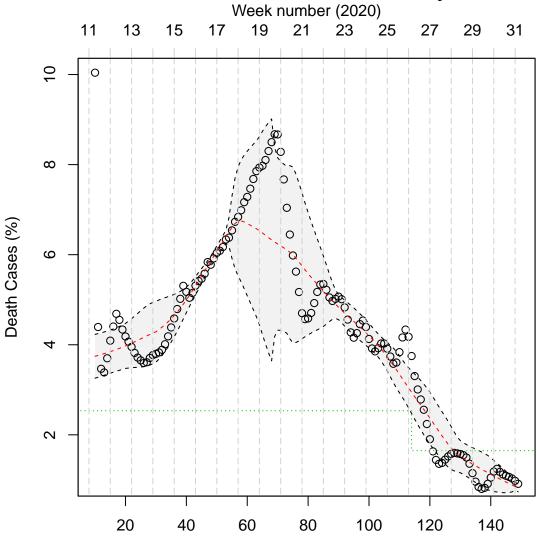
Days after 1/22/20 Created by Sören Thiering (07/30/2020). Email: soeren.thiering@hs-anhalt.de



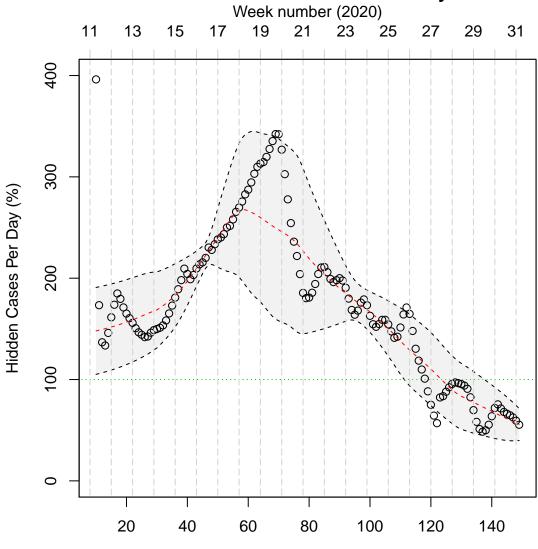
Days after 2/5/20 Created by Sören Thiering (07/30/2020). Email: soeren.thiering@hs-anhalt.de



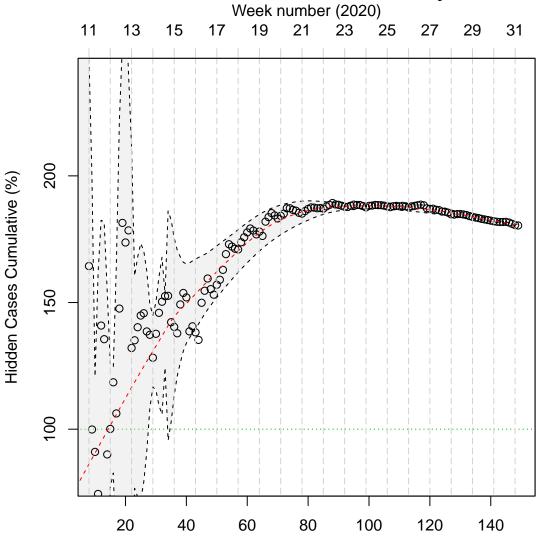
Days after 2/5/20 Created by Sören Thiering (07/30/2020). Email: soeren.thiering@hs-anhalt.de



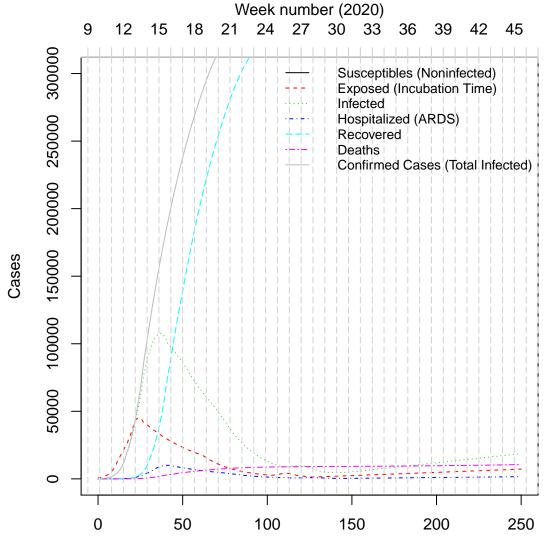
Days after 3/1/20 Created by Sören Thiering (07/30/2020). Email: soeren.thiering@hs-anhalt.de



Days after 3/1/20 Created by Sören Thiering (07/30/2020). Email: soeren.thiering@hs-anhalt.de

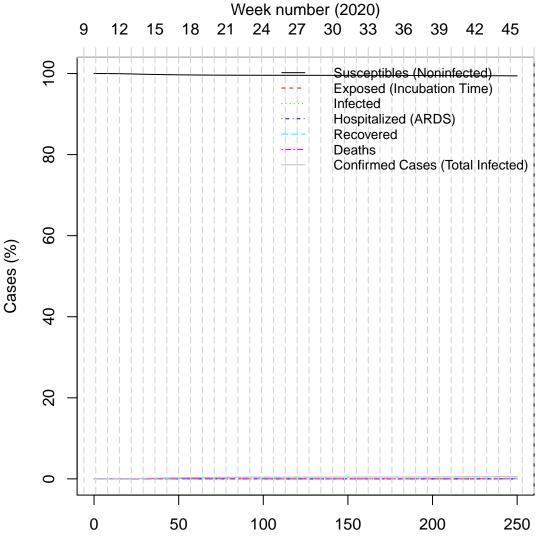


Days after 3/1/20 Created by Sören Thiering (07/30/2020). Email: soeren.thiering@hs-anhalt.de

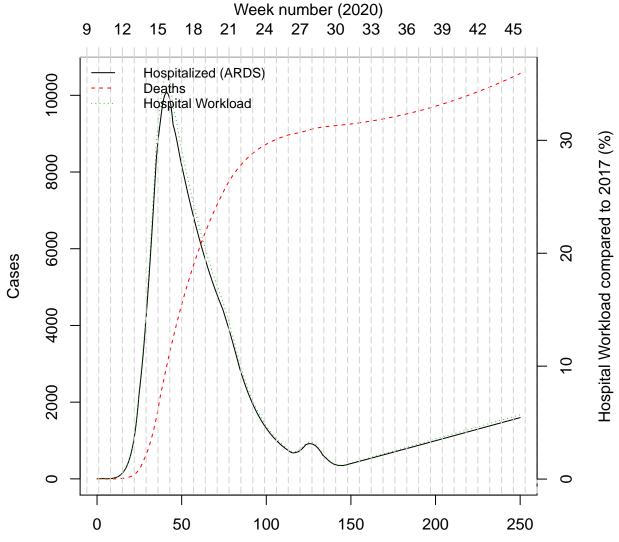


Days after 3/1/20

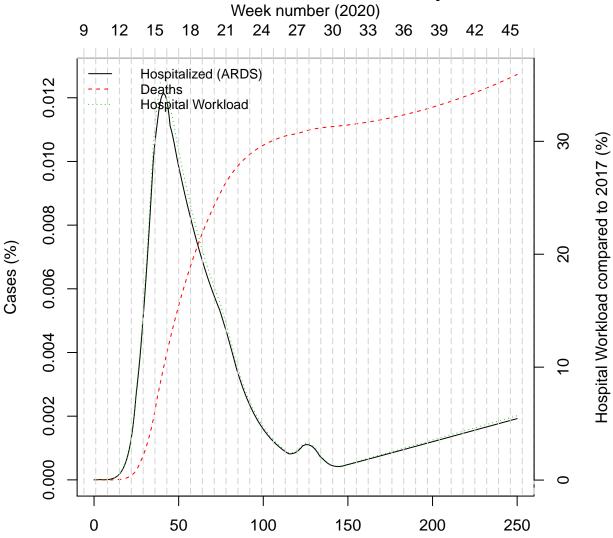
Created by Sören Thiering (07/30/2020). Email: soeren.thiering@hs-anhalt.de



Days after 3/1/20 Created by Sören Thiering (07/30/2020). Email: soeren.thiering@hs-anhalt.de



Days after 3/1/20 Created by Sören Thiering (07/30/2020). Email: soeren.thiering@hs-anhalt.de



Days after 3/1/20 Created by Sören Thiering (07/30/2020). Email: soeren.thiering@hs-anhalt.de

Scenario 1 no social distancing and no lockdown Week number (2020) 24 45 12 15 18 21 36 39 8e+07 Susceptibles (Noninfected) Exposed (Incubation Time) Infected Hospitalized (ARDS) Recovered Deaths Confirmed Cases (Total Infected) 6e+07 Cases 4e+07 2e+07 00+00

Days after 3/1/20 Created by Sören Thiering (07/30/2020). Email: soeren.thiering@hs-anhalt.de

150

200

250

100

0

Scenario 1 no social distancing / no lockdown Week number (2020) Susceptibles (Noninfected) Exposed (Incubation Time) Infected Hospitalized (ARDS) Recovered Deaths Confirmed Cases (Total Infected) Cases (%)

Days after 3/1/20 Created by Sören Thiering (07/30/2020). Email: soeren.thiering@hs-anhalt.de

Scenario 1 no social distancing and no lockdown Week number (2020) 45 12 15 18 36 0009 Hospitalized (ARDS) Deaths Hospital Workload Hospital Workload compared to 2017 (%) 3000

90+99

2e+06

4e+06

3e+06

2e+06

1e+06

0e+00

0

50

Days after 3/1/20 Created by Sören Thiering (07/30/2020). Email: soeren.thiering@hs-anhalt.de

150

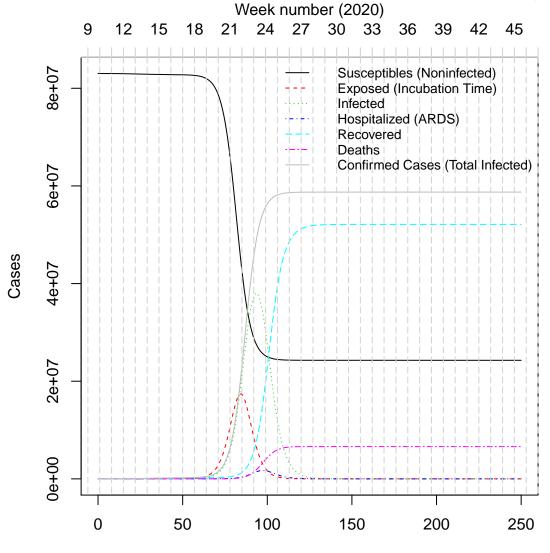
200

250

Scenario 1 no social distancing and no lockdown Week number (2020) 12 15 18 36 45 0009 Hospitalized (ARDS) ∞ Deaths Hospital Workload Hospital Workload compared to 2017 (%) 9 Cases (%) 3000 α 50 100 150 200 250 0

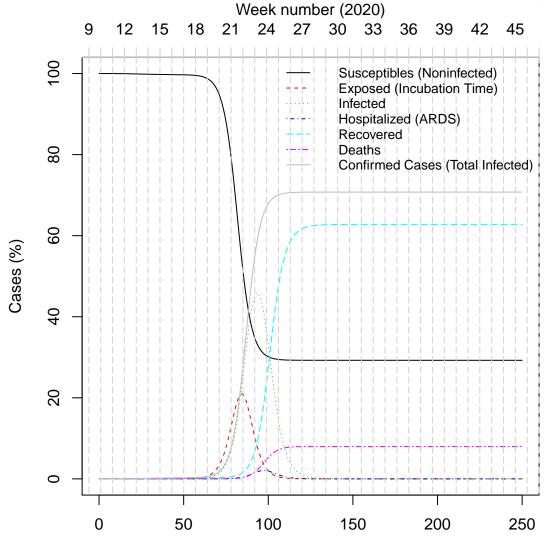
Days after 3/1/20 Created by Sören Thiering (07/30/2020). Email: soeren.thiering@hs-anhalt.de

Scenario 2 exit after day 50 without social distancing



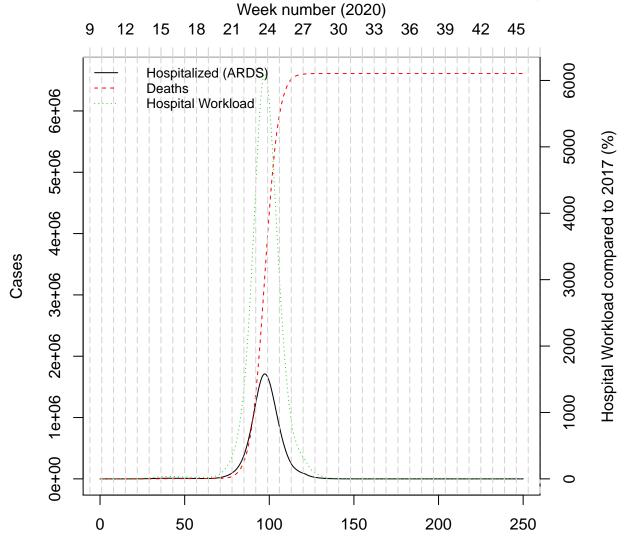
Days after 3/1/20 Created by Sören Thiering (07/30/2020). Email: soeren.thiering@hs-anhalt.de

Scenario 2 exit after day 50 without social distancing



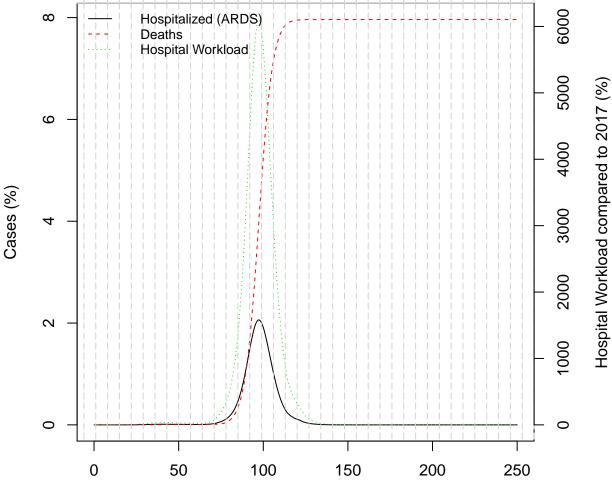
Days after 3/1/20 Created by Sören Thiering (07/30/2020). Email: soeren.thiering@hs-anhalt.de

Scenario 2 exit after day 50 without social distancing



Days after 3/1/20 Created by Sören Thiering (07/30/2020). Email: soeren.thiering@hs-anhalt.de

Scenario 2 exit after day 50 without social distancing Week number (2020) 12 15 18 36 45 0009 Hospitalized (ARDS) Deaths Hospital Workload



Days after 3/1/20 Created by Sören Thiering (07/30/2020). Email: soeren.thiering@hs-anhalt.de

Scenario 3 exit after day 50 with social distancing Week number (2020) 9 24 45 12 15 18 21 36 39 42 8e+07 Susceptibles (Noninfected) Exposed (Incubation Time) Infected Hospitalized (ARDS) Recovered Deaths Confirmed Cases (Total Infected) 6e+07 Cases 4e+07 2e+07 00+00

Days after 3/1/20 Created by Sören Thiering (07/30/2020). Email: soeren.thiering@hs-anhalt.de

150

200

250

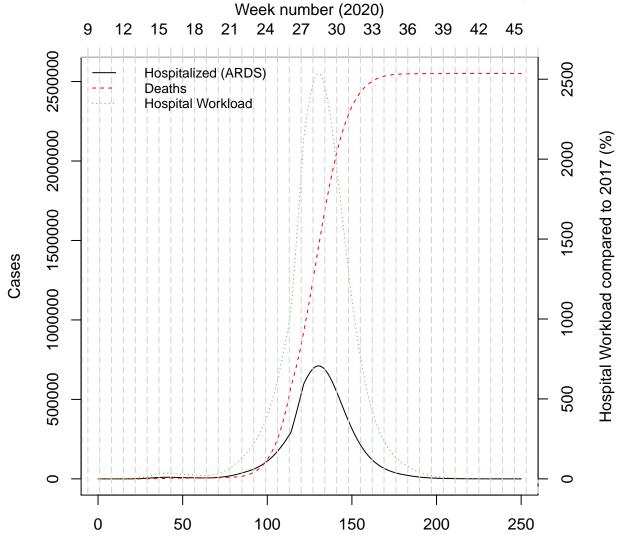
100

0

Scenario 3 exit after day 50 with social distancing Week number (2020) Susceptibles (Noninfected) Exposed (Incubation Time) Infected Hospitalized (ARDS) Recovered Deaths Confirmed Cases (Total Infected) Cases (%)

Days after 3/1/20 Created by Sören Thiering (07/30/2020). Email: soeren.thiering@hs-anhalt.de

Scenario 3 exit after day 50 with social distancing



Days after 3/1/20 Created by Sören Thiering (07/30/2020). Email: soeren.thiering@hs-anhalt.de

Scenario 3 exit after day 50 with social distancing Week number (2020) 45 12 15 18 36 39 2500 Hospitalized (ARDS) Deaths Hospital Workload Hospital Workload compared to 2017 (%) 1500

2.5

2.0

1.5

0.5

0.0

0

50

Cases (%)

Days after 3/1/20 Created by Sören Thiering (07/30/2020). Email: soeren.thiering@hs-anhalt.de

150

200

250

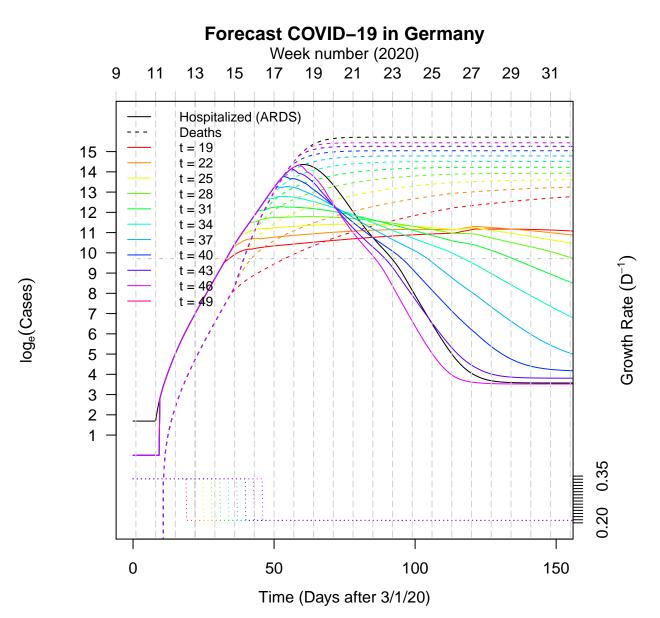
Forecast COVID-19 in Germany Week number (2020) 9 11 13 15 17 25 27 29 31 Hospitalized (ARDS) 6500000 Deaths R0 = 0.46000000 R0 = 0.65500000 R0 = 0.8R0 = 15000000 R0 = 1.2R0 = 1.44500000 R0 = 1.64000000 R0 = 1.8Growth Rate (D^{-1}) R0 = 23500000 R0 = 2.2R0 = 2.43000000 2500000 2000000 1500000 1000000 500000 0 0.32 0 50 100 150 Time (Days after 3/1/20)

Created by Sören Thiering (07/30/2020). Email: soeren.thiering@hs-anhalt.de

Forecast COVID-19 in Germany Week number (2020) 9 11 13 15 17 25 27 29 31 Hospitalized (ARDS) 6500000 Deaths t = 196000000 t = 225500000 t = 25t = 285000000 t = 31 t = 344500000 t = 374000000 t = 40Growth Rate (D^{-1}) t = 433500000 t = 463000000 t = 492500000 2000000 1500000 1000000 500000 0 0.35 0.20 0 50 100 150

Created by Sören Thiering (07/30/2020). Email: soeren.thiering@hs-anhalt.de

Time (Days after 3/1/20)



Created by Sören Thiering (07/30/2020). Email: soeren.thiering@hs-anhalt.de