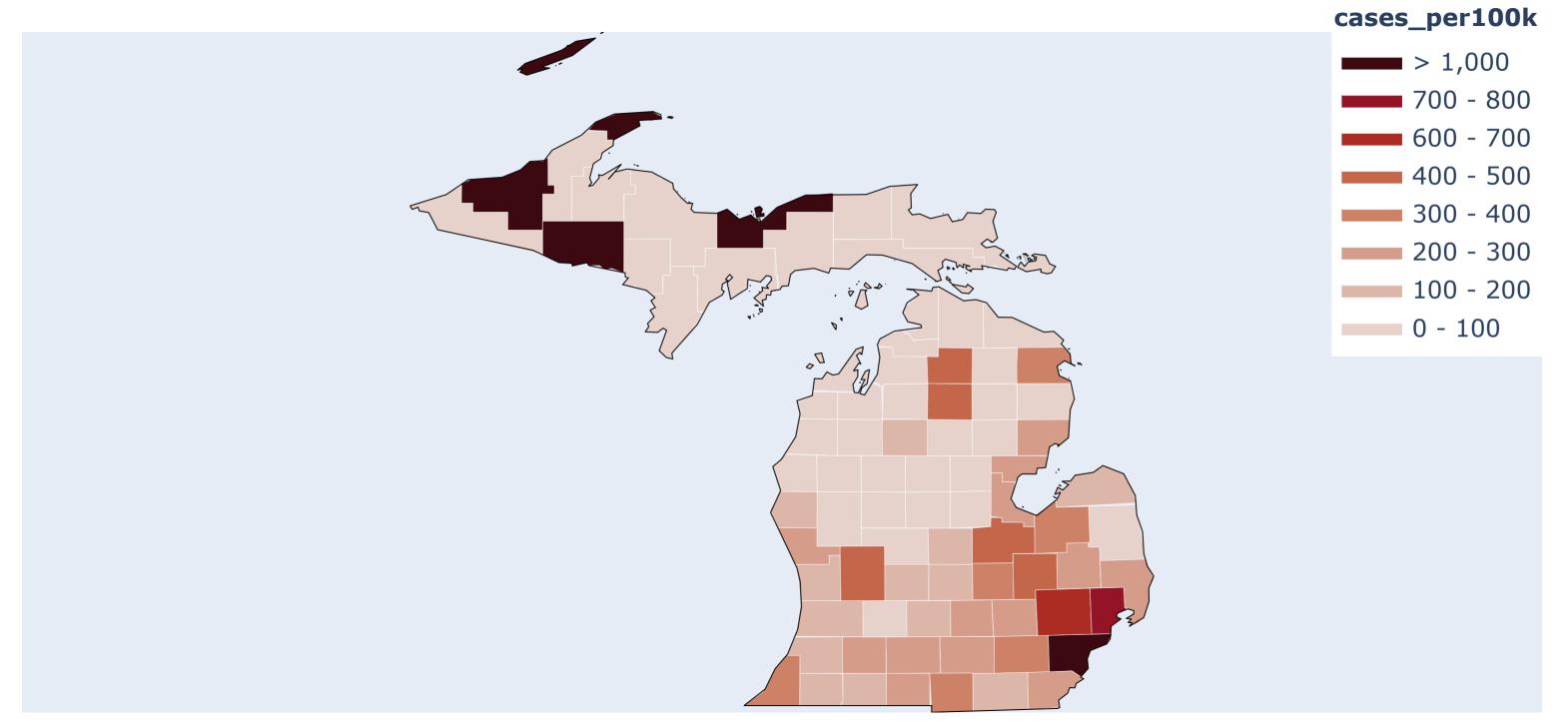
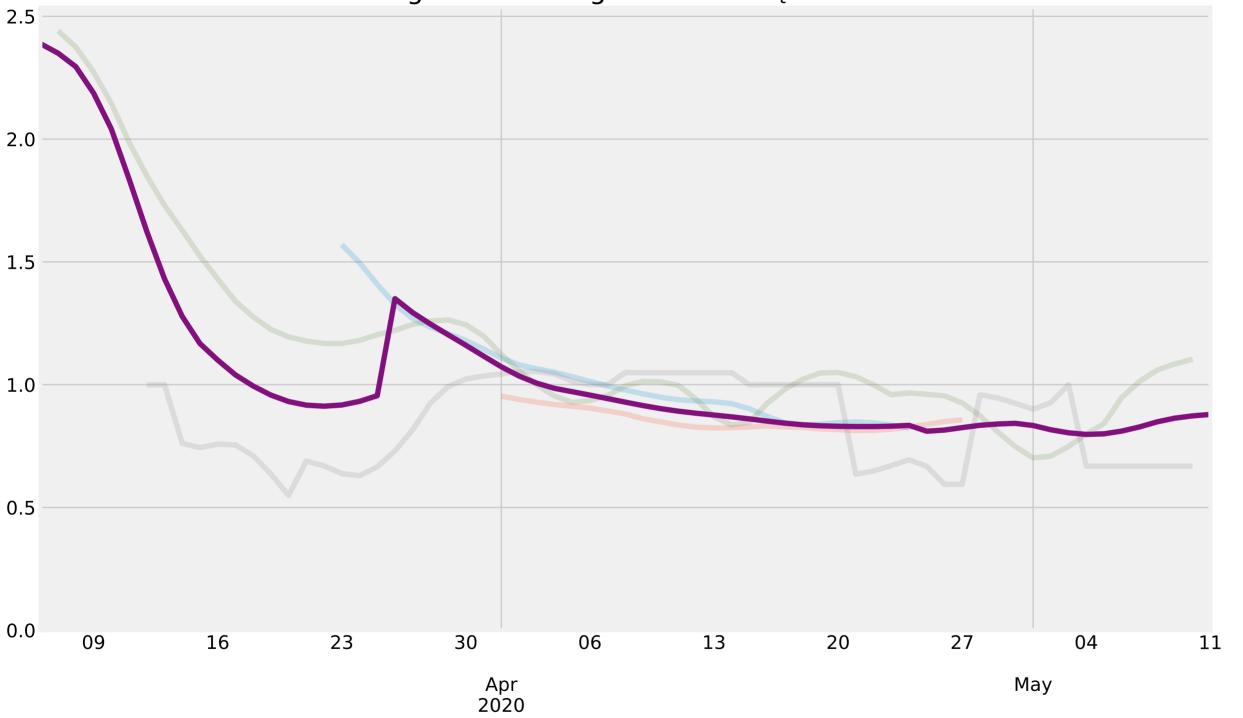
### Michigan: COVID-19 Cases Per 100k Residents



#### Reproduction Rate ( $R_t$ ) Estimates Michigan: No Change in Future $R_t$ Scenario



rt\_deaths\_daily
rt\_hosp\_concur
rt\_hosp\_admits
rt\_cases\_daily
rt\_pos\_test\_share\_daily
rt\_joint\_est

Parameters Used

 $D_{incubation}: 3.0$   $D_{infectious}: 4.0$  $D_{tohospital}: 7.0$ 

 $D_{inhospital}:11.0$ 

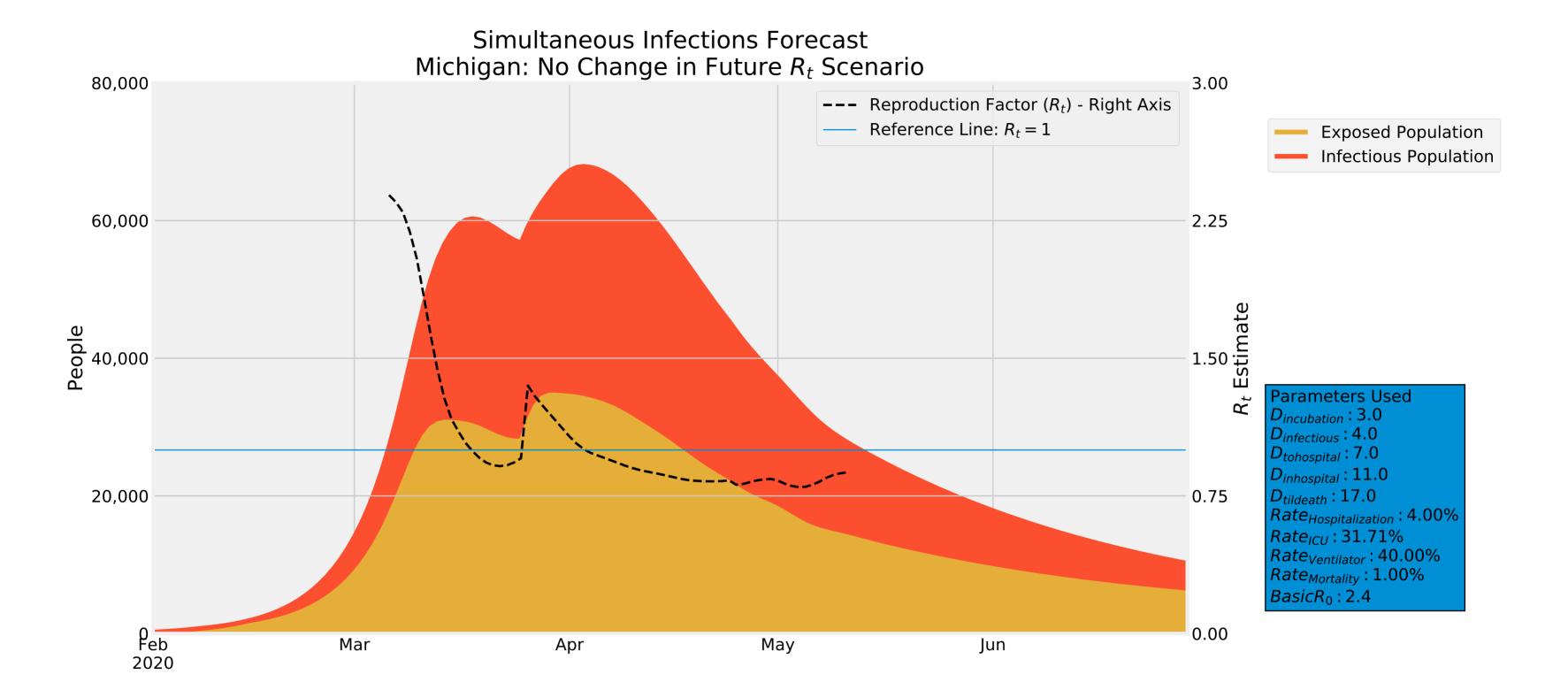
 $D_{tildeath}: 17.0$ 

 $Rate_{Hospitalization}: 4.00\%$ 

 $Rate_{ICU}$ : 31.71%  $Rate_{Ventilator}$ : 40.00%  $Rate_{Mortality}$ : 1.00%

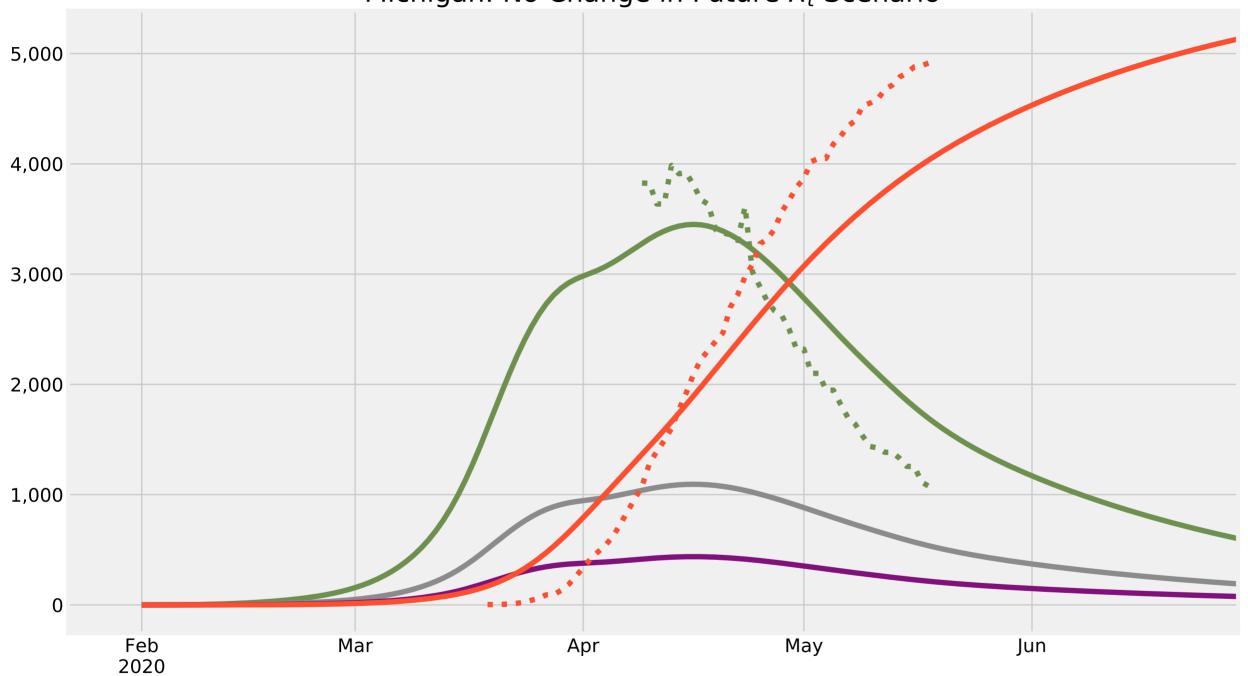
 $BasicR_0:2.4$ 

Author: Michael Donnelly (twtr: @donnellymjd)



Author: Michael Donnelly (twtr: @donnellymjd)

### Hospitalization and Deaths Forecast Michigan: No Change in Future $R_t$ Scenario



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<sub>Hospitalization</sub>: 4.00%

Rate<sub>ICU</sub>: 31.71%

Rate<sub>Ventilator</sub>: 40.00% Rate<sub>Mortality</sub>: 1.00%

 $BasicR_0: 2.4$ 

Author: Michael Donnelly (twtr: @donnellymjd)

Population Overview Forecast Michigan: No Change in Future  $R_t$  Scenario 100% 9,986,857 Forecast Susceptible Population Forecast Deaths Forecast Exposures Forecast Hospitalizations 7,490,143 75% Forecast Infectious Forecast Recoveries Population 4,993,429 50% Parameters Used  $D_{incubation}: 3.0$ D<sub>infectious</sub>: 4.0  $D_{tohospital}: 7.0$  $D_{inhospital}: 11.0$ 2,496,714 25%  $D_{tildeath}: 17.0$ Rate<sub>Hospitalization</sub>: 4.00% Rate<sub>ICU</sub>: 31.71% Rate<sub>Ventilator</sub>: 40.00% Rate<sub>Mortality</sub>: 1.00%  $BasicR_0: 2.4$ 

May

Mar

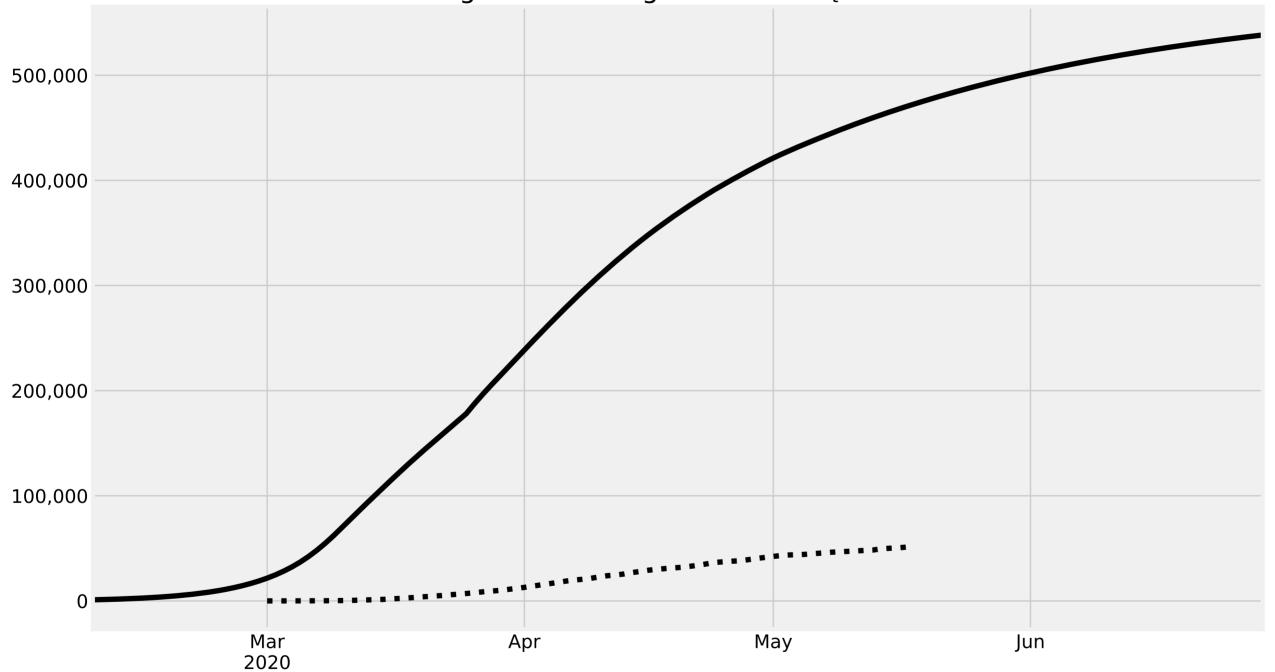
2020

Apr

0%

Jun

#### **Cumulative Infections Forecast** Michigan: No Change in Future $R_t$ Scenario



Forecast Cumulative Infections

Reported Cumulative Infections

Parameters Used

 $D_{incubation}$ : 3.0  $D_{infectious}$ : 4.0  $D_{tohospital}$ : 7.0

D<sub>inhospital</sub>: 11.0

 $D_{tildeath}: 17.0$ 

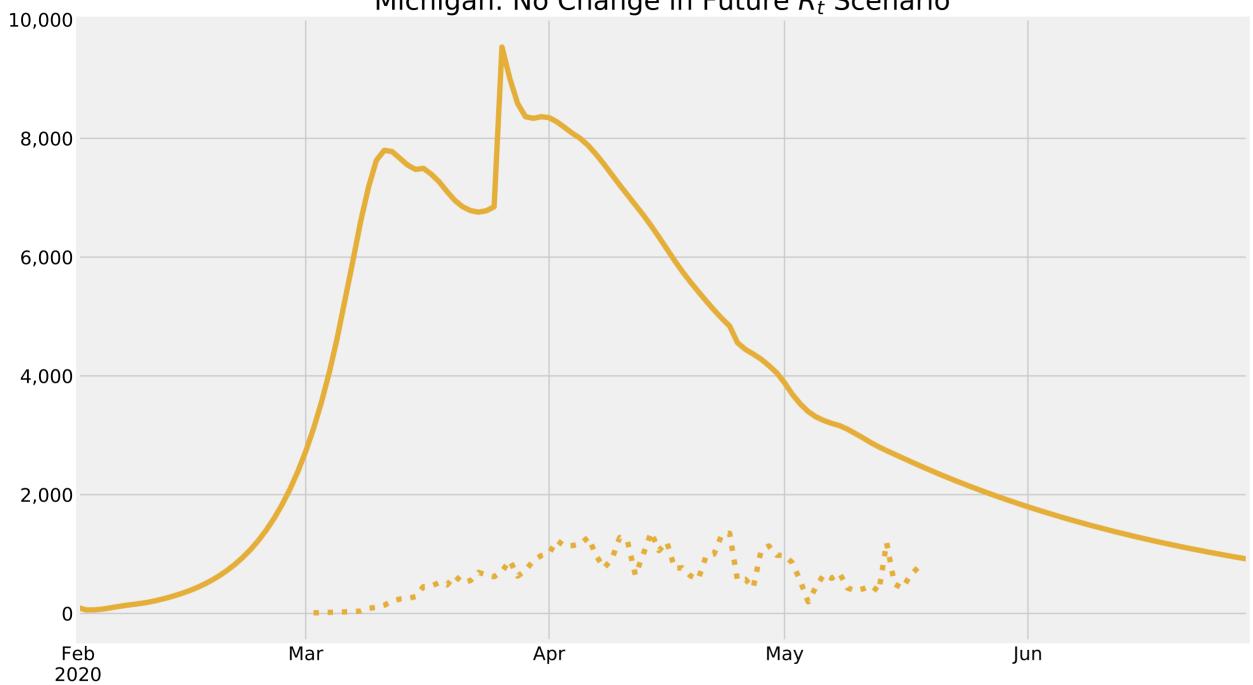
 $Rate_{Hospitalization}: 4.00\%$ 

Rate<sub>ICU</sub>: 31.71% Rate<sub>Ventilator</sub>: 40.00% Rate<sub>Mortality</sub>: 1.00%

 $BasicR_0: 2.4$ 

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

## Daily Exposures Forecast Michigan: No Change in Future $R_t$ Scenario



Forecast Daily New Infections (Exposed) Reported Daily New Infections (Exposed)

Parameters Used

*D*<sub>incubation</sub>: 3.0

D<sub>infectious</sub>: 4.0 D<sub>tohospital</sub>: 7.0

 $D_{inhospital}: 11.0$ 

 $D_{tildeath}: 17.0$ 

Rate<sub>Hospitalization</sub>: 4.00%

Rate<sub>ICU</sub>: 31.71%

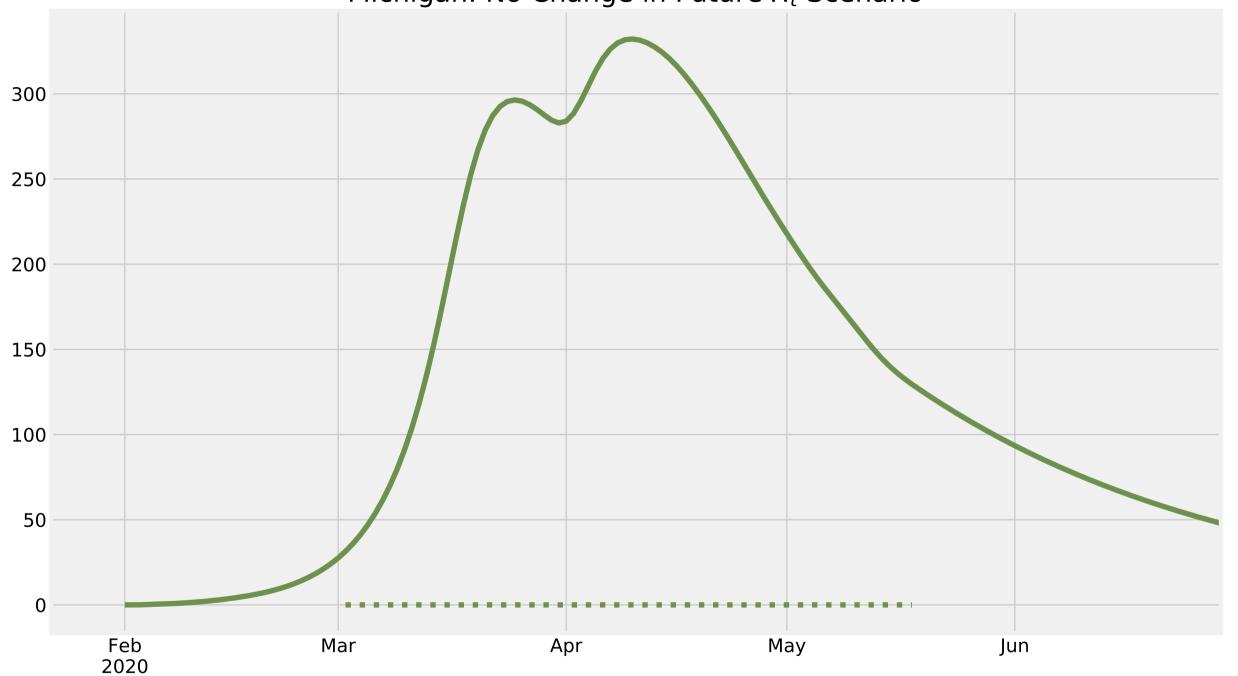
Rate<sub>Ventilator</sub>: 40.00%

Rate<sub>Mortality</sub>: 1.00%

 $BasicR_0: 2.4$ 

Author: Michael Donnelly (twtr: @donnellymjd)

Daily Hospital Admissions Forecast Michigan: No Change in Future  $R_t$  Scenario



Forecast Hospital AdmissionsReported Hospital Admissions

Parameters Used

 $D_{incubation}: 3.0$ 

 $D_{infectious}$ : 4.0  $D_{tohospital}$ : 7.0

D<sub>inhospital</sub>: 11.0

 $D_{tildeath}: 17.0$ 

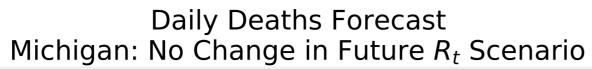
 $Rate_{Hospitalization}: 4.00\%$ 

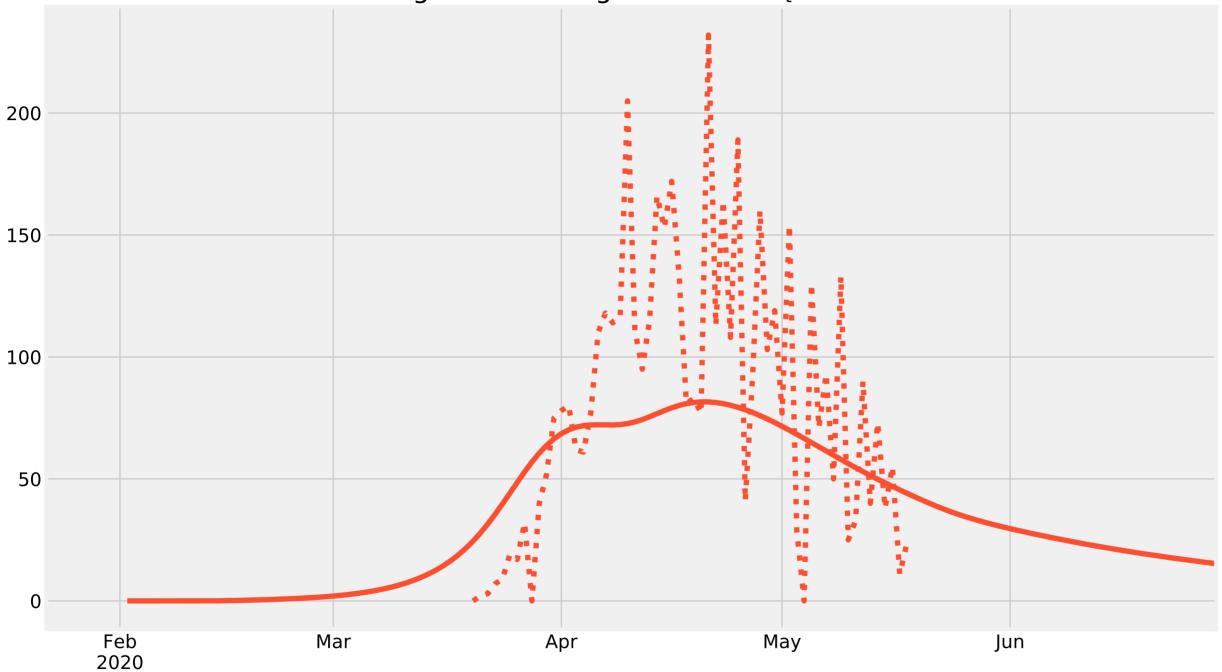
Rate<sub>ICU</sub>: 31.71%

 $Rate_{Ventilator}$ : 40.00%  $Rate_{Mortality}$ : 1.00%

 $BasicR_0: 2.4$ 

Author: Michael Donnelly (twtr: @donnellymjd)





Forecast Daily DeathsReported Daily Deaths

Parameters Used

 $D_{incubation}: 3.0$ 

 $D_{infectious}$ : 4.0  $D_{tohospital}$ : 7.0

D<sub>inhospital</sub>: 11.0

 $D_{tildeath}: 17.0$ 

Rate<sub>Hospitalization</sub>: 4.00%

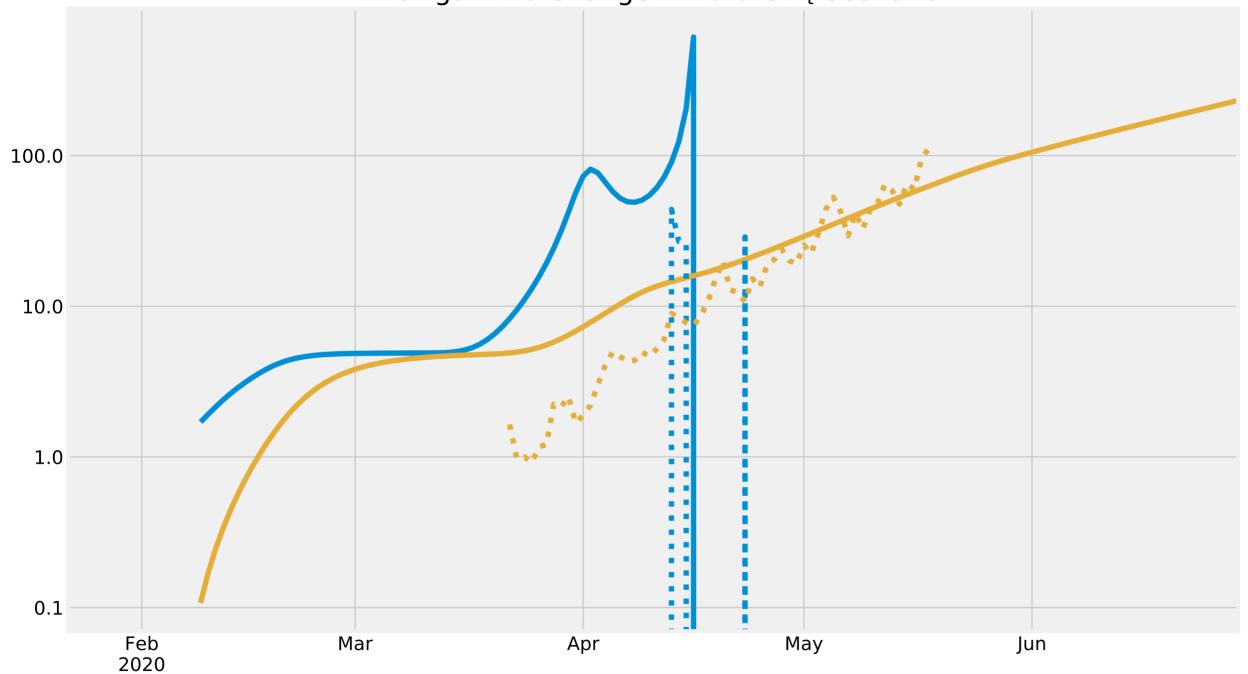
Rate<sub>ICU</sub>: 31.71%

 $Rate_{Ventilator}$ : 40.00%  $Rate_{Mortality}$ : 1.00%

 $BasicR_0: 2.4$ 

Author: Michael Donnelly (twtr: @donnellymjd)

# Doubling Rate Forecast Michigan: No Change in Future $R_t$ Scenario



hospitalized

deaths

• • • Reported Concurrent Hospitalizations

Reported Total Deaths

Parameters Used

 $D_{incubation}$ : 3.0  $D_{infectious}$ : 4.0  $D_{tohospital}$ : 7.0

D<sub>inhospital</sub>: 11.0

D<sub>tildeath</sub>: 17.0

 $Rate_{Hospitalization}: 4.00\%$ 

Rate<sub>ICU</sub>: 31.71% Rate<sub>Ventilator</sub>: 40.00% Rate<sub>Mortality</sub>: 1.00%

 $BasicR_0: 2.4$ 

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