

Covid plots for family

April 03, 2020

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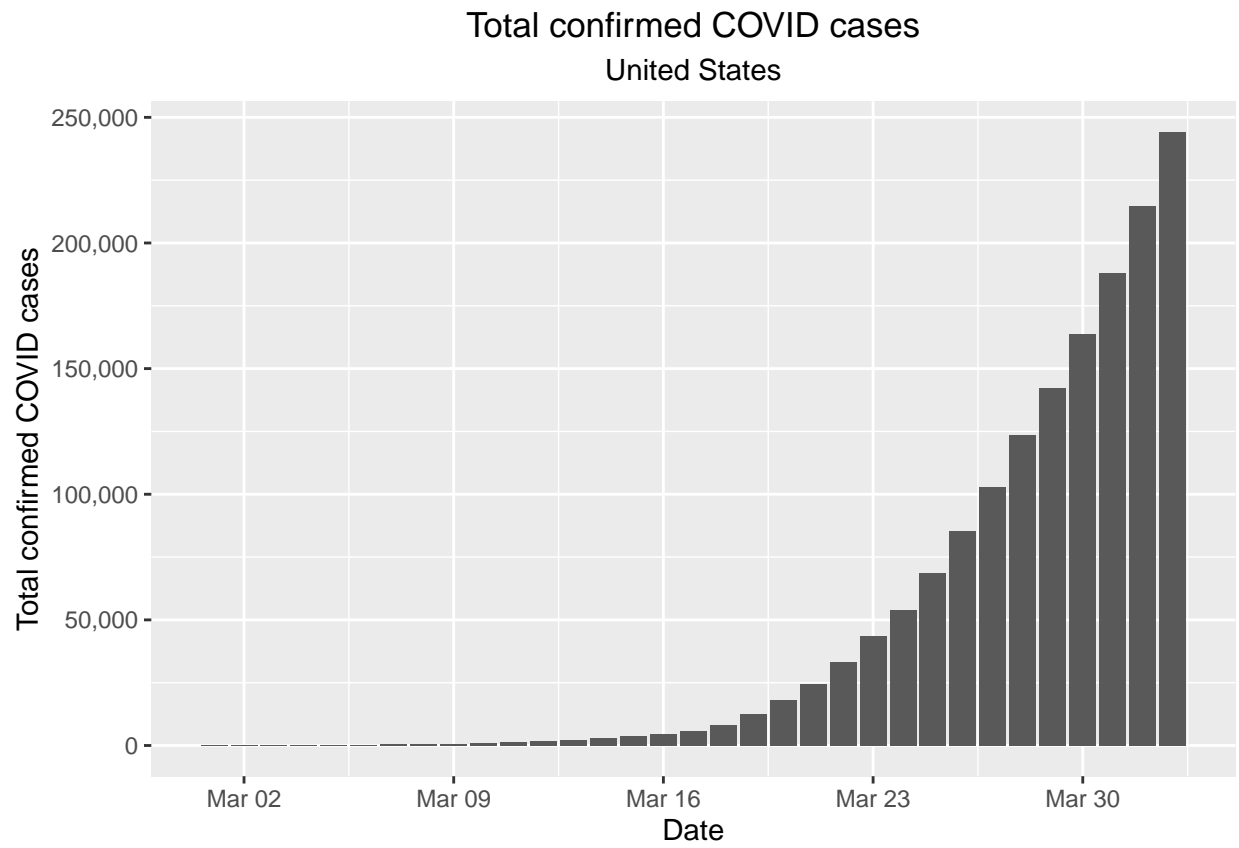
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Background

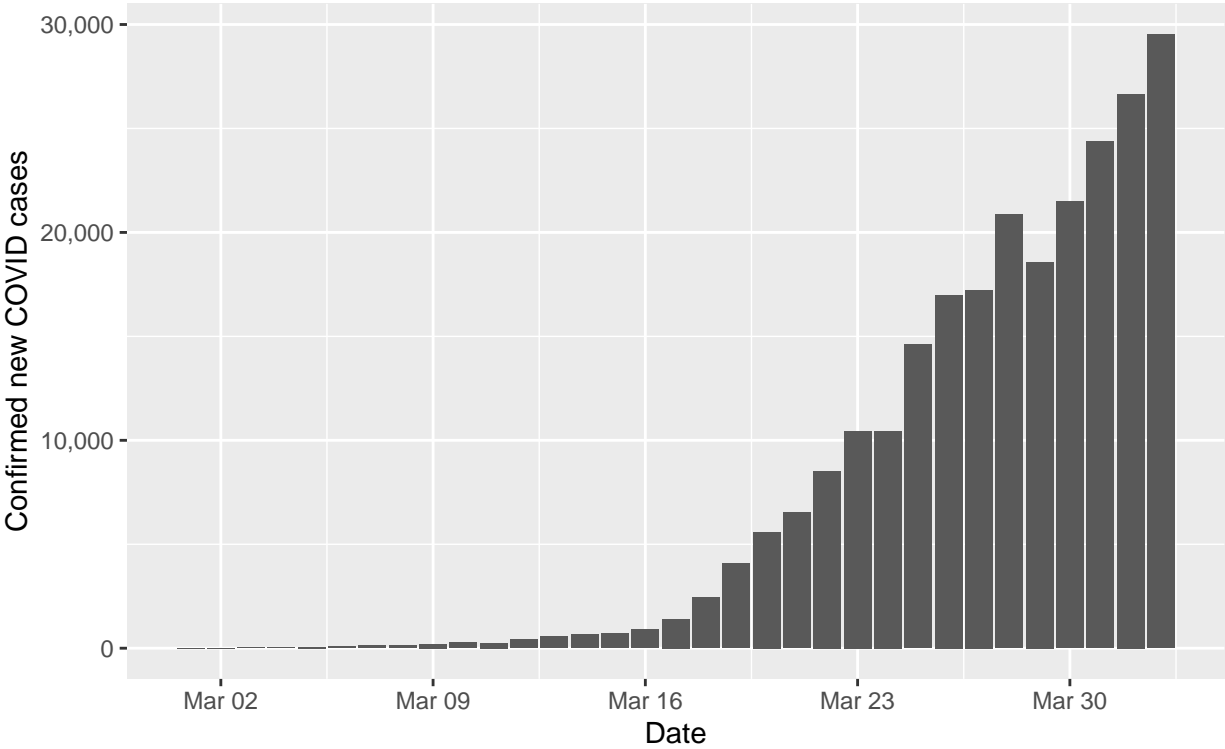
- This page shows COVID data broken down into regions that affect our family. It pulls from publicly available raw data from the NY Times, which is reported daily. It's on a one-day lag, so when you see this report, the most recent day included will be the day prior.
- The page is mostly organized by geography: It starts by showing data for all of the U.S., followed by our respective states, followed by our respective counties.
- Within each geography, it shows several plots:
 - Total confirmed cases: This is the cumulative total of cases reported.
 - New confirmed cases: This is the number of new cases reported on each respective date.
 - Rolling 3-day case growth rate: This is the average daily growth rate in total cases over the previous 3 days. For instance, if it is 100%, then that means total cases are doubling every 3 days. (This isn't shown at the county level because the sample size is too small.)
 - Total deaths: This is the cumulative total of deaths reported
 - New deaths: This is the number of new deaths reported on each respective date
 - Rolling 3-day death growth rate: This is the average daily growth rate in total deaths over the previous 3 days. For instance, if it is 100%, then that means total deaths are doubling every 3 days. (This isn't shown at the county level because the sample size is too small.)
- Besides this data for each geography, it also includes some additional plots at the end:
 - It shows tables of both total cases and deaths *per million residents* for all states, and then a graph of trends of these numbers for the top 10 states (only using 10 in the graph so it's not too crowded). Showing the numbers per million helps normalize for the size of the states when looking at totals.
 - It then shows these same tables and plots for cases and deaths, but with new cases/deaths per million residents instead of total cases/deaths per million. This section uses a rolling 3-day average of new cases/deaths.
 - Finally, it shows the same rolling 3-day average of new cases per million residents, but broken out by states that have enacted stay-at-home orders and when the orders were enacted.

United States

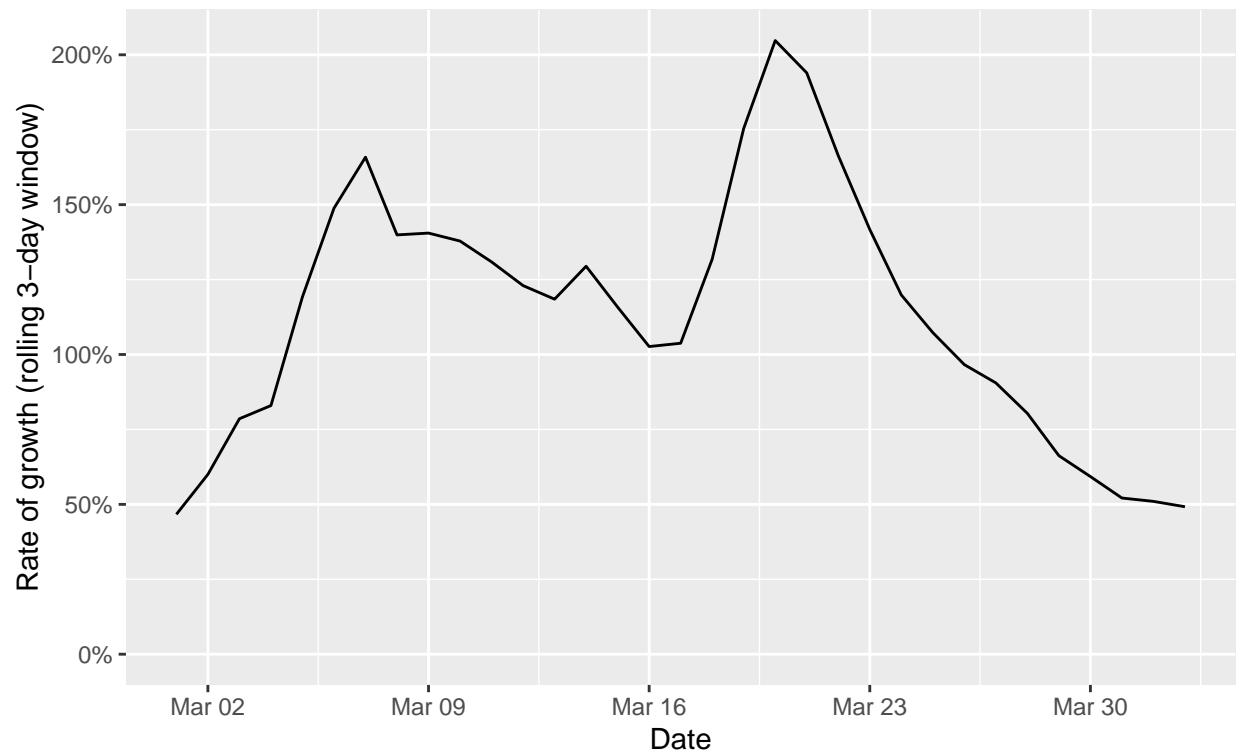
Confirmed cases



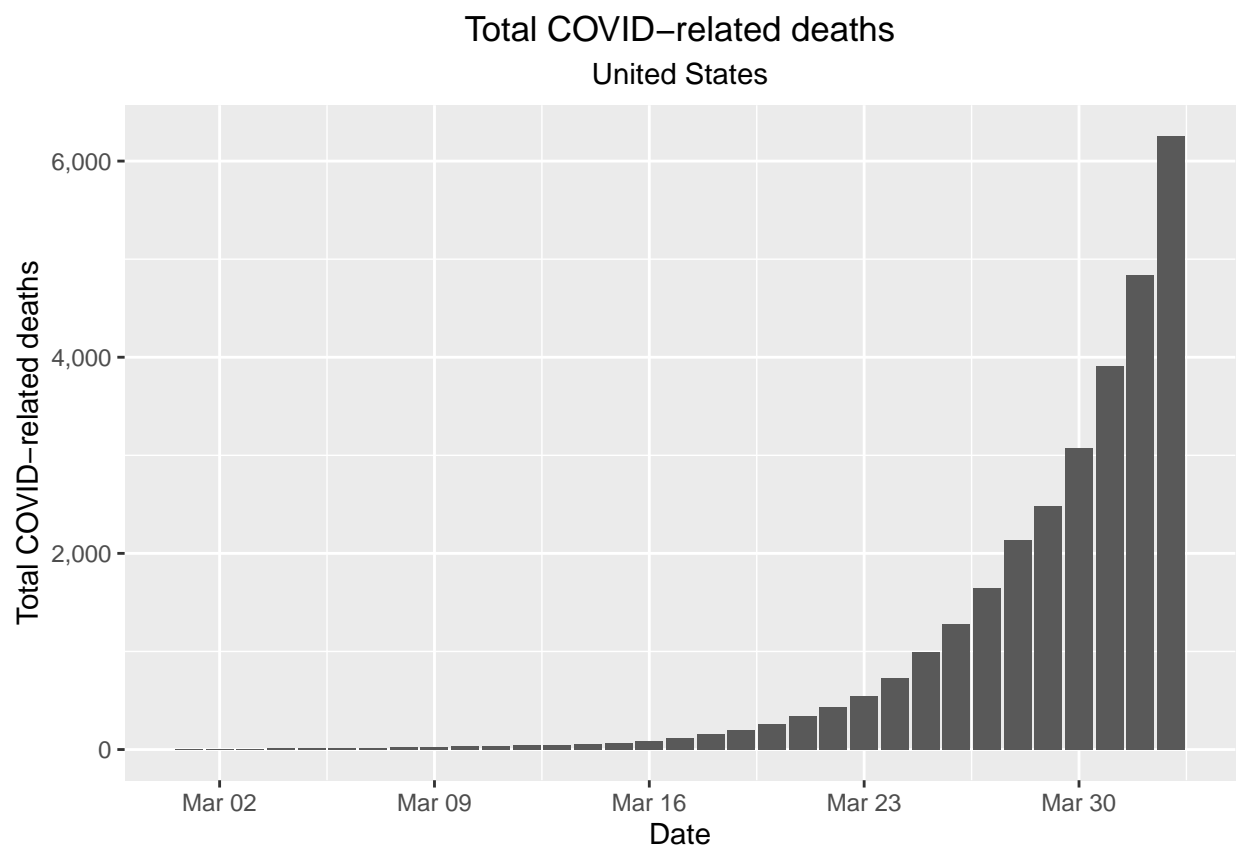
Confirmed new COVID cases by day
United States



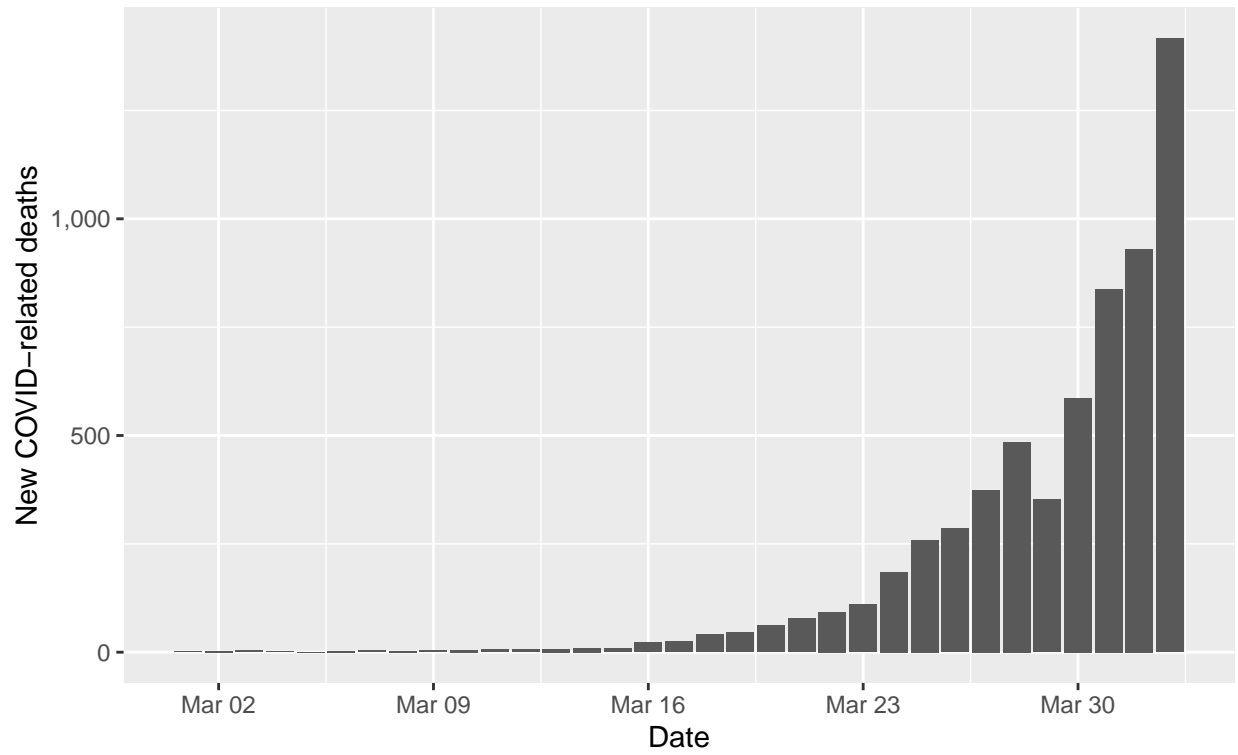
Rolling 3-day rate of growth: Total confirmed COVID cases
United States



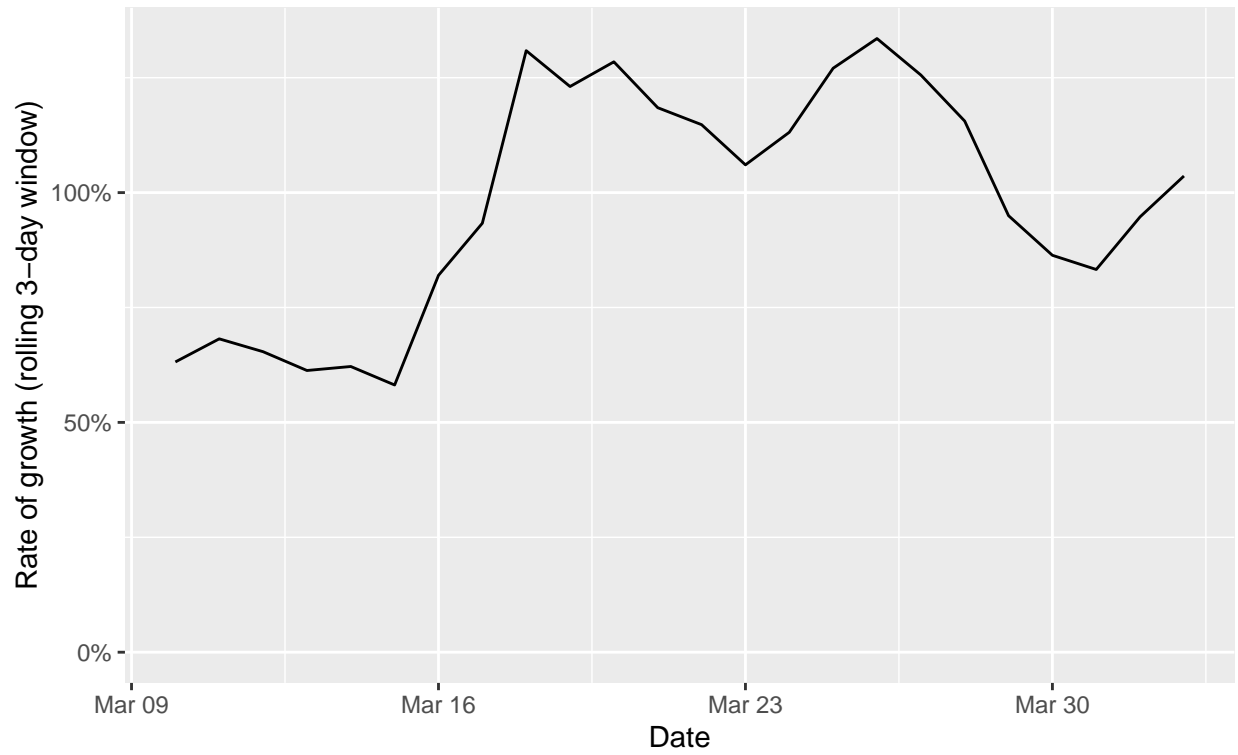
Deaths



New COVID-related deaths by day
United States

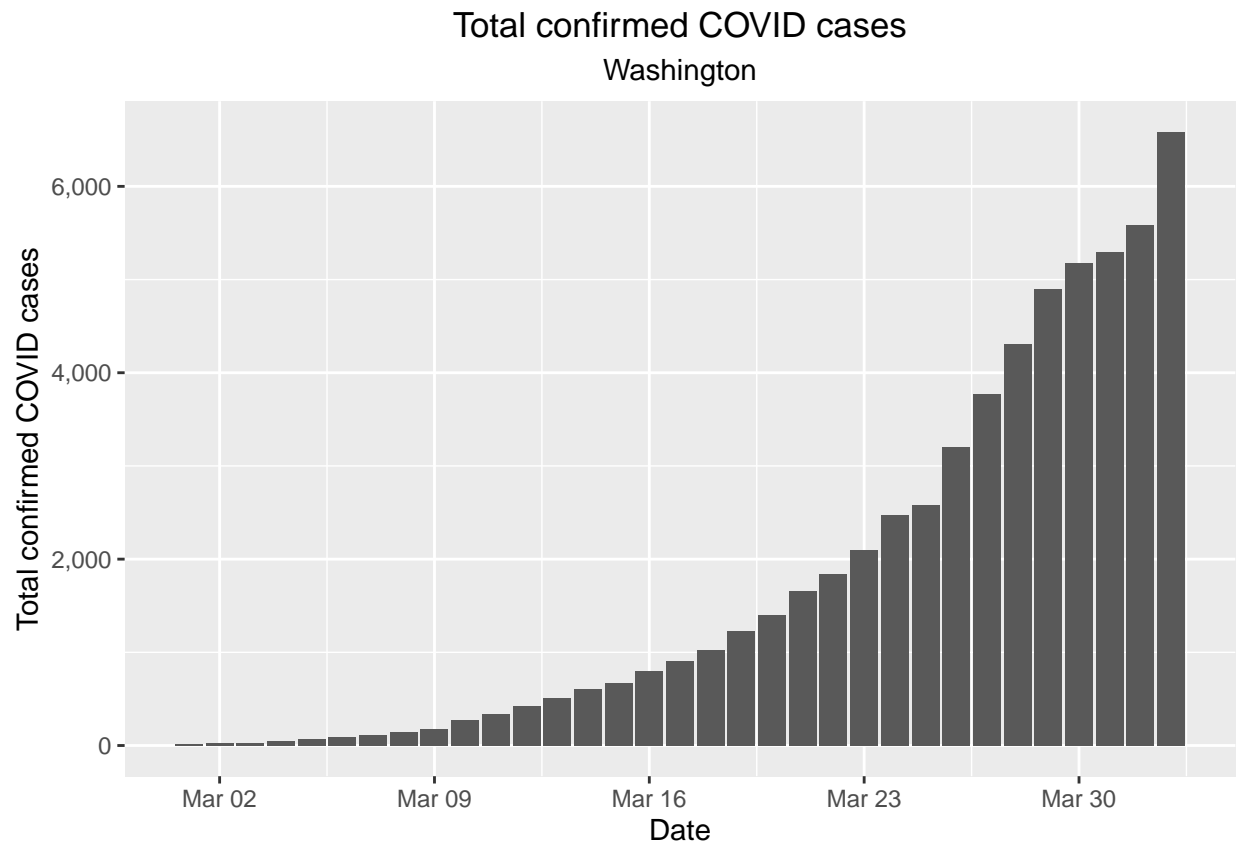


Rolling 3-day rate of growth: Total COVID-related deaths
United States

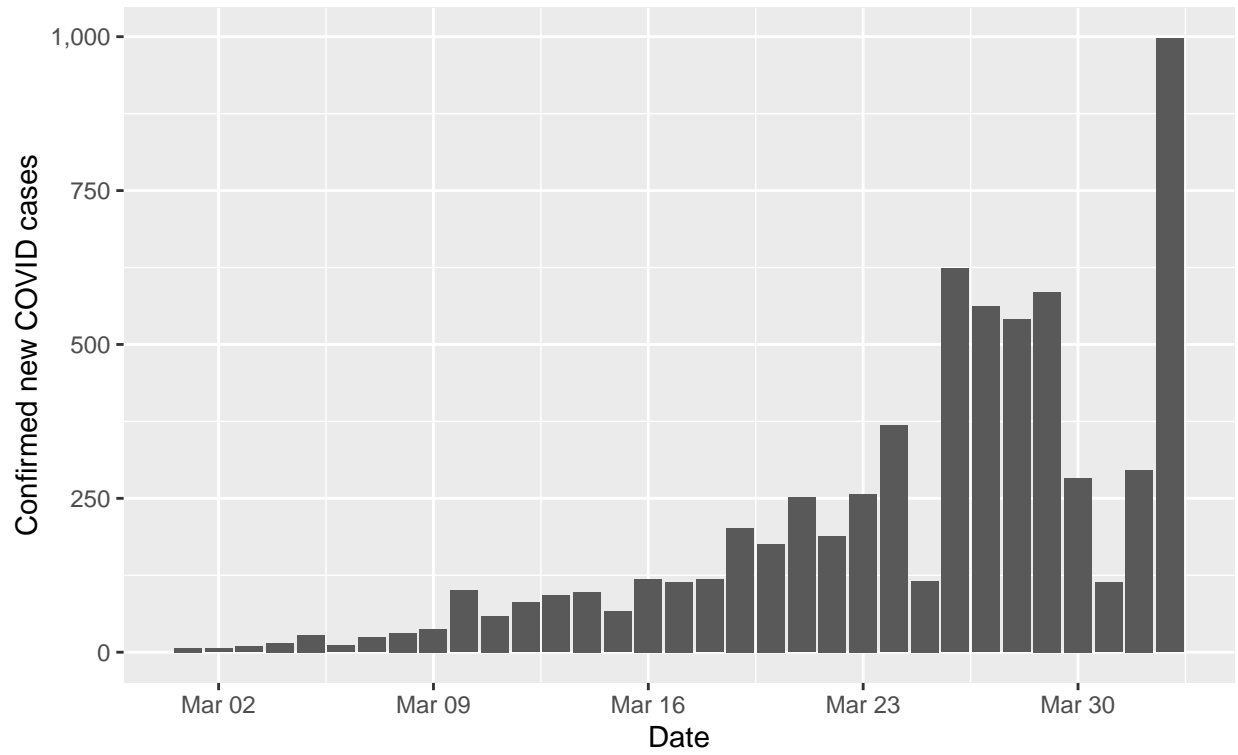


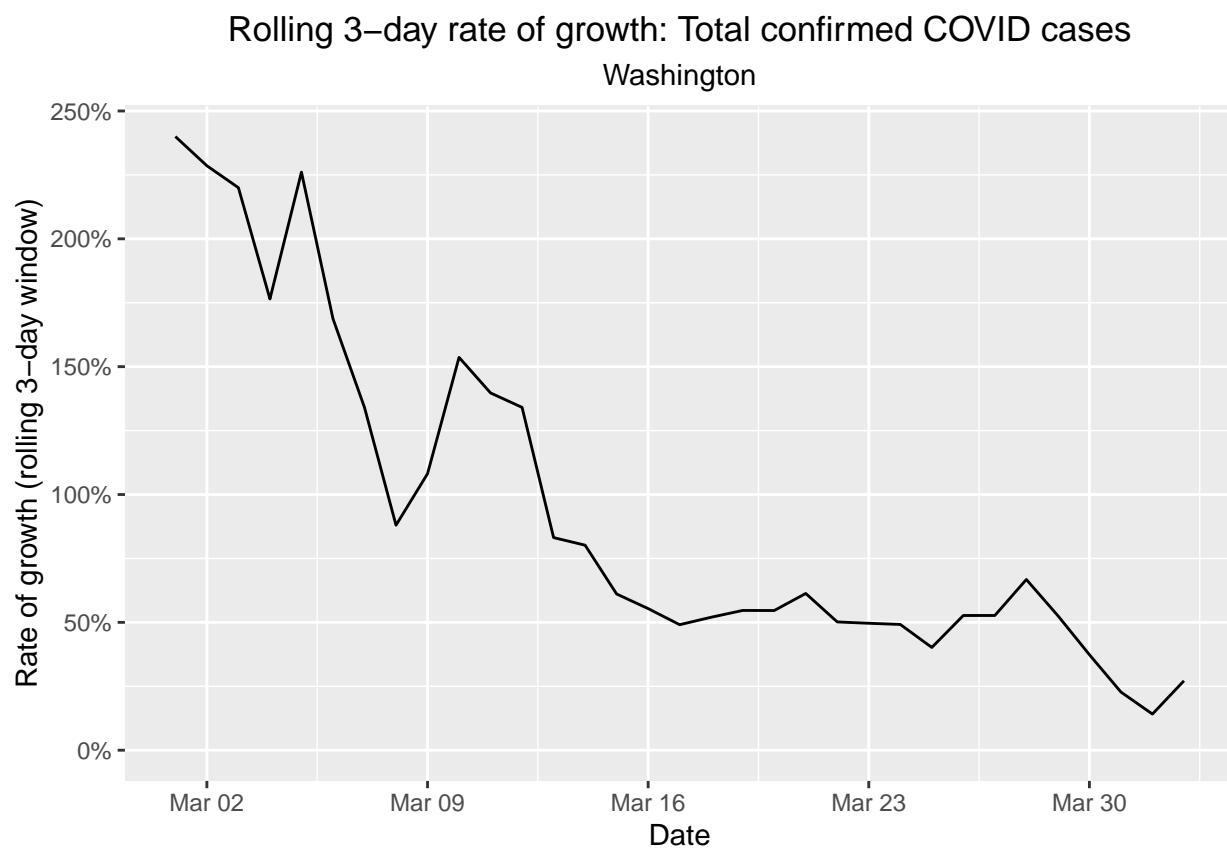
Washington

Confirmed cases

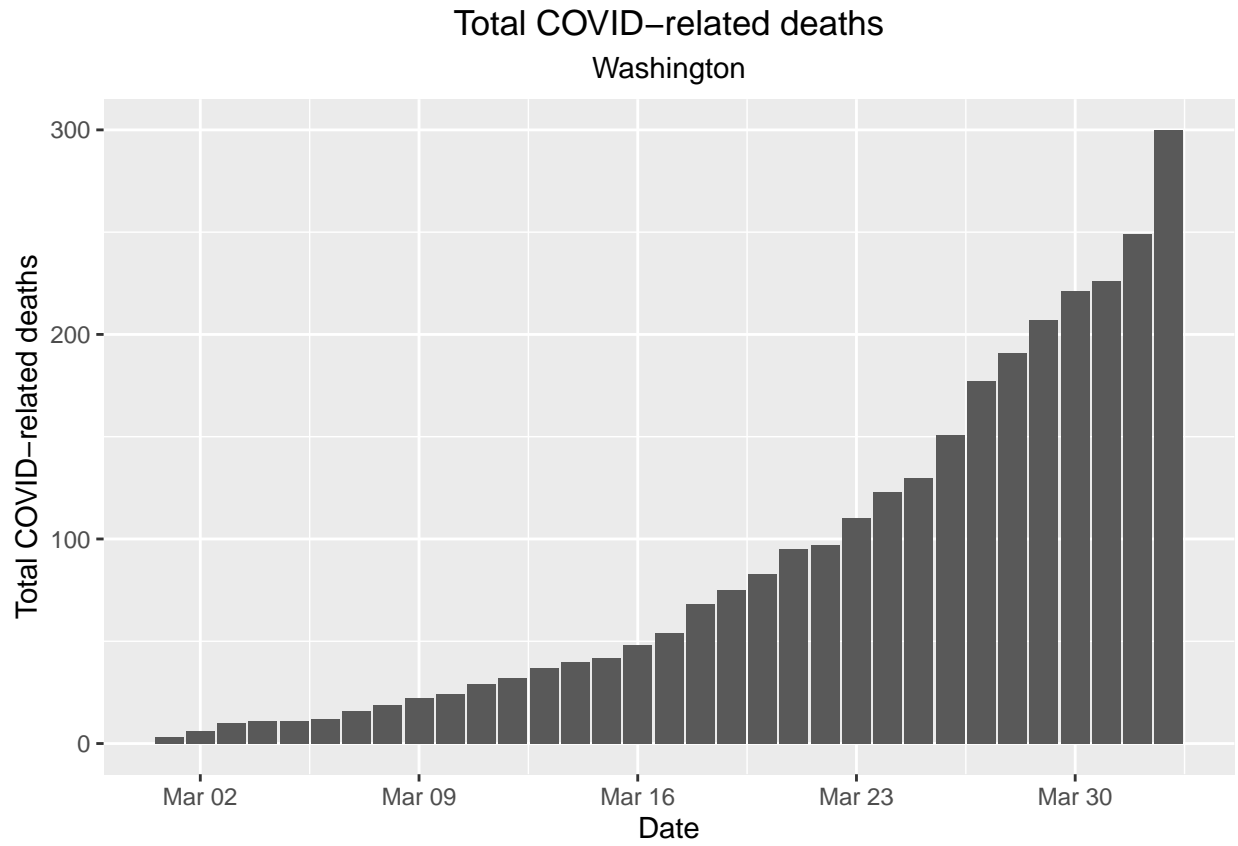


Confirmed new COVID cases by day
Washington

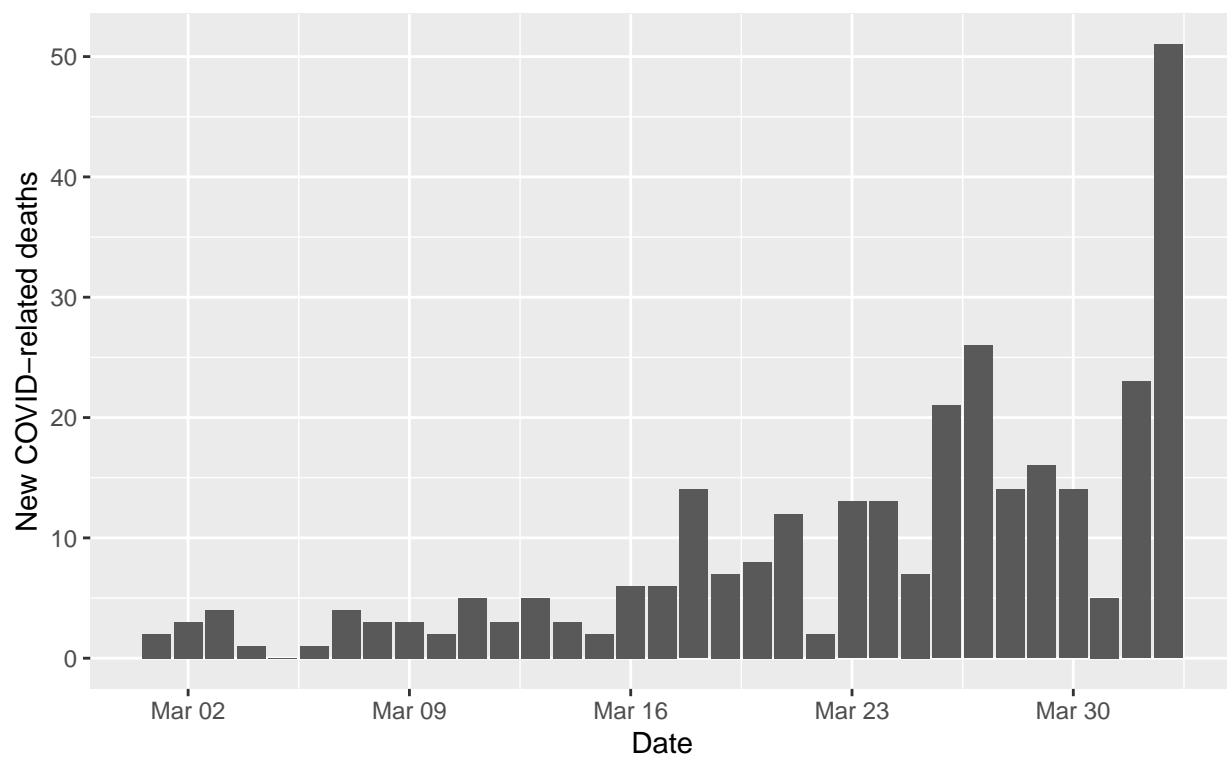




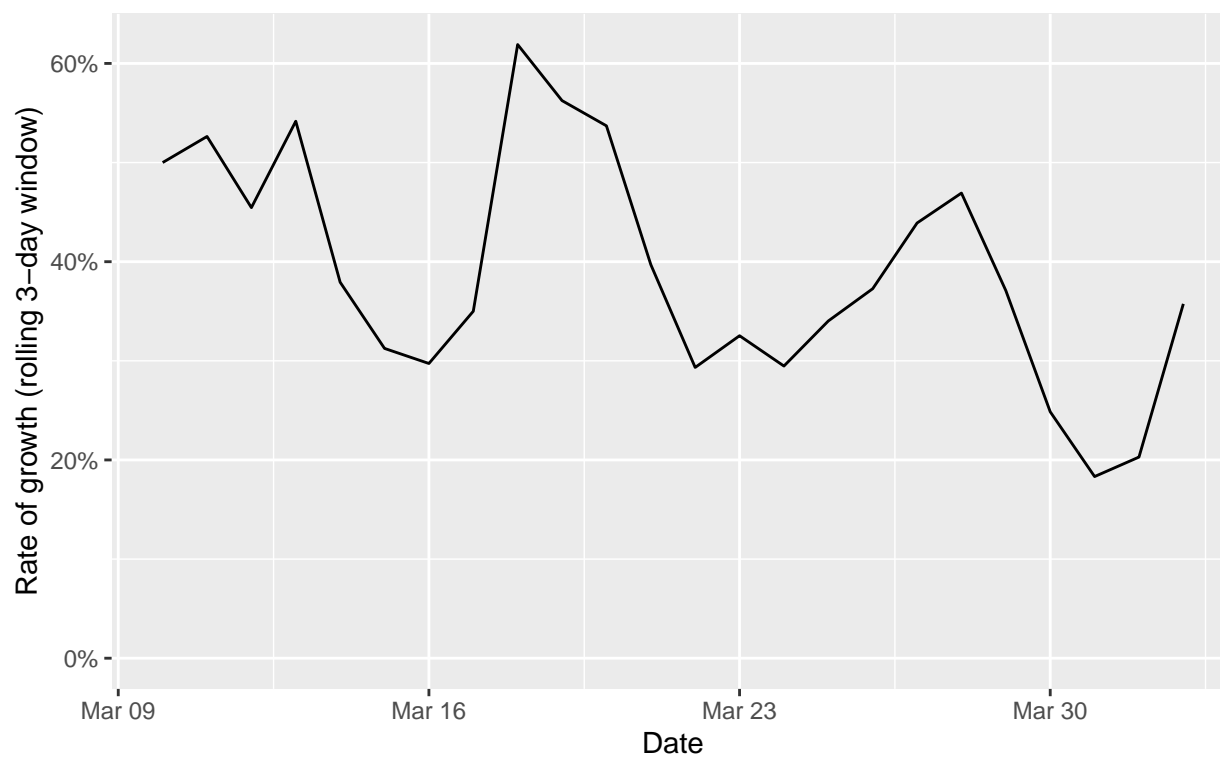
Deaths



New COVID-related deaths by day
Washington

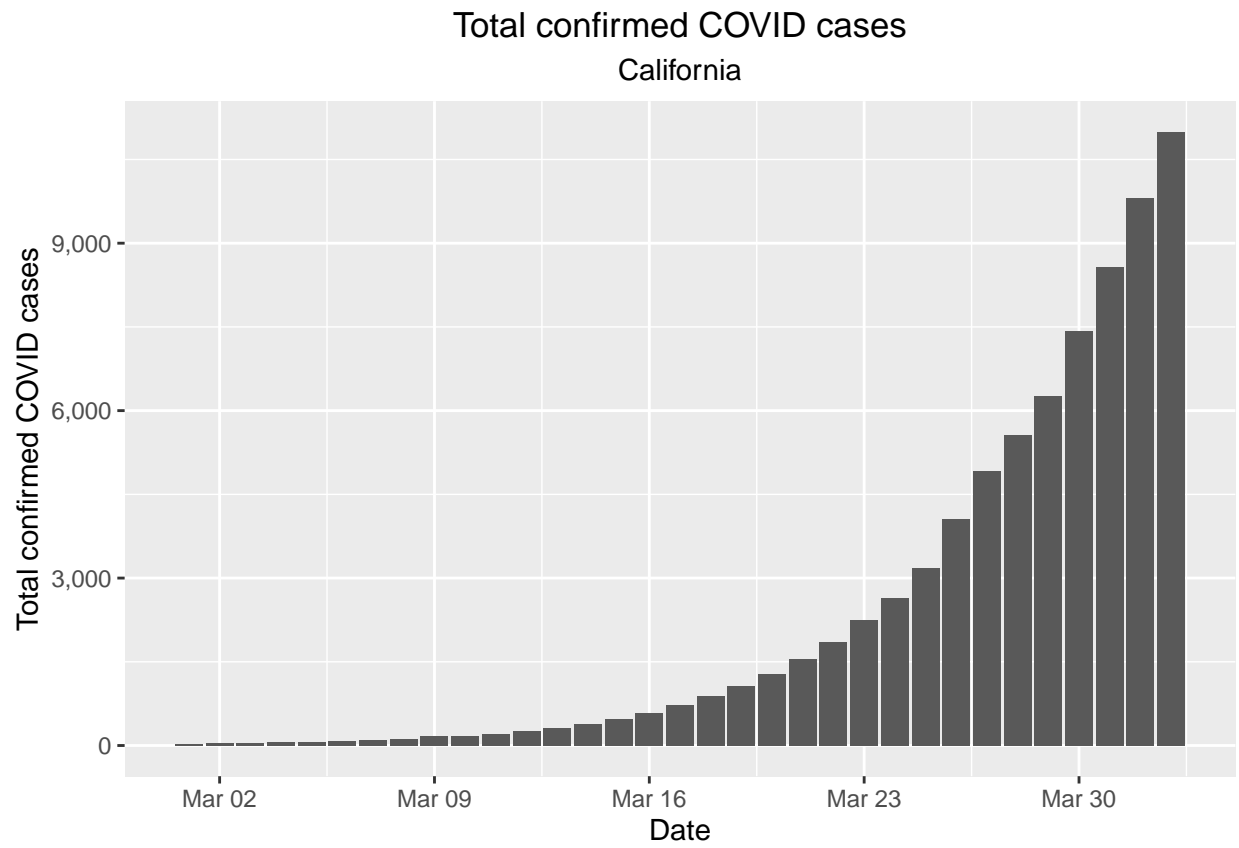


Rolling 3-day rate of growth: Total COVID-related deaths
Washington

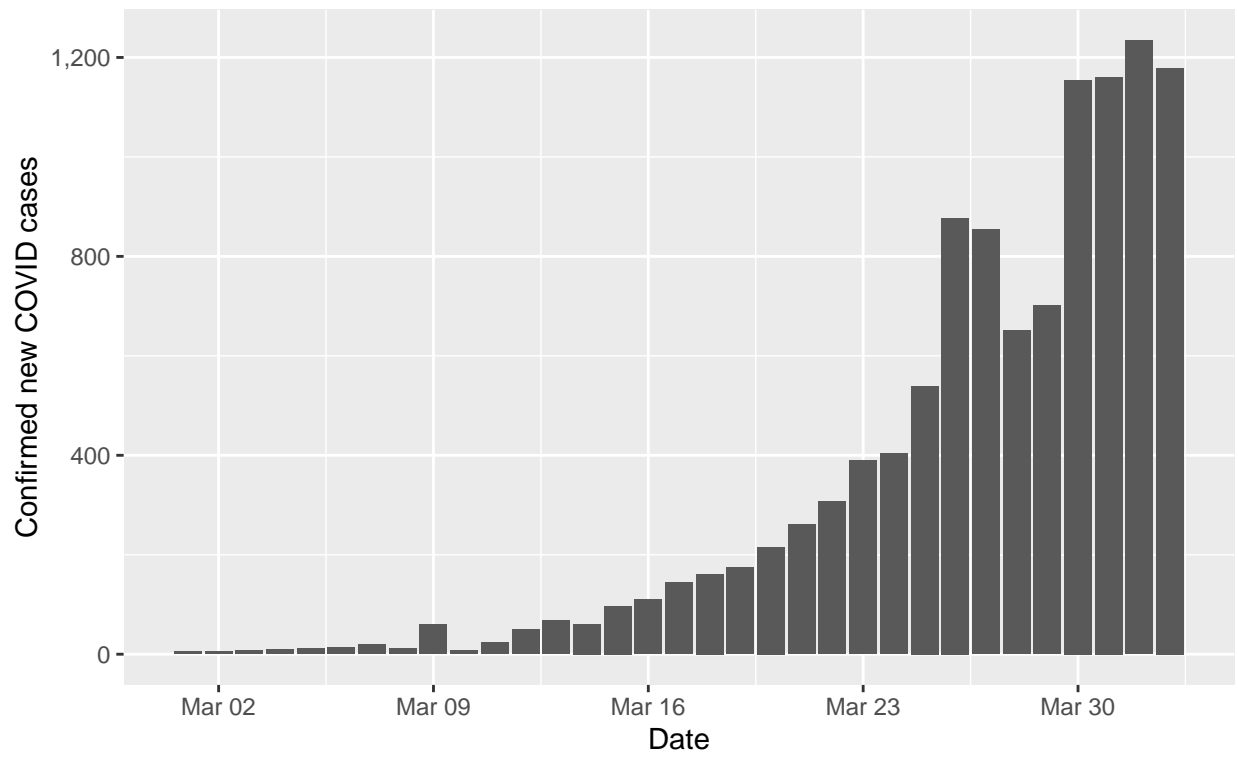


California

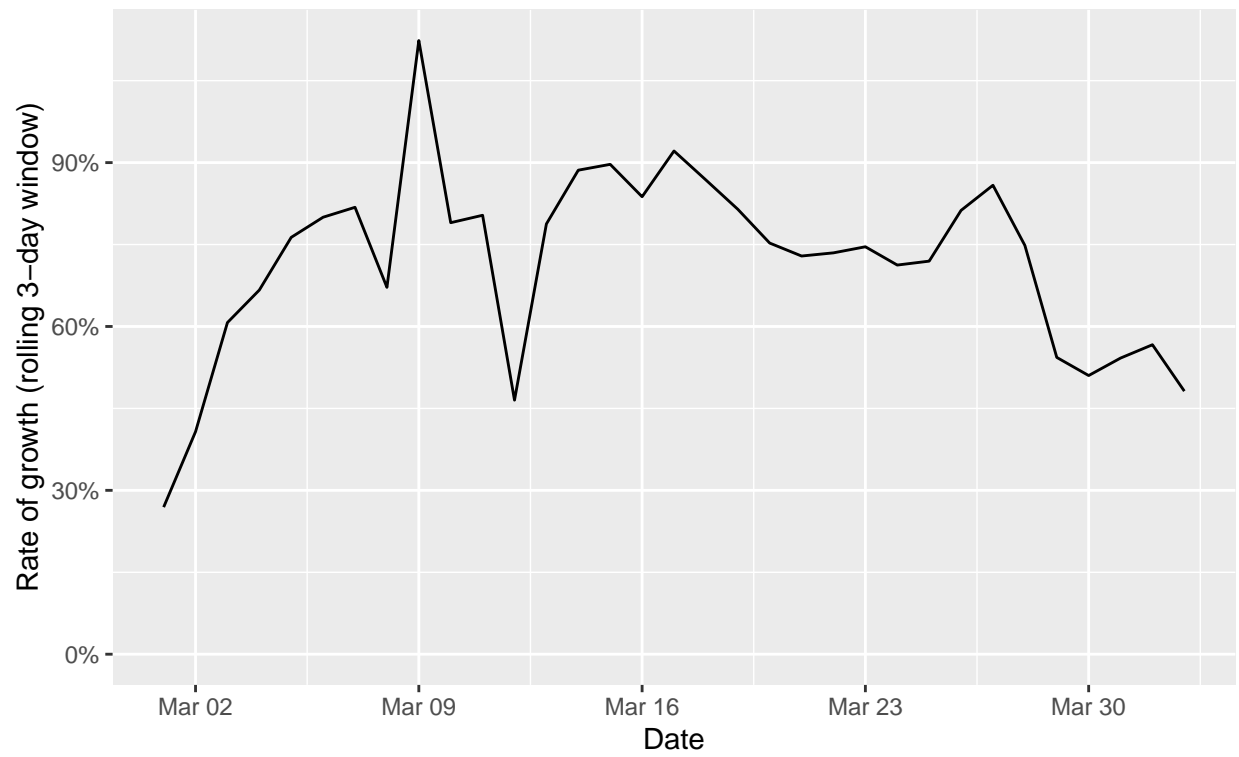
Confirmed cases



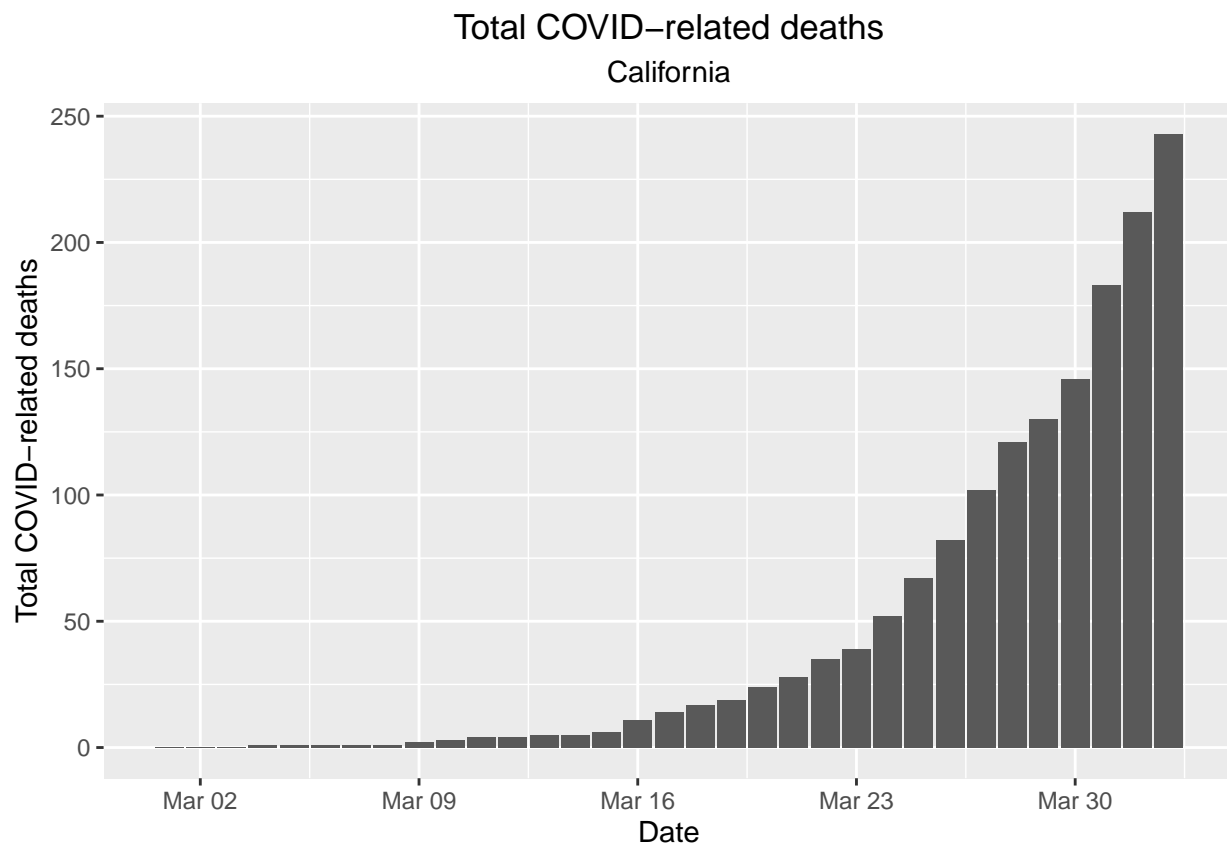
Confirmed new COVID cases by day
California



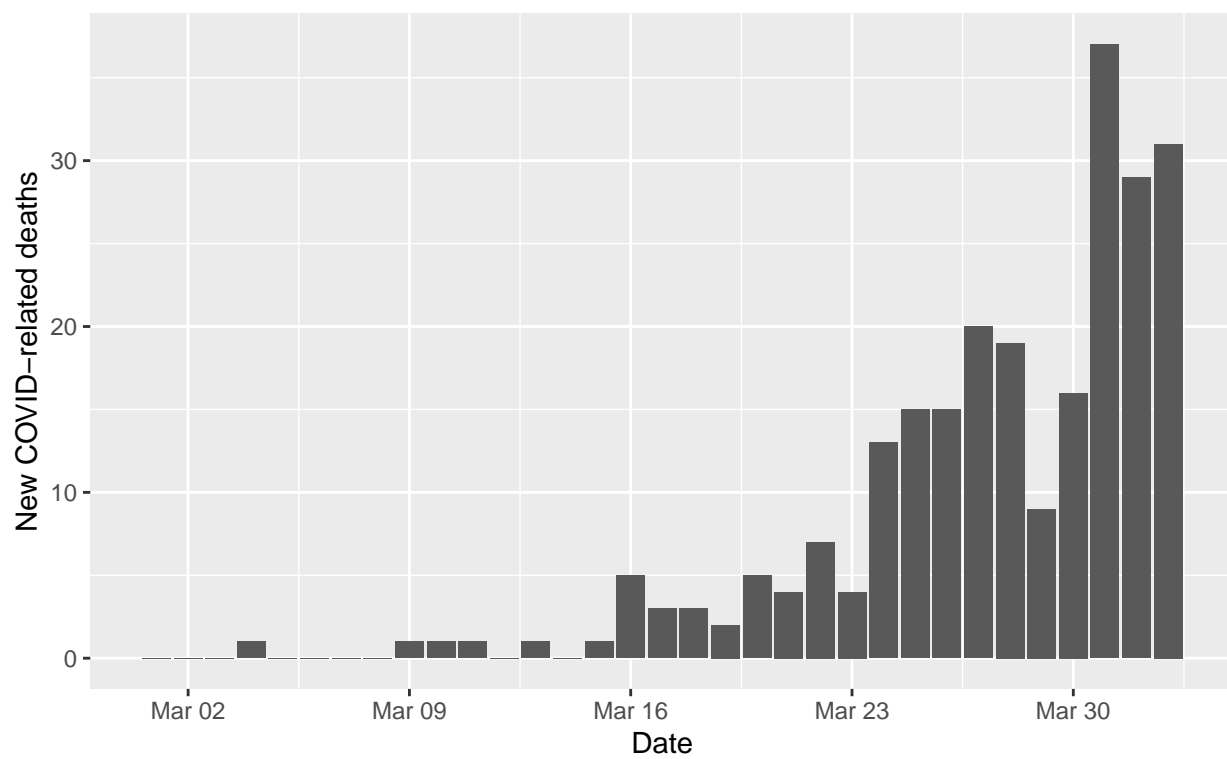
Rolling 3-day rate of growth: Total confirmed COVID cases
California



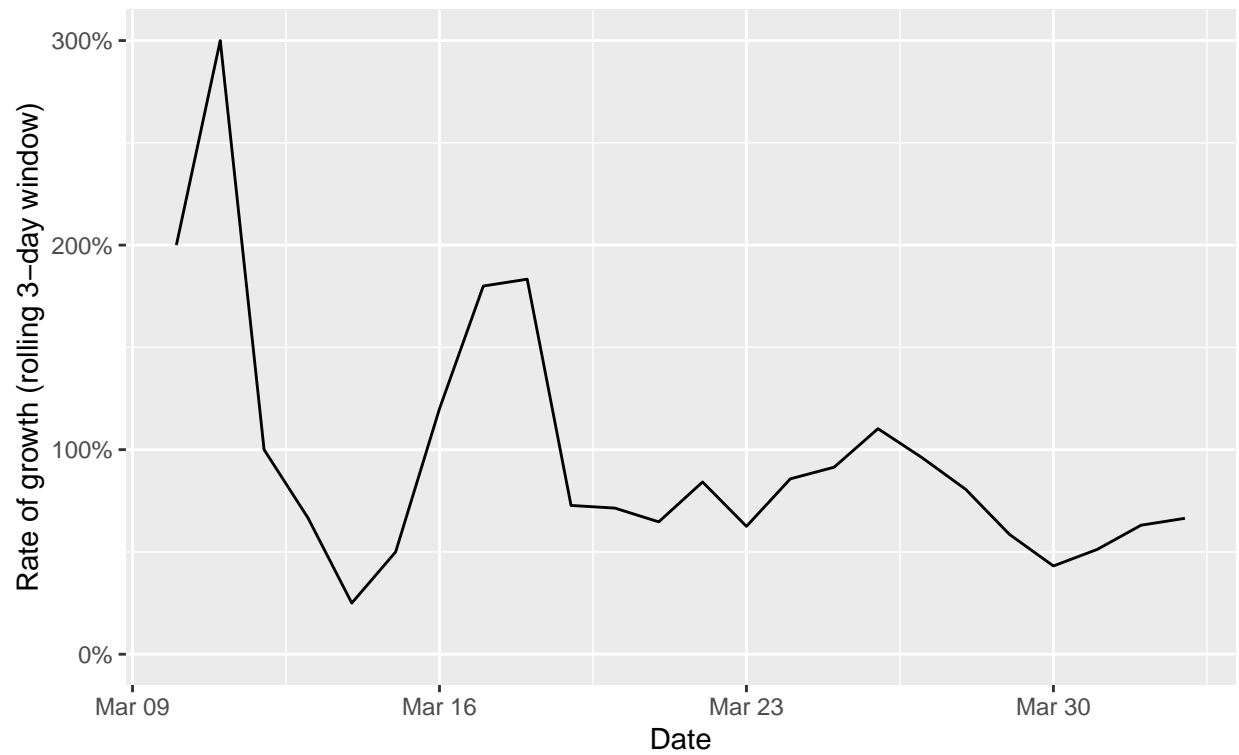
Deaths



New COVID-related deaths by day
California

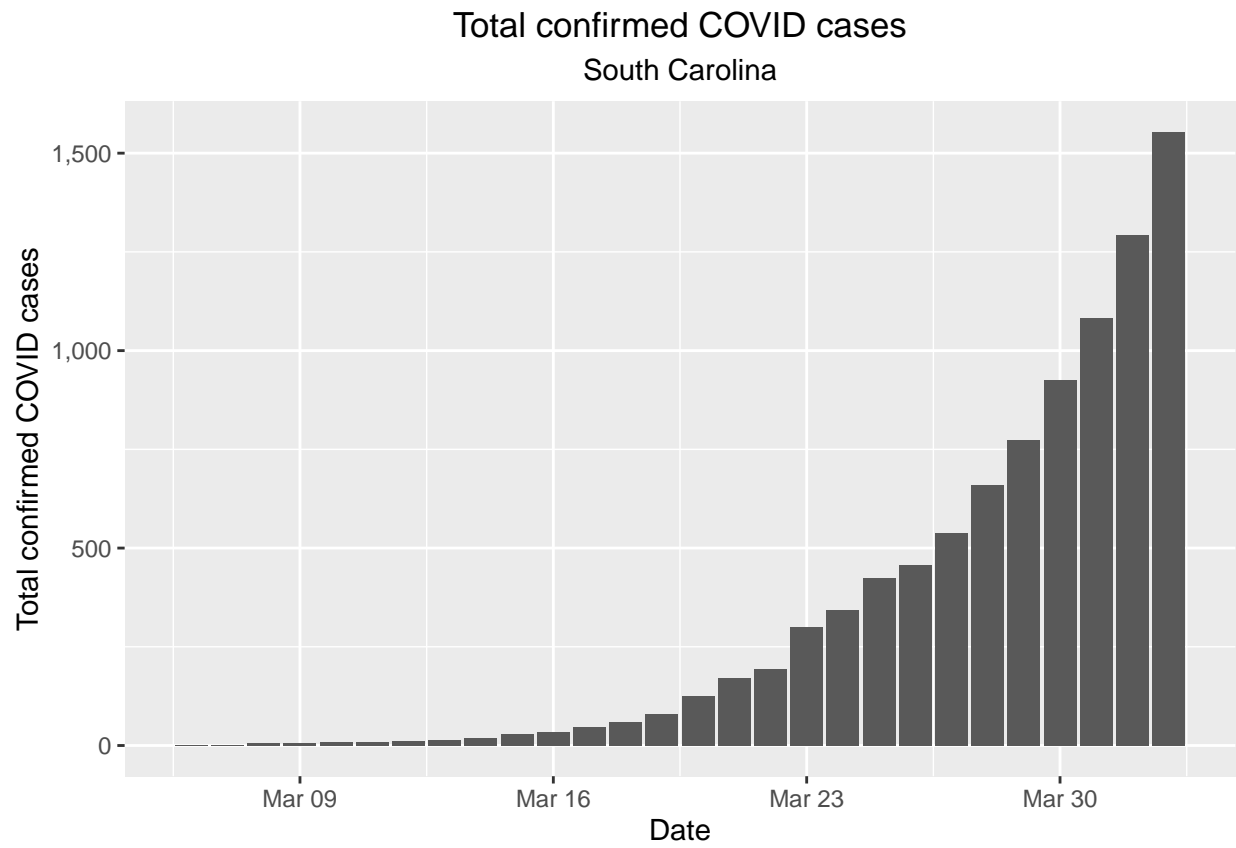


Rolling 3-day rate of growth: Total COVID-related deaths
California

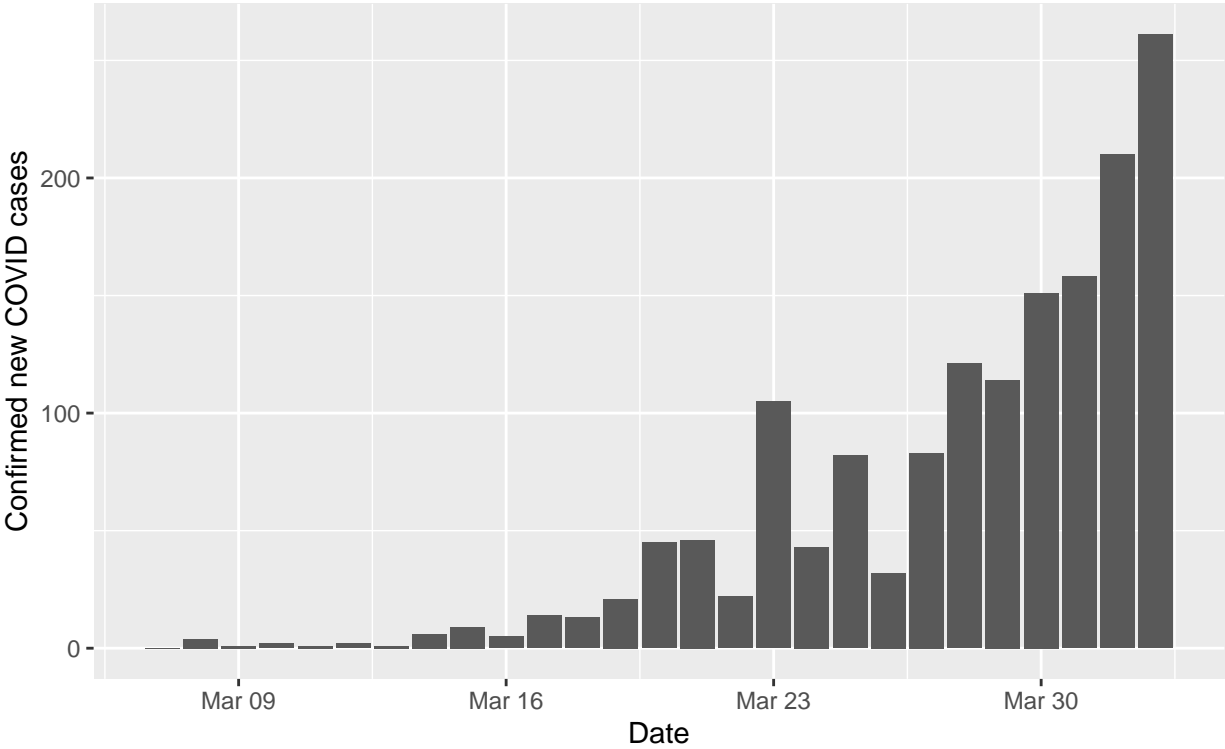


South Carolina

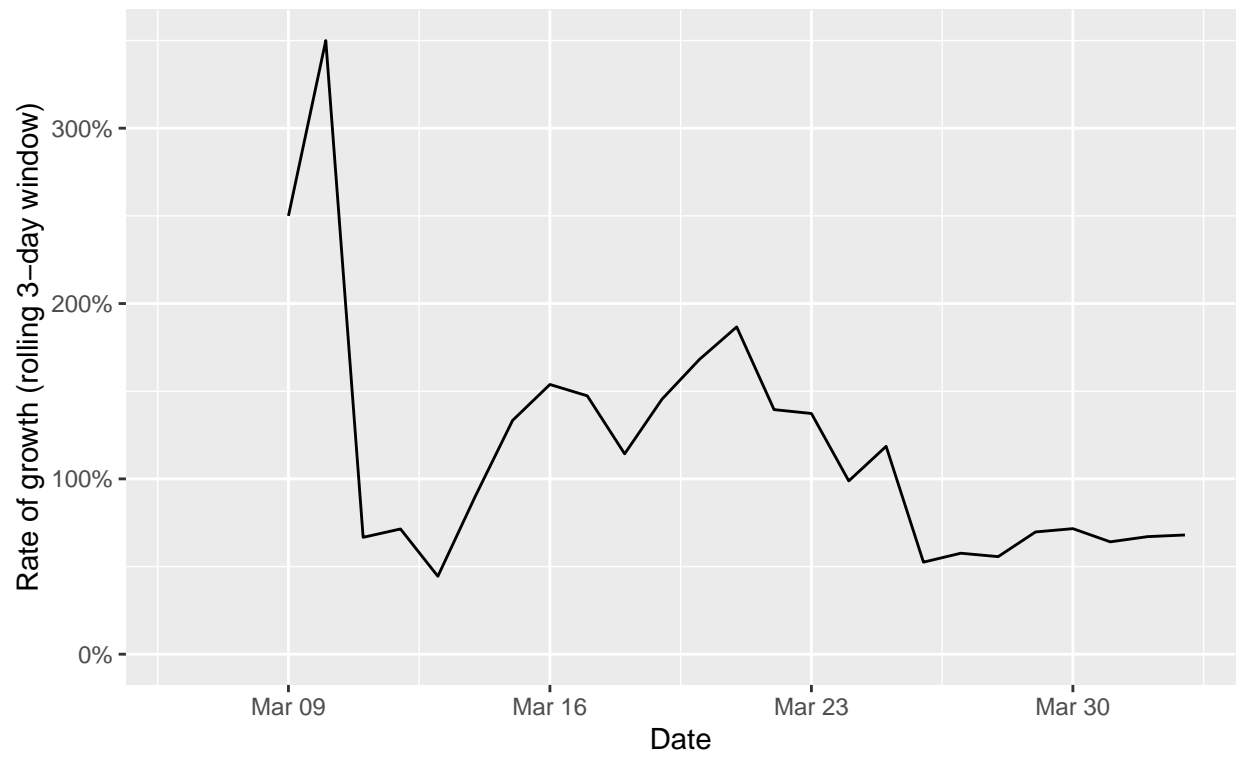
Confirmed cases



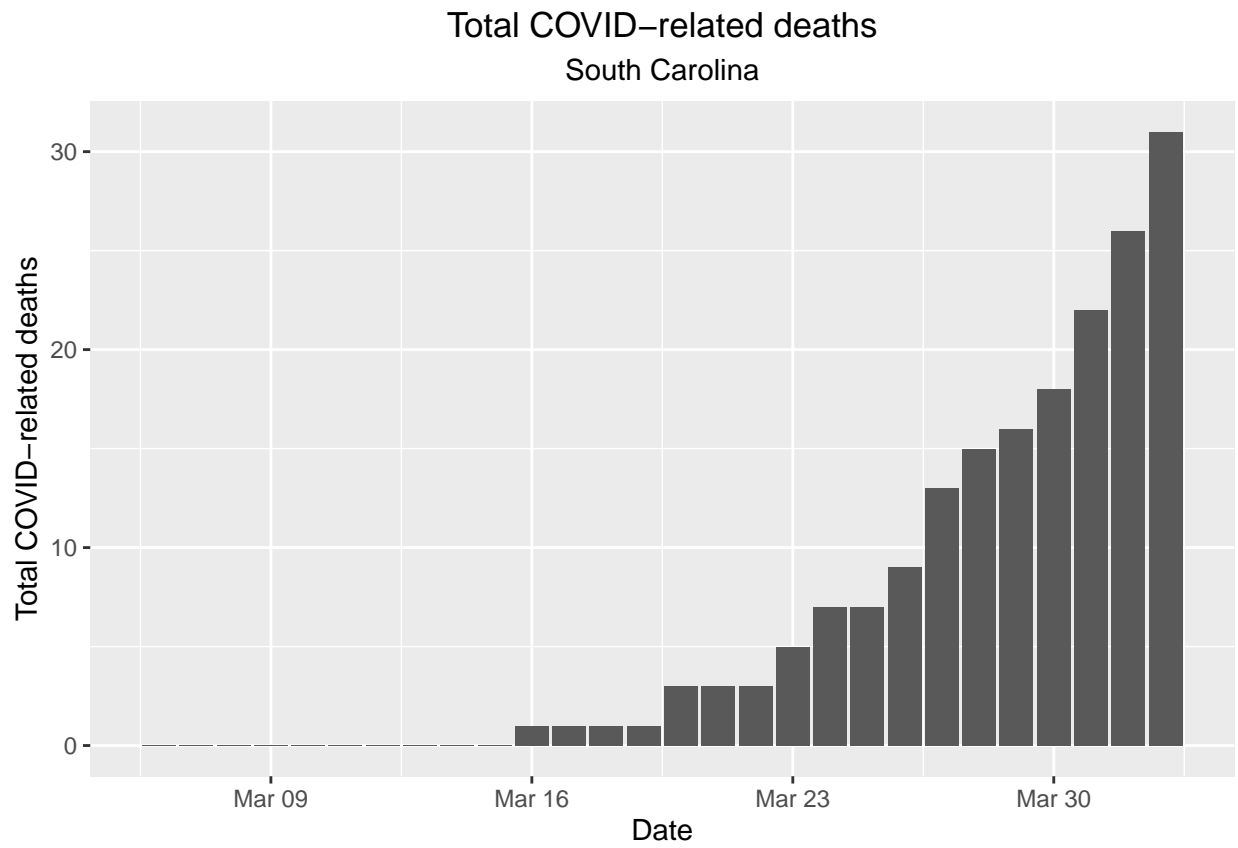
Confirmed new COVID cases by day
South Carolina



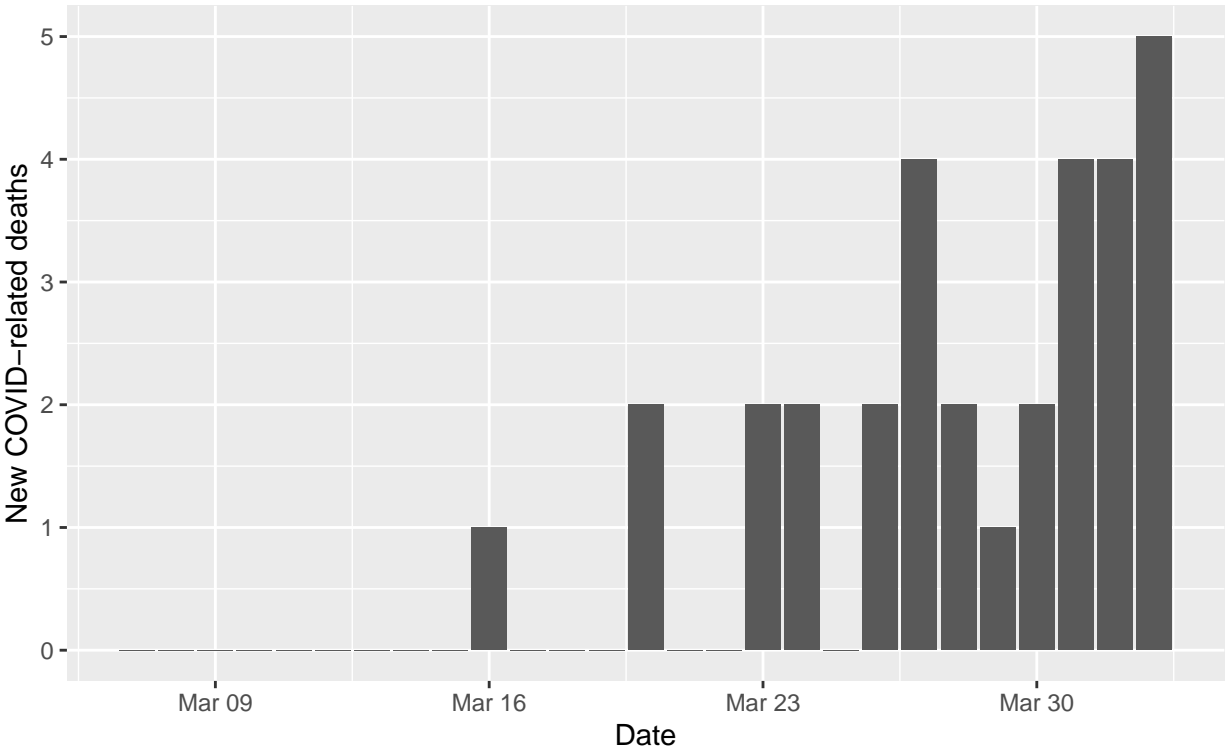
Rolling 3-day rate of growth: Total confirmed COVID cases
South Carolina



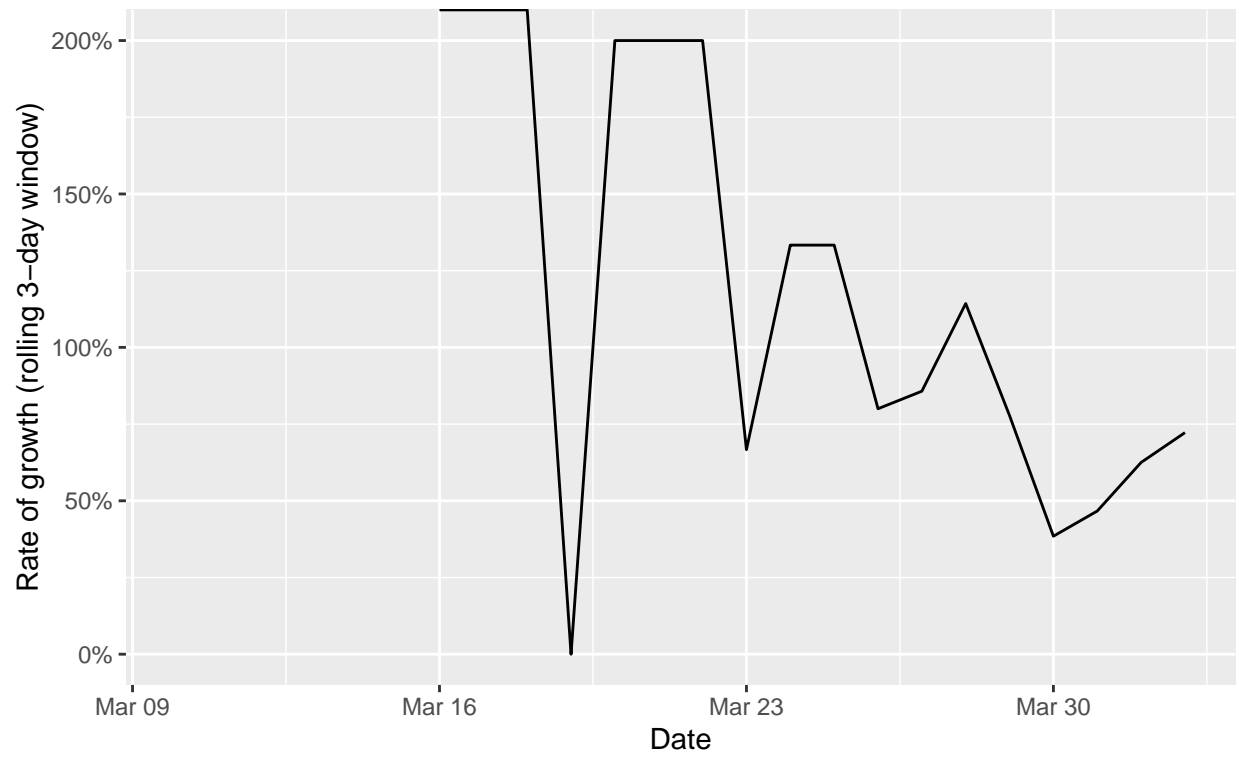
Deaths



New COVID-related deaths by day
South Carolina

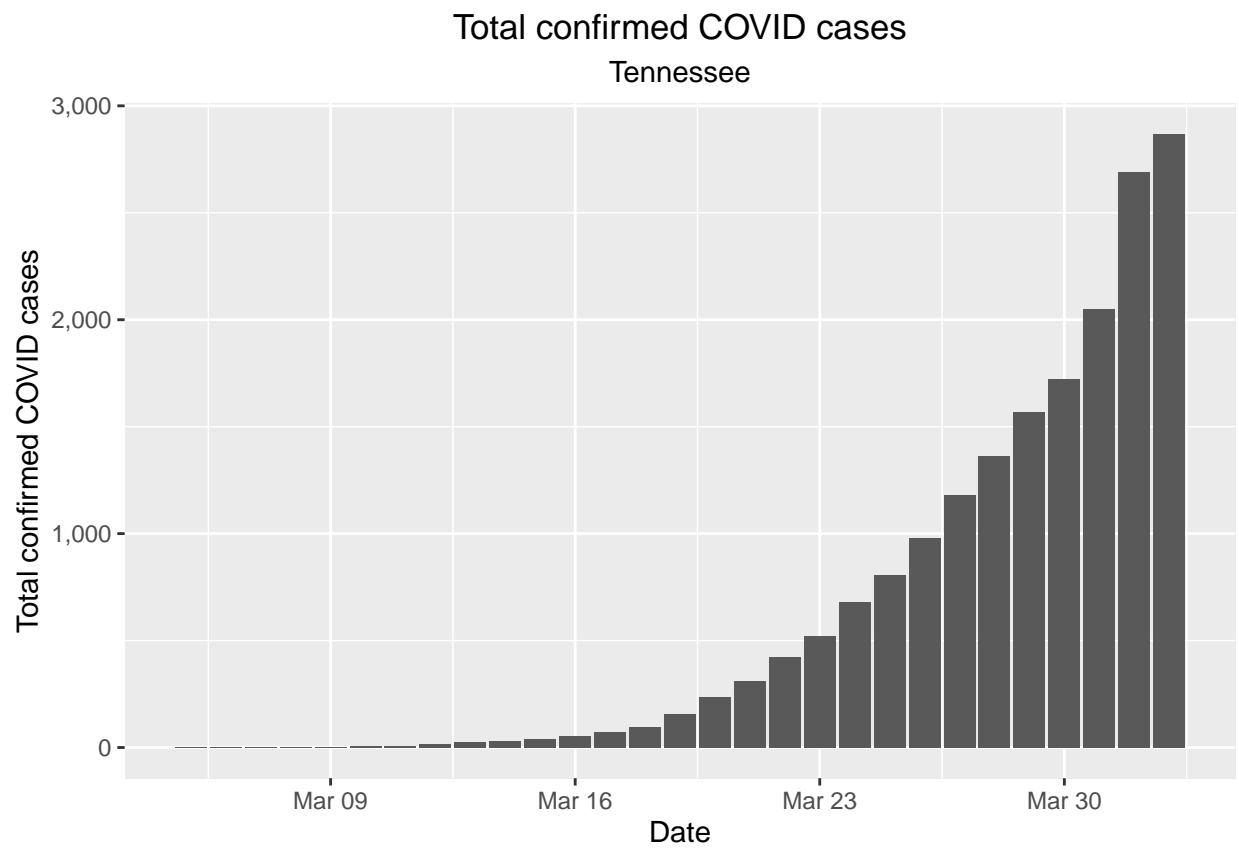


Rolling 3-day rate of growth: Total COVID-related deaths
South Carolina

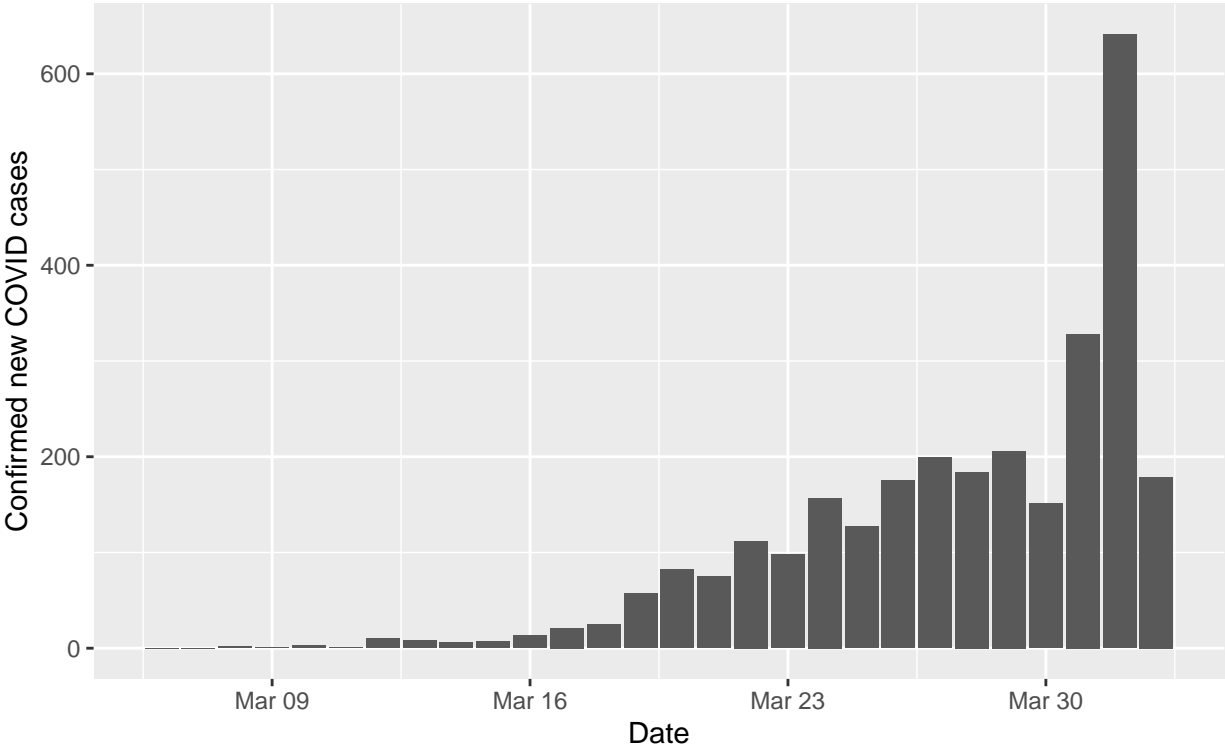


Tennessee

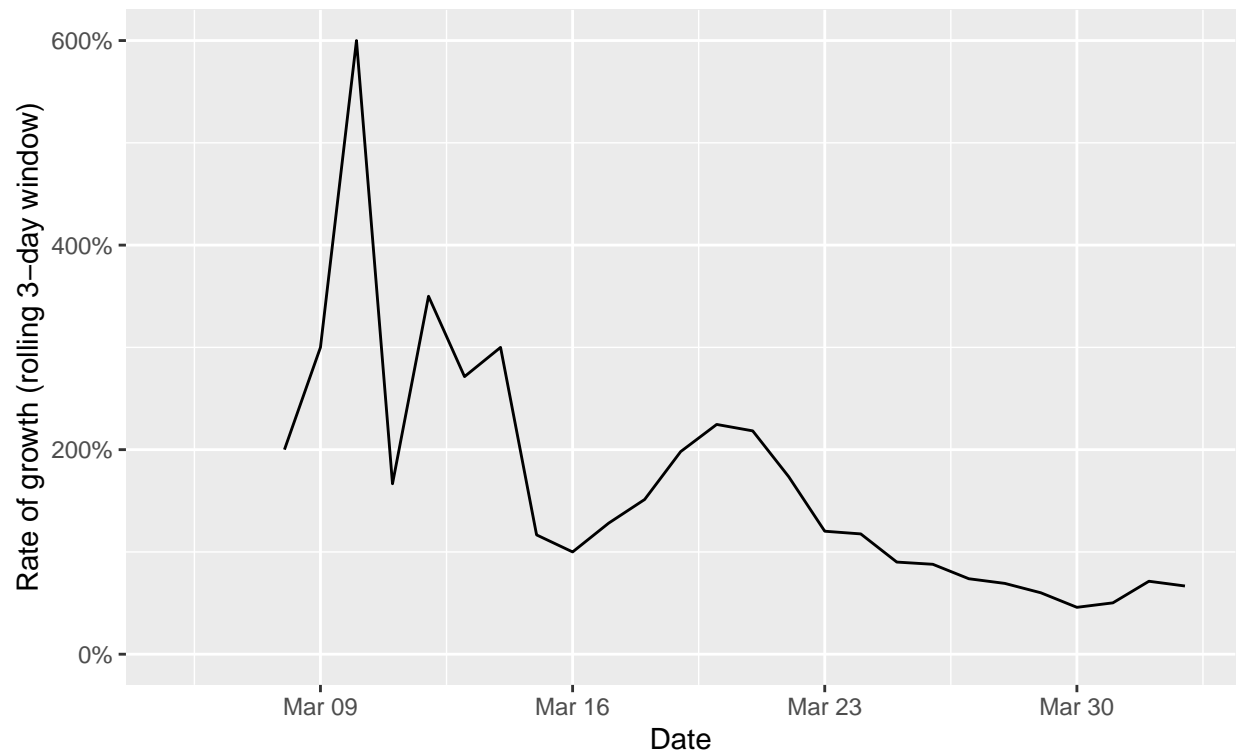
Confirmed cases



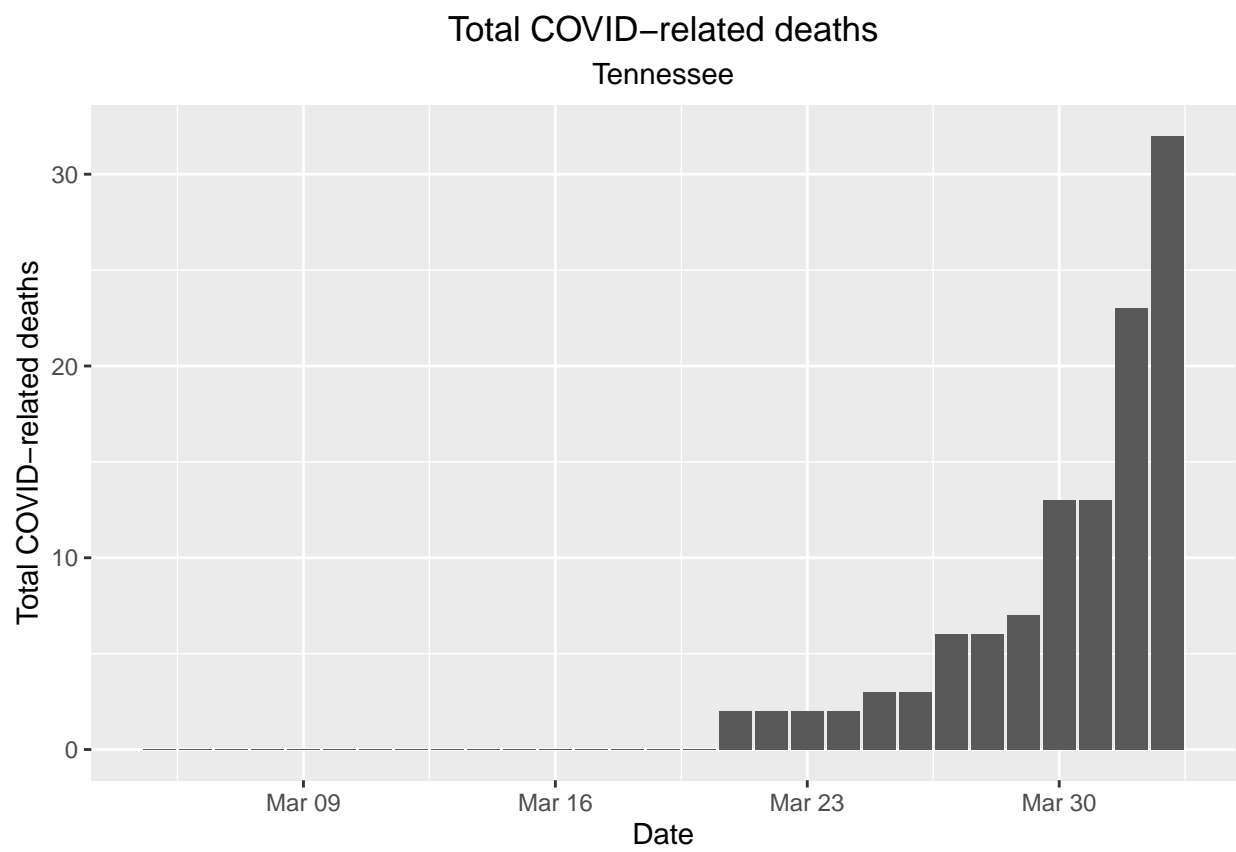
Confirmed new COVID cases by day
Tennessee



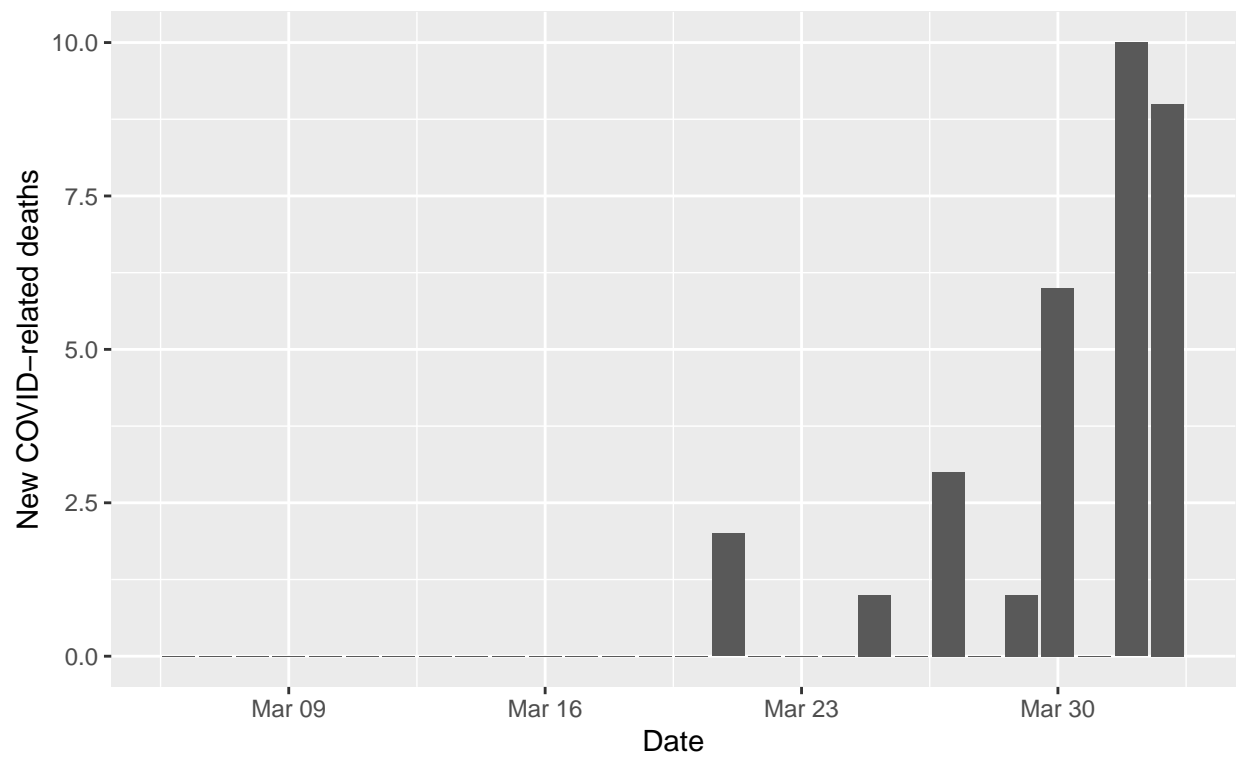
Rolling 3-day rate of growth: Total confirmed COVID cases
Tennessee



Deaths

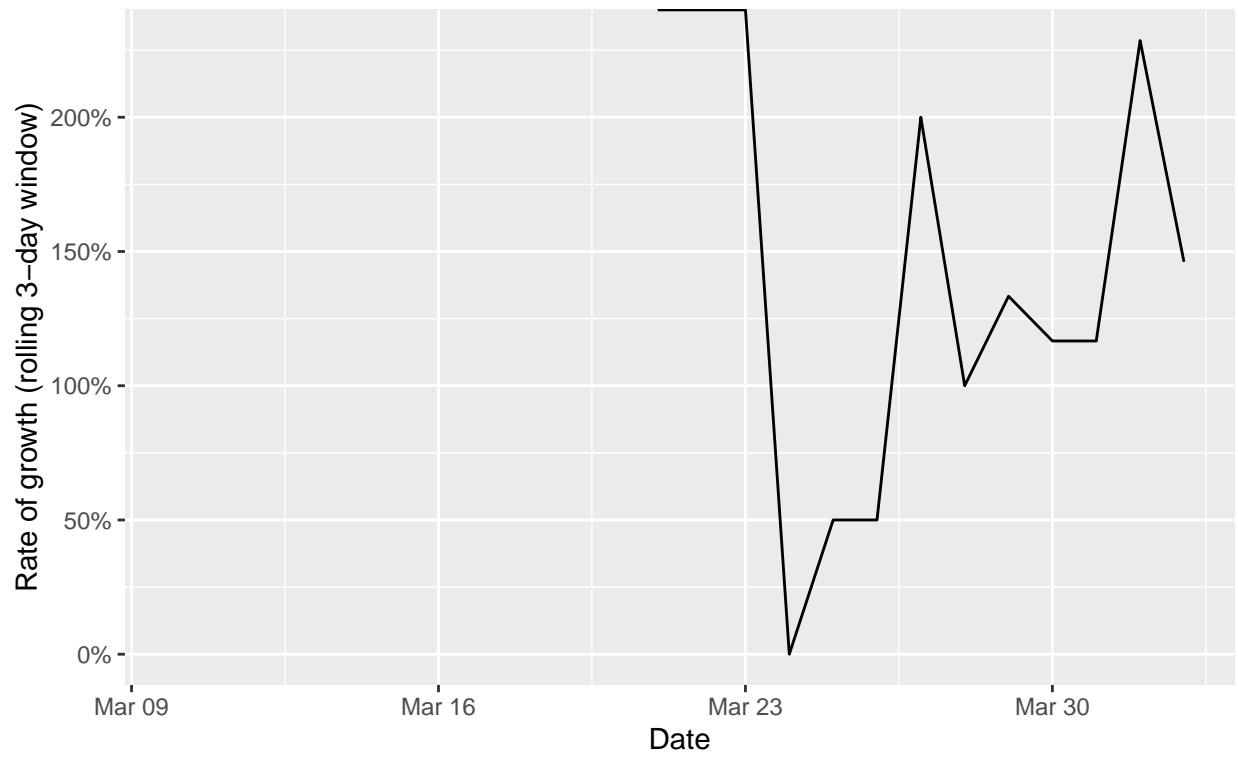


New COVID-related deaths by day Tennessee



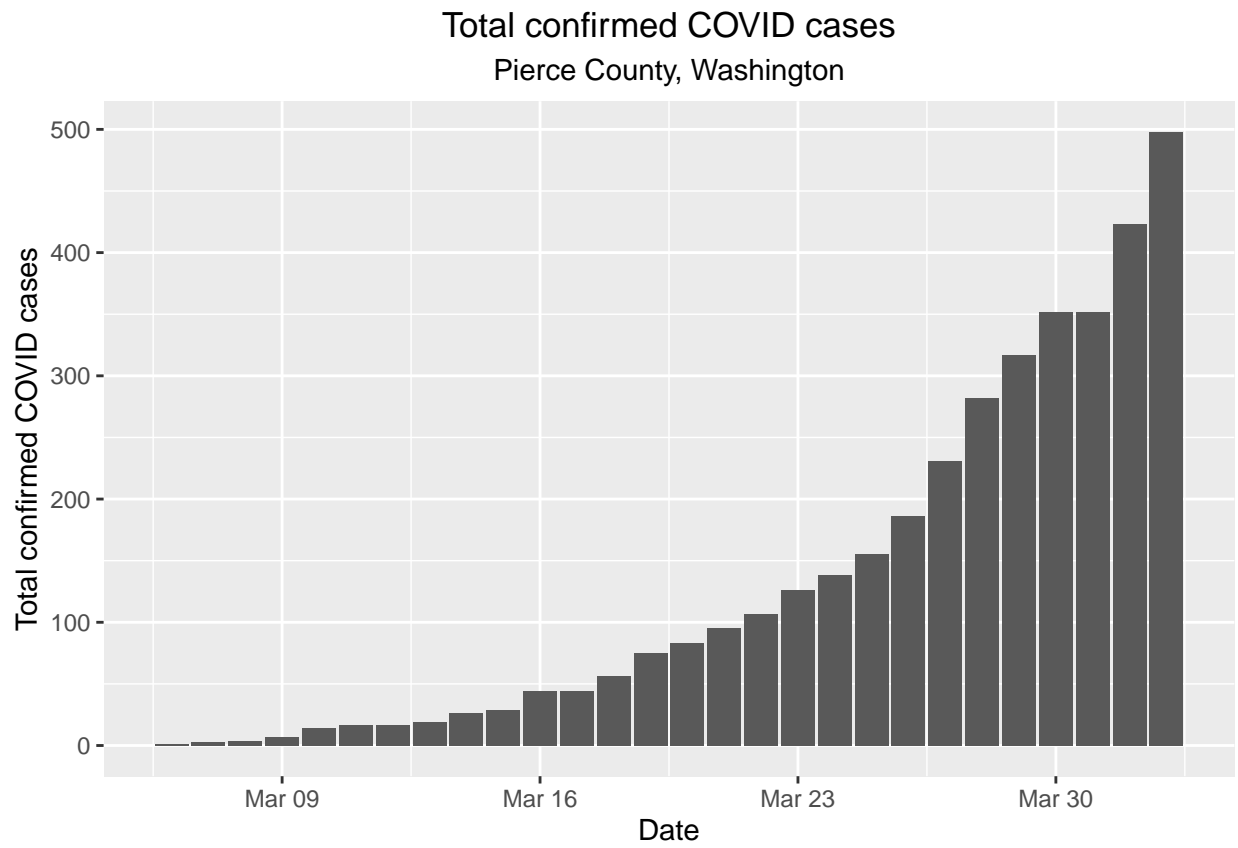
Rolling 3-day rate of growth: Total COVID-related deaths

Tennessee

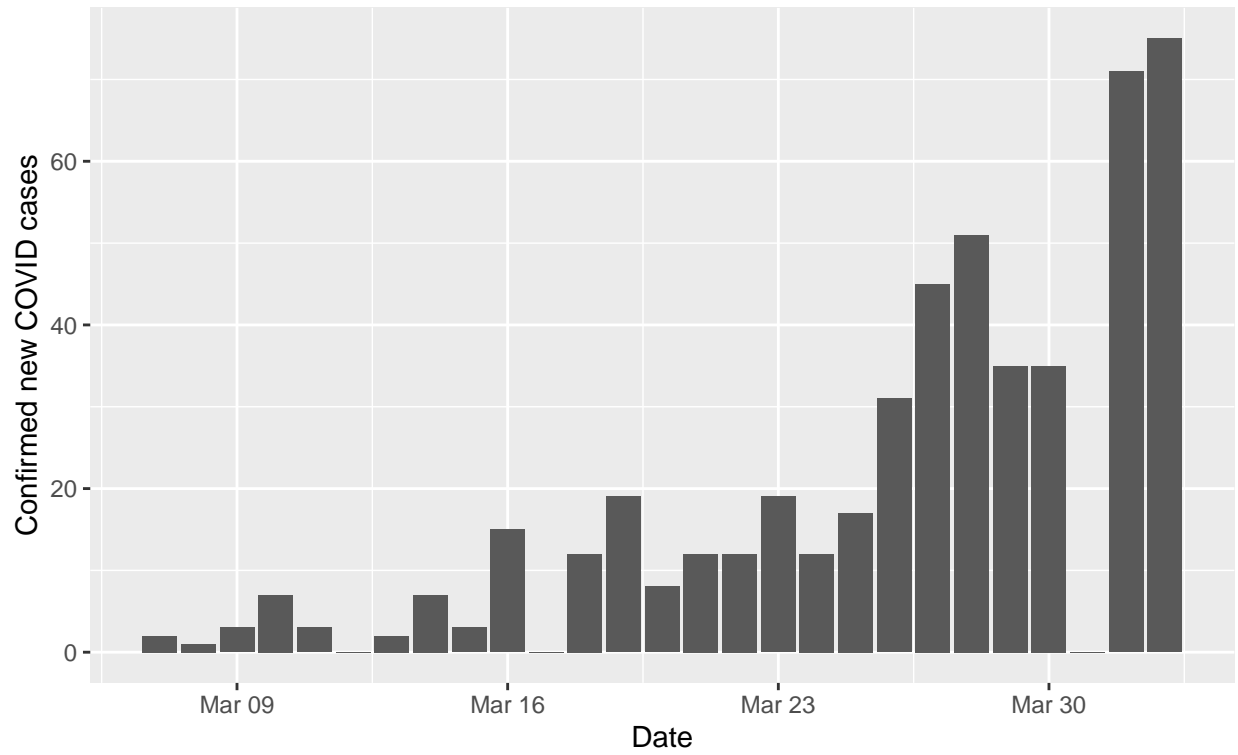


Pierce County, Washington

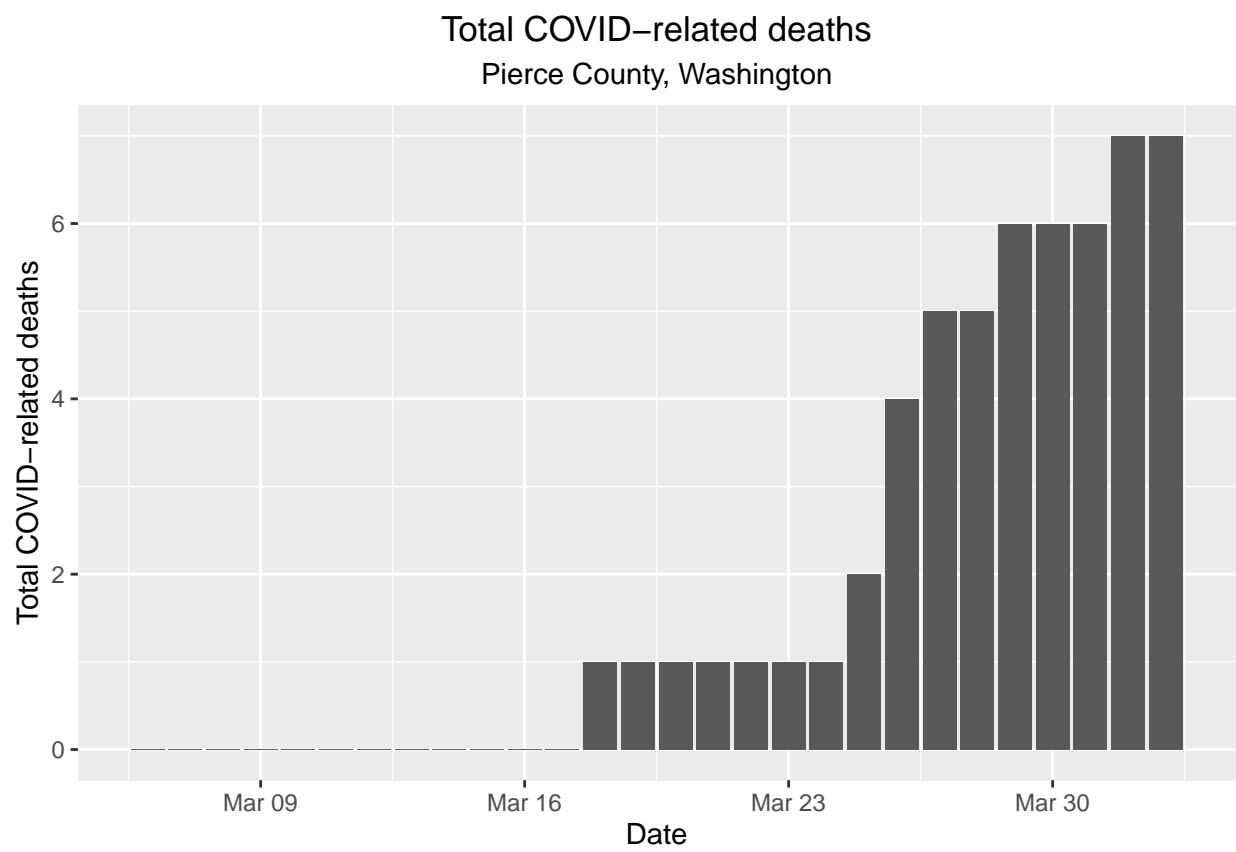
Confirmed cases



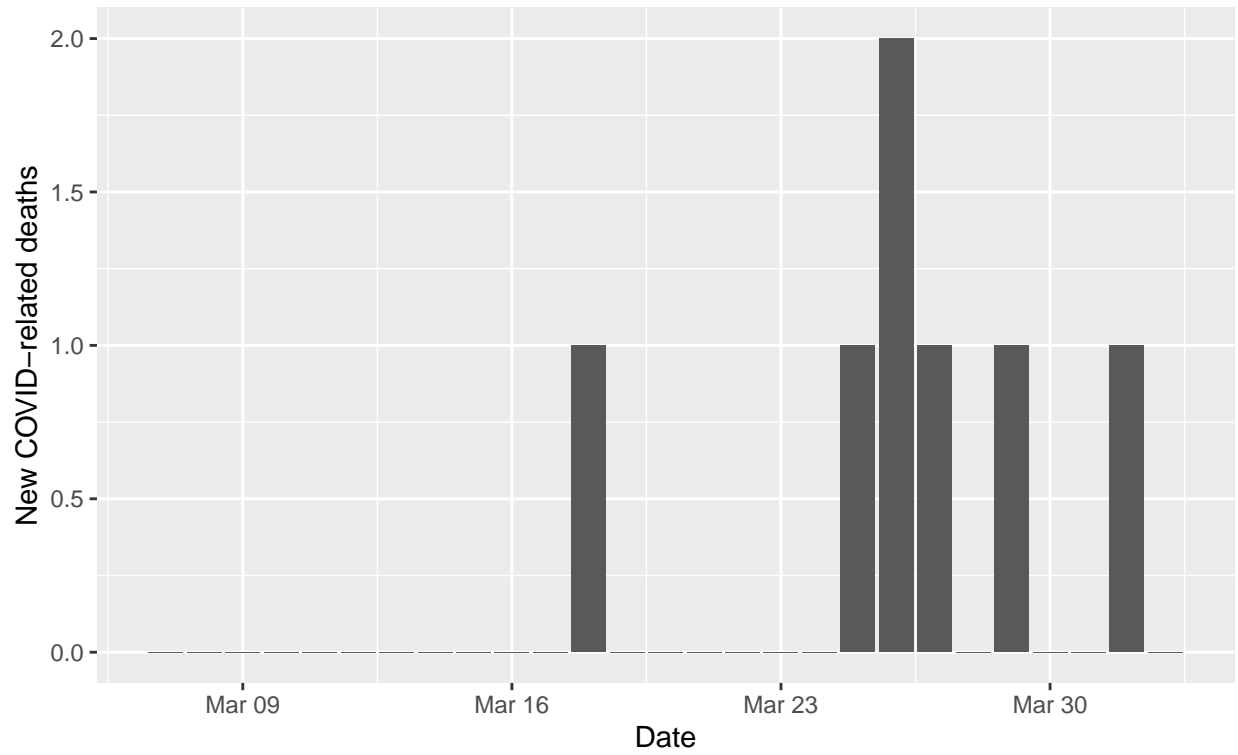
Confirmed new COVID cases by day
Pierce County, Washington



Deaths

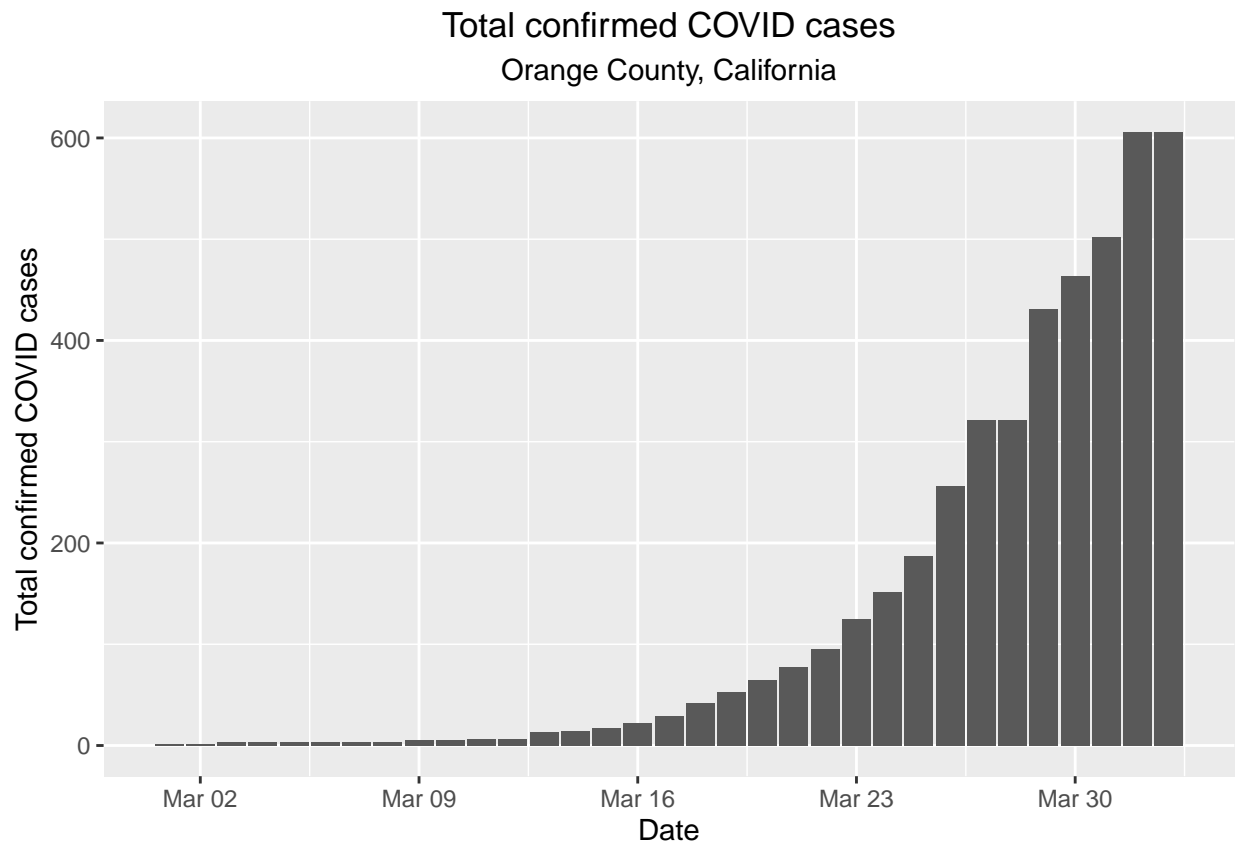


New COVID-related deaths by day Pierce County, Washington

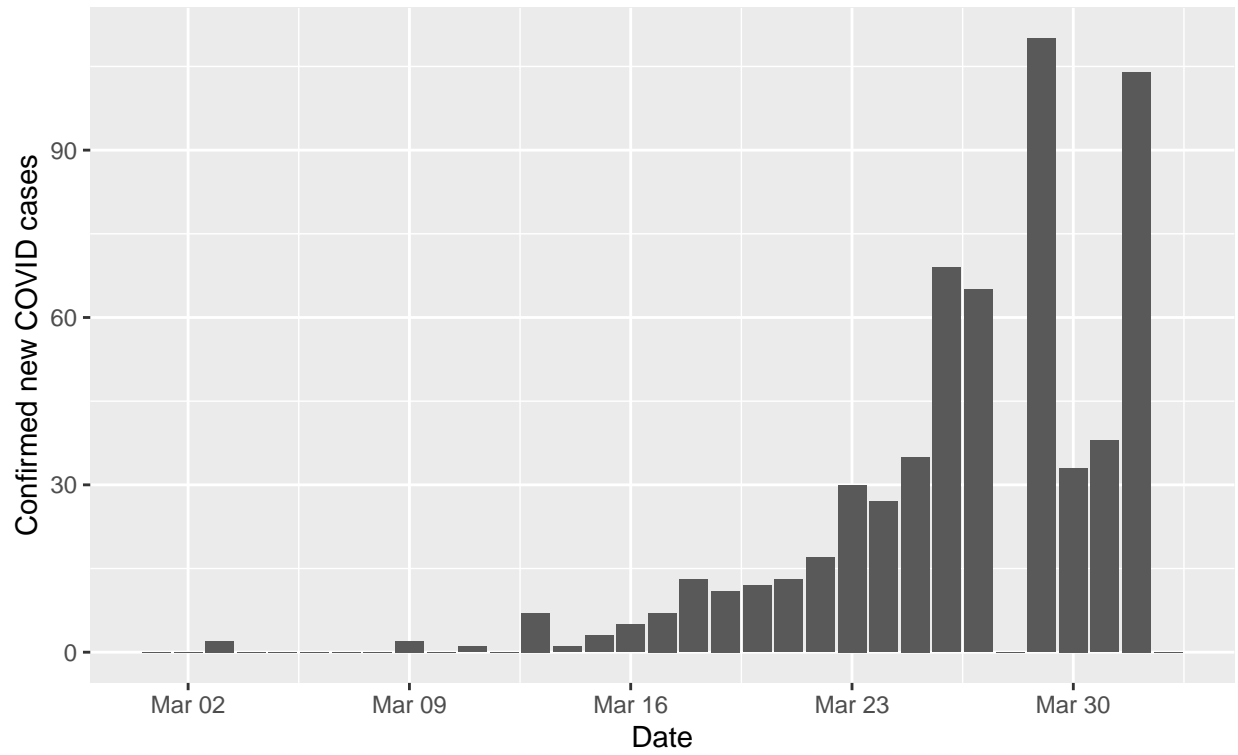


Orange County, California

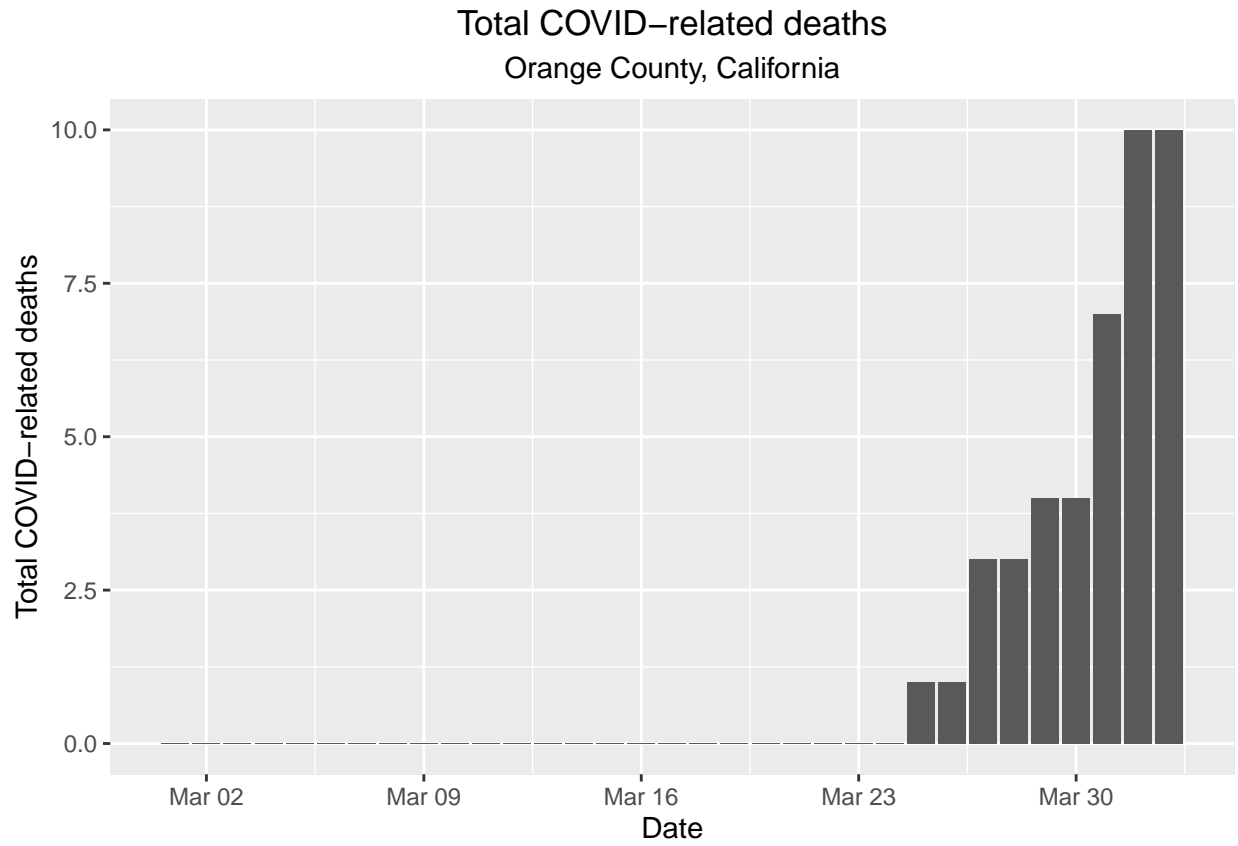
Confirmed cases



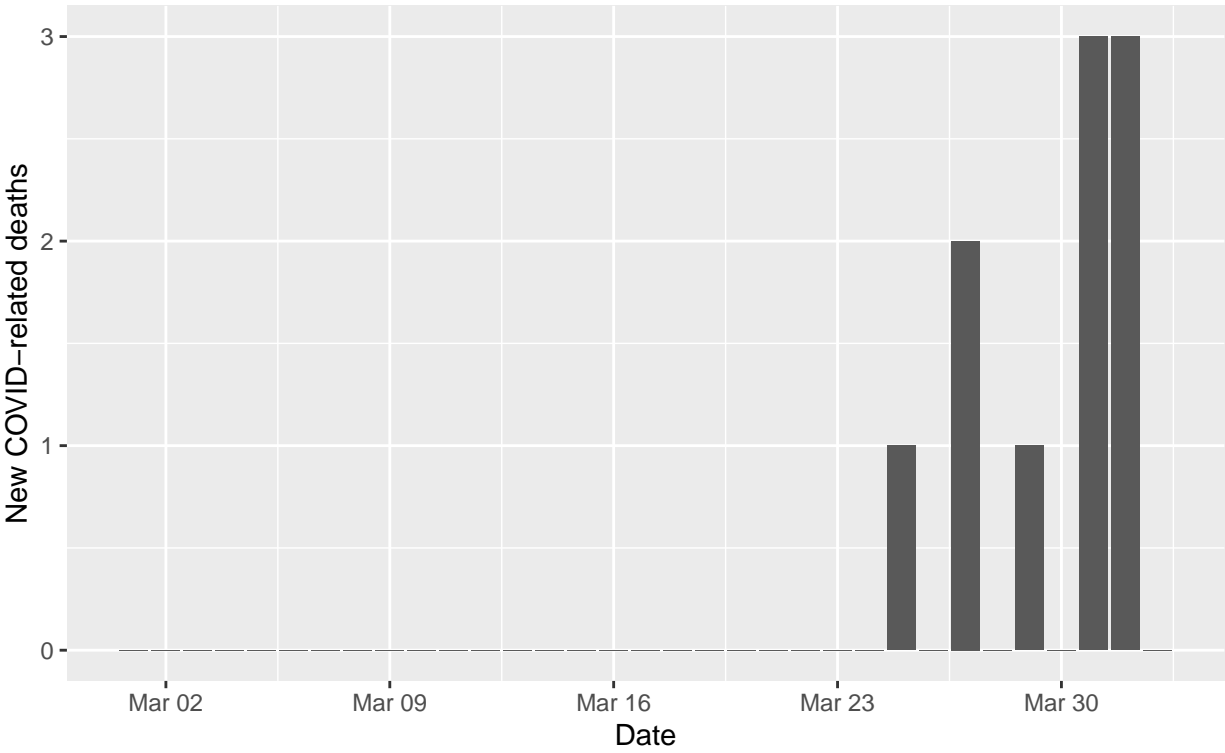
Confirmed new COVID cases by day
Orange County, California



Deaths

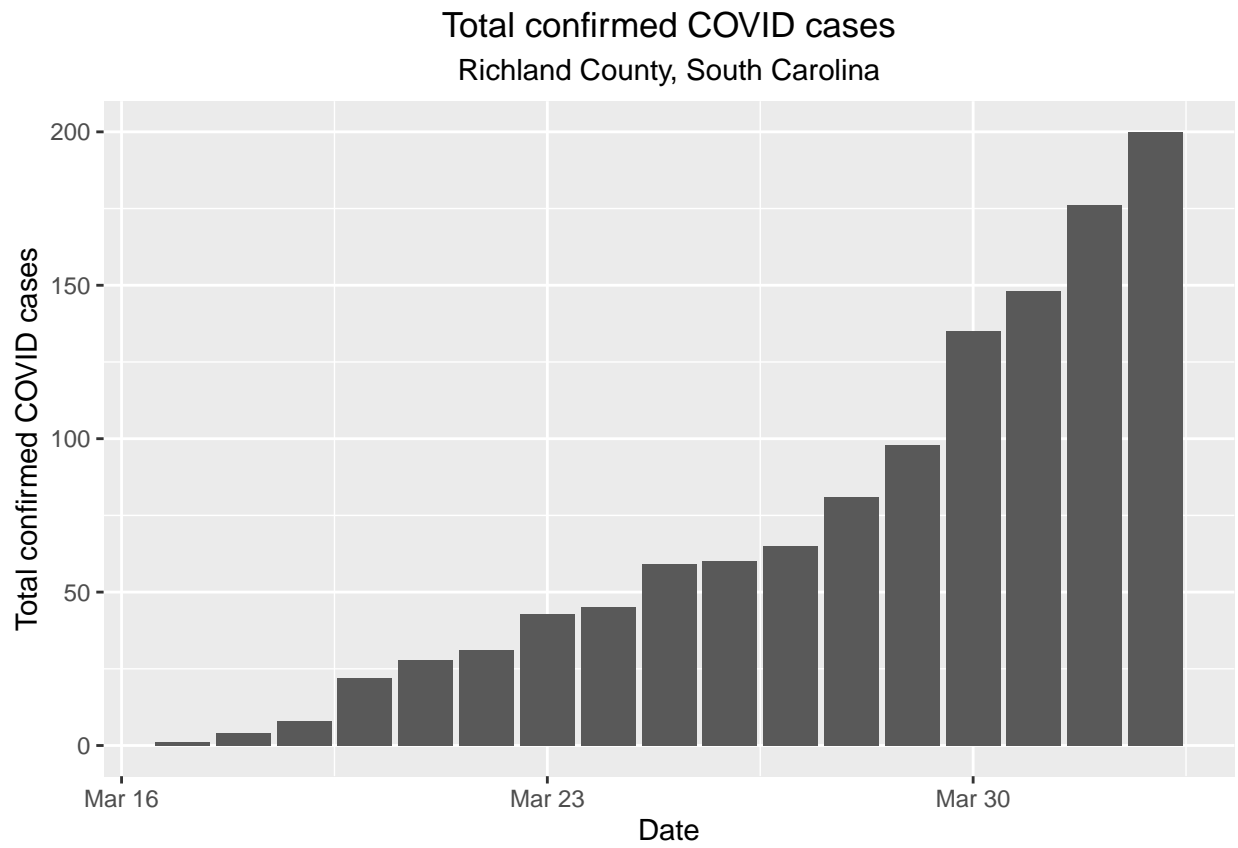


New COVID-related deaths by day
Orange County, California

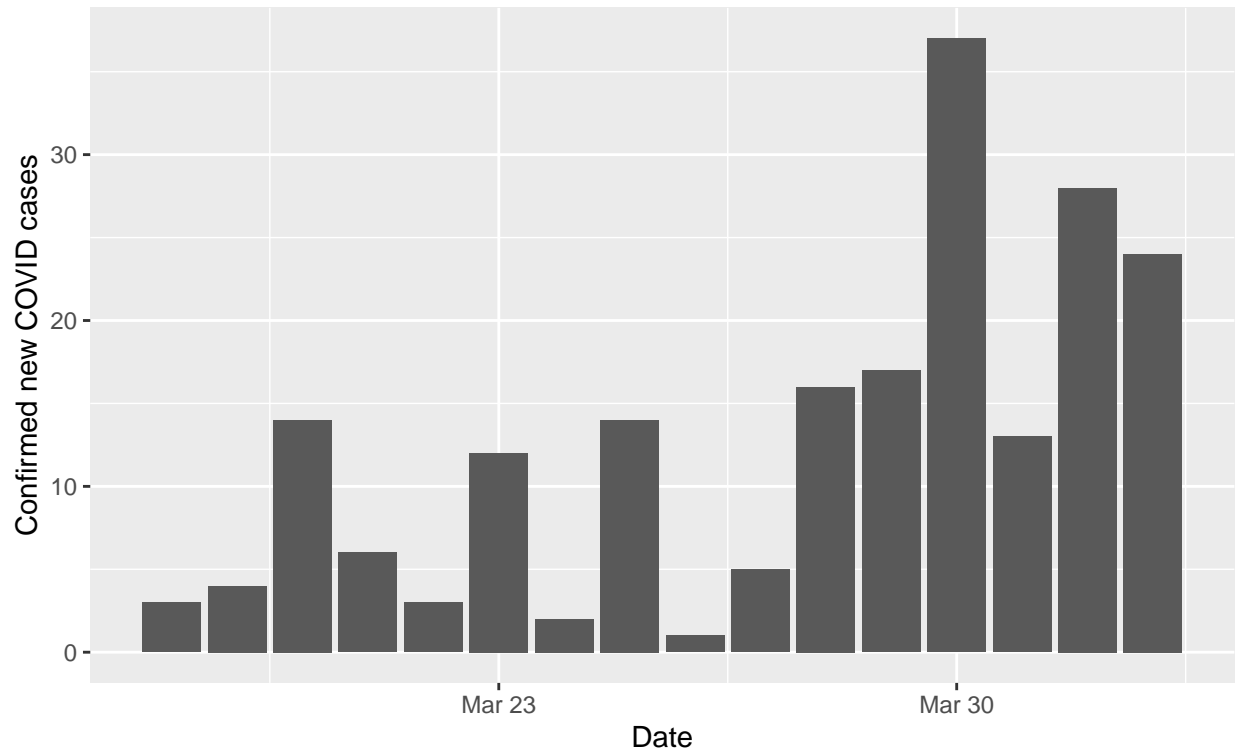


Richland County, South Carolina

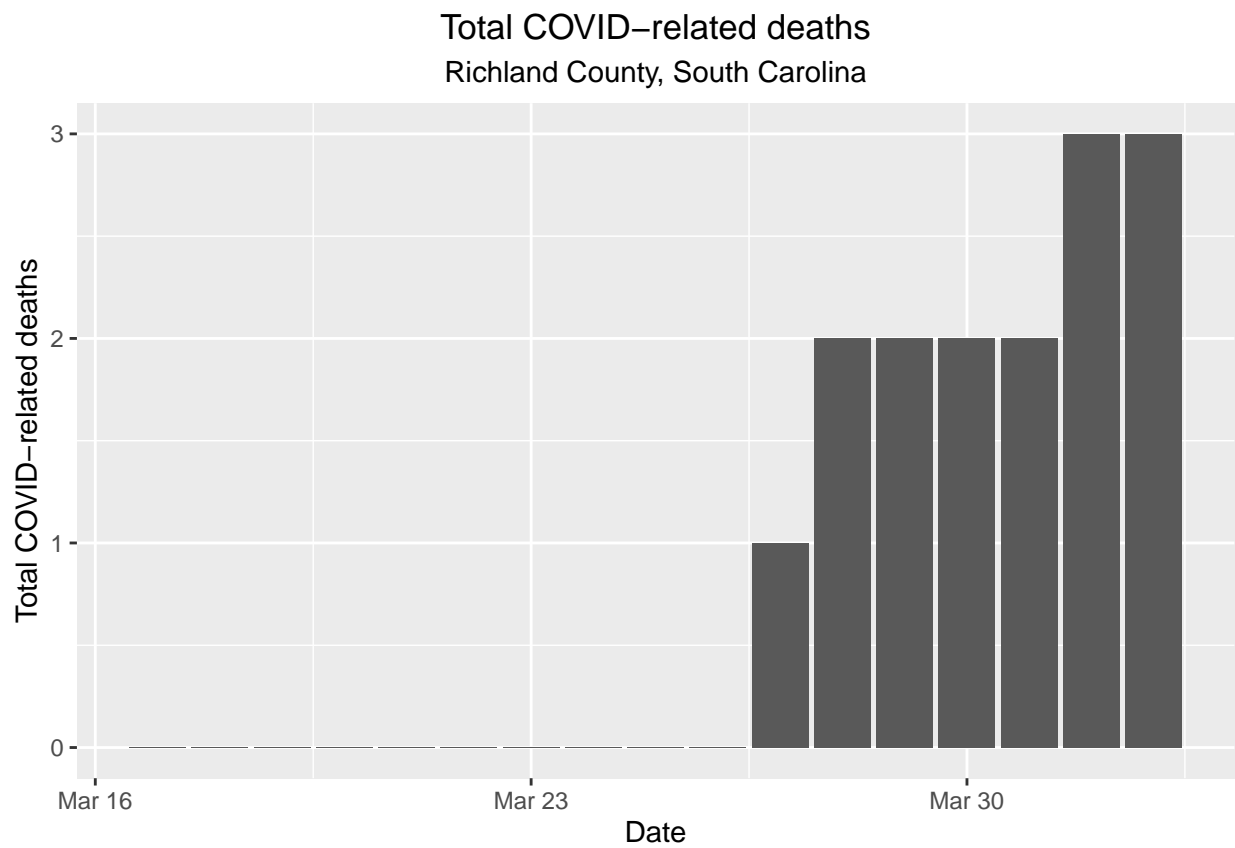
Confirmed cases



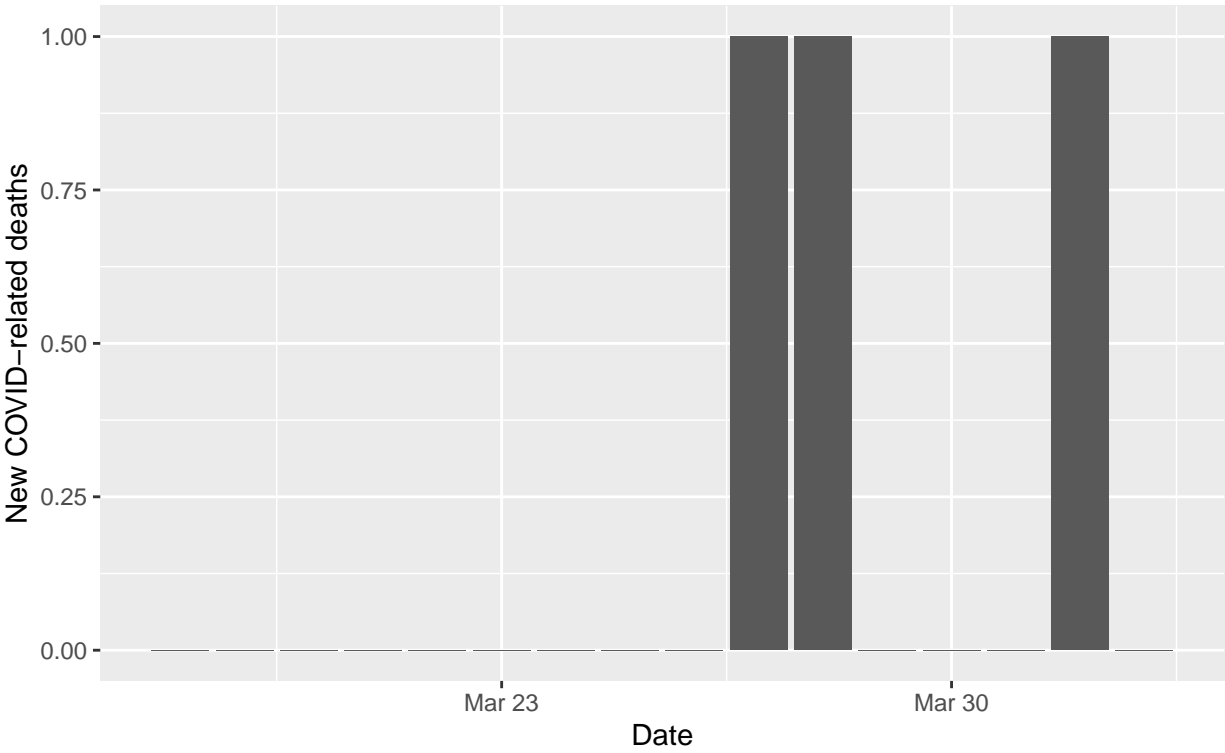
Confirmed new COVID cases by day
Richland County, South Carolina



Deaths

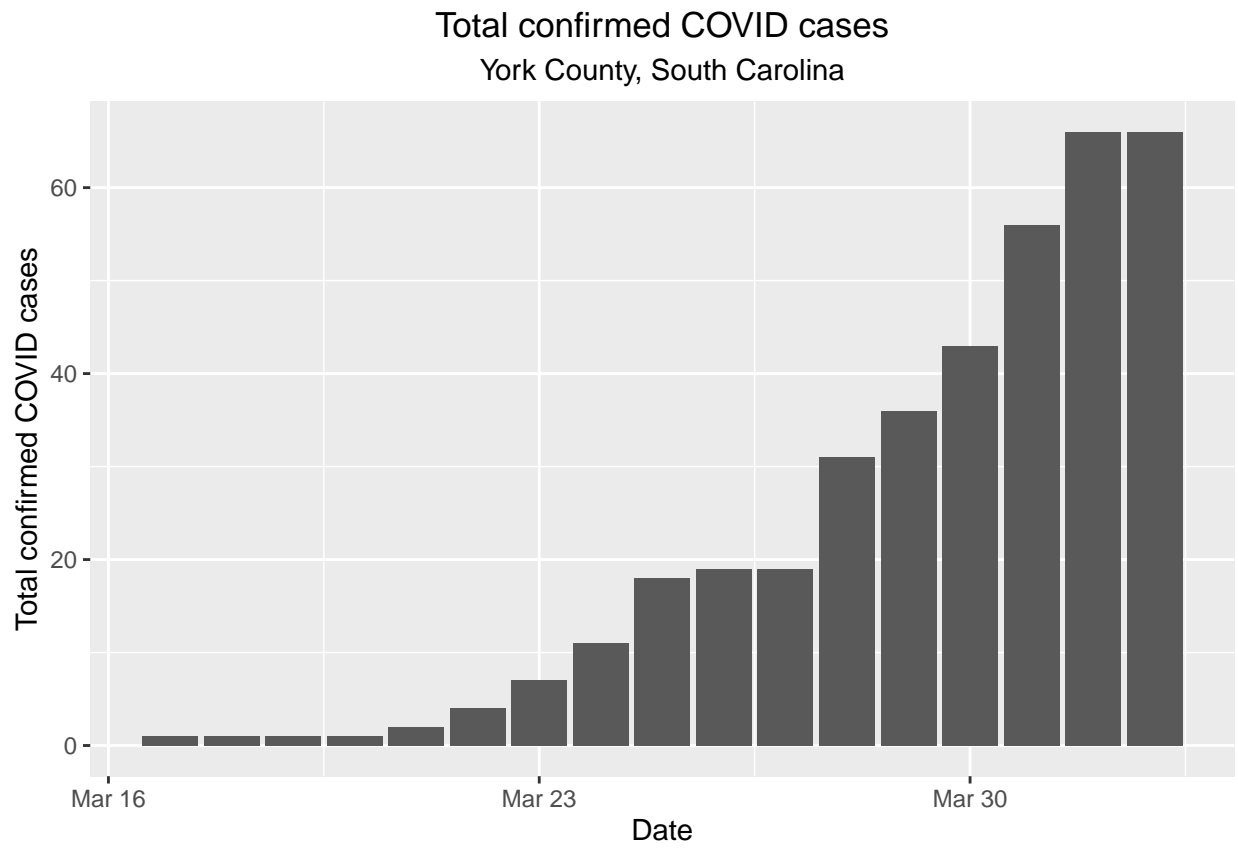


New COVID–related deaths by day
Richland County, South Carolina

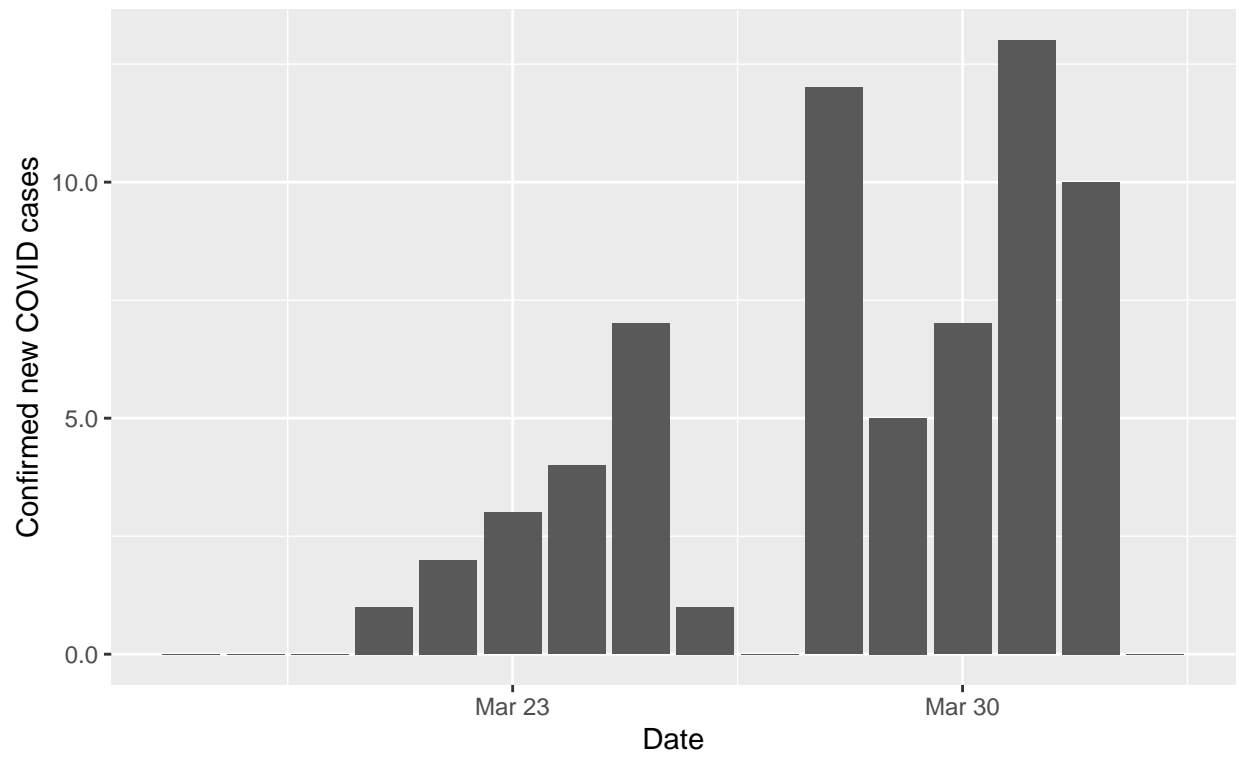


York County, South Carolina

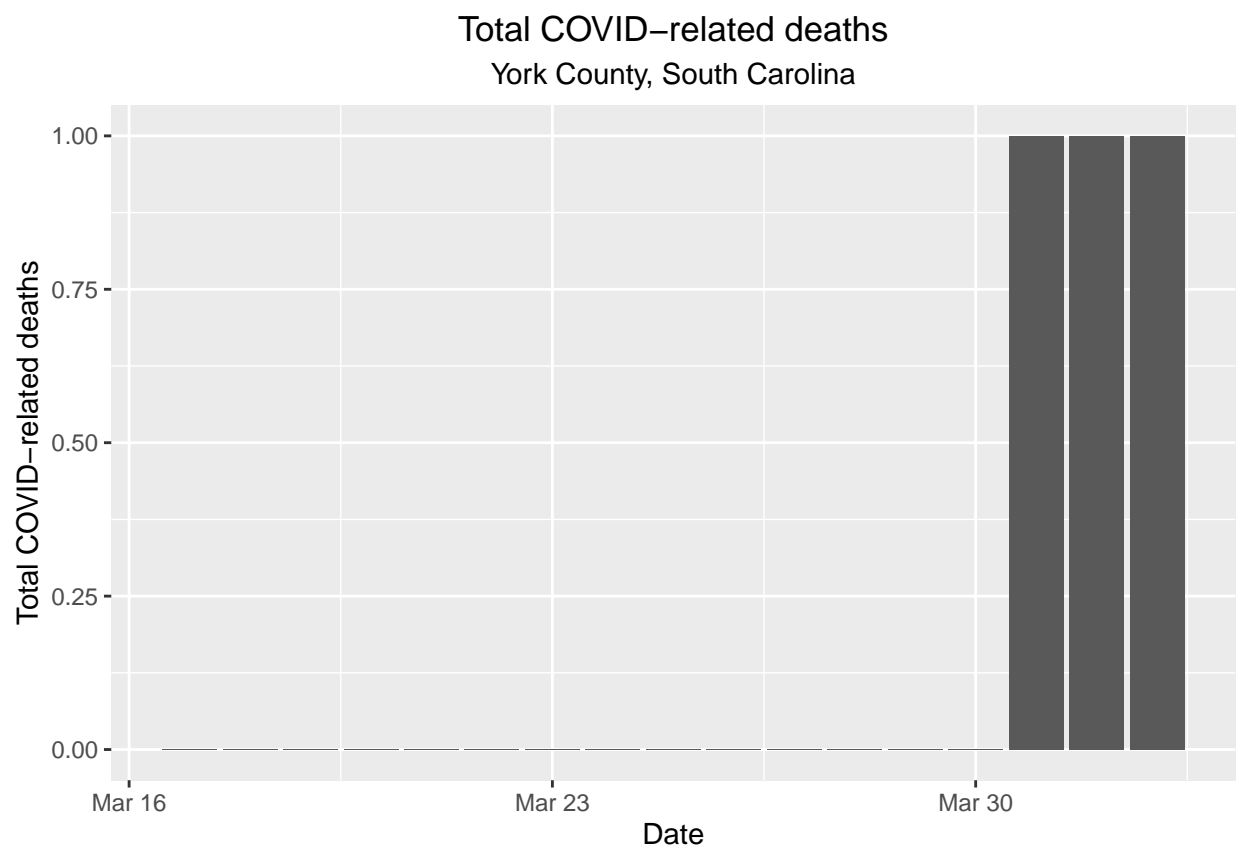
Confirmed cases



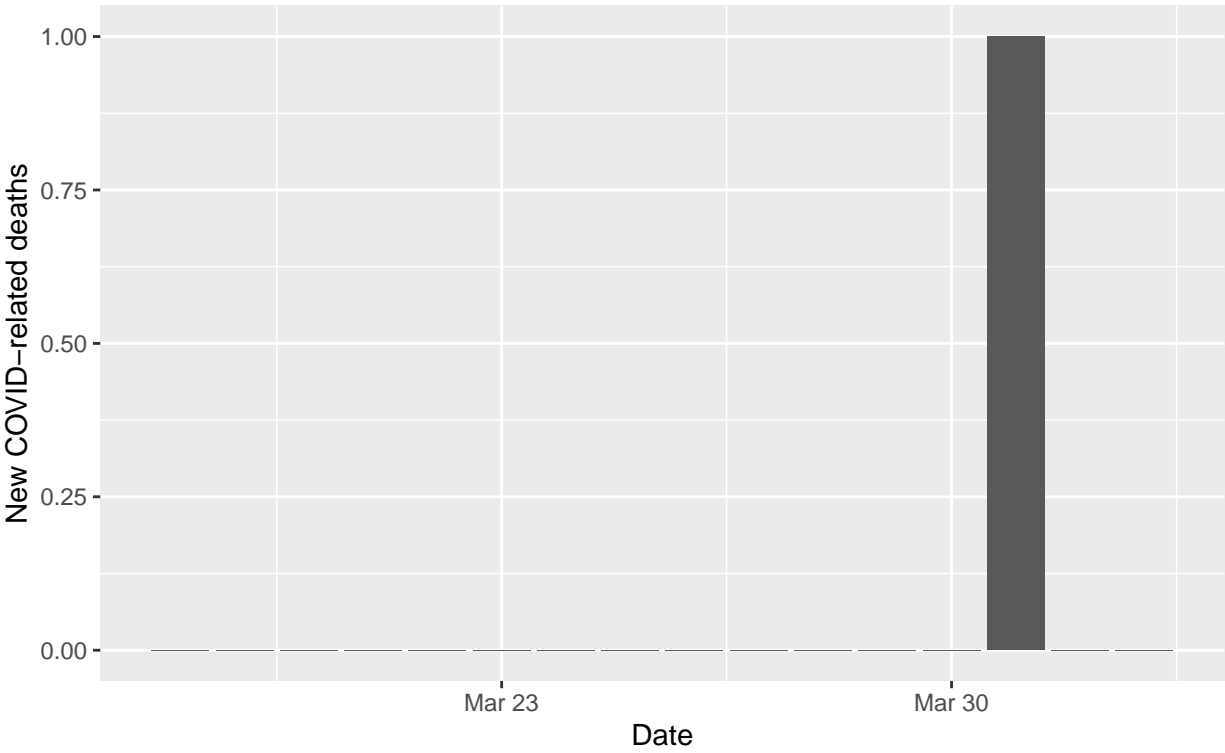
Confirmed new COVID cases by day
York County, South Carolina



Deaths

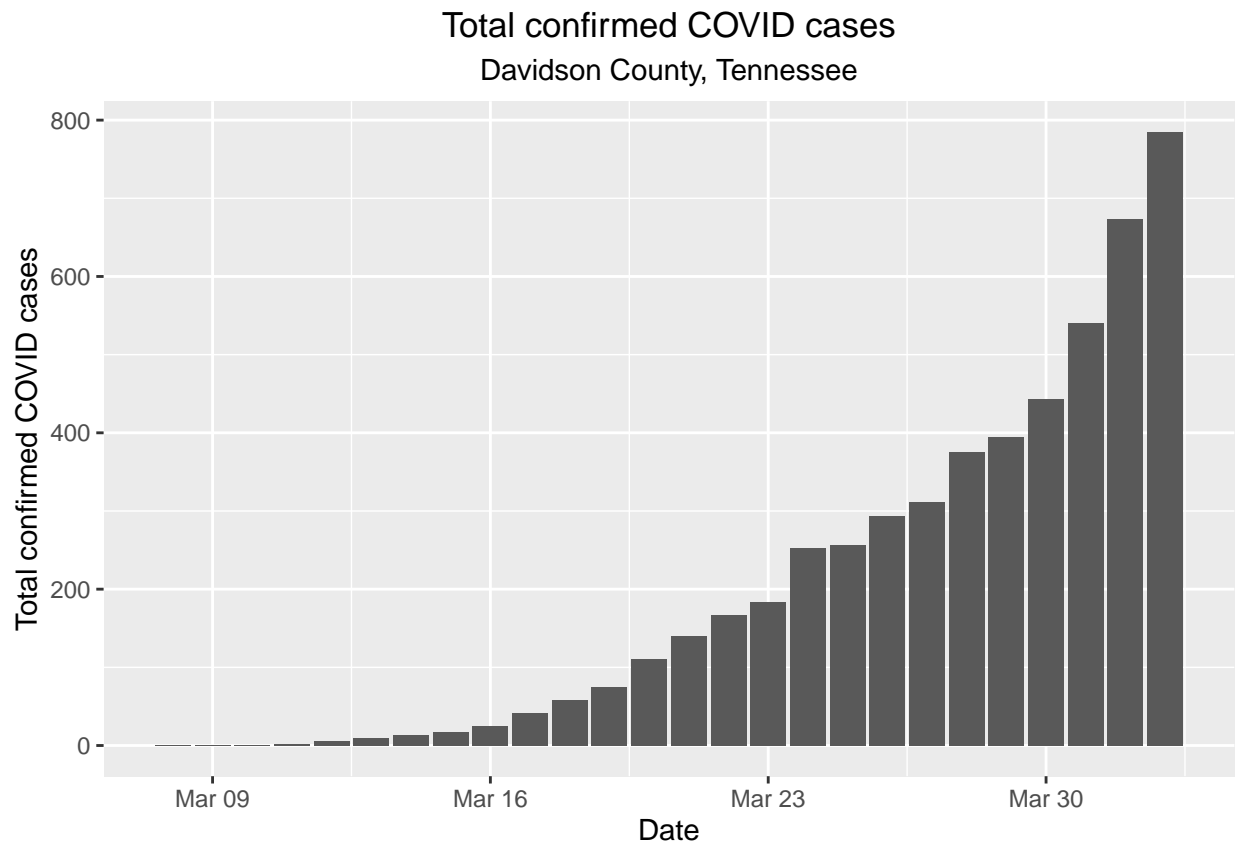


New COVID–related deaths by day
York County, South Carolina

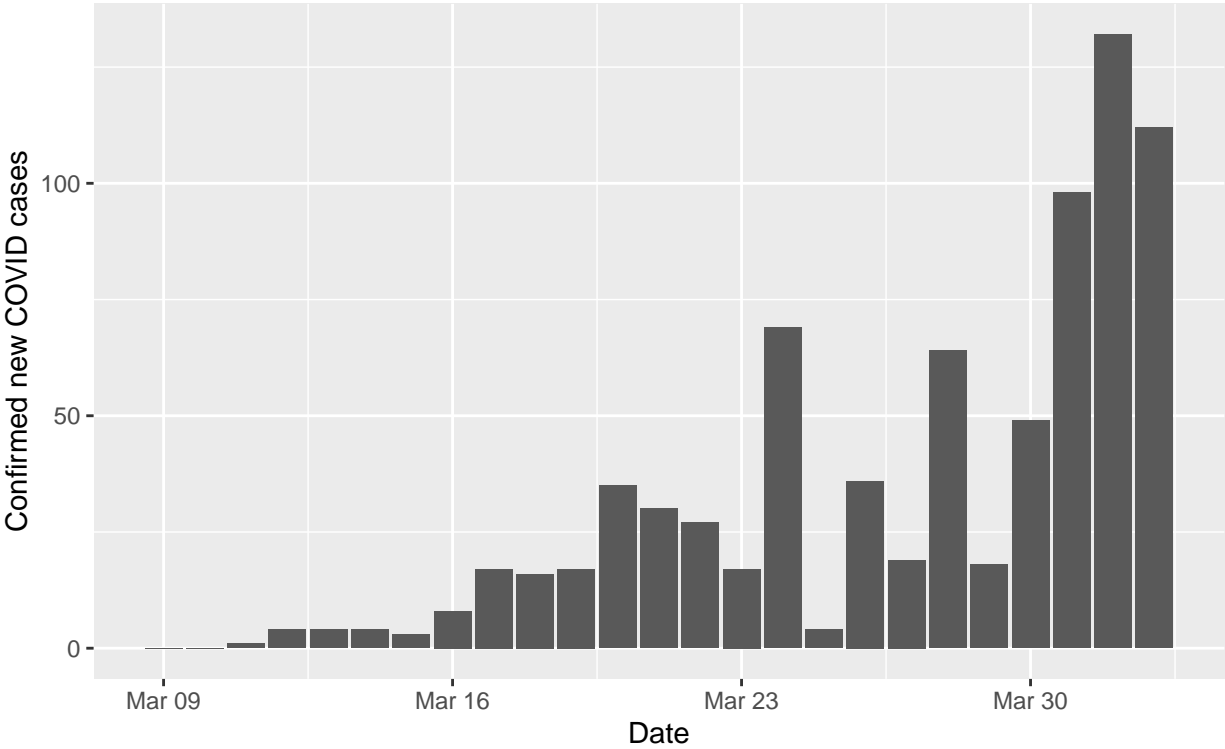


Davidson County, Tennessee

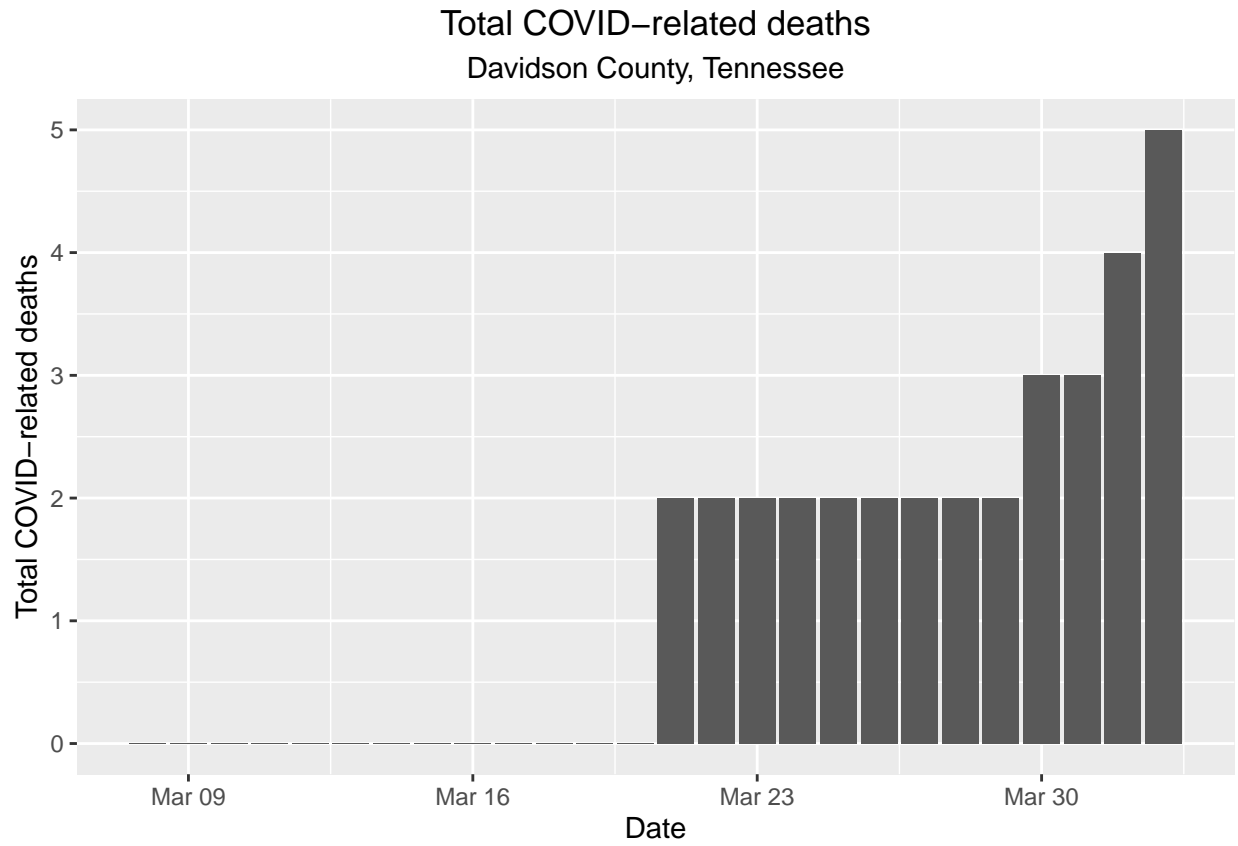
Confirmed cases

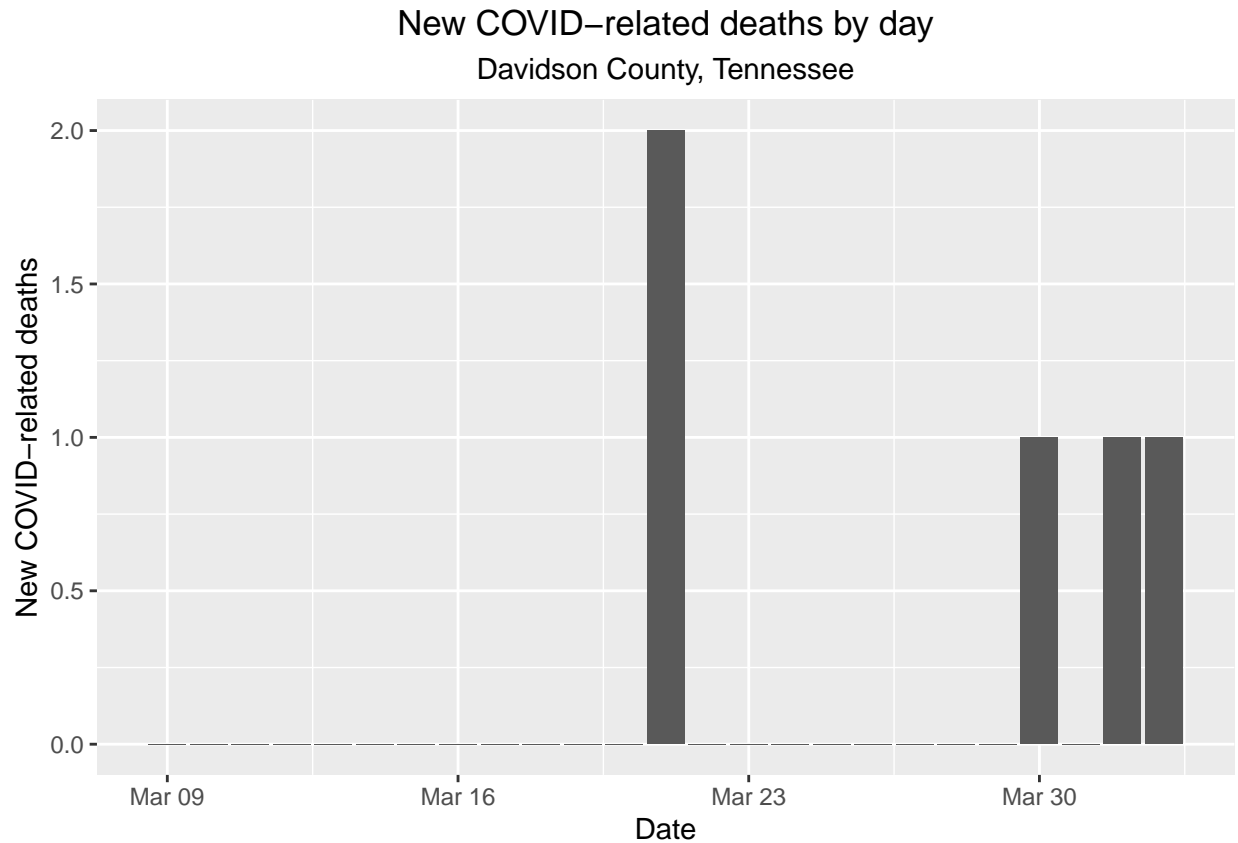


Confirmed new COVID cases by day
Davidson County, Tennessee



Deaths





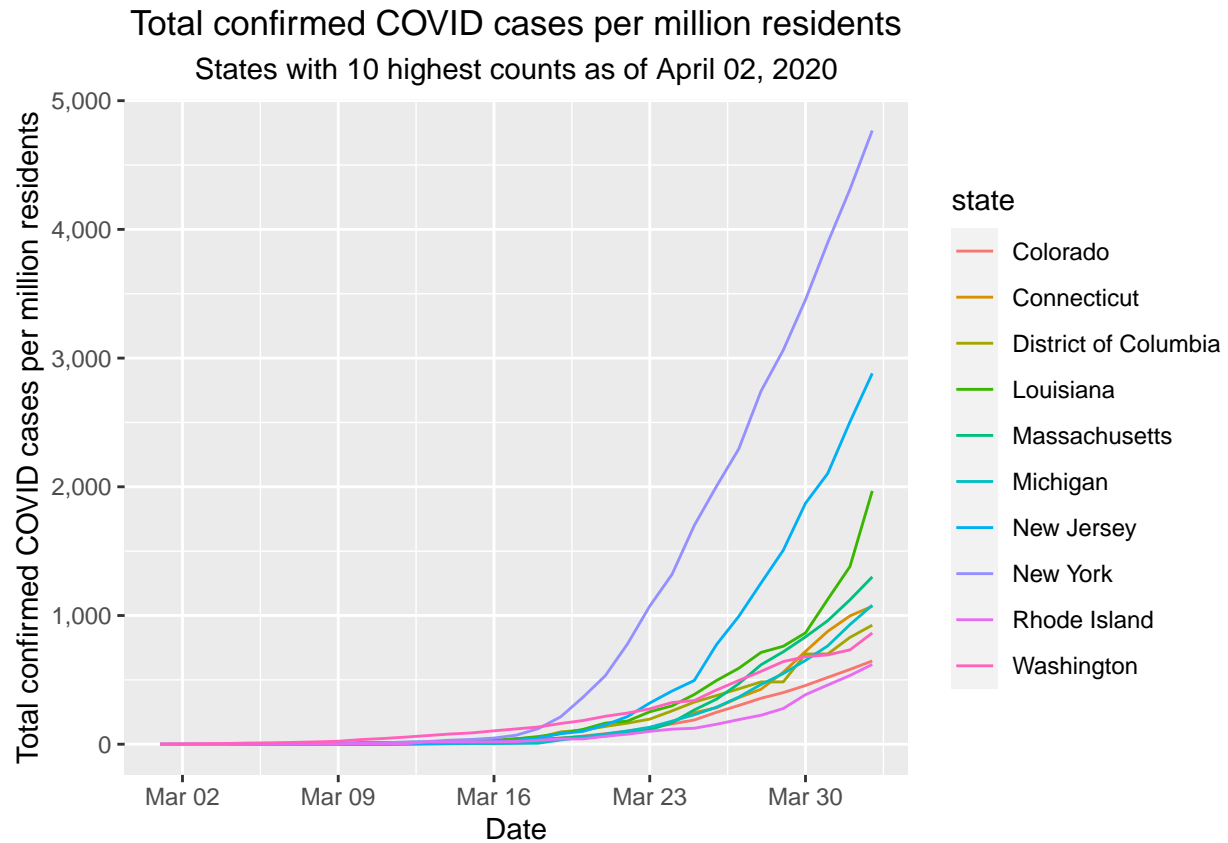
Compare state data based on population

Total confirmed cases

Table of total confirmed cases per million residents (all 50 states)

##	state	casesPerMillion
## 1:	New York	4,768
## 2:	New Jersey	2,881
## 3:	Louisiana	1,968
## 4:	Massachusetts	1,300
## 5:	Michigan	1,080
## 6:	Connecticut	1,072
## 7:	District of Columbia	925
## 8:	Washington	864
## 9:	Colorado	647
## 10:	Rhode Island	620
## 11:	Illinois	607
## 12:	Pennsylvania	548
## 13:	Vermont	541
## 14:	Georgia	512
## 15:	Idaho	498
## 16:	Nevada	473
## 17:	Indiana	451
## 18:	Tennessee	420

## 19:	Florida	419
## 20:	Delaware	403
## 21:	Mississippi	395
## 22:	Maryland	385
## 23:	New Hampshire	352
## 24:	Utah	335
## 25:	South Carolina	301
## 26:	Missouri	298
## 27:	Wisconsin	297
## 28:	Maine	279
## 29:	California	278
## 30:	Wyoming	264
## 31:	Alabama	259
## 32:	Ohio	248
## 33:	Arkansas	226
## 34:	Montana	225
## 35:	Oklahoma	222
## 36:	Arizona	219
## 37:	North Dakota	208
## 38:	Alaska	199
## 39:	Hawaii	199
## 40:	Virginia	199
## 41:	Oregon	195
## 42:	Iowa	194
## 43:	New Mexico	192
## 44:	Kansas	190
## 45:	South Dakota	186
## 46:	North Carolina	177
## 47:	Kentucky	168
## 48:	Texas	168
## 49:	Nebraska	141
## 50:	Minnesota	131
## 51:	West Virginia	121
## 52:	Puerto Rico	98
## 53:	Guam	<NA>
## 54:	Northern Mariana Islands	<NA>
## 55:	Virgin Islands	<NA>
##	state casesPerMillion	



New confirmed cases

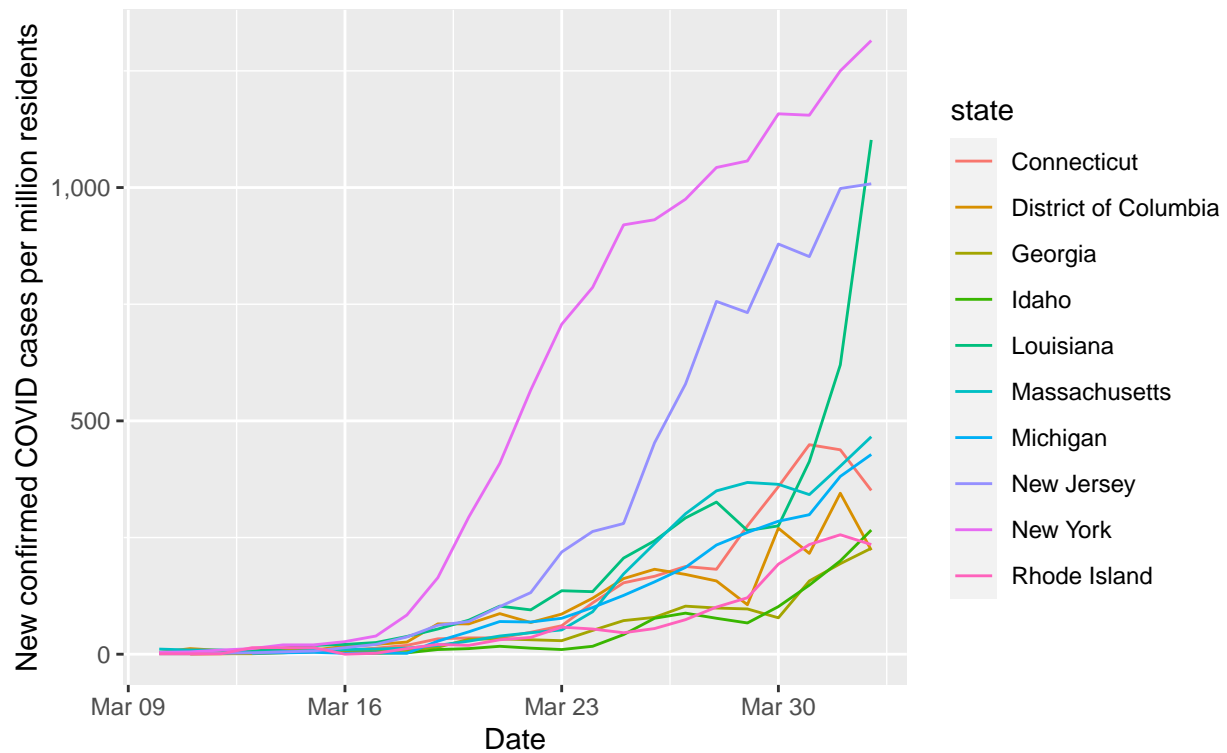
Table of new cases per million residents: rolling 3-day average (all 50 states)

##	state	casesNewPerMillion
## 1:	New York	1,315
## 2:	Louisiana	1,102
## 3:	New Jersey	1,008
## 4:	Massachusetts	466
## 5:	Michigan	428
## 6:	Connecticut	351
## 7:	Idaho	266
## 8:	Rhode Island	235
## 9:	Georgia	227
## 10:	District of Columbia	223
## 11:	Pennsylvania	223
## 12:	Illinois	207
## 13:	Colorado	191
## 14:	Indiana	185
## 15:	Washington	184
## 16:	Tennessee	168
## 17:	Florida	153
## 18:	Maryland	151
## 19:	Nevada	134
## 20:	Delaware	132

## 21:	Vermont	131
## 22:	Missouri	127
## 23:	South Carolina	122
## 24:	New Hampshire	121
## 25:	Mississippi	110
## 26:	Oklahoma	100
## 27:	Wyoming	100
## 28:	California	90
## 29:	Utah	83
## 30:	Ohio	82
## 31:	Virginia	80
## 32:	Wisconsin	79
## 33:	Maine	75
## 34:	South Dakota	72
## 35:	Alabama	65
## 36:	North Dakota	65
## 37:	Texas	63
## 38:	Kansas	62
## 39:	Kentucky	61
## 40:	Iowa	60
## 41:	Arizona	59
## 42:	Montana	59
## 43:	New Mexico	58
## 44:	Arkansas	57
## 45:	Hawaii	55
## 46:	North Carolina	52
## 47:	Oregon	52
## 48:	Nebraska	45
## 49:	Puerto Rico	44
## 50:	West Virginia	40
## 51:	Alaska	36
## 52:	Minnesota	29
## 53:	Guam	<NA>
## 54:	Northern Mariana Islands	<NA>
## 55:	Virgin Islands	<NA>
##	state casesNewPerMillion	

w confirmed COVID cases per million resident (3-day rolling average)

States with 10 highest counts as of April 02, 2020



Total deaths

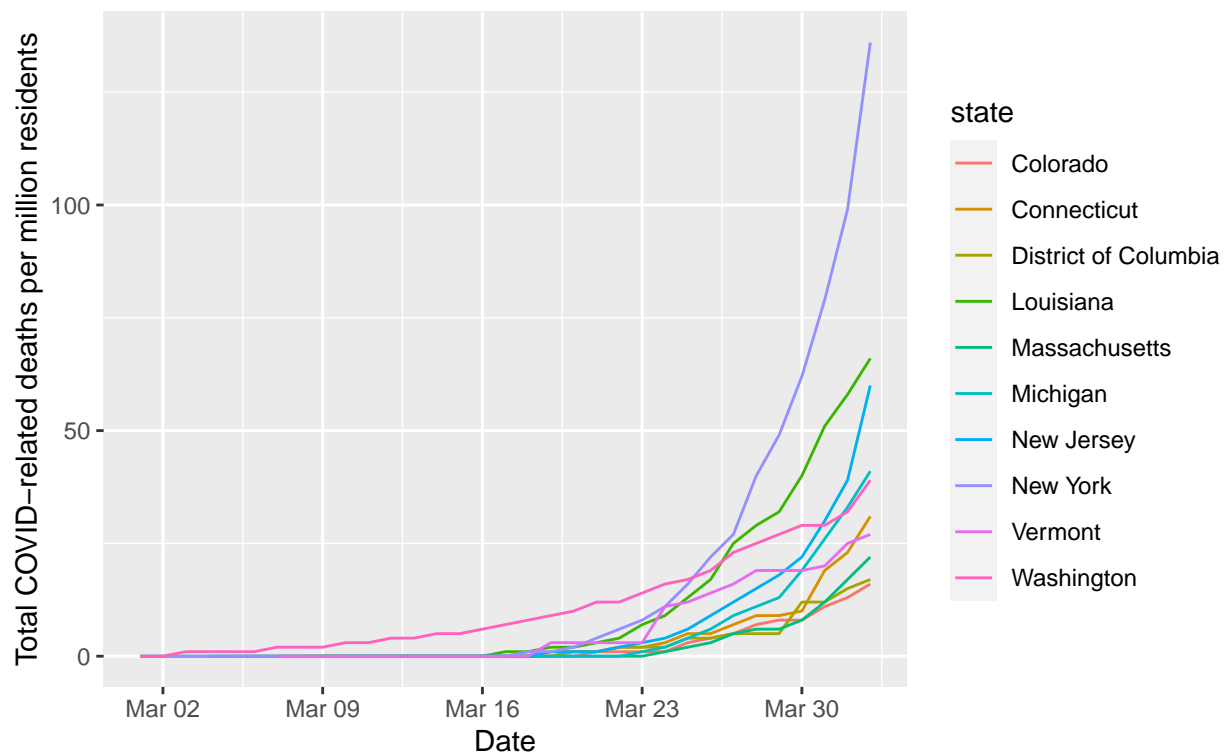
Table of total deaths per million residents (all 50 states)

##	state	deathsPerMillion
## 1:	New York	136
## 2:	Louisiana	66
## 3:	New Jersey	60
## 4:	Michigan	41
## 5:	Washington	39
## 6:	Connecticut	31
## 7:	Vermont	27
## 8:	Massachusetts	22
## 9:	District of Columbia	17
## 10:	Colorado	16
## 11:	Georgia	16
## 12:	Illinois	13
## 13:	Delaware	12
## 14:	Nevada	12
## 15:	Indiana	11
## 16:	Rhode Island	11
## 17:	Mississippi	8
## 18:	Oklahoma	8
## 19:	Kentucky	7
## 20:	Pennsylvania	7

## 21:	Alabama	6
## 22:	California	6
## 23:	Florida	6
## 24:	Ohio	6
## 25:	South Carolina	6
## 26:	Wisconsin	6
## 27:	Idaho	5
## 28:	Maine	5
## 29:	Maryland	5
## 30:	Montana	5
## 31:	Arizona	4
## 32:	Kansas	4
## 33:	Oregon	4
## 34:	Tennessee	4
## 35:	Virginia	4
## 36:	Arkansas	3
## 37:	Iowa	3
## 38:	Minnesota	3
## 39:	Missouri	3
## 40:	Nebraska	3
## 41:	New Hampshire	3
## 42:	New Mexico	3
## 43:	North Dakota	3
## 44:	Puerto Rico	3
## 45:	Alaska	2
## 46:	South Dakota	2
## 47:	Texas	2
## 48:	Utah	2
## 49:	Hawaii	1
## 50:	North Carolina	1
## 51:	West Virginia	1
## 52:	Wyoming	0
## 53:	Guam	<NA>
## 54:	Northern Mariana Islands	<NA>
## 55:	Virgin Islands	<NA>
##	state deathsPerMillion	

Total COVID-related deaths per million residents

States with 10 highest counts as of April 02, 2020



New deaths

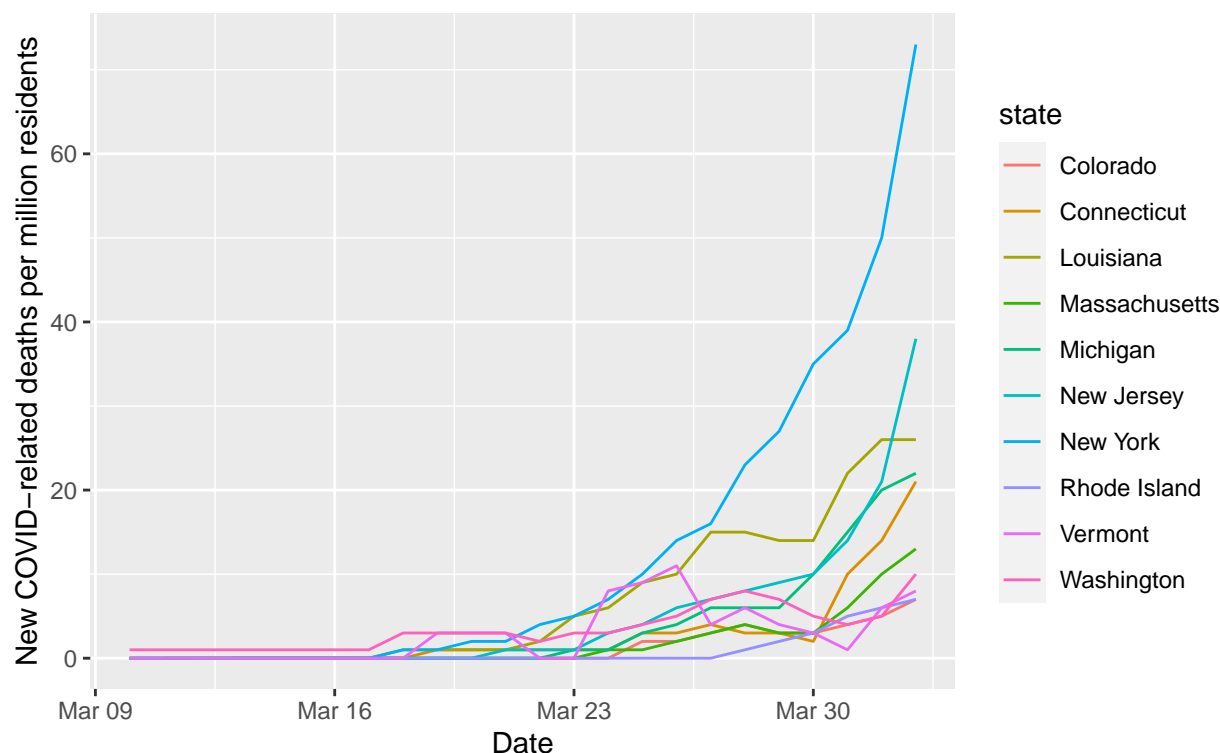
Table of new deaths per million residents: rolling 3-day average (all 50 states)

##	state	deathsNewPerMillion
## 1:	New York	73
## 2:	New Jersey	38
## 3:	Louisiana	26
## 4:	Michigan	22
## 5:	Connecticut	21
## 6:	Massachusetts	13
## 7:	Washington	10
## 8:	Vermont	8
## 9:	Colorado	7
## 10:	Rhode Island	7
## 11:	Georgia	6
## 12:	Illinois	6
## 13:	Indiana	6
## 14:	Nevada	6
## 15:	Delaware	5
## 16:	Kentucky	5
## 17:	Alabama	4
## 18:	District of Columbia	4
## 19:	Oklahoma	4
## 20:	Florida	3

## 21:	Maryland	3
## 22:	Mississippi	3
## 23:	Ohio	3
## 24:	Pennsylvania	3
## 25:	Arizona	2
## 26:	California	2
## 27:	Maine	2
## 28:	South Carolina	2
## 29:	Tennessee	2
## 30:	Wisconsin	2
## 31:	Arkansas	1
## 32:	Hawaii	1
## 33:	Idaho	1
## 34:	Iowa	1
## 35:	Kansas	1
## 36:	Minnesota	1
## 37:	Missouri	1
## 38:	Montana	1
## 39:	Nebraska	1
## 40:	New Hampshire	1
## 41:	New Mexico	1
## 42:	North Carolina	1
## 43:	Oregon	1
## 44:	Puerto Rico	1
## 45:	South Dakota	1
## 46:	Texas	1
## 47:	Virginia	1
## 48:	Alaska	0
## 49:	North Dakota	0
## 50:	Utah	0
## 51:	West Virginia	0
## 52:	Wyoming	0
## 53:	Guam	<NA>
## 54:	Northern Mariana Islands	<NA>
## 55:	Virgin Islands	<NA>
##	state deathsNewPerMillion	

new COVID-related deaths per million resident (3-day rolling average)

States with 10 highest counts as of April 02, 2020



Compare new cases based on stay-at-home orders

- The section is a work in progress – I’ll probably change and add plots over the coming days.
- I’m trying to see what effect stay-at-home orders have on spread. It’s inherently messy because some states have localized orders but not orders for their full state and because states implemented the orders at different times.
- The current plot shows the rolling 3-day average of new cases per million residents, averaged across 2 groups of states – those with a state-wide stay-at-home order in effect and those without. The size of the dots reflect the number of states in each group for each given day (so the dots are getting bigger for the group with orders over time, as more states implement those orders).
- So far, this view doesn’t show if these orders are “working” or not. Instead, the biggest takeaway from the current plot is that the states that implemented orders are reacting to having worse spread, which is why the case rate is so much higher at the start for them. As a state decides it has a problem and implements an order, it joins the grouping of states with orders and drives the rate up for that group.
- Over time (if the policies work), what we’d expect is that the line for the group with orders flattens a bit, but we’ll see. It also may become moot if all states issue orders.
- The next plot I want to add will show rate of spread based on how long an order has been in effect, but still thinking about how to do this. Mostly, I’m trying to decide what the right baseline is to compare against.

