Montana: COVID-19 Cases Per 100k Residents

Reproduction Rate (R_t) Estimates
Montana: No Change in Future R_t Scenario
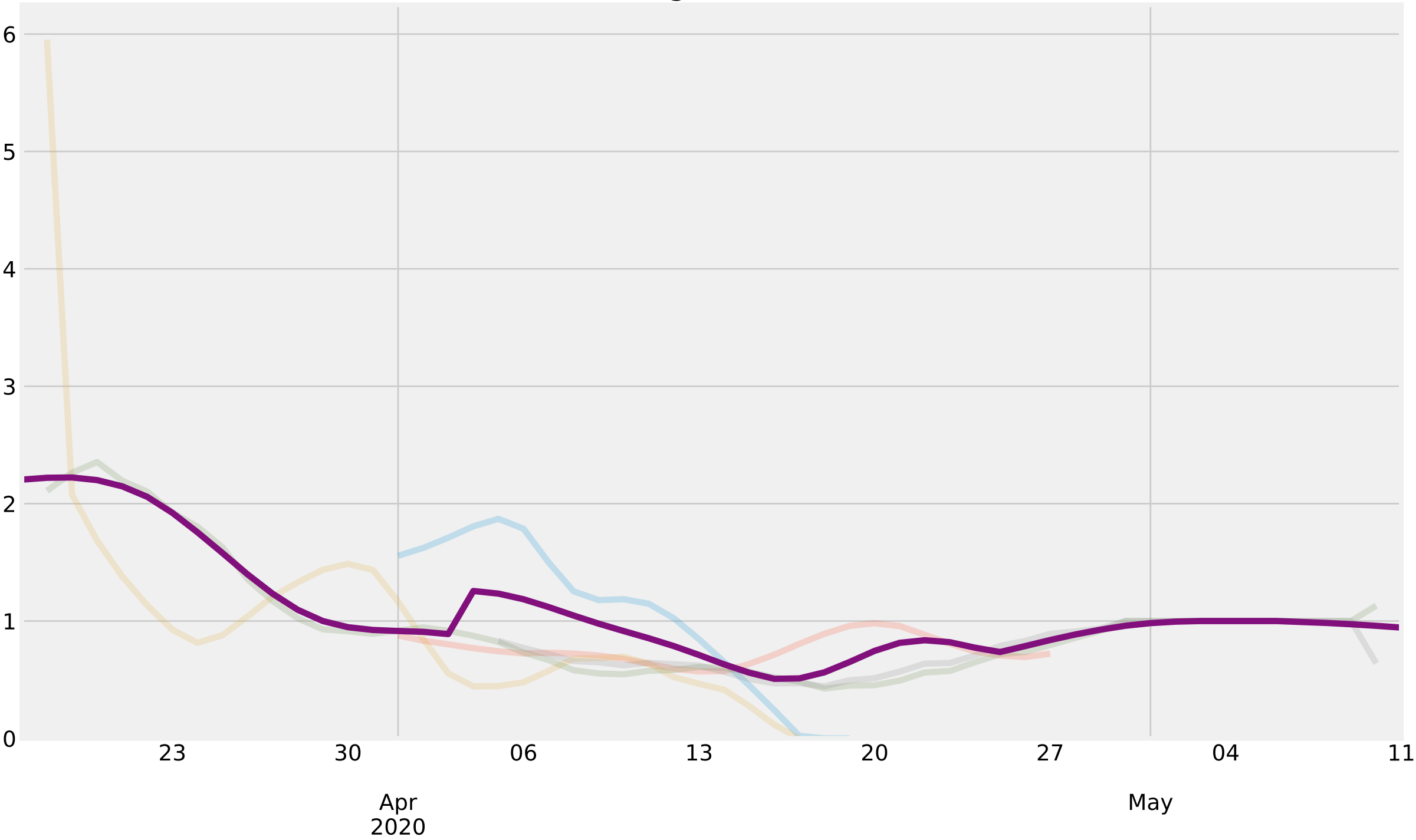
Legend:
- rt_deaths_daily
- rt_hosp_concur
- rt_hosp_admits
- rt_cases_daily
- rt_pos_test_share_daily
- rt_joint_est

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%
$BasicR_0$: 2.2

Author: Michael Donnelly (twtr: @donnellymjd)
Chart created on 19 May 2020

Simultaneous Infections Forecast
Montana: No Change in Future R_t Scenario

Legend:
- Reproduction Factor (R_t) - Right Axis
- Reference Line: $R_t = 1$
- Exposed Population
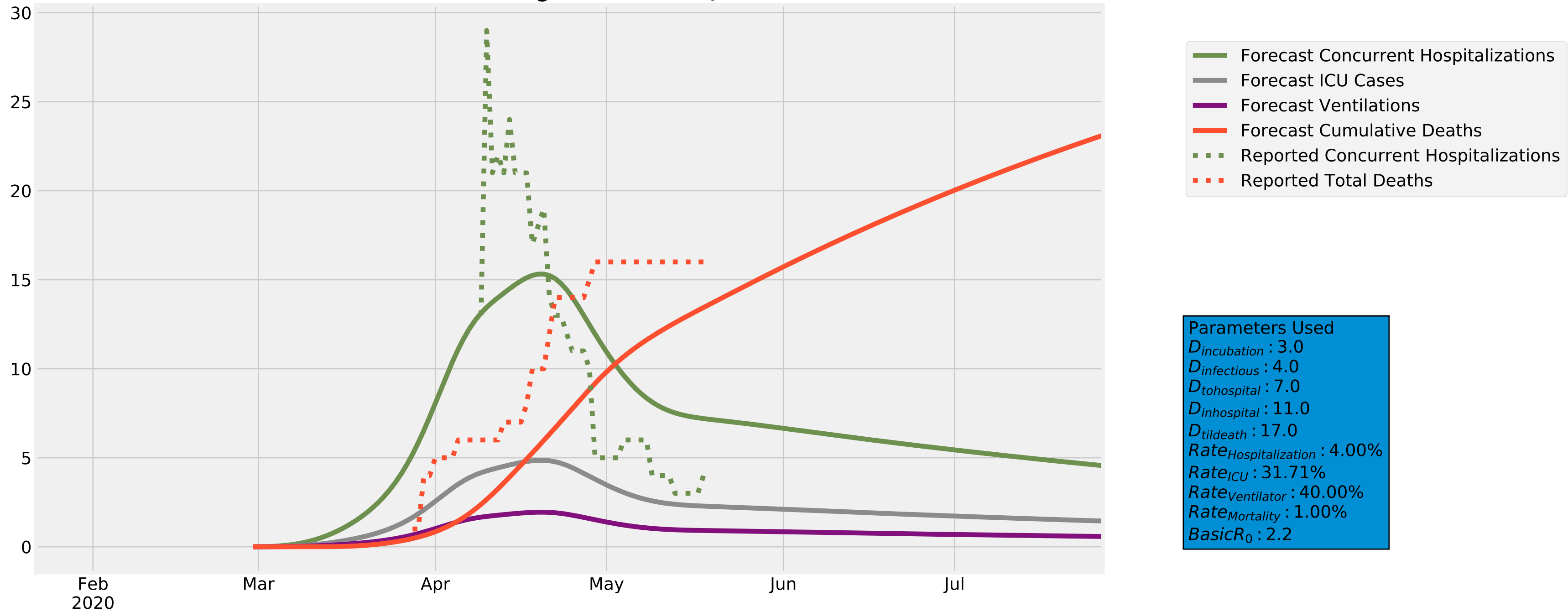- Infectious Population

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%
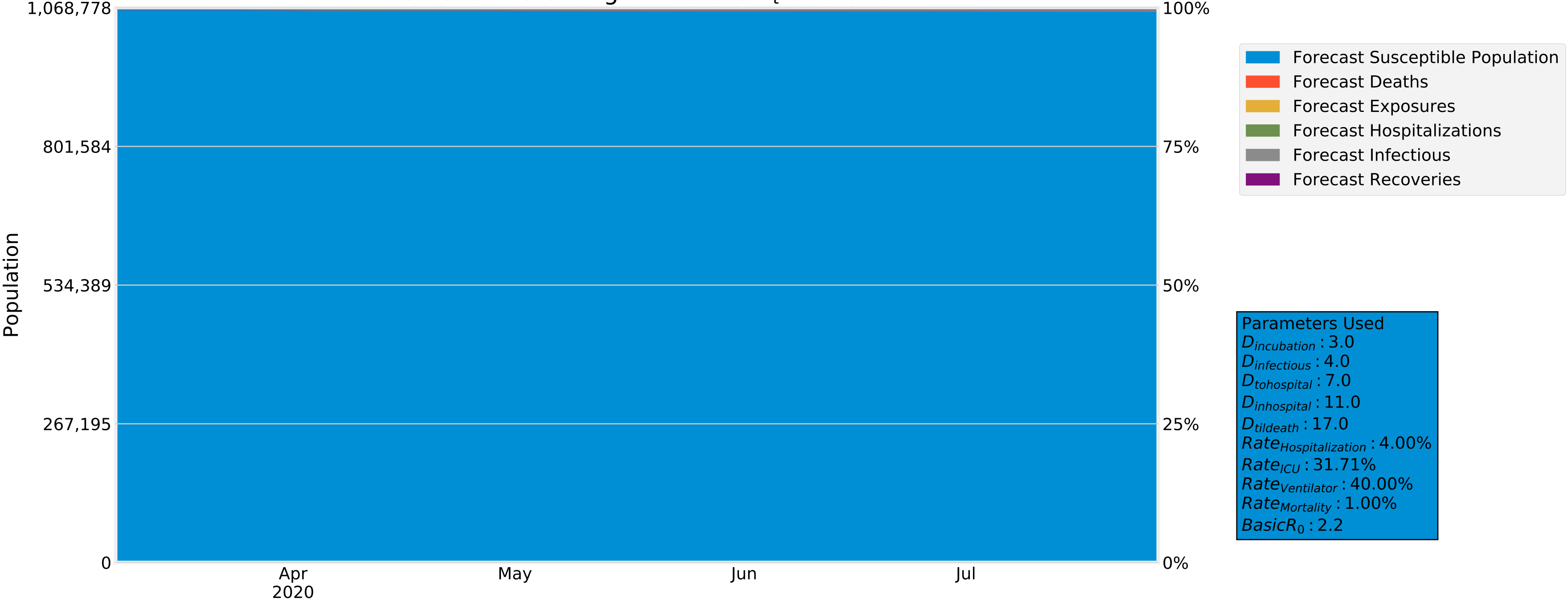$Rate_{Mortality}$: 1.00%
$BasicR_0$: 2.2

People

R_t Estimate
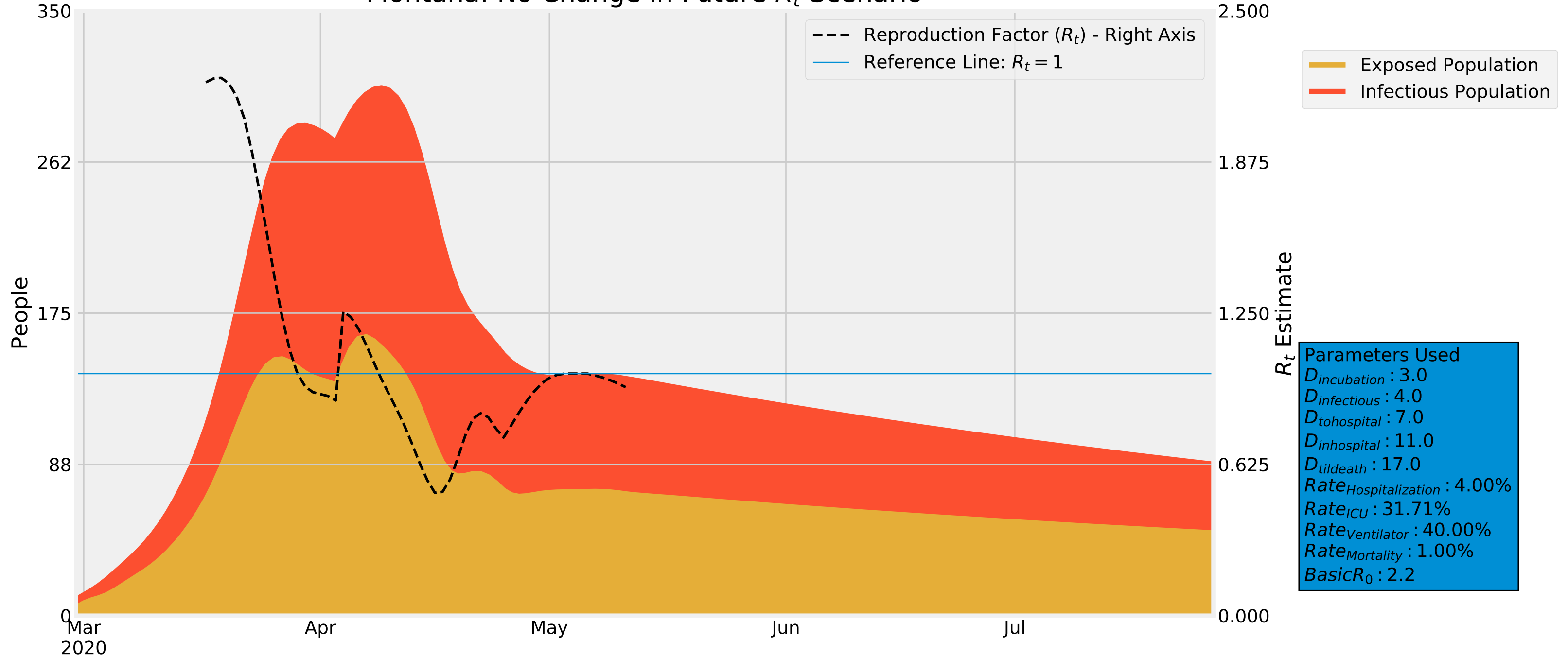
Author: Michael Donnelly (twtr: @donnellymjd)
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Hospitalization and Deaths Forecast
Montana: No Change in Future R_t Scenario

Legend:
- Forecast Concurrent Hospitalizations
- Forecast ICU Cases
- Forecast Ventilations
- Forecast Cumulative Deaths
- Reported Concurrent Hospitalizations
- 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%
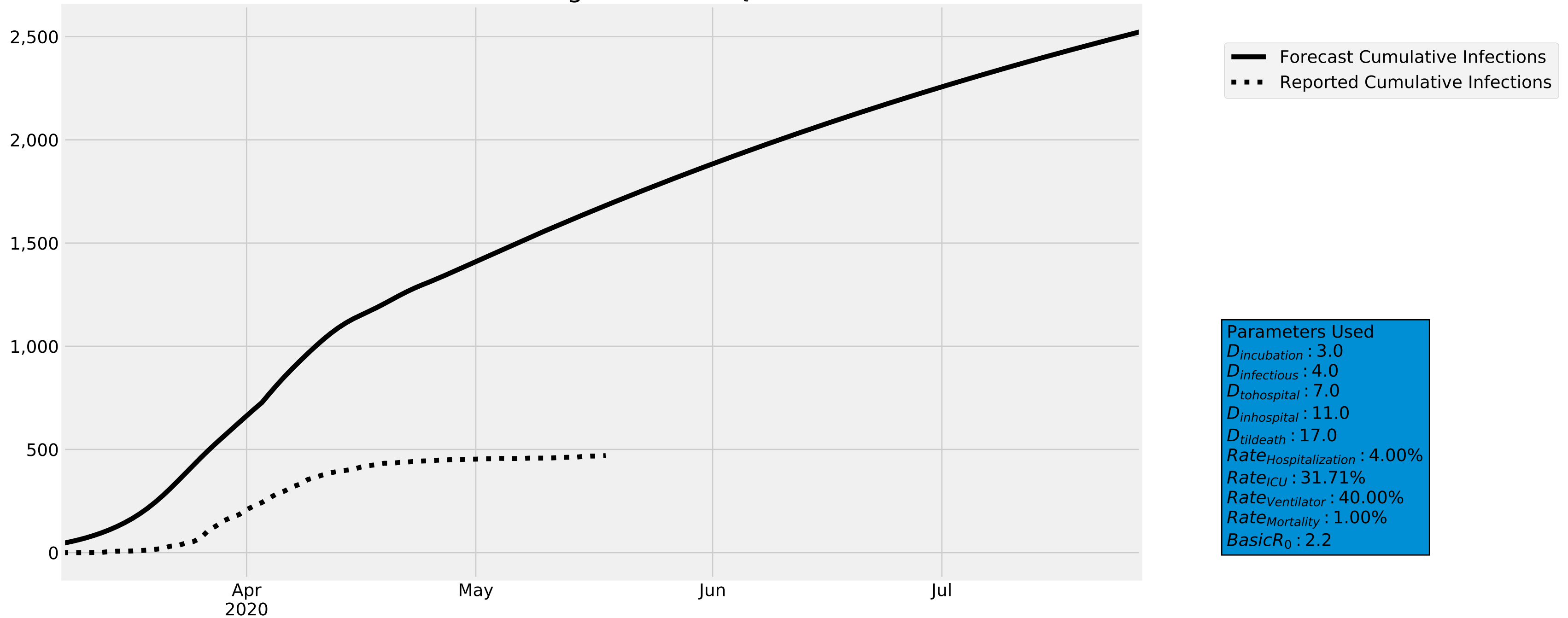$Rate_{Mortality}$: 1.00%
$Basic R_0$: 2.2

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Chart created on 19 May 2020

Population Overview Forecast
Montana: No Change in Future R_t Scenario

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%
$BasicR_0$: 2.2

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

Cumulative Infections Forecast
Montana: No Change in Future R_t Scenario

Legend:
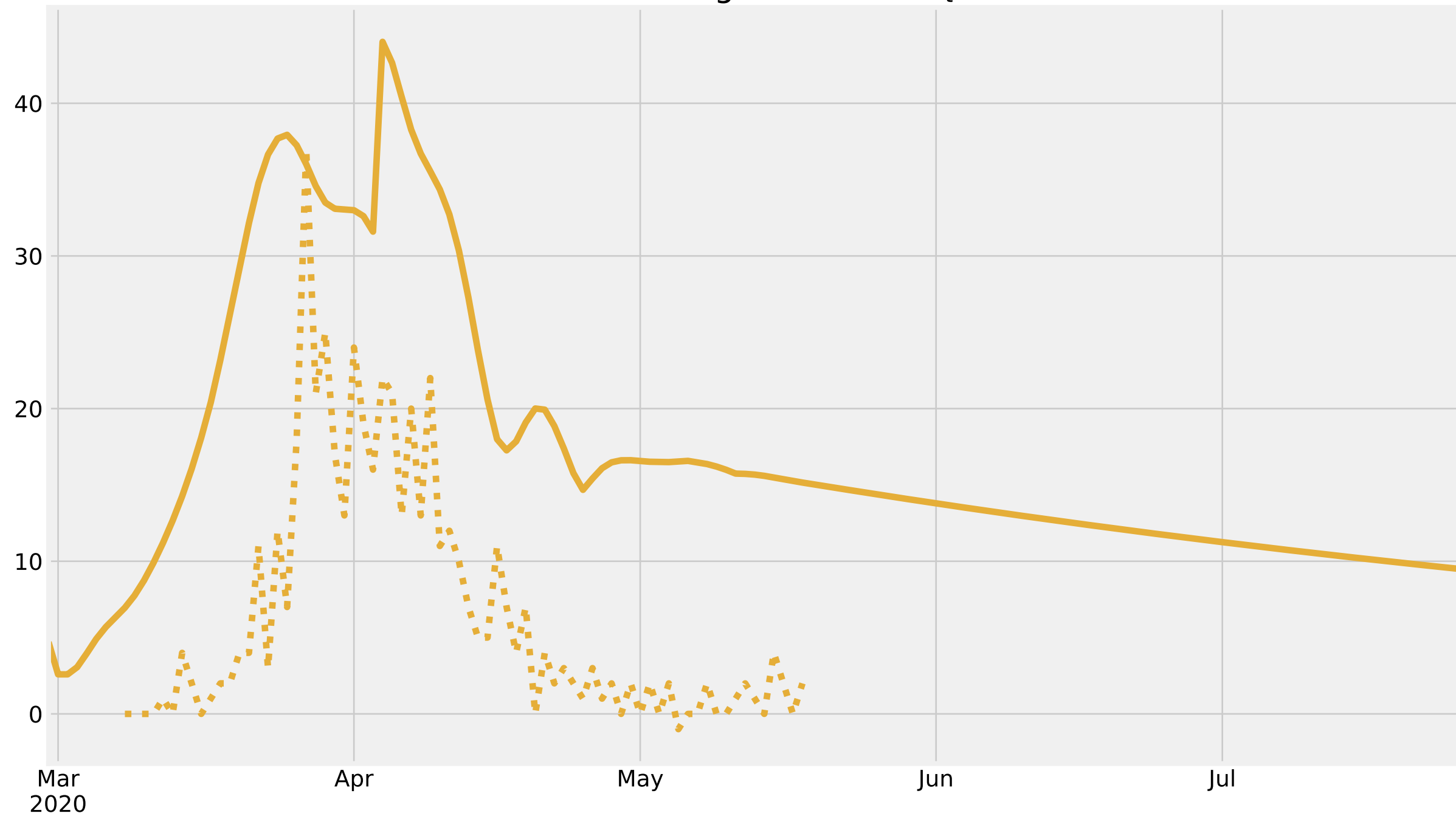- Forecast Cumulative Infections
- Reported Cumulative Infections

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%
$BasicR_0$: 2.2

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Chart created on 19 May 2020

Daily Exposures Forecast
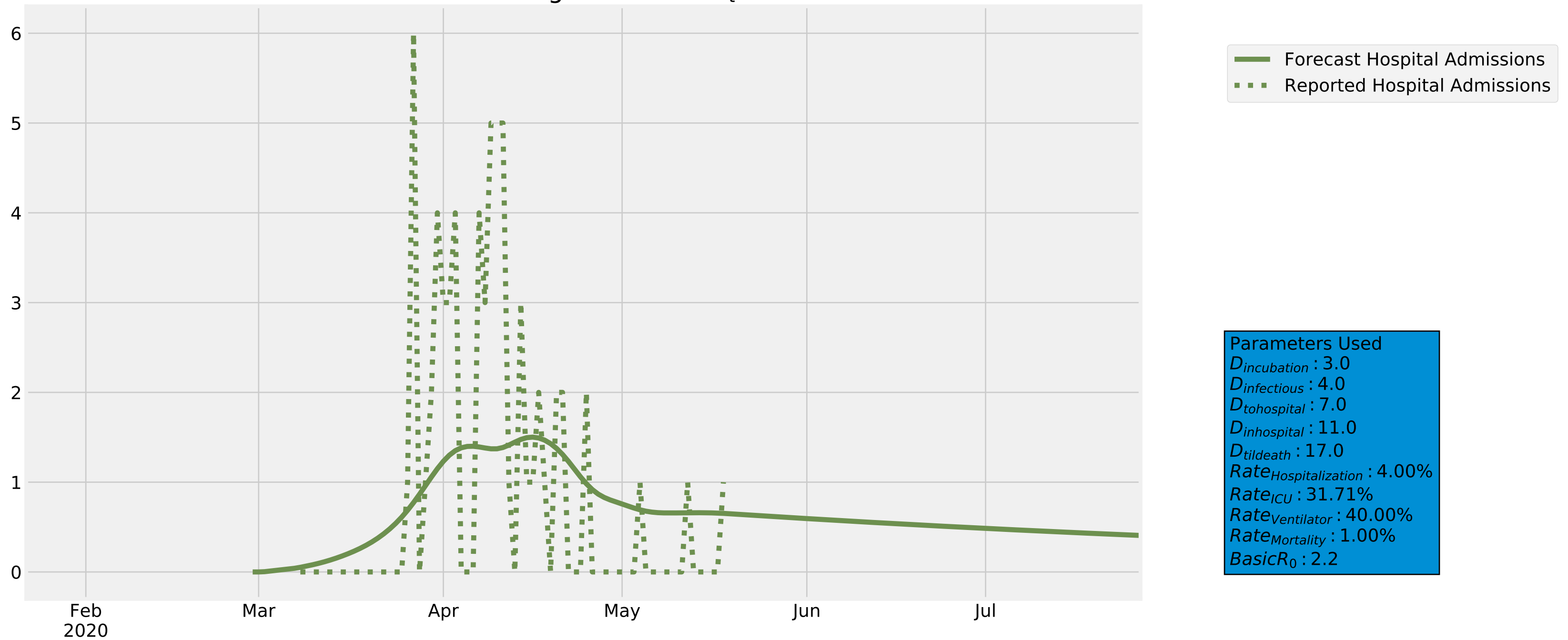## Montana: No Change in Future R_t Scenario

— 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%
$BasicR_0$: 2.2

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Chart created on 19 May 2020

Daily Hospital Admissions Forecast
Montana: No Change in Future R_t Scenario

Legend:
— Forecast Hospital Admissions
···· Reported 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%
$BasicR_0$: 2.2

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Chart created on 19 May 2020

Daily Deaths Forecast
Montana: No Change in Future R_t 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%
$BasicR_0$: 2.2

Author: Michael Donnelly (twtr: @donnellymjd)
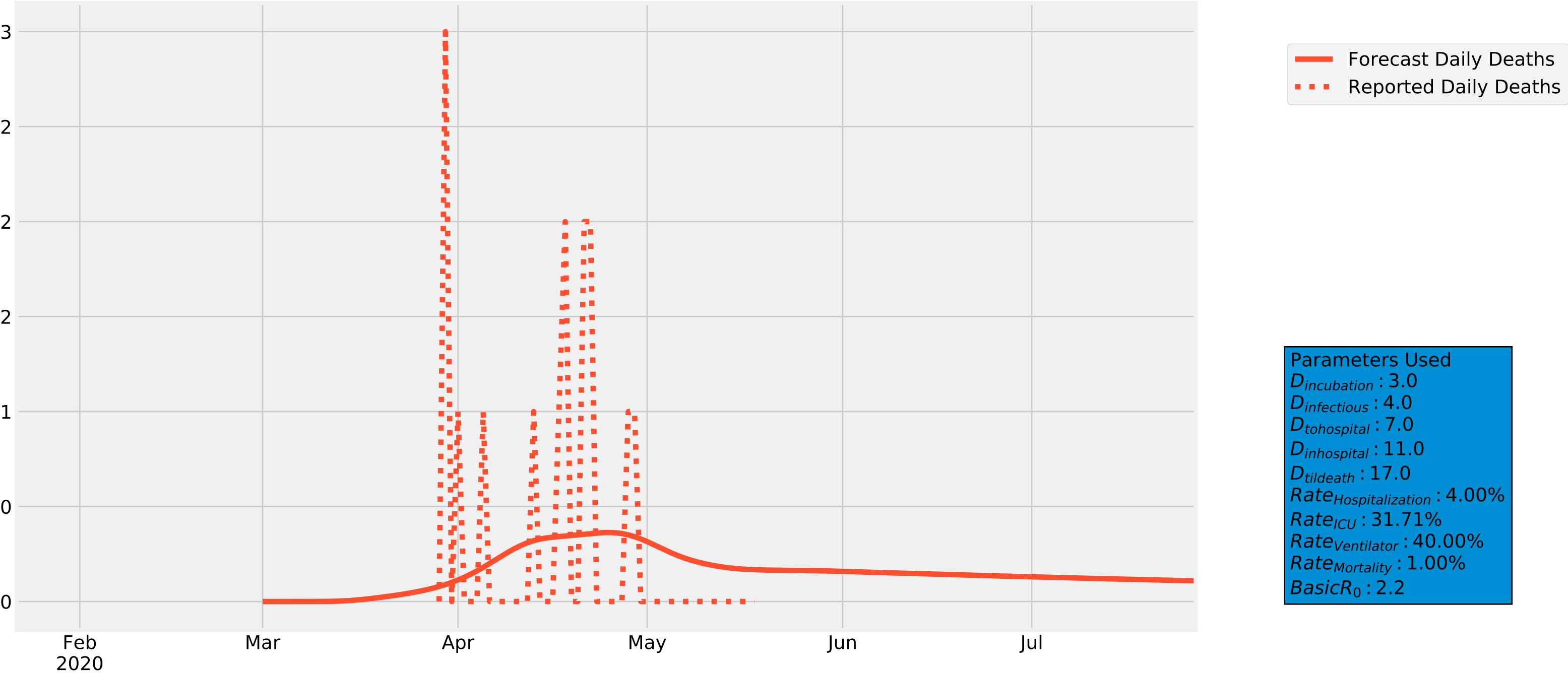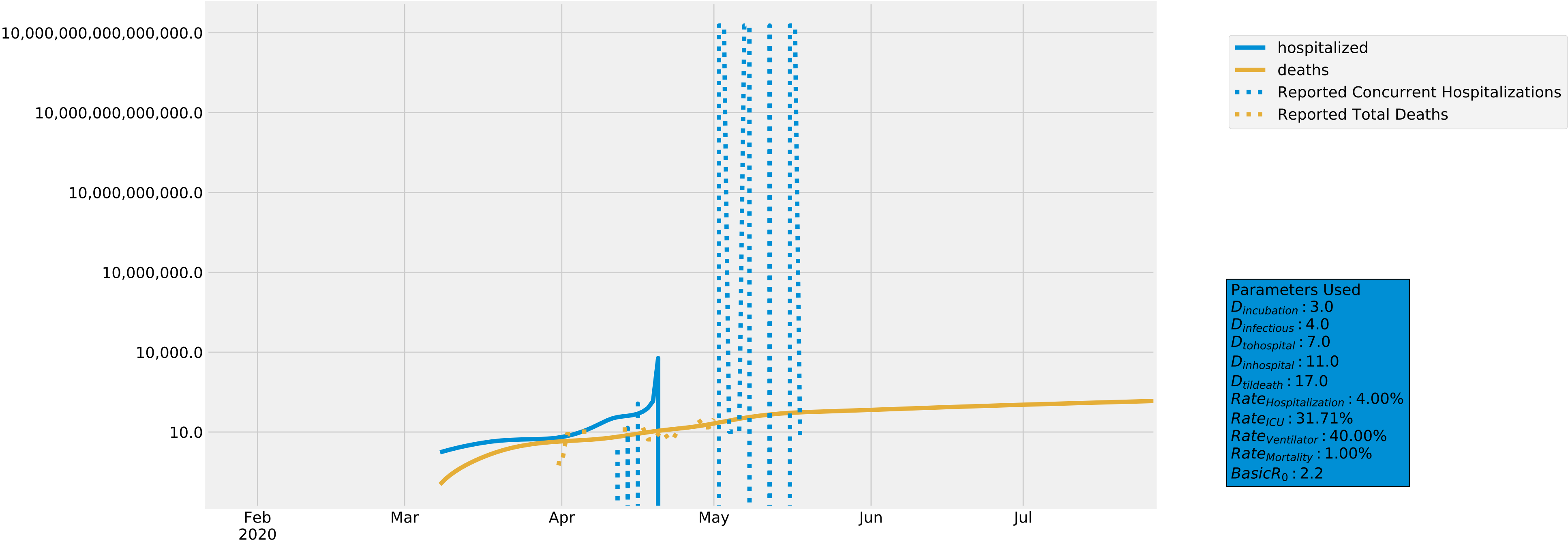Chart created on 19 May 2020

Doubling Rate Forecast
Montana: No Change in Future R_t Scenario

Legend:
- hospitalized
- deaths
- Reported Concurrent Hospitalizations
- Reported Total Deaths

Parameters Used
$D_{incubation} : 3.0$
$D_{infectious} : 4.0$
$D_{tohospital} : 7.0$
$D_{inhospital} : 11.0$
$D_{tildeath} : 17.0$
$Rate_{Hospitalization} : 4.00\%$
$Rate_{ICU} : 31.71\%$
$Rate_{Ventilator} : 40.00\%$
$Rate_{Mortality} : 1.00\%$
$BasicR_0 : 2.2$

Author: Michael Donnelly (twtr: @donnellymjd)
Chart created on 19 May 2020