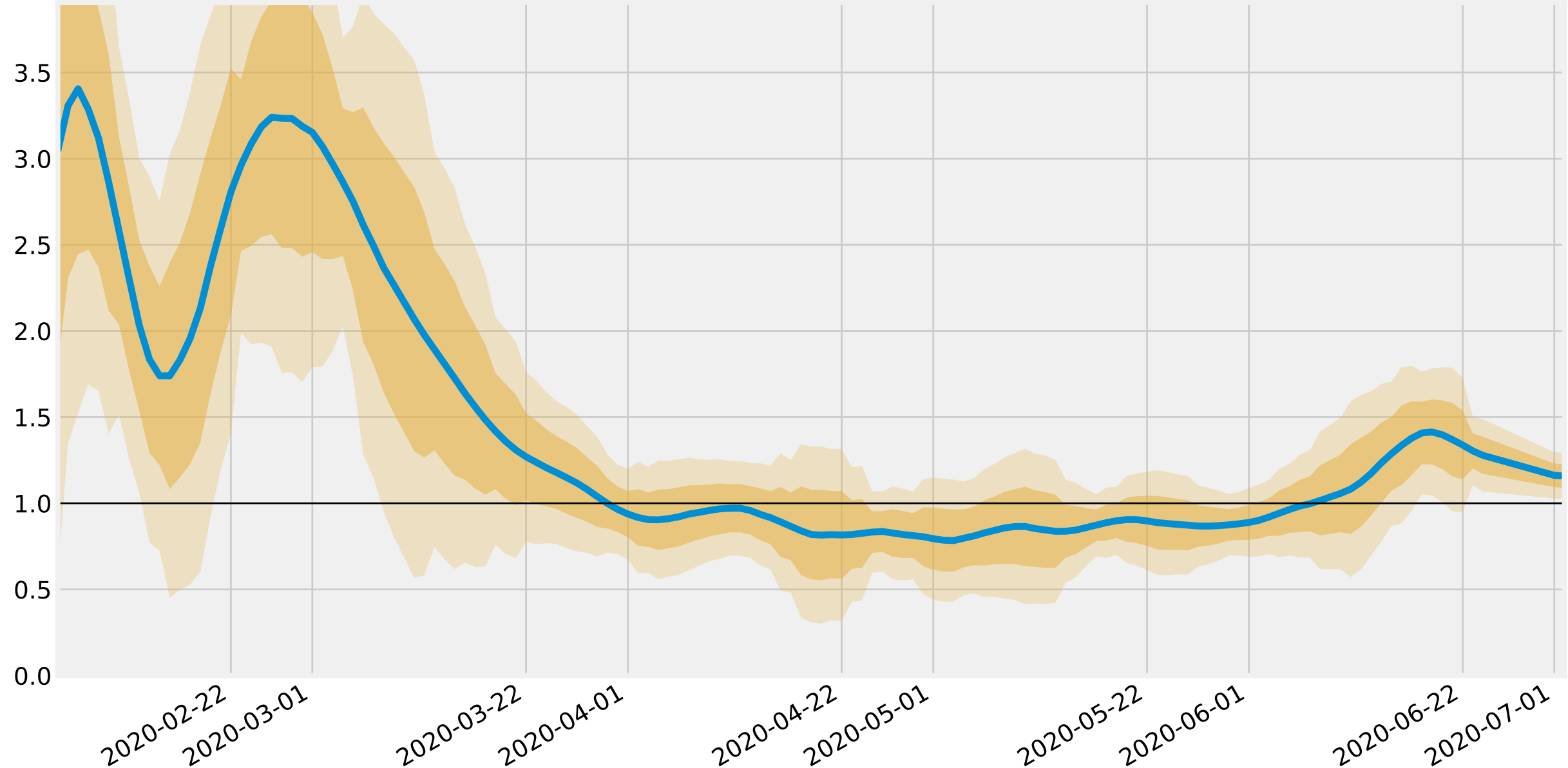# Reproduction Rate (R_t) Estimate
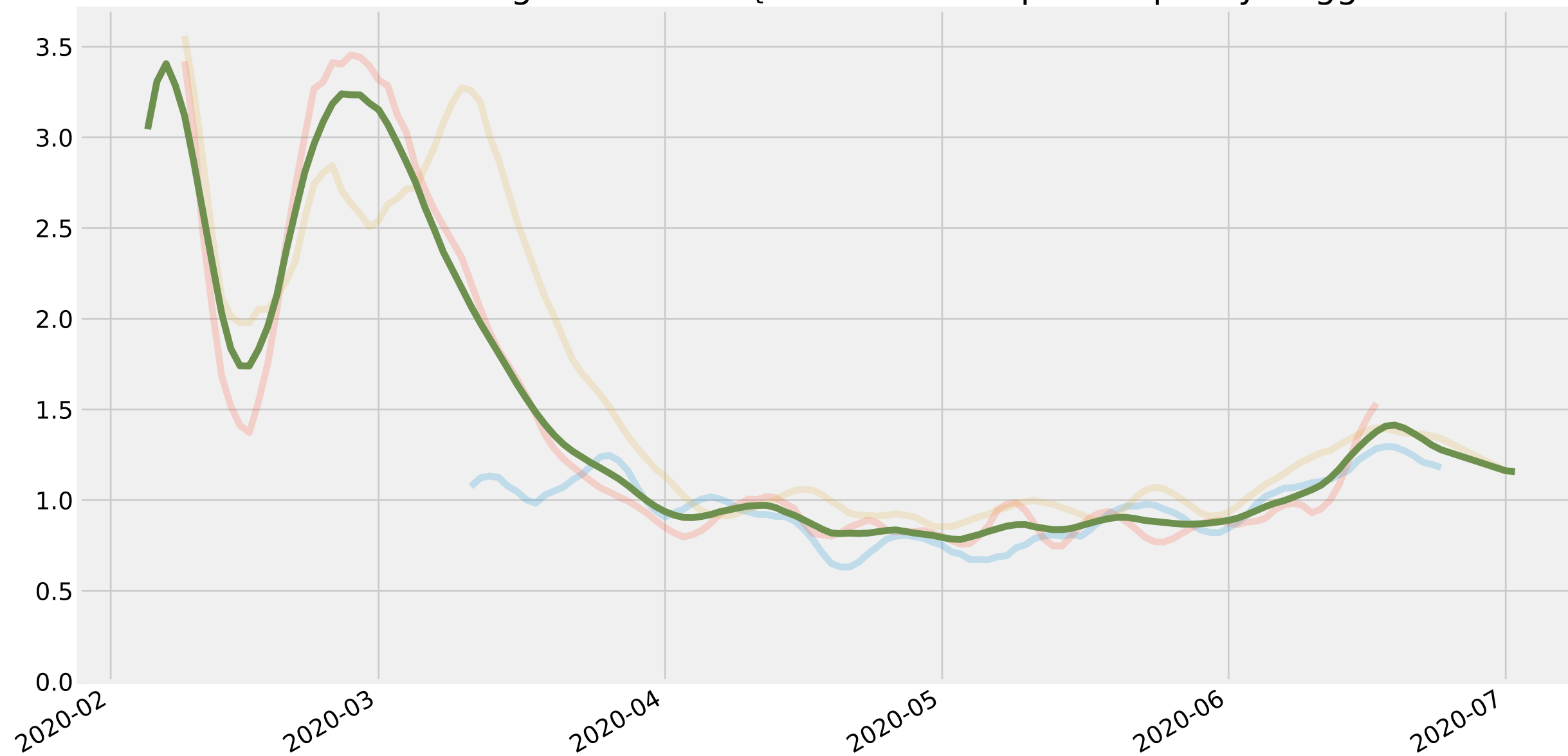## United States

Legend
- R_t: weighted_average
- Reference Line: $R_t = 1$
- 68% Confidence Interval
- 95% Confidence Interval

Parameters Used
$D_{incubation}$: 3.0
$D_{infectious}$: 4.0
$D_{tohospital}$: 7.0
$D_{inhospital}$: 11.0
$D_{tildeath}$: 17.0
$Rate_{Hospitalization}$: 4.00%
$Rate_{ICU}$: 31.71%
$Rate_{Ventilator}$: 40.00%
$Rate_{Mortality}$: 1.00%
$BasicR_0$: 3.4

Reproduction Rate (R_t) Estimates
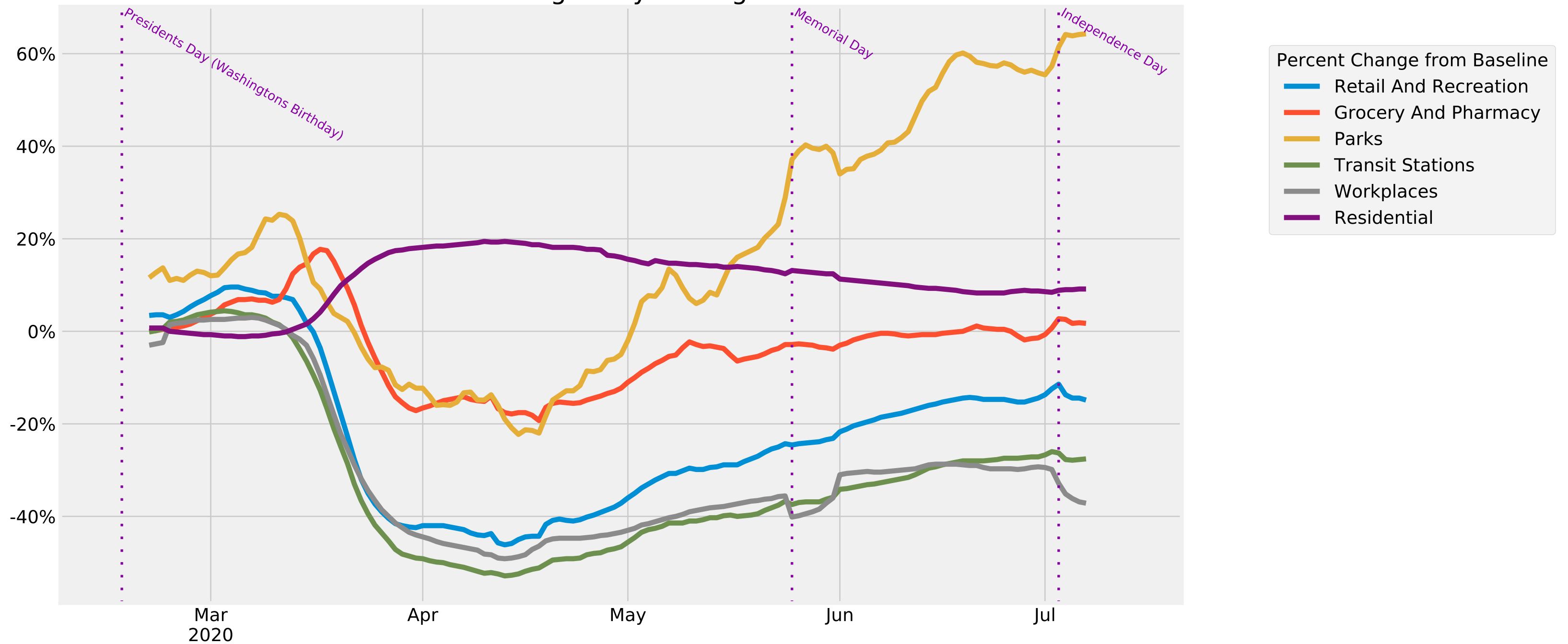## United States: No Change in Future R_t Until 20% Hospital Capacity Trigger Scenario

Reproduction Factor Estimates
- test_share
- deaths_daily
- cases_daily
- weighted_average

Parameters Used
$D_{incubation}$: 3.0
$D_{infectious}$: 4.0
$D_{tohospital}$: 7.0
$D_{inhospital}$: 11.0
$D_{tildeath}$: 17.0
$Rate_{Hospitalization}$: 4.00%
$Rate_{ICU}$: 31.71%
$Rate_{Ventilator}$: 40.00%
$Rate_{Mortality}$: 1.00%
$BasicR_0$: 3.4

Author: Michael Donnelly | twtr: @donnellymjd | www.michaeldonnel.ly
Chart created on 12 Jul, 2020 at 08:29 AM

United States: Google Movement Data
Rolling 7-day Average

Presidents Day (Washingtons Birthday)

Memorial Day

Independence Day

Percent Change from Baseline
- Retail And Recreation
- Grocery And Pharmacy
- Parks
- Transit Stations
- Workplaces
- Residential

Author: Michael Donnelly | twtr: @donnellymjd | www.michaeldonnel.ly
Chart created on 12 Jul, 2020 at 08:29 AM

Simultaneous Infections Forecast
United States: No Change in Future R_t Until 20% Hospital Capacity Trigger Scenario

Lext Axis Legend
- Exposed Population
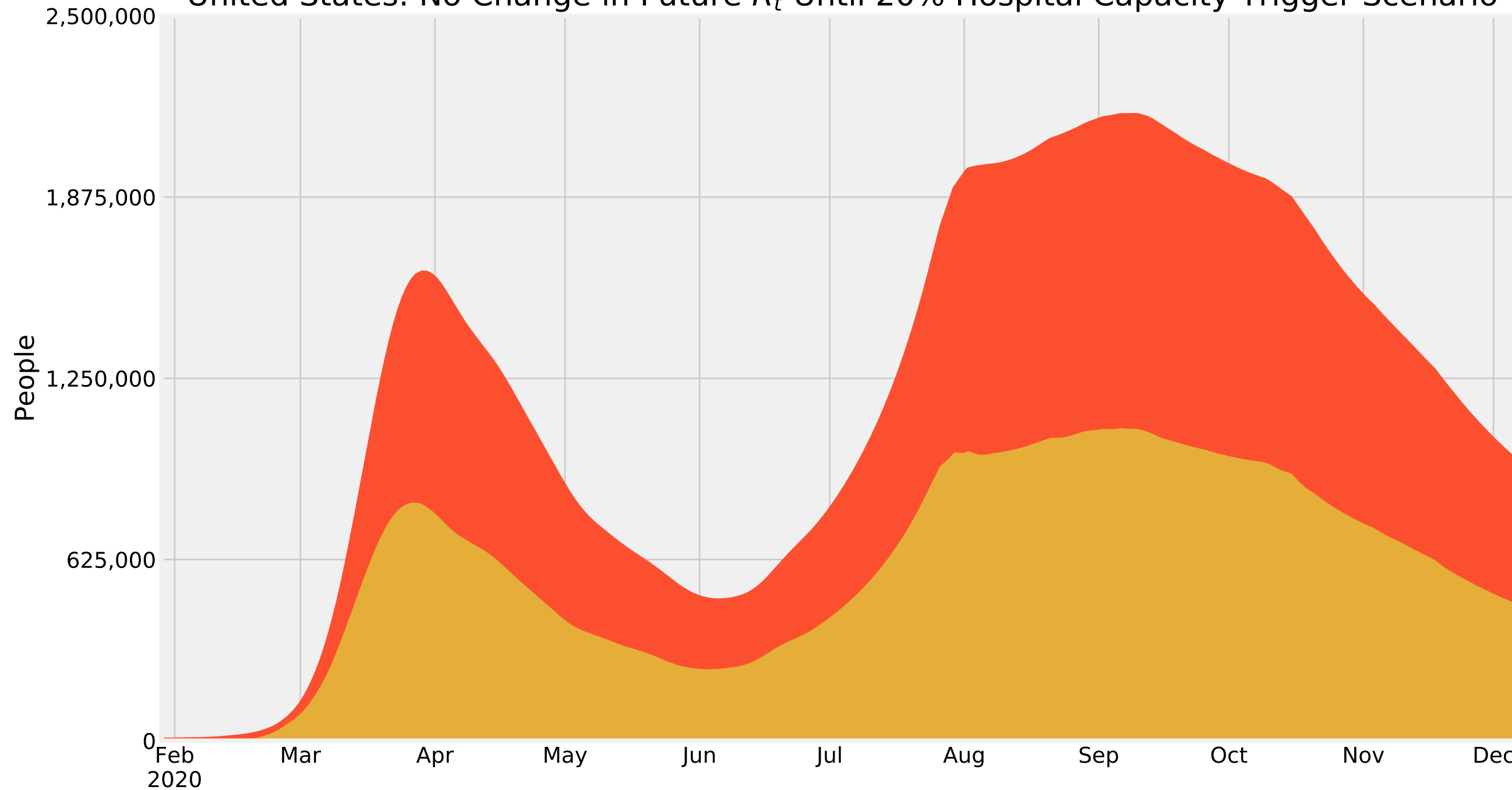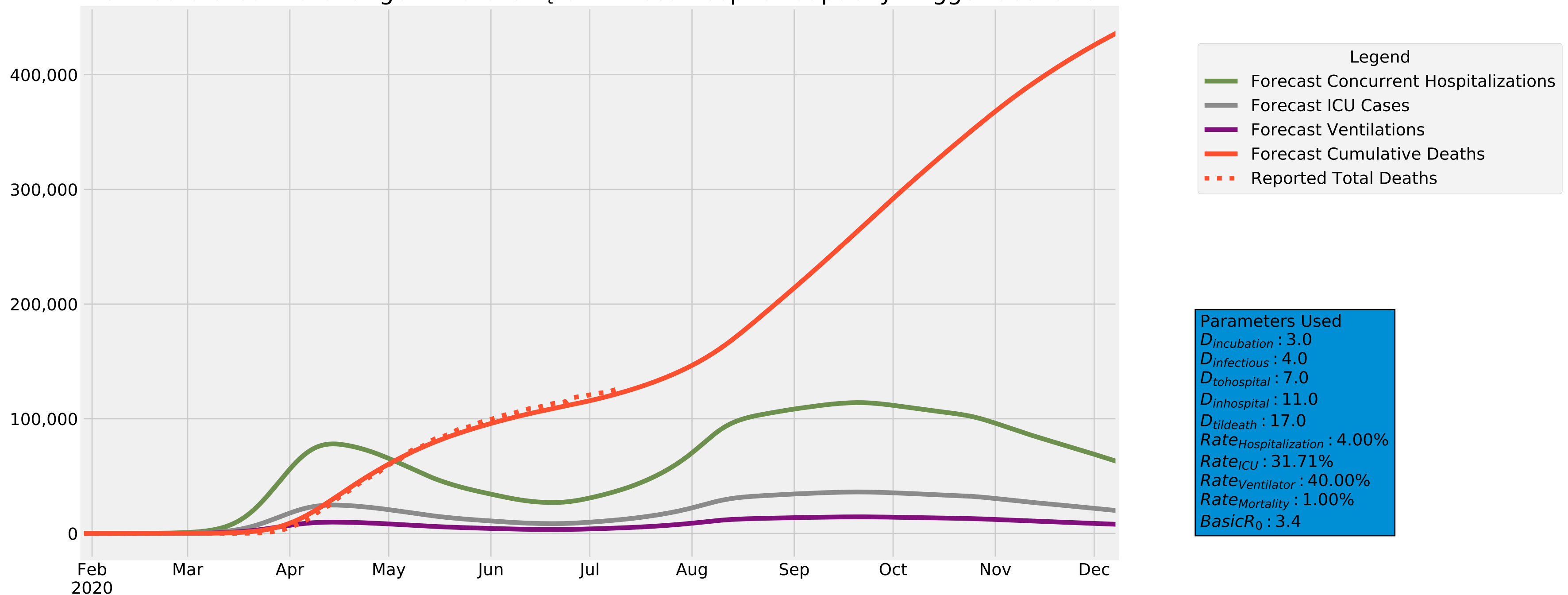- Infectious Population

Parameters Used
$D_{incubation}$: 3.0
$D_{infectious}$: 4.0
$D_{tohospital}$: 7.0
$D_{inhospital}$: 11.0
$D_{tildeath}$: 17.0
$Rate_{Hospitalization}$: 4.00%
$Rate_{ICU}$: 31.71%
$Rate_{Ventilator}$: 40.00%
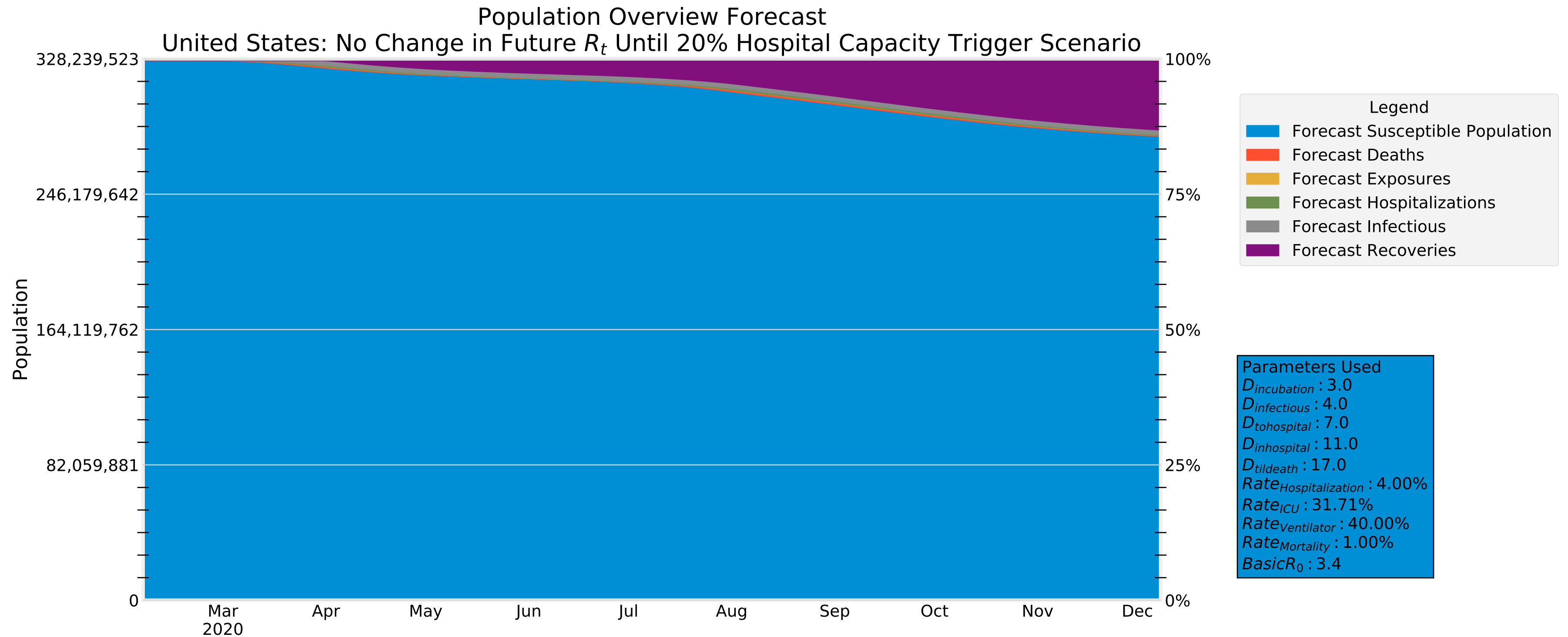$Rate_{Mortality}$: 1.00%
$BasicR_0$: 3.4

Author: Michael Donnelly | twtr: @donnellymjd | www.michaeldonnel.ly
Chart created on 12 Jul, 2020 at 08:29 AM

Hospitalization and Deaths Forecast
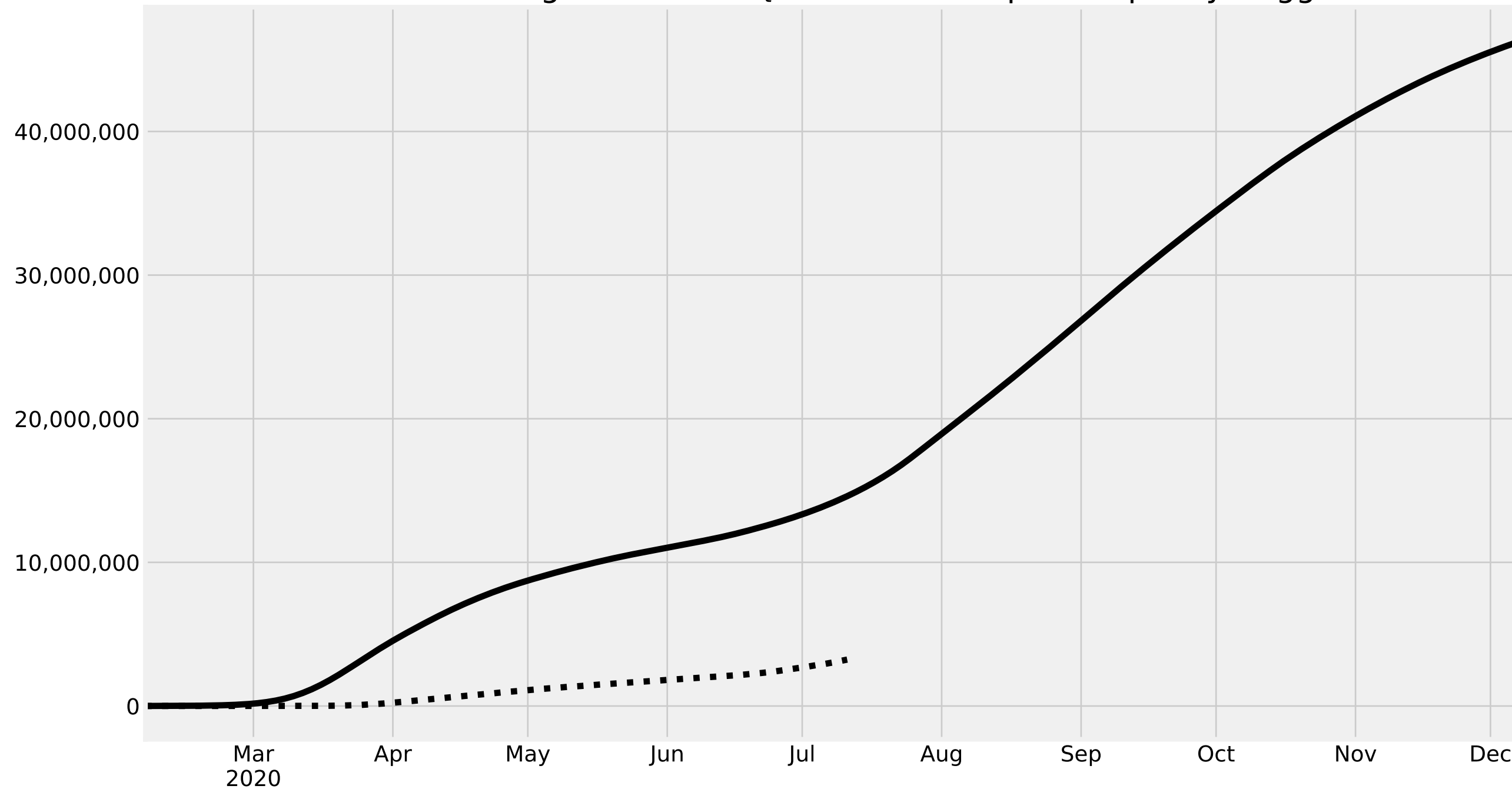## United States: No Change in Future R_t Until 20% Hospital Capacity Trigger Scenario

Legend
- Forecast Concurrent Hospitalizations
- Forecast ICU Cases
- Forecast Ventilations
- Forecast Cumulative Deaths
- Reported Total Deaths

Parameters Used
$D_{incubation}$: 3.0
$D_{infectious}$: 4.0
$D_{tohospital}$: 7.0
$D_{inhospital}$: 11.0
$D_{tildeath}$: 17.0
$Rate_{Hospitalization}$: 4.00%
$Rate_{ICU}$: 31.71%
$Rate_{Ventilator}$: 40.00%
$Rate_{Mortality}$: 1.00%
$BasicR_0$: 3.4

Author: Michael Donnelly | twtr: @donnellymjd | www.michaeldonnel.ly
Chart created on 12 Jul, 2020 at 08:29 AM

Population Overview Forecast
United States: No Change in Future R_t Until 20% Hospital Capacity Trigger Scenario

Legend
- Forecast Susceptible Population
- Forecast Deaths
- Forecast Exposures
- Forecast Hospitalizations
- Forecast Infectious
- Forecast Recoveries

Parameters Used
$D_{incubation}$: 3.0
$D_{infectious}$: 4.0
$D_{tohospital}$: 7.0
$D_{inhospital}$: 11.0
$D_{tildeath}$: 17.0
$Rate_{Hospitalization}$: 4.00%
$Rate_{ICU}$: 31.71%
$Rate_{Ventilator}$: 40.00%
$Rate_{Mortality}$: 1.00%
$BasicR_0$: 3.4

Author: Michael Donnelly | twtr: @donnellymjd | www.michaeldonnel.ly
Chart created on 12 Jul, 2020 at 08:29 AM

Cumulative Infections Forecast
United States: No Change in Future R_t Until 20% Hospital Capacity Trigger Scenario
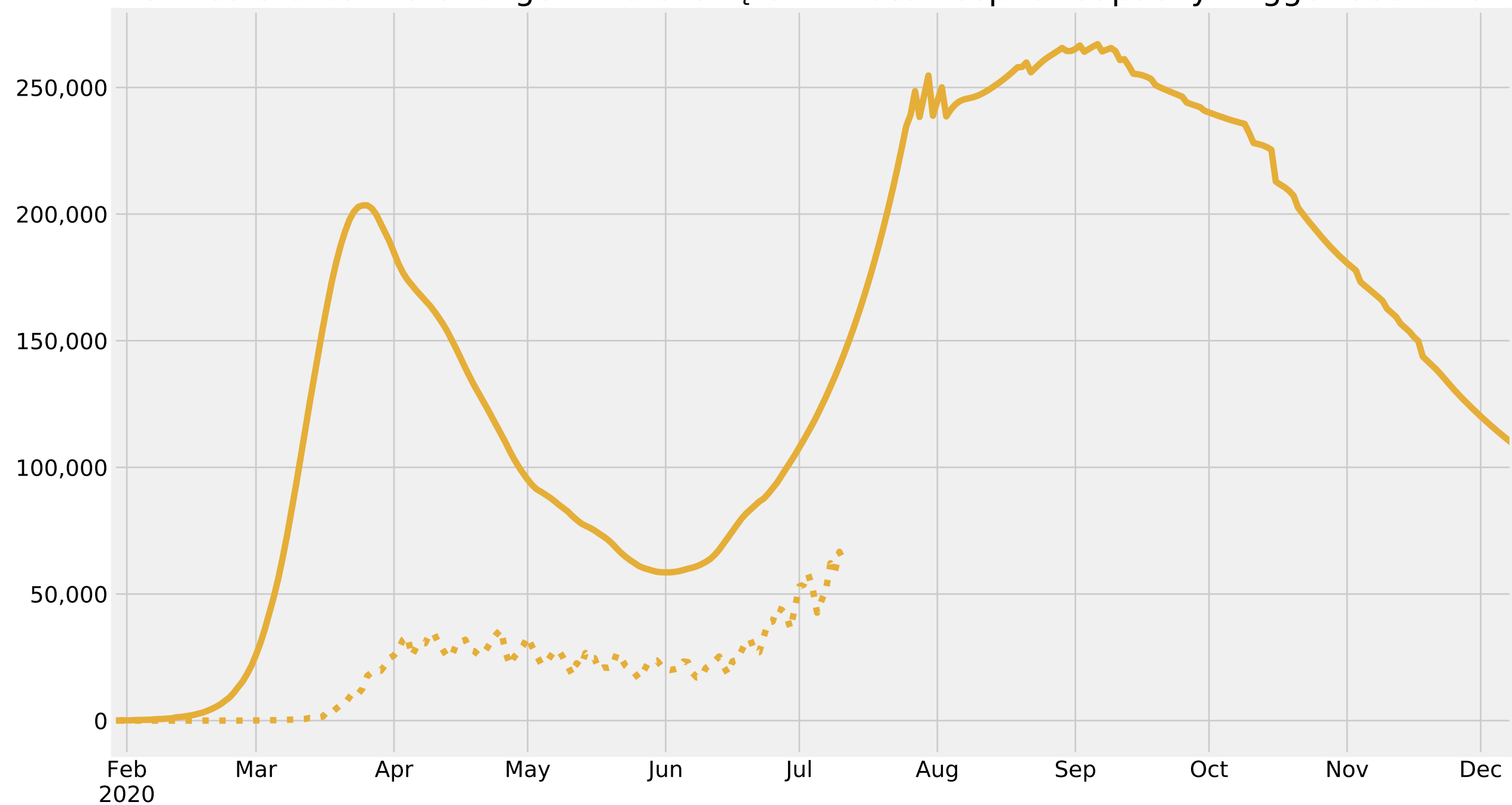

Legend
— Forecast Cumulative Infections
⋯ Reported Cumulative Infections

Parameters Used
$D_{incubation}$: 3.0
$D_{infectious}$: 4.0
$D_{tohospital}$: 7.0
$D_{inhospital}$: 11.0
$D_{tildeath}$: 17.0
$Rate_{Hospitalization}$: 4.00%
$Rate_{ICU}$: 31.71%
$Rate_{Ventilator}$: 40.00%
$Rate_{Mortality}$: 1.00%
$Basic R_0$: 3.4

Author: Michael Donnelly | twtr: @donnellymjd | www.michaeldonnel.ly
Chart created on 12 Jul, 2020 at 08:29 AM

Daily Exposures Forecast
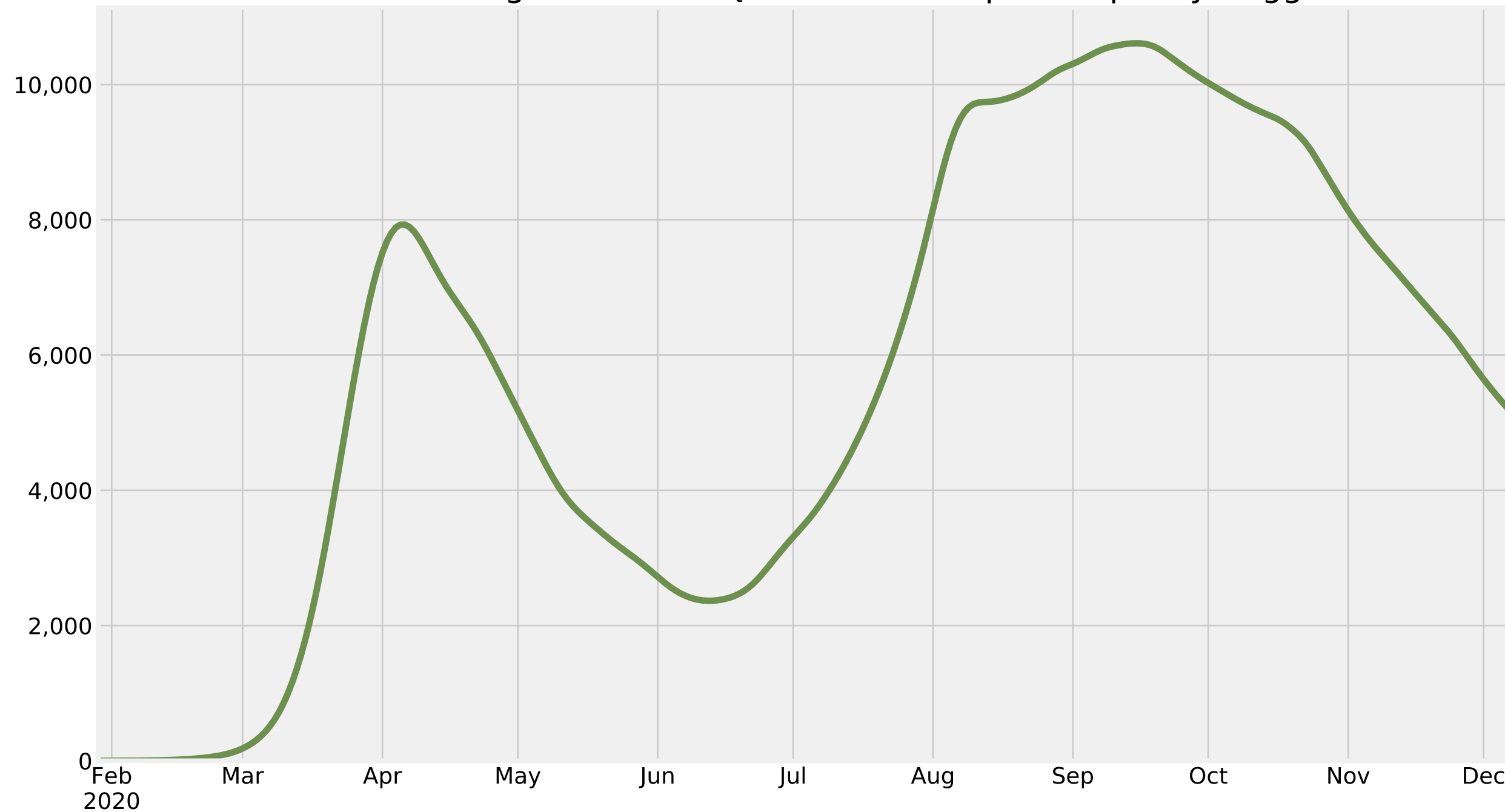## United States: No Change in Future R_t Until 20% Hospital Capacity Trigger Scenario

Legend
— Forecast Daily New Infections (Exposed)
⋯⋯ Reported Daily New Infections (Exposed)

Parameters Used
$D_{incubation}$: 3.0
$D_{infectious}$: 4.0
$D_{tohospital}$: 7.0
$D_{inhospital}$: 11.0
$D_{tildeath}$: 17.0
$Rate_{Hospitalization}$: 4.00%
$Rate_{ICU}$: 31.71%
$Rate_{Ventilator}$: 40.00%
$Rate_{Mortality}$: 1.00%
$Basic R_0$: 3.4

Daily Hospital Admissions Forecast
United States: No Change in Future R_t Until 20% Hospital Capacity Trigger Scenario
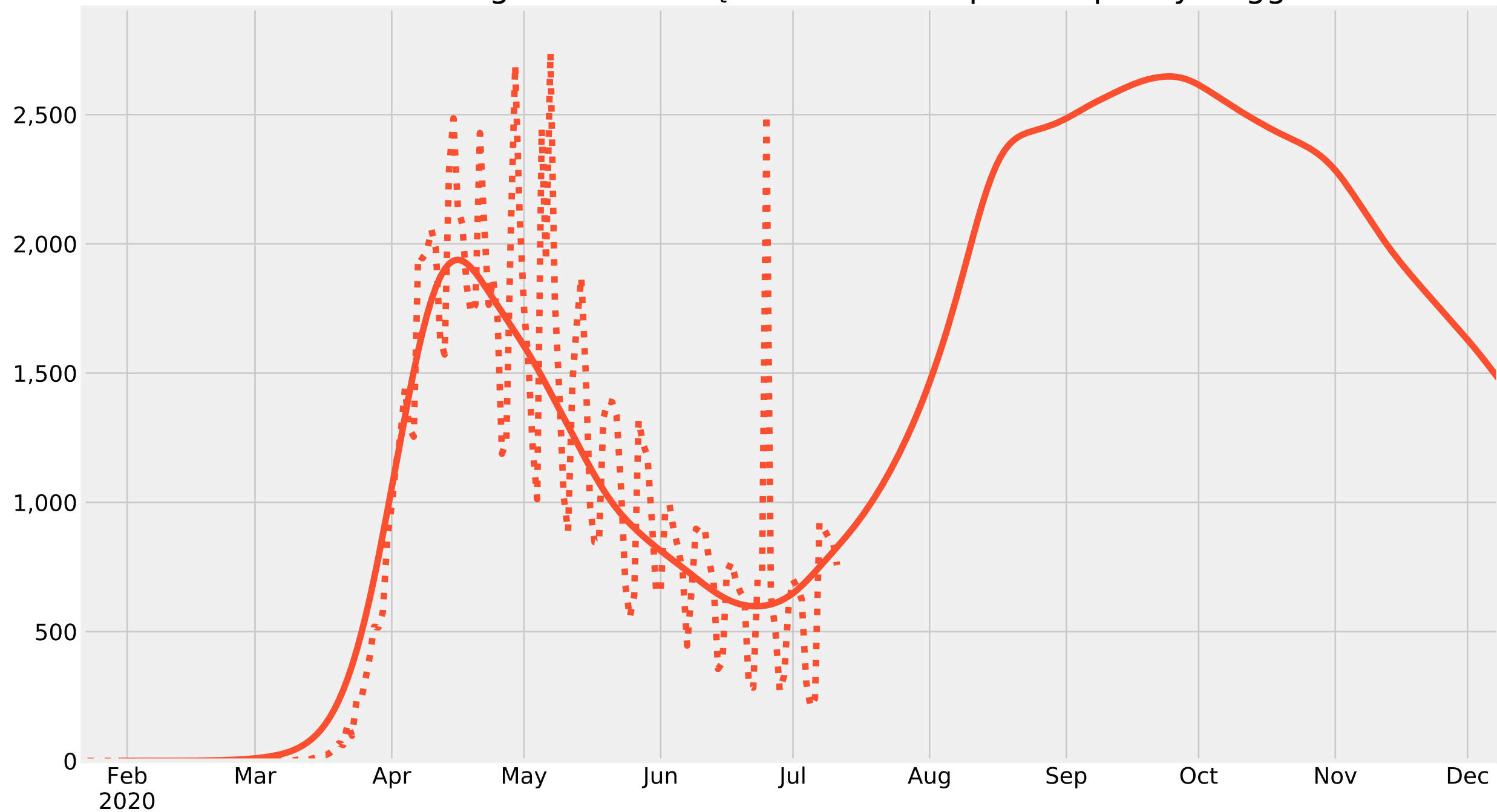

Legend
— Forecast Hospital Admissions

Parameters Used
$D_{incubation}$: 3.0
$D_{infectious}$: 4.0
$D_{tohospital}$: 7.0
$D_{inhospital}$: 11.0
$D_{tildeath}$: 17.0
$Rate_{Hospitalization}$: 4.00%
$Rate_{ICU}$: 31.71%
$Rate_{Ventilator}$: 40.00%
$Rate_{Mortality}$: 1.00%
$BasicR_0$: 3.4

Author: Michael Donnelly | twtr: @donnellymjd | www.michaeldonnel.ly
Chart created on 12 Jul, 2020 at 08:29 AM

Daily Deaths Forecast
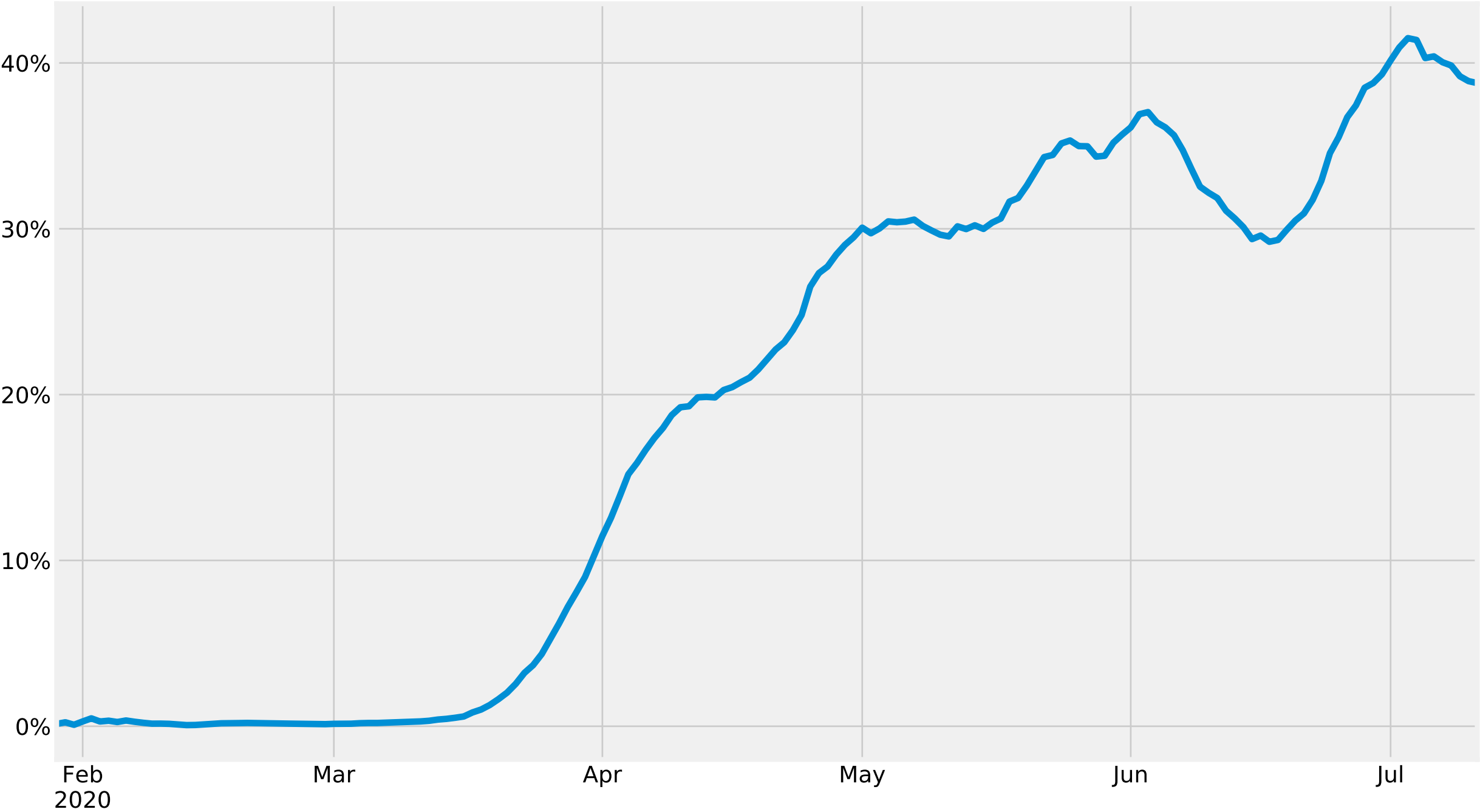## United States: No Change in Future R_t Until 20% Hospital Capacity Trigger Scenario

Legend
— Forecast Daily Deaths
⋯ Reported Daily Deaths

Parameters Used
$D_{incubation}$: 3.0
$D_{infectious}$: 4.0
$D_{tohospital}$: 7.0
$D_{inhospital}$: 11.0
$D_{tildeath}$: 17.0
$Rate_{Hospitalization}$: 4.00%
$Rate_{ICU}$: 31.71%
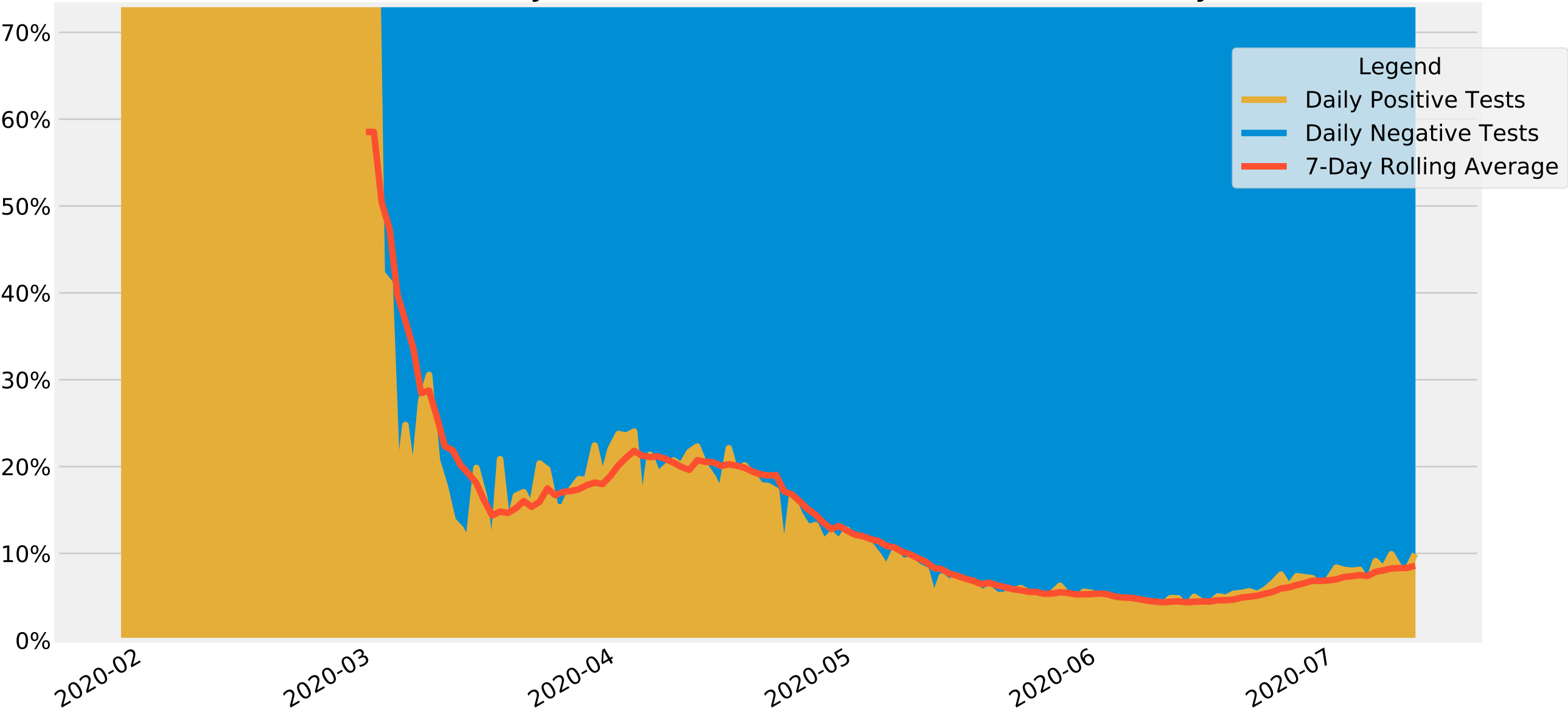$Rate_{Ventilator}$: 40.00%
$Rate_{Mortality}$: 1.00%
$Basic R_0$: 3.4

COVID-19 Daily Infection Detection Rate
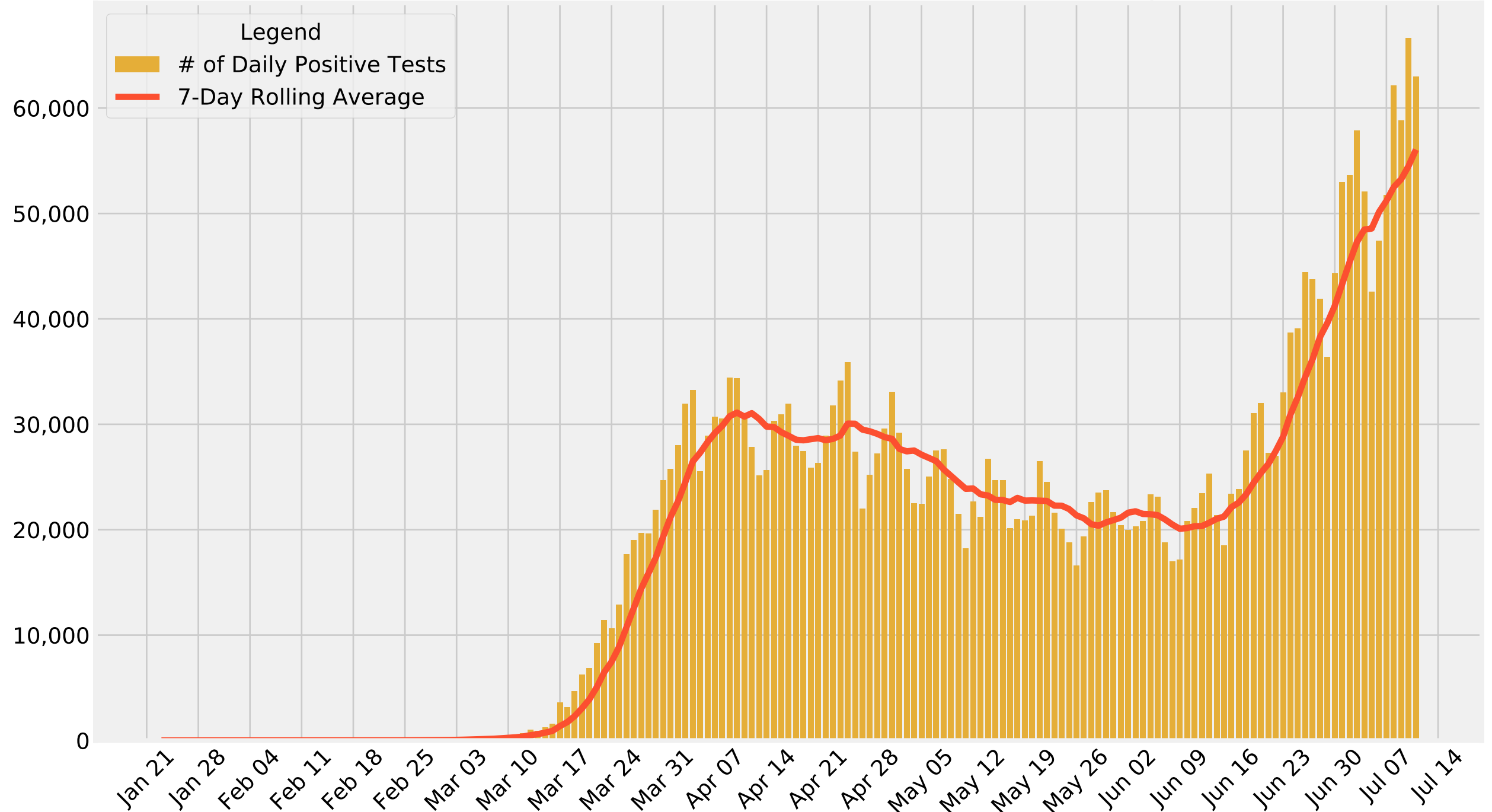## United States: No Change in Future R_t Until 20% Hospital Capacity Trigger Scenario

Author: Michael Donnelly | twtr: @donnellymjd | www.michaeldonnel.ly
Chart created on 12 Jul, 2020 at 08:29 AM

United States: Daily Positive COVID-19 Test Share (Positivity Rate)

Legend
- Daily Positive Tests
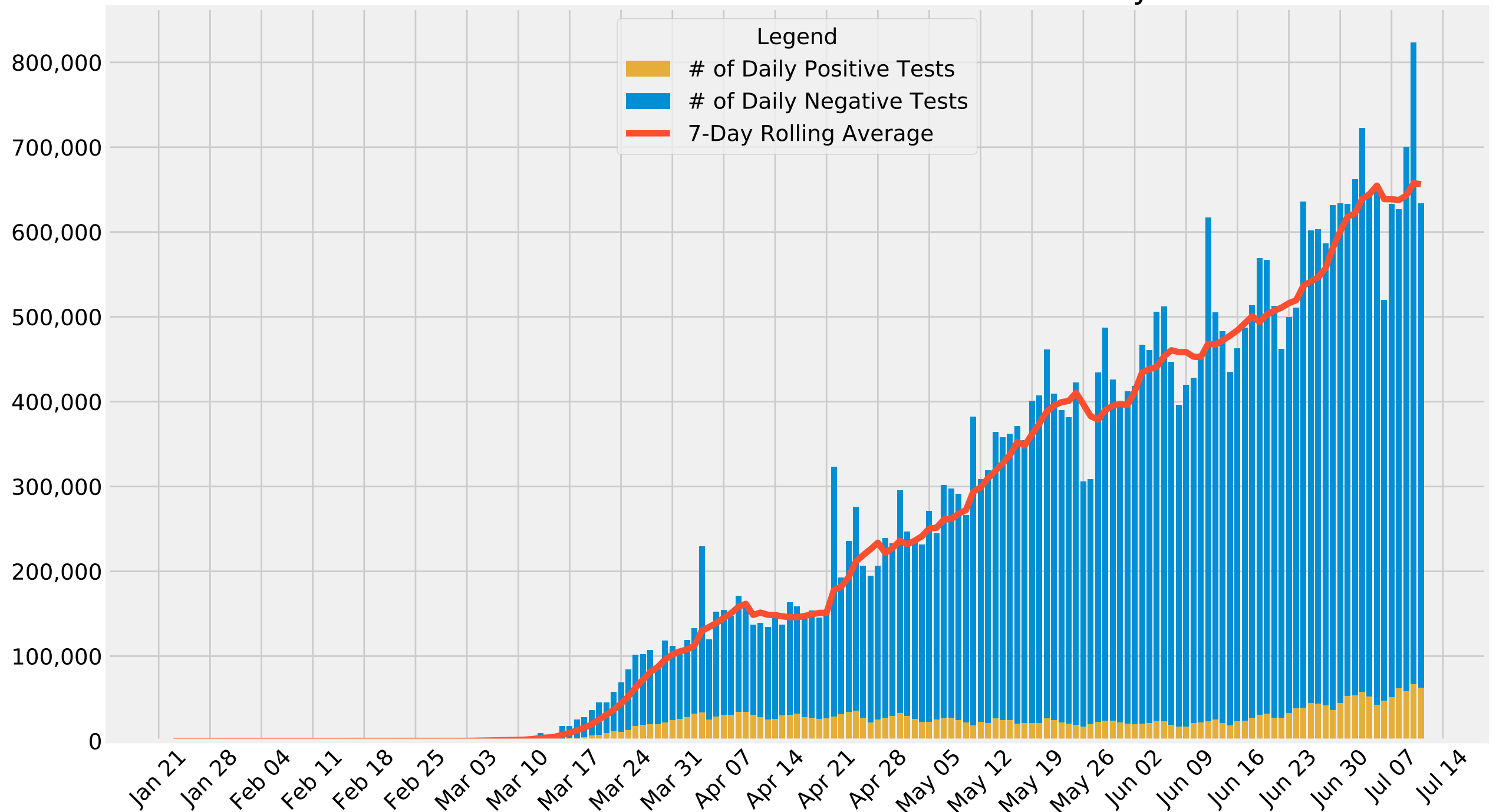- Daily Negative Tests
- 7-Day Rolling Average

Author: Michael Donnelly | twtr: @donnellymjd | www.michaeldonnel.ly
Chart created on 12 Jul, 2020 at 08:29 AM

United States: Positive COVID-19 Tests Per Day

Legend
# of Daily Positive Tests
7-Day Rolling Average

Author: Michael Donnelly | twtr: @donnellymjd | www.michaeldonnel.ly
Chart created on 12 Jul, 2020 at 08:29 AM

United States: Total COVID-19 Tests Per Day

Legend
# of Daily Positive Tests
# of Daily Negative Tests
7-Day Rolling Average

Author: Michael Donnelly | twtr: @donnellymjd | www.michaeldonnel.ly
Chart created on 12 Jul, 2020 at 08:29 AM

Doubling Rate Forecast
United States: No Change in Future R_t Until 20% Hospital Capacity Trigger Scenario

Legend
- New Cases
- Hospitalizations
- Daily Deaths
- Reported New Cases
- Reported Total Deaths

Parameters Used
$D_{incubation}$: 3.0
$D_{infectious}$: 4.0
$D_{tohospital}$: 7.0
$D_{inhospital}$: 11.0
$D_{tildeath}$: 17.0
$Rate_{Hospitalization}$: 4.00%
$Rate_{ICU}$: 31.71%
$Rate_{Ventilator}$: 40.00%
$Rate_{Mortality}$: 1.00%
$BasicR_0$: 3.4

Author: Michael Donnelly | twtr: @donnellymjd | www.michaeldonnel.ly
Chart created on 12 Jul, 2020 at 08:29 AM