

# Bahamas Covid Report

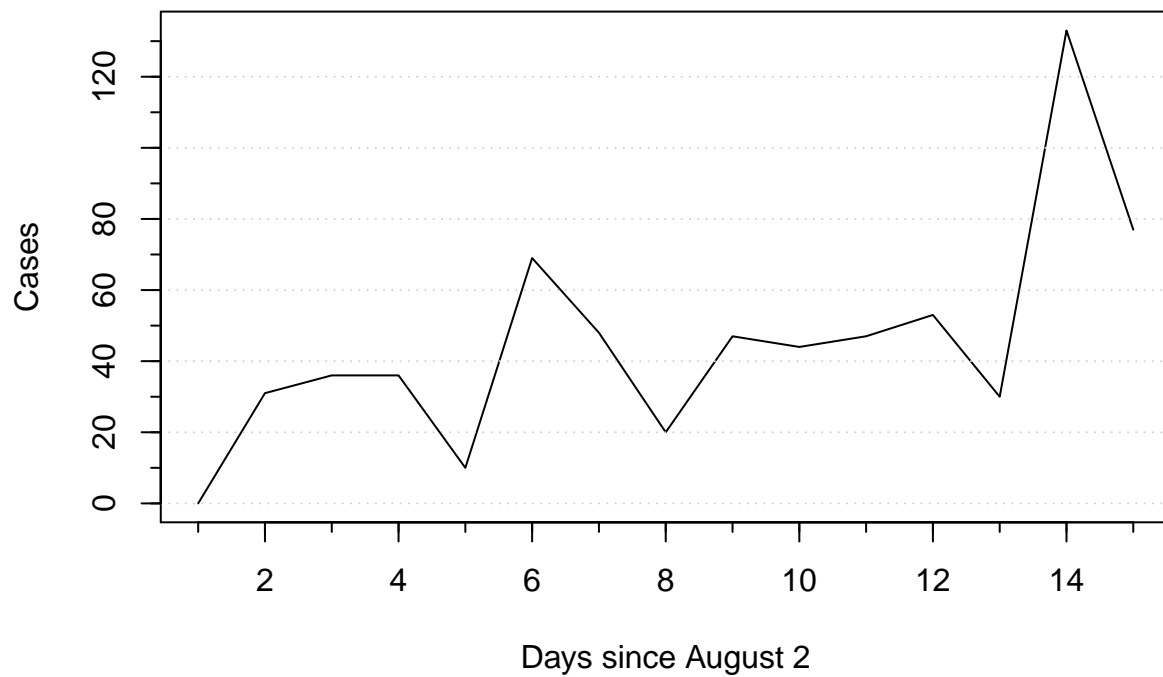
Chris Andino

8/18/2020

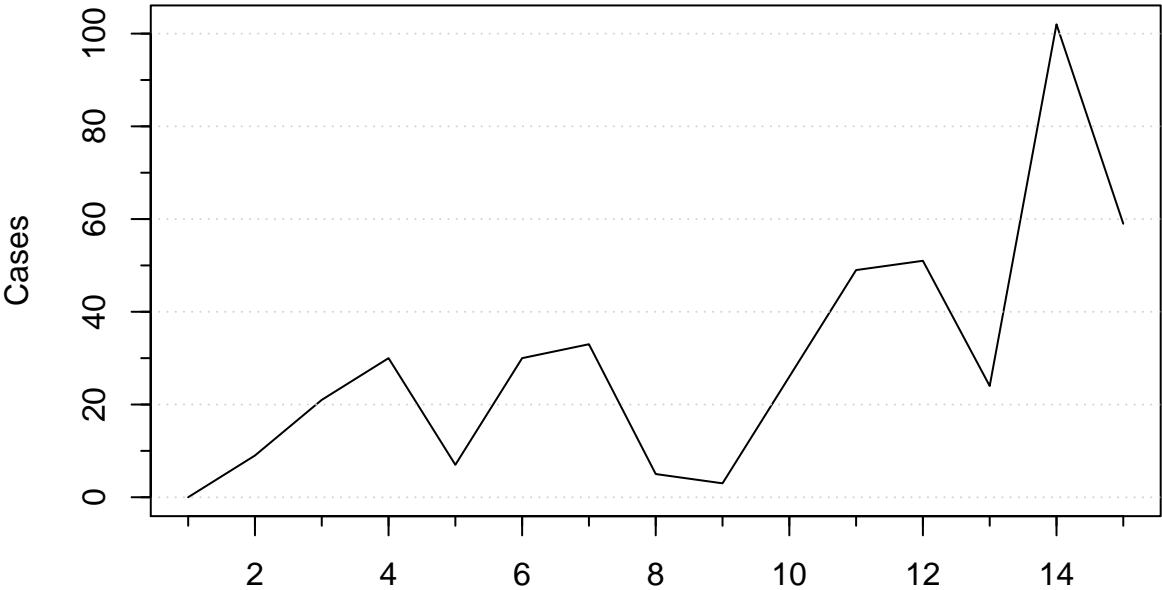
## New Cases

The following graphs show the overall epidemiological curves in the localities:

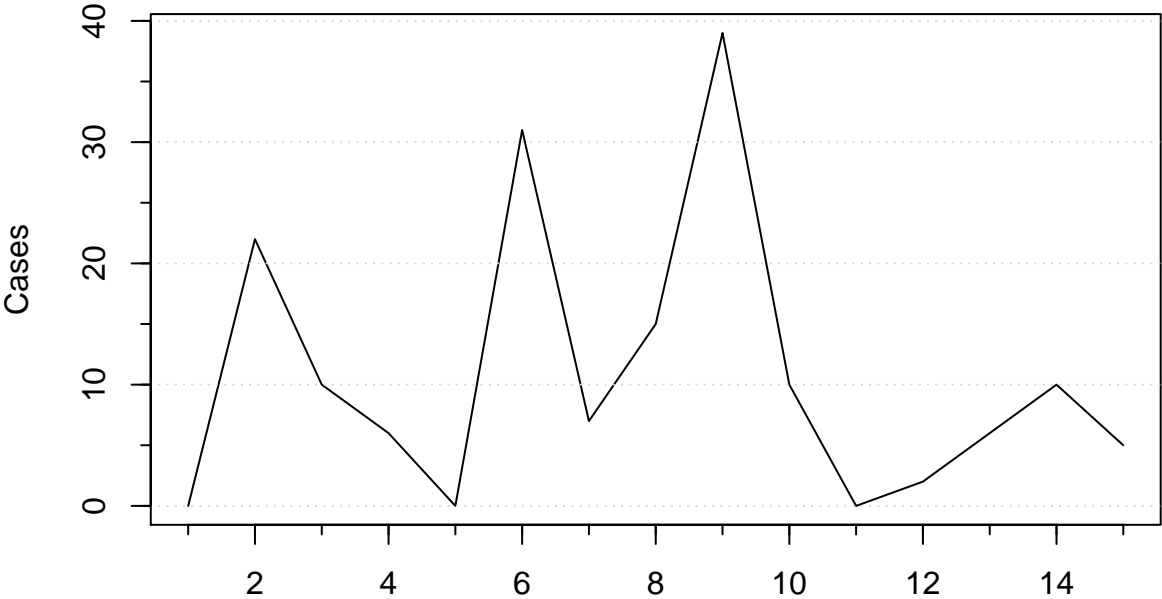
### Daily new cases, National



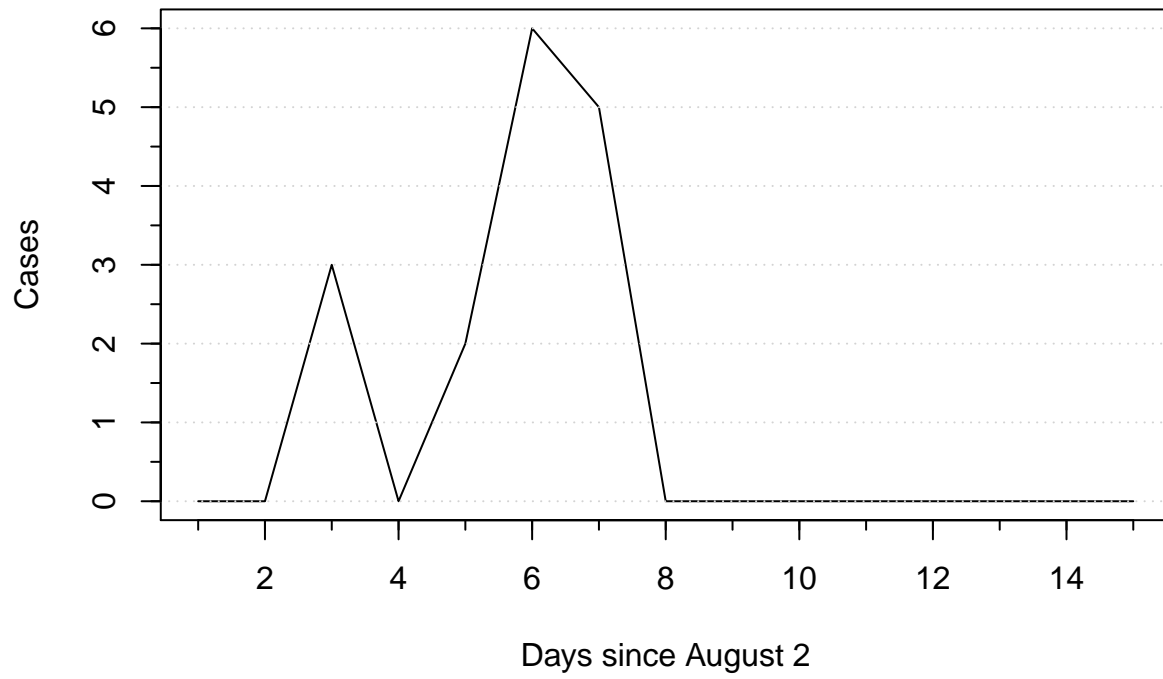
Daily new cases, New Providence



Days since August 2  
Daily new cases, Grand Bahama



**Daily new cases, Bimini**



## Log graphs

The following graphs are generated by:

$$x = \text{Number of Days since August 2}$$

$$y = \log(\text{Number of New Cases this day})$$

The regression line is drawn using the R “lm()” function over the x values.

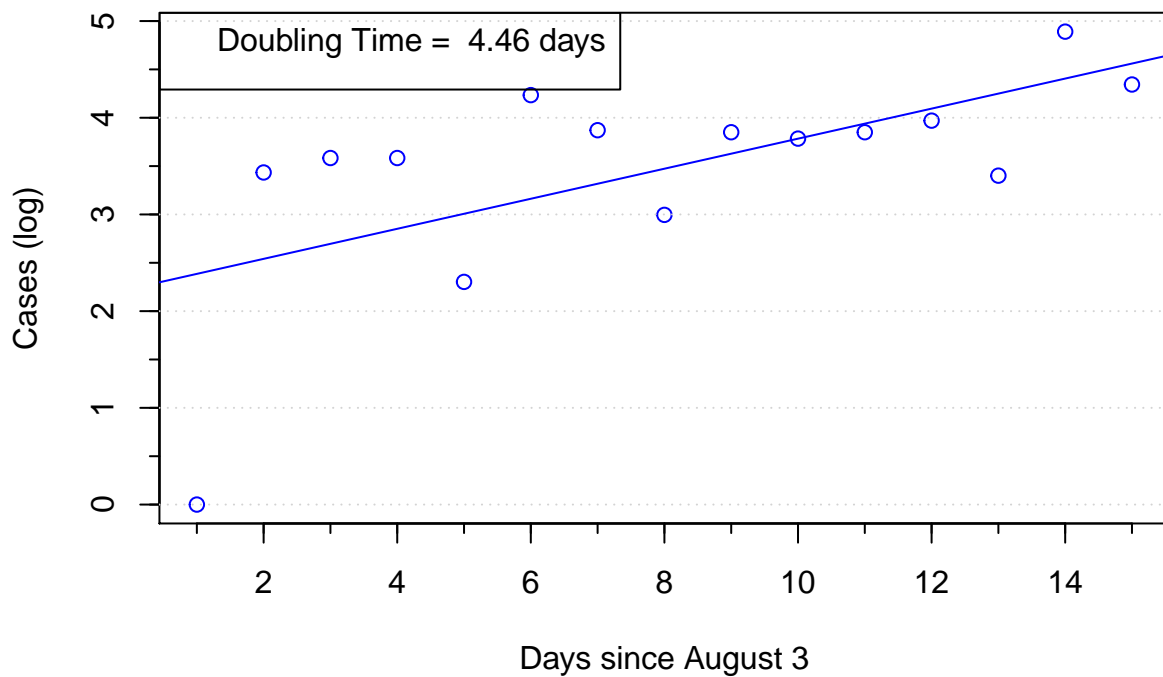
R0 can be estimated from the slope of the regression line:

$$y = a + bx$$

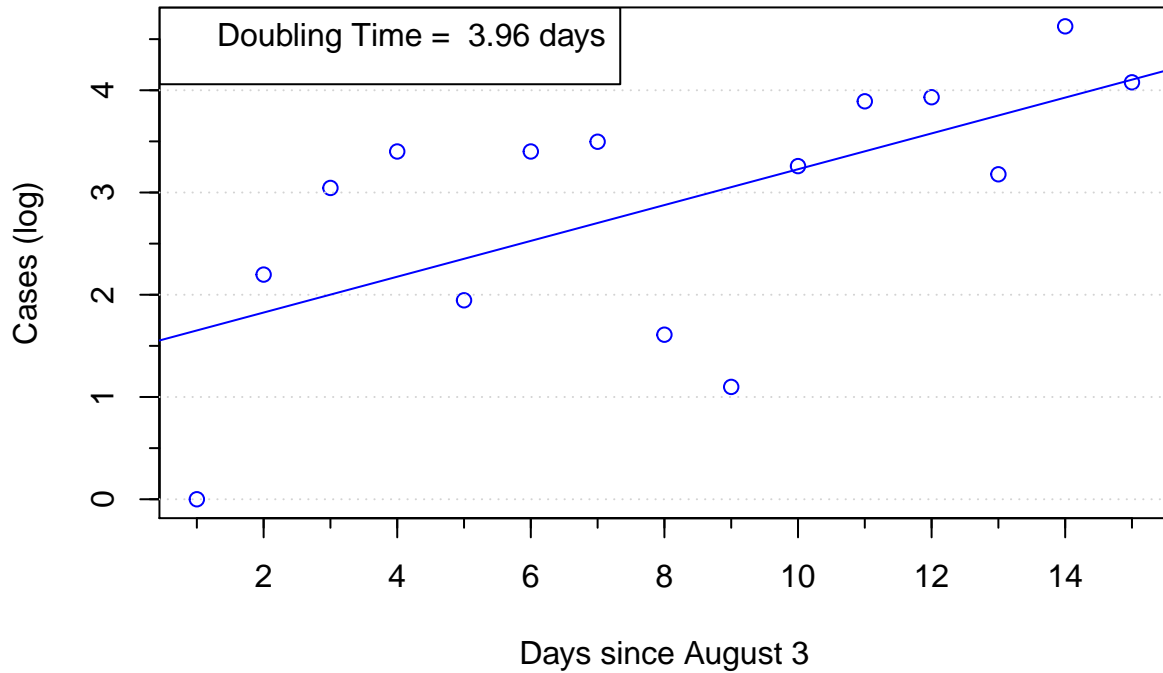
$$dt = \log(2)/b$$

Dot plots above the regression line are days where the doubling time is decreasing, that is, the spread of the disease is accelerating. Days below the line, the doubling time is decreasing, meaning case growth is slowing. A negative doubling time means that there are fewer new cases (i.e. a downward trend in infections).

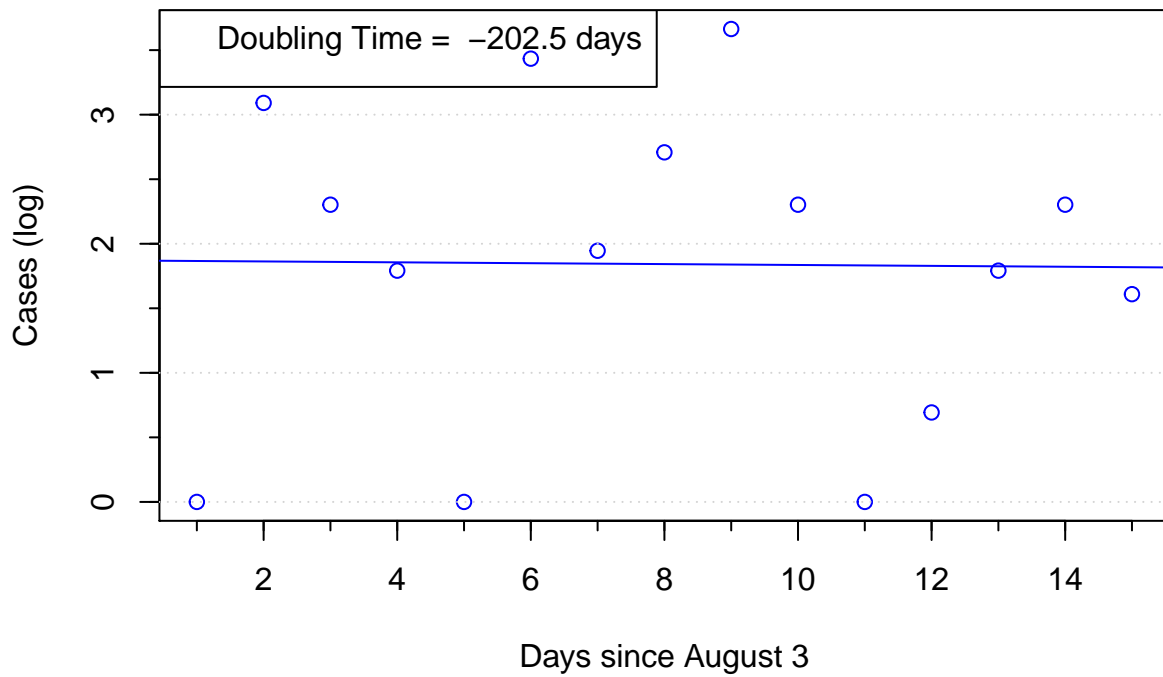
### New cases (log scale), National



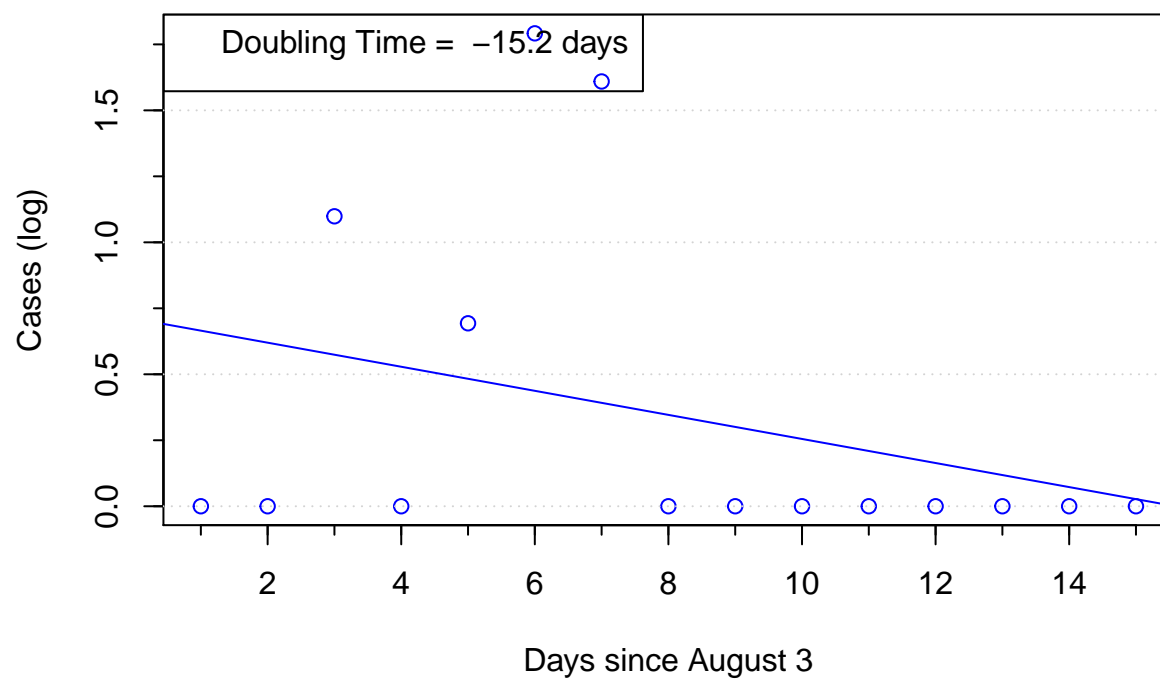
### New cases (log scale), New Providence



### New cases (log scale), Grand Bahama



### New cases (log scale), Bimini



## R0 over time

These graphs rely heavily on the EpiTrix, EpiEstim, and incidence modules in R.

The following data on serial incidence are drawn from a meta analysis of COVID-19: <https://doi.org/10.1002/jmv.26041>

$$\mu = 5.08 \text{ days}$$

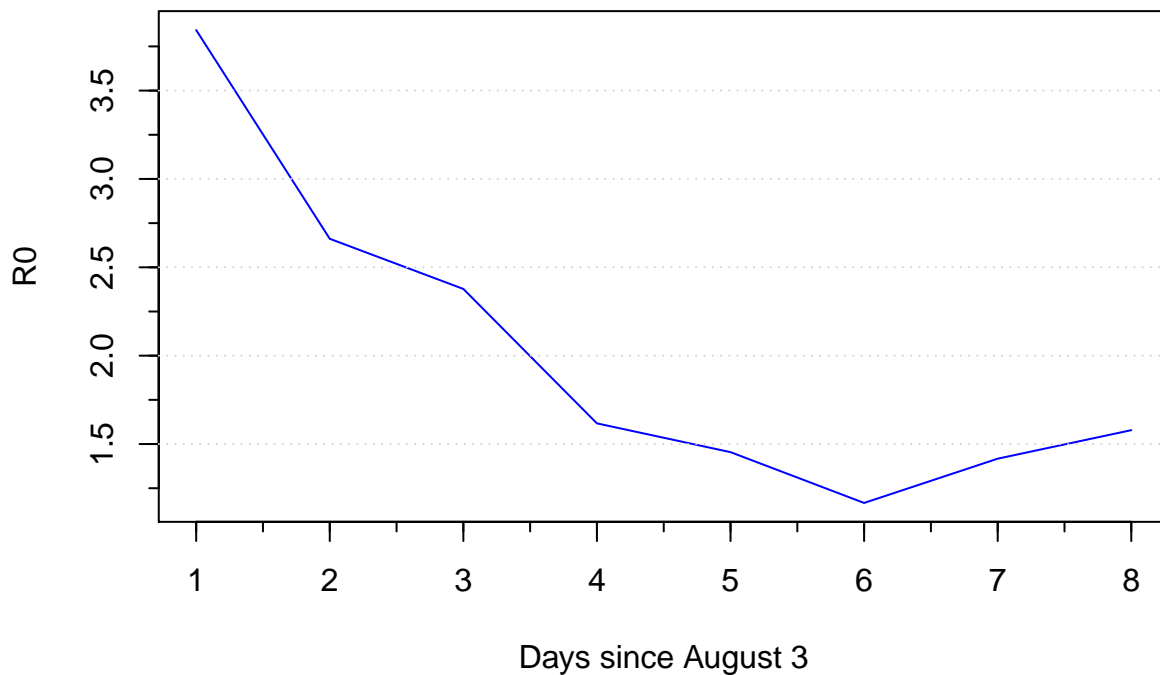
$$\sigma = .18$$

A gamma distribution is created programatically, and the `estimate_R` function is run against incidence objects containing the new cases reported each day.

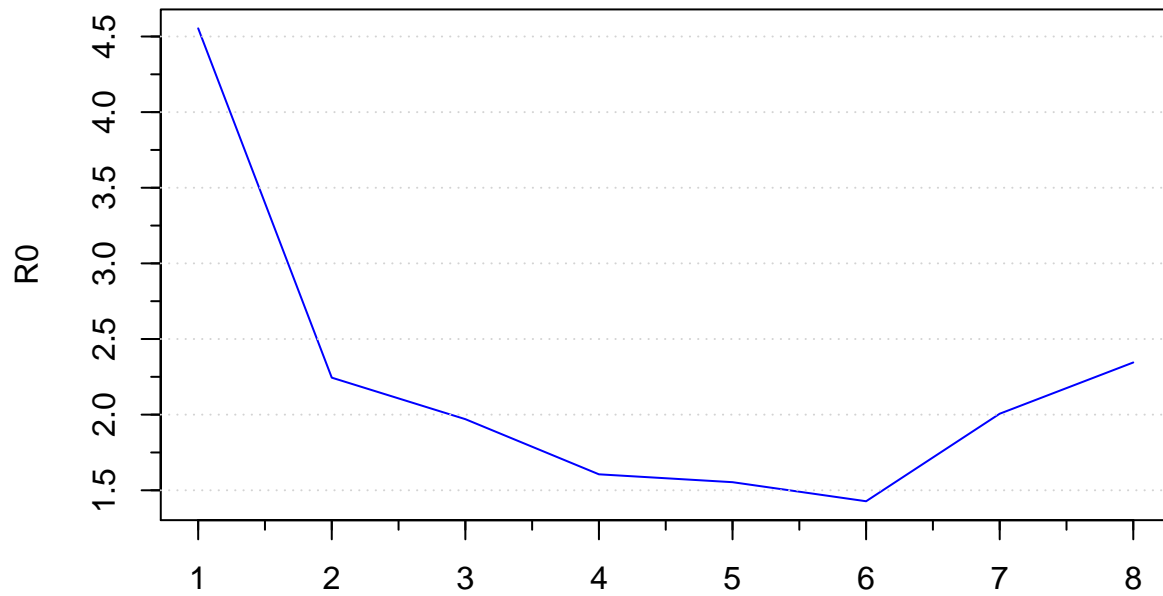
The function automatically takes a 7-day rolling window, and initial values are exceedingly high. In general, then, this should only be used to get a rough idea of the approximate rate of transmission about a week ago.

NOTE: There is simply not enough data for these to be good estimates at the island level. Additional data at the national level may be of some use.

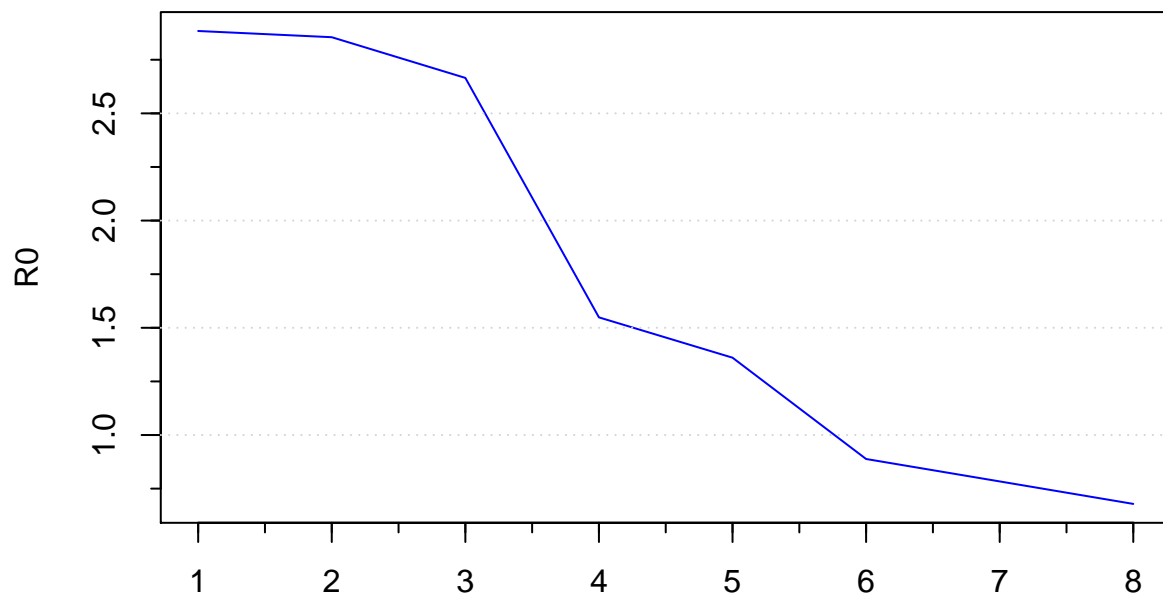
### R0 over time, National



**R0 over time, New Providence**



Days since August 3  
**R0 over time, Grand Bahama**





**R0 over time, Bimini**

