Covid plots for family

April 07, 2020

Contents

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 while 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 geophraphy, 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 growth rate in total cases over the previous 3 days, shown on a rolling basis for each respective date. 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 growth rate in total deaths over the previous 3 days, shown on a rolling basis for each respective date. 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

Total confirmed COVID cases
United States
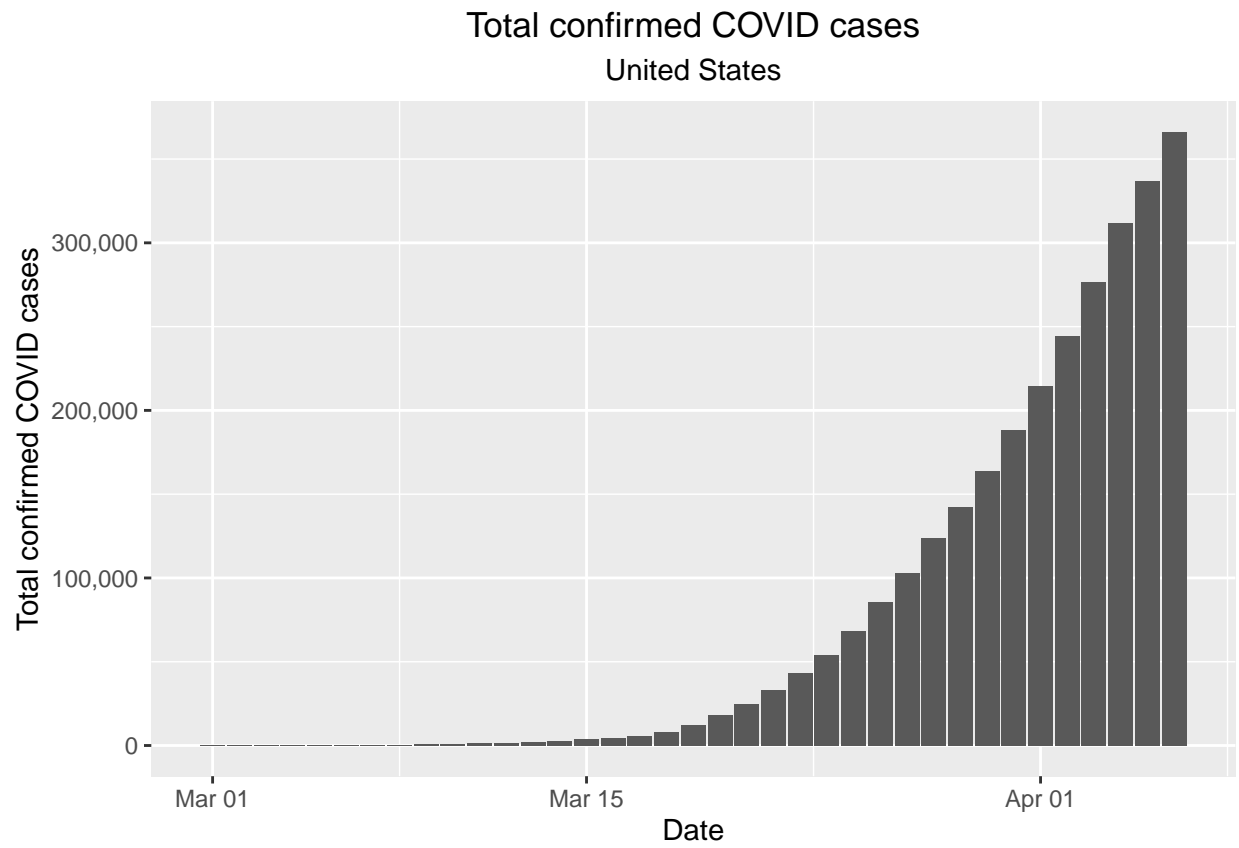
Confirmed new COVID cases by day
United States
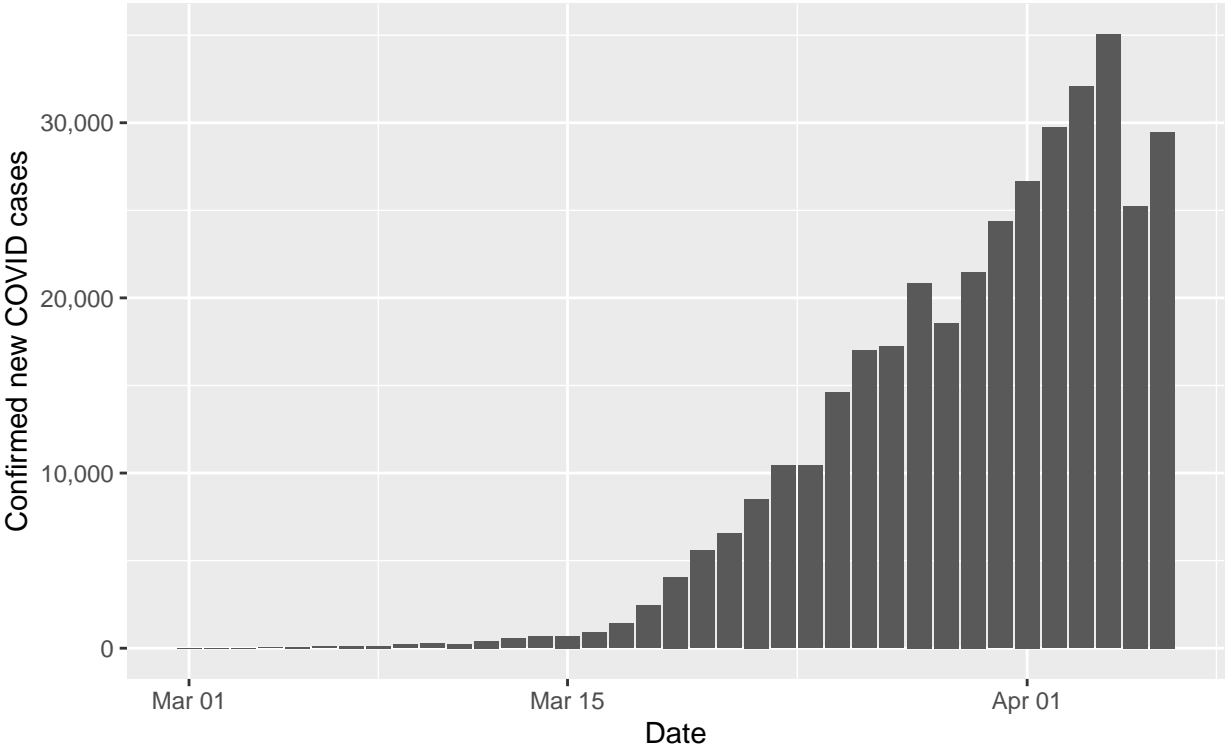
Rolling 3–day rate of growth: Total confirmed COVID cases
United States

Deaths
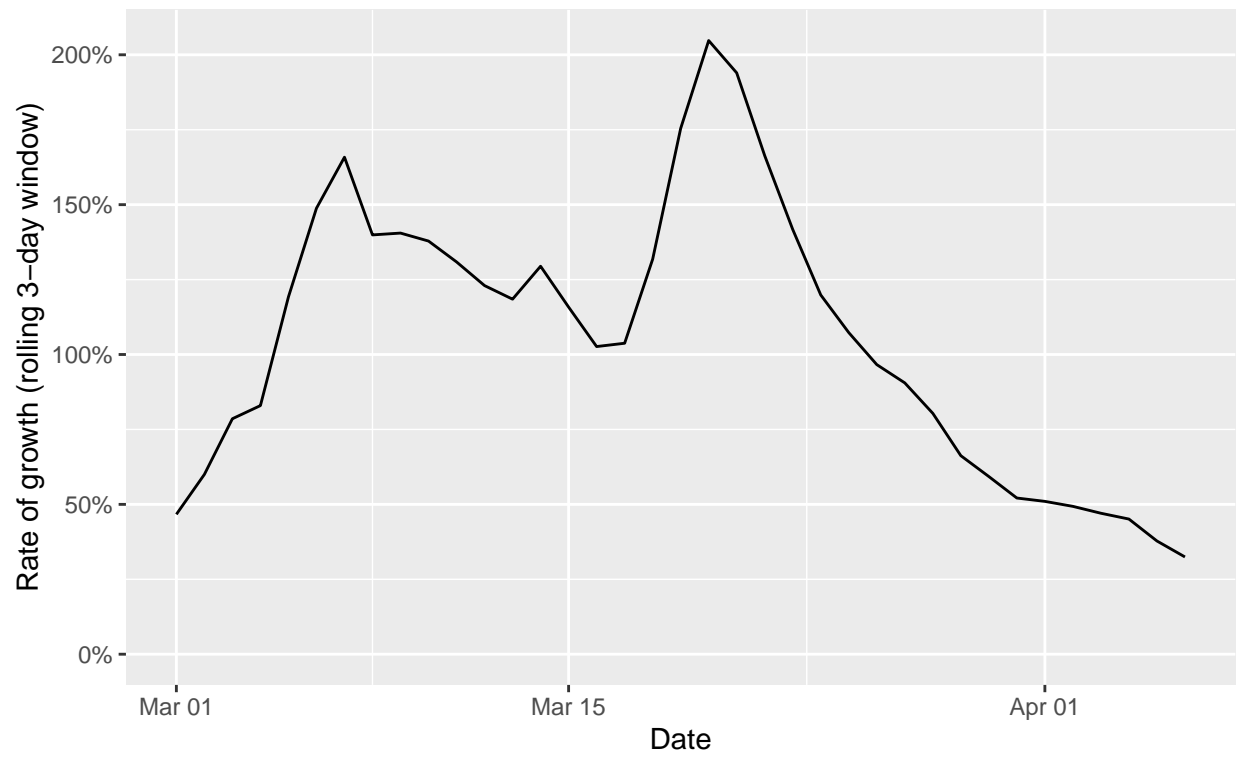
Total COVID−related deaths
United States
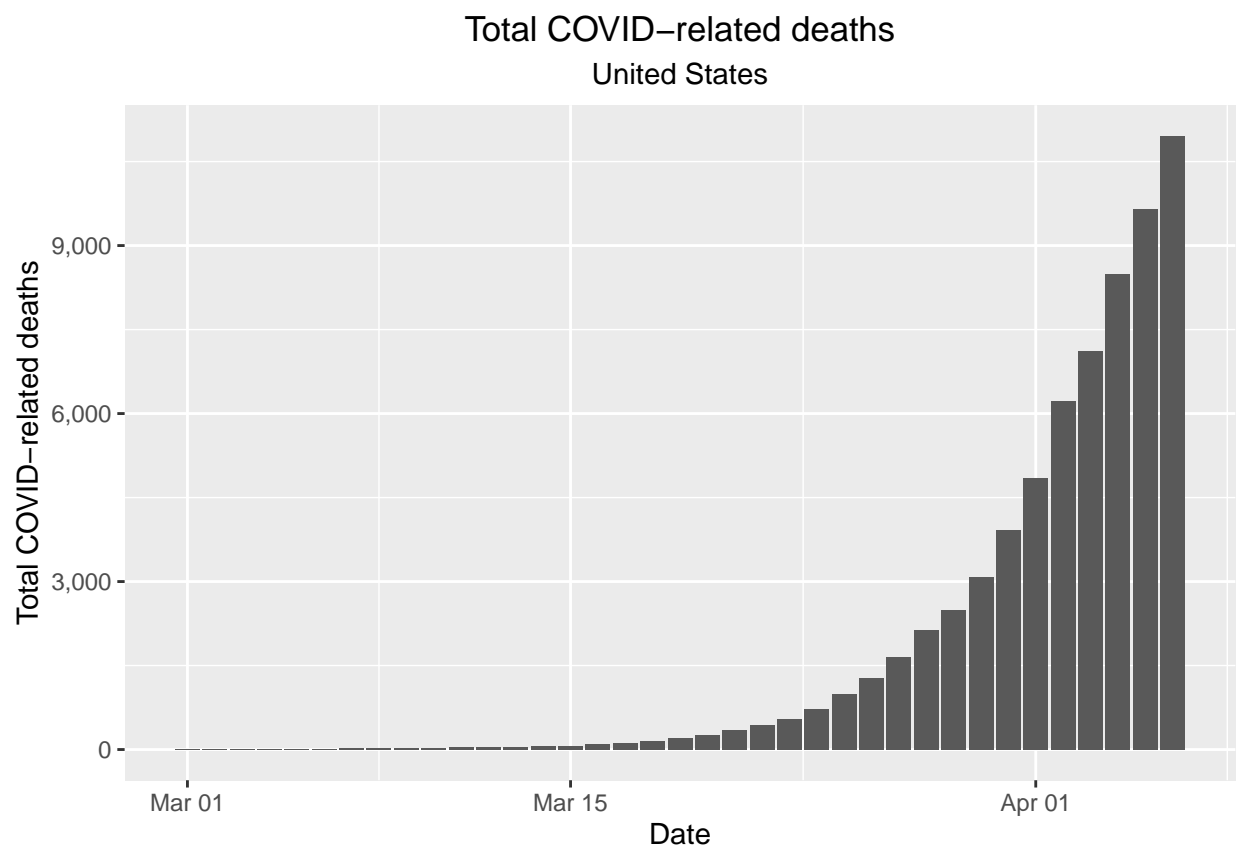
New COVID−related deaths by day
United States
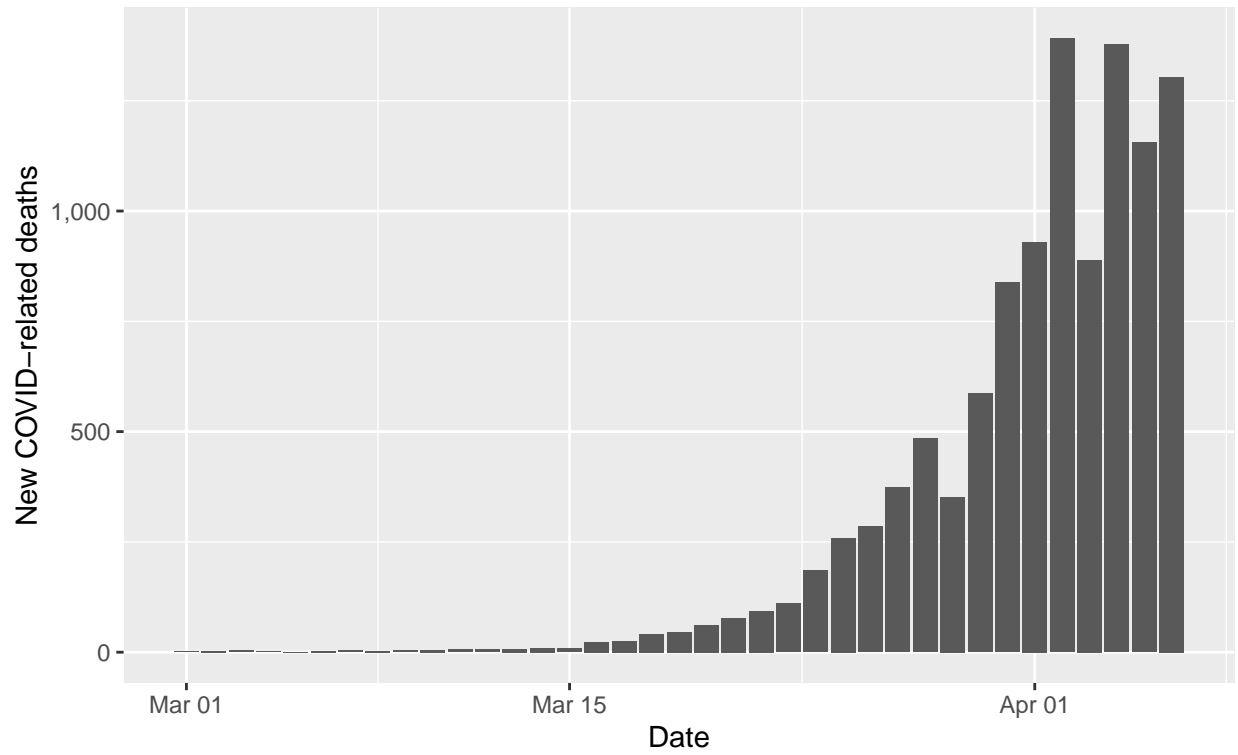
Rolling 3–day rate of growth: Total COVID–related deaths
United States

Washington

Confirmed cases
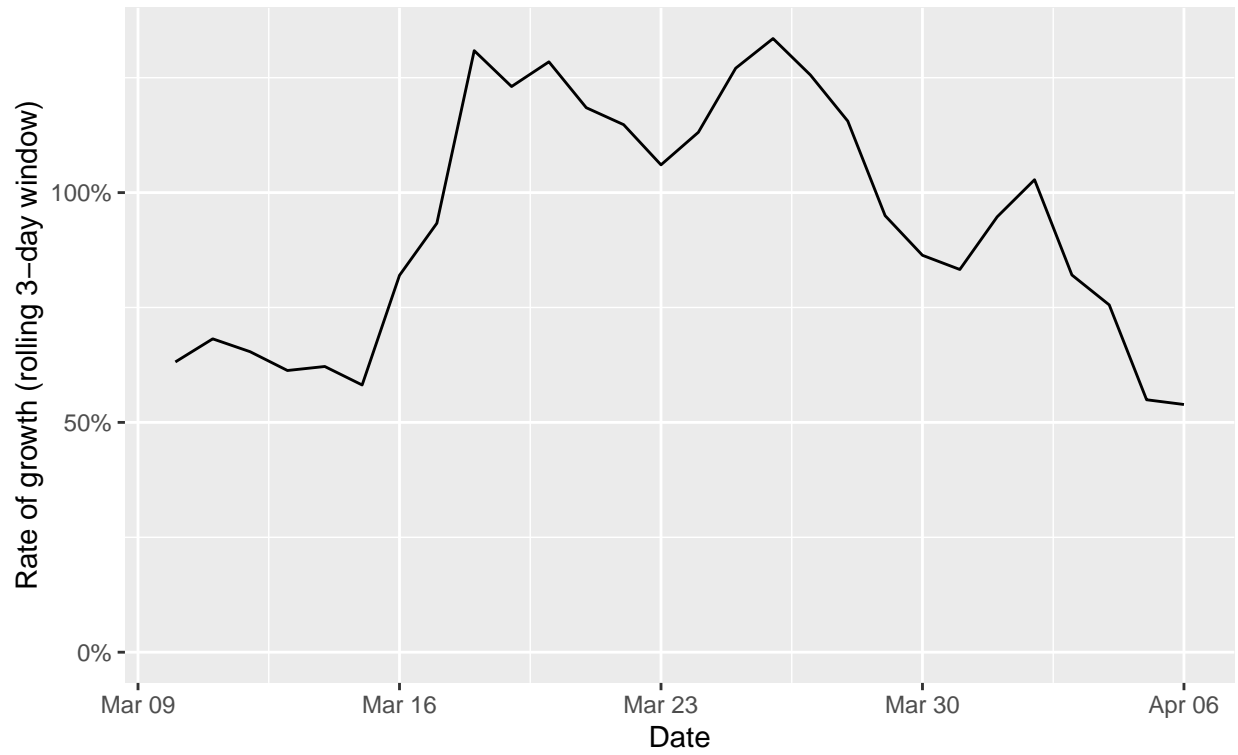
Total confirmed COVID cases
Washington
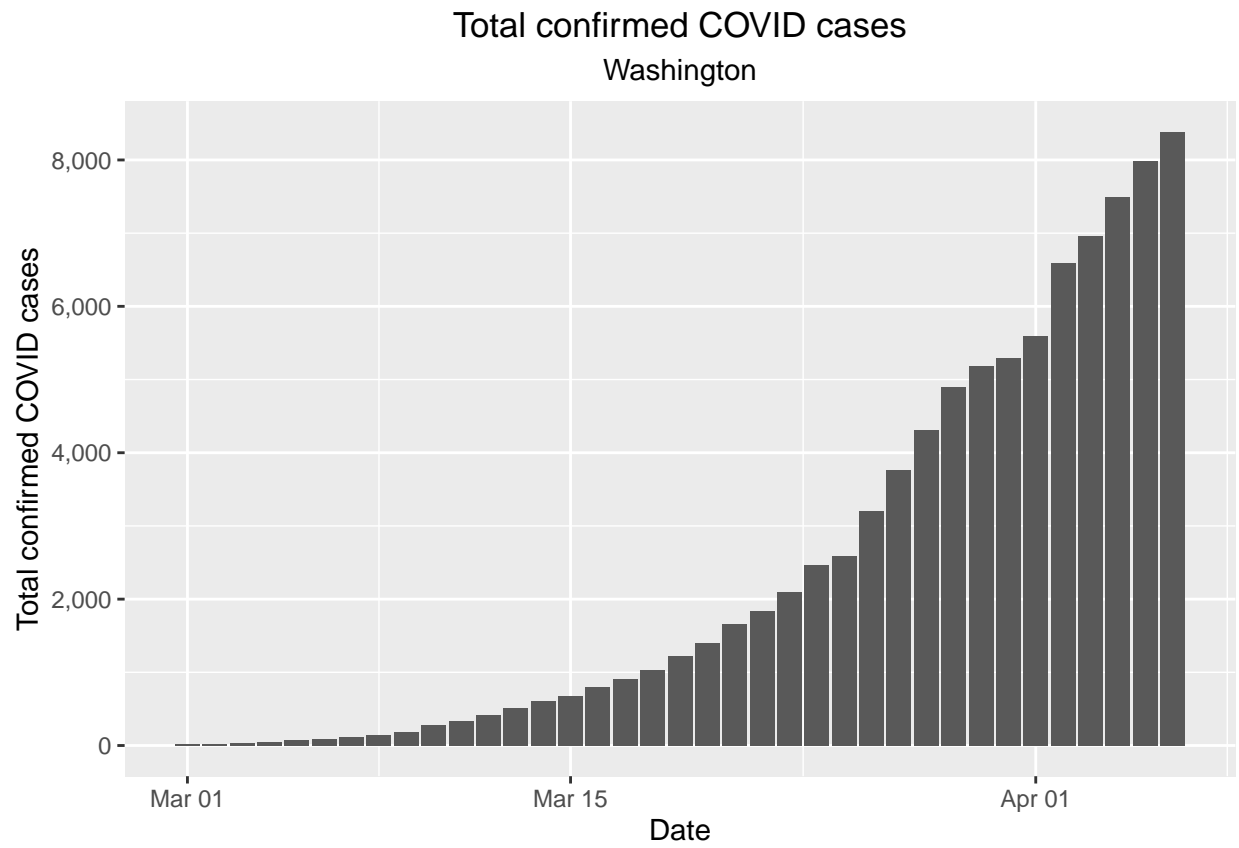
Confirmed new COVID cases by day
Washington

Rolling 3–day rate of growth: Total confirmed COVID cases
Washington

Deaths

Total COVID−related deaths
Washington

New COVID−related deaths by day
Washington
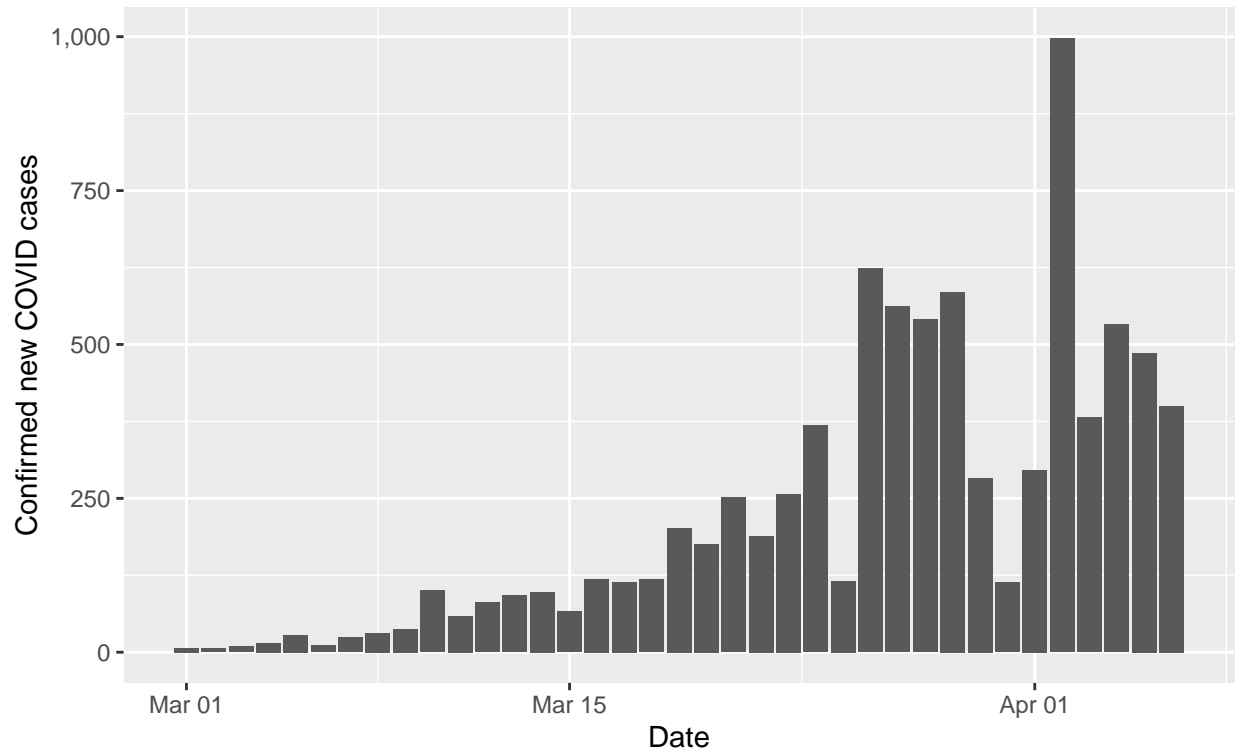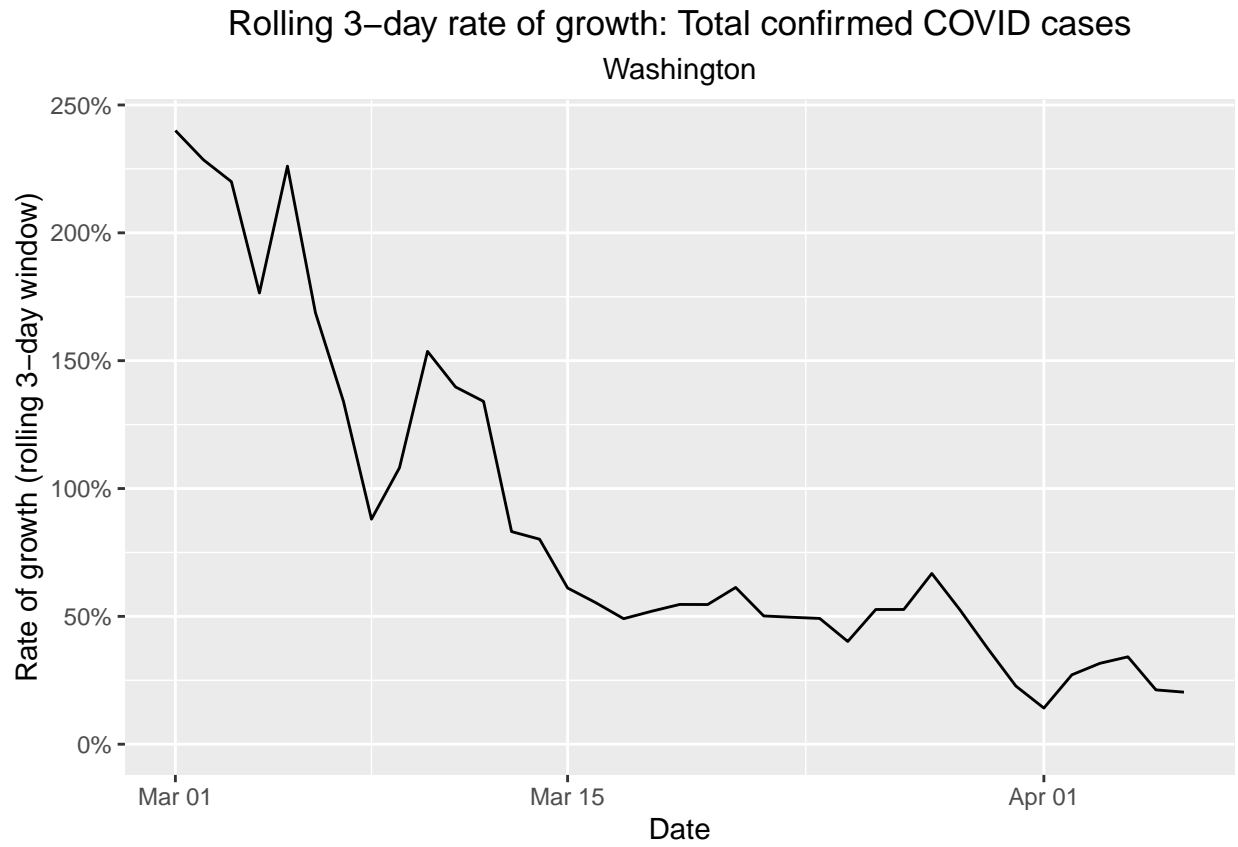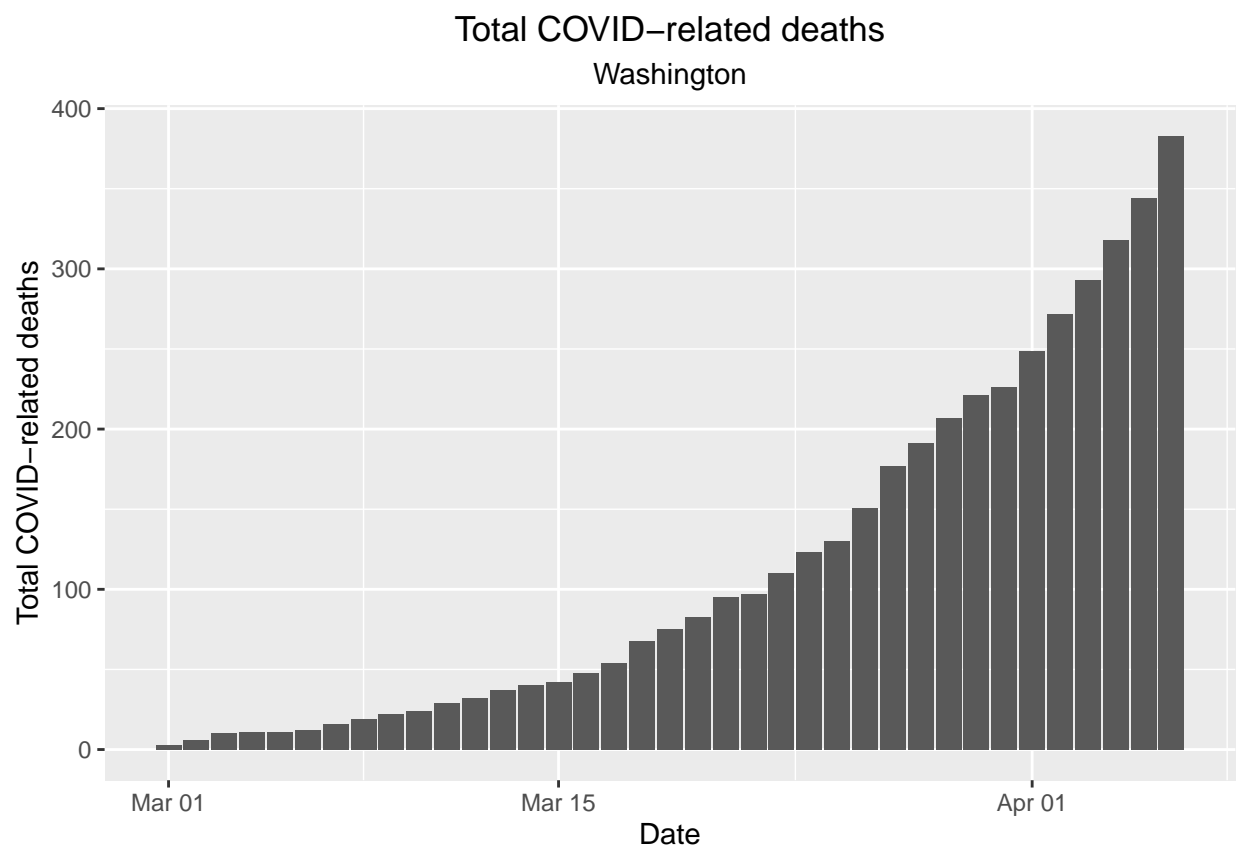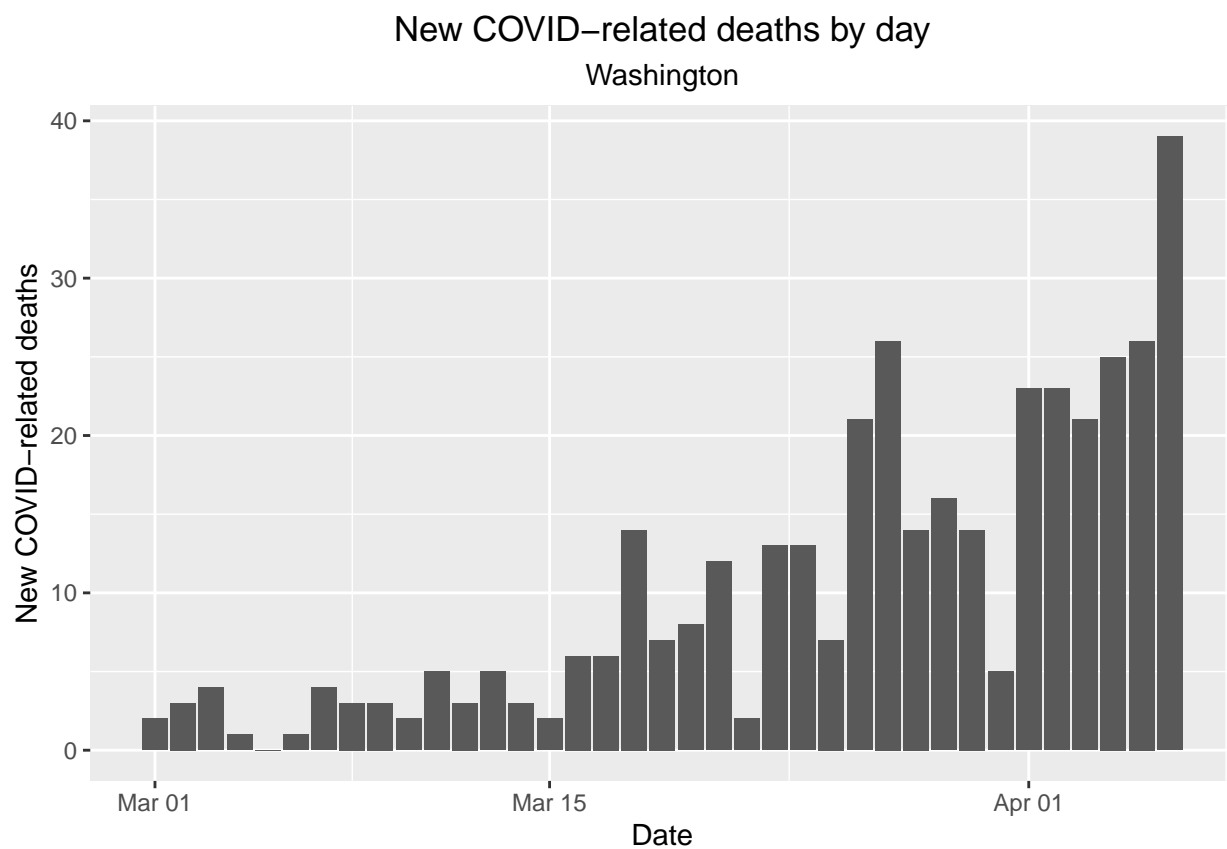
Rolling 3–day rate of growth: Total COVID–related deaths

Washington

California

Confirmed cases
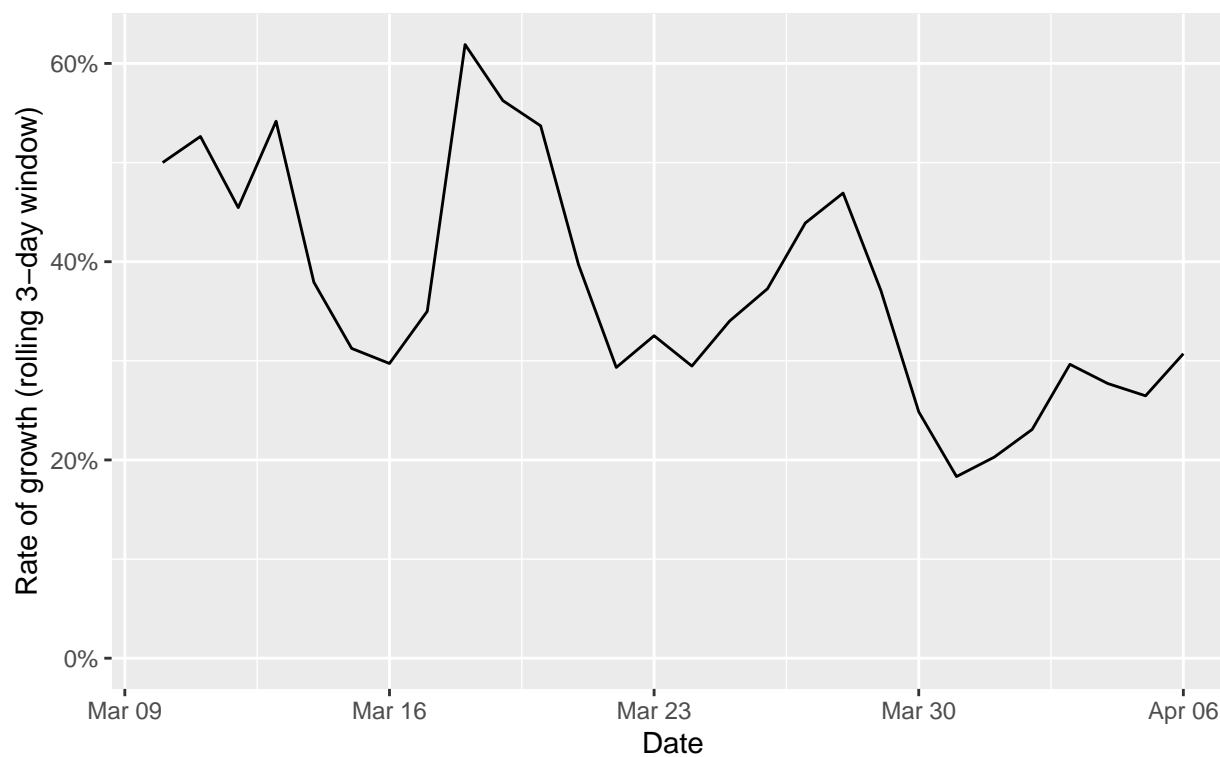
Total confirmed COVID cases
California
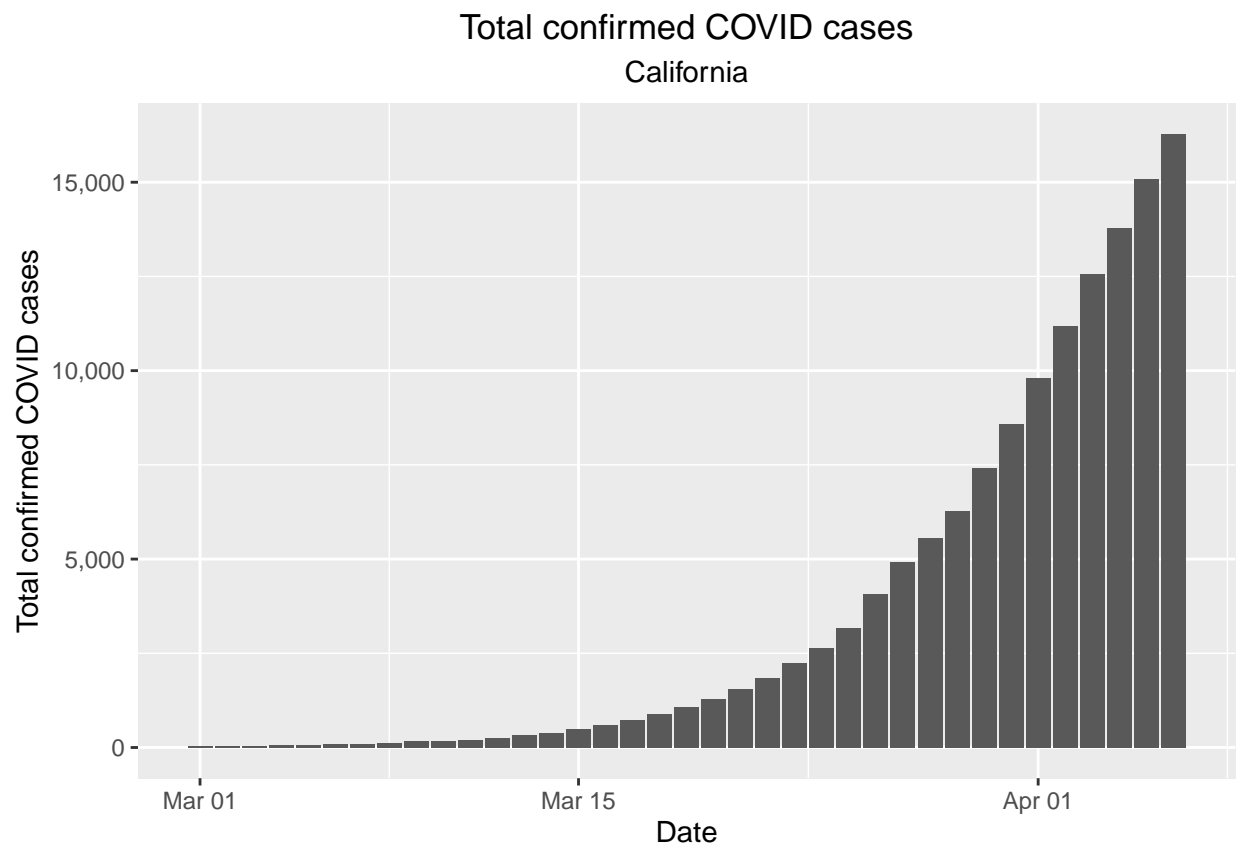
Confirmed new COVID cases by day
California
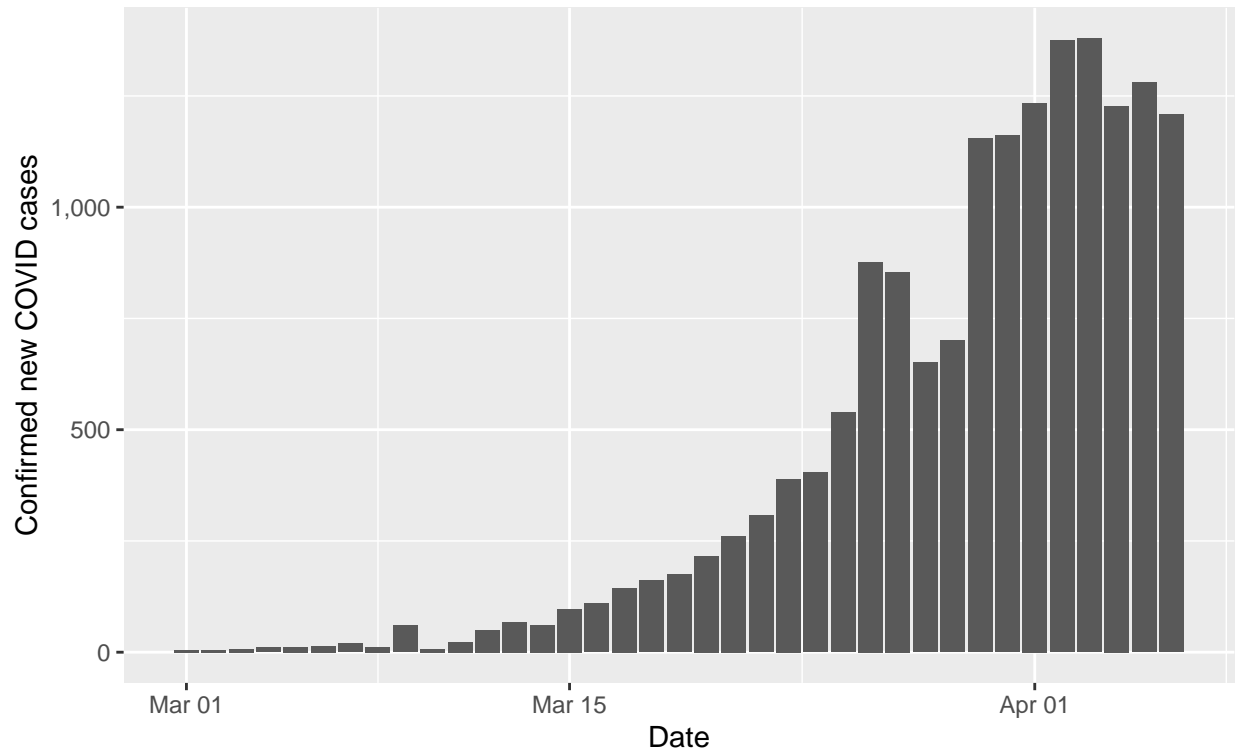
Rolling 3–day rate of growth: Total confirmed COVID cases
California

Total COVID−related deaths
California
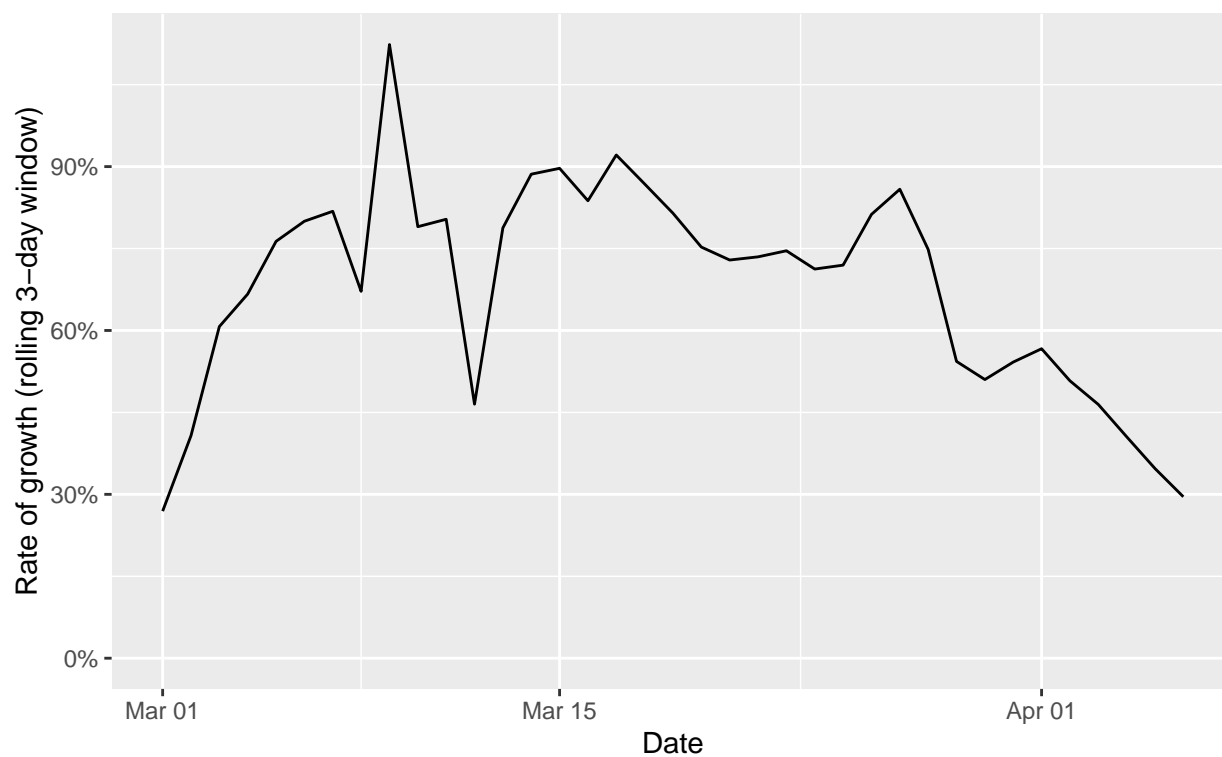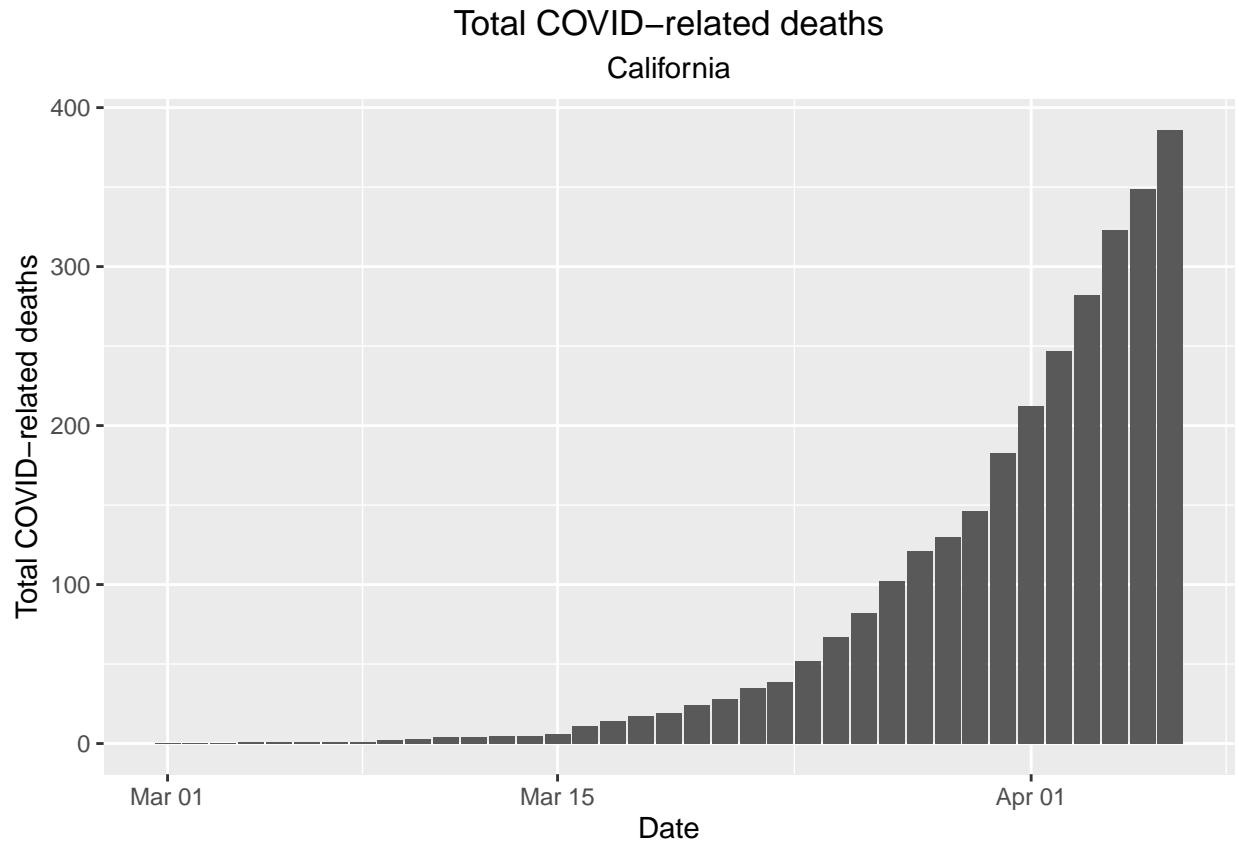
New COVID−related deaths by day
California
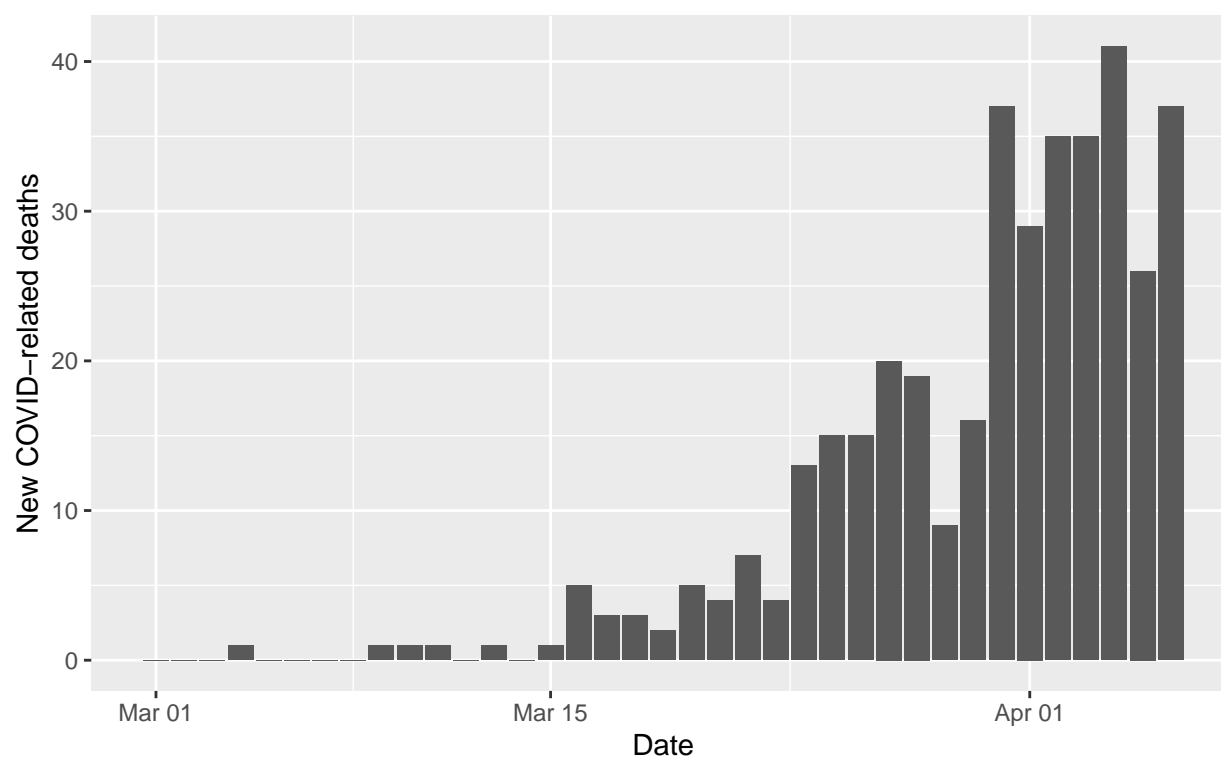
Rolling 3–day rate of growth: Total COVID–related deaths

California

South Carolina

Confirmed cases
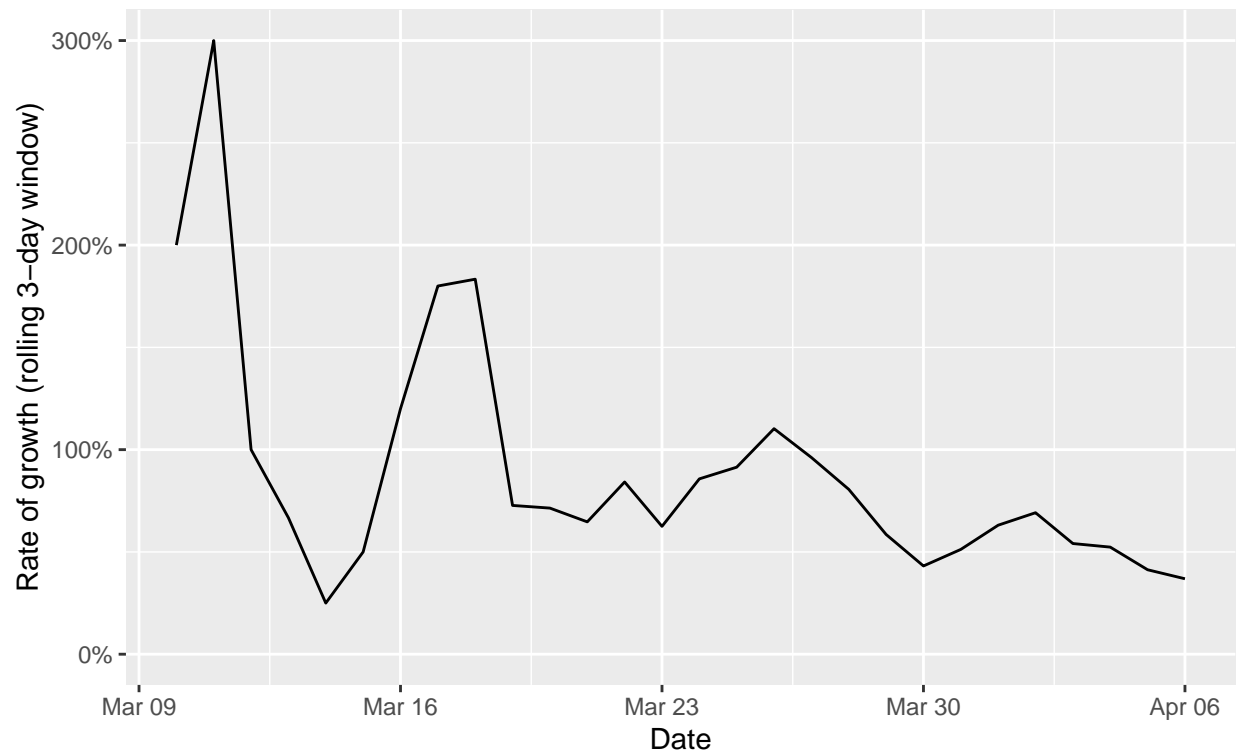
Total confirmed COVID cases
South Carolina
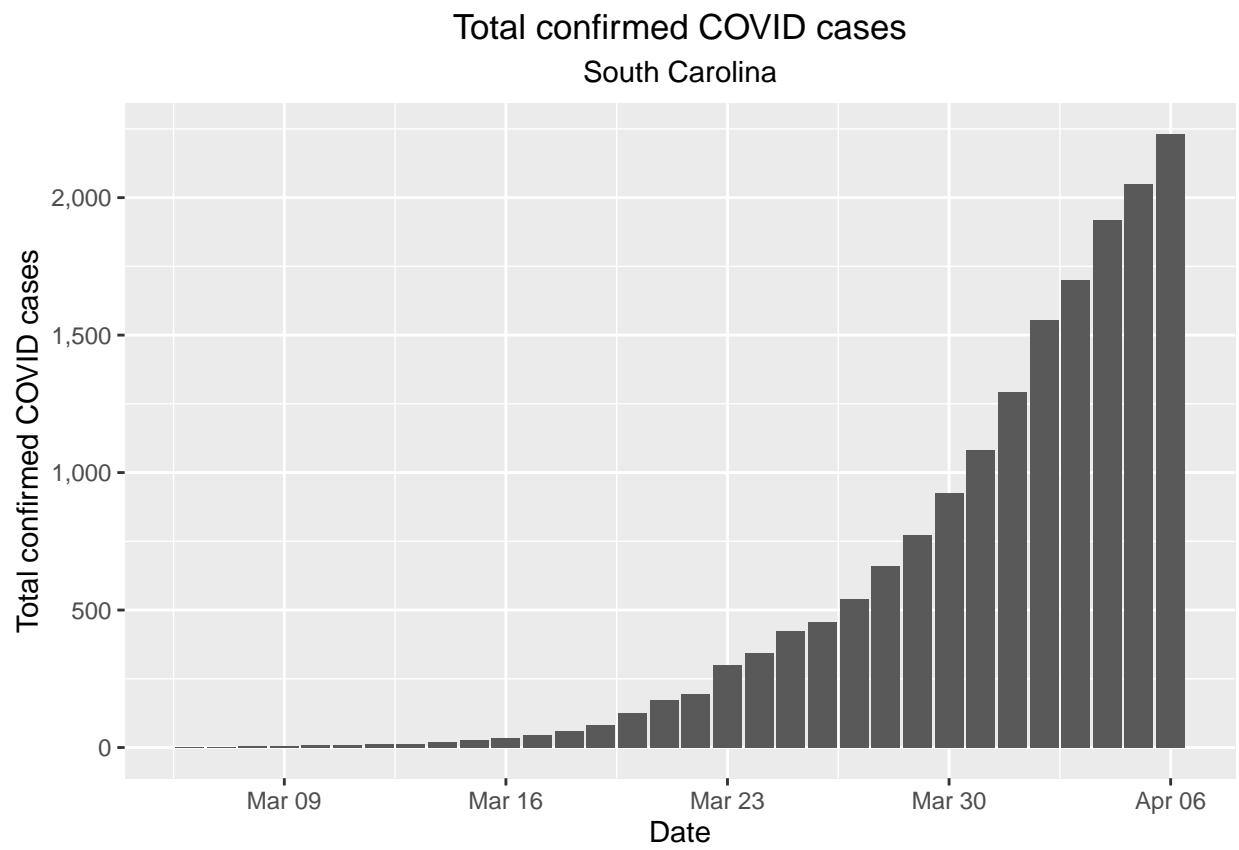
Confirmed new COVID cases by day
South Carolina
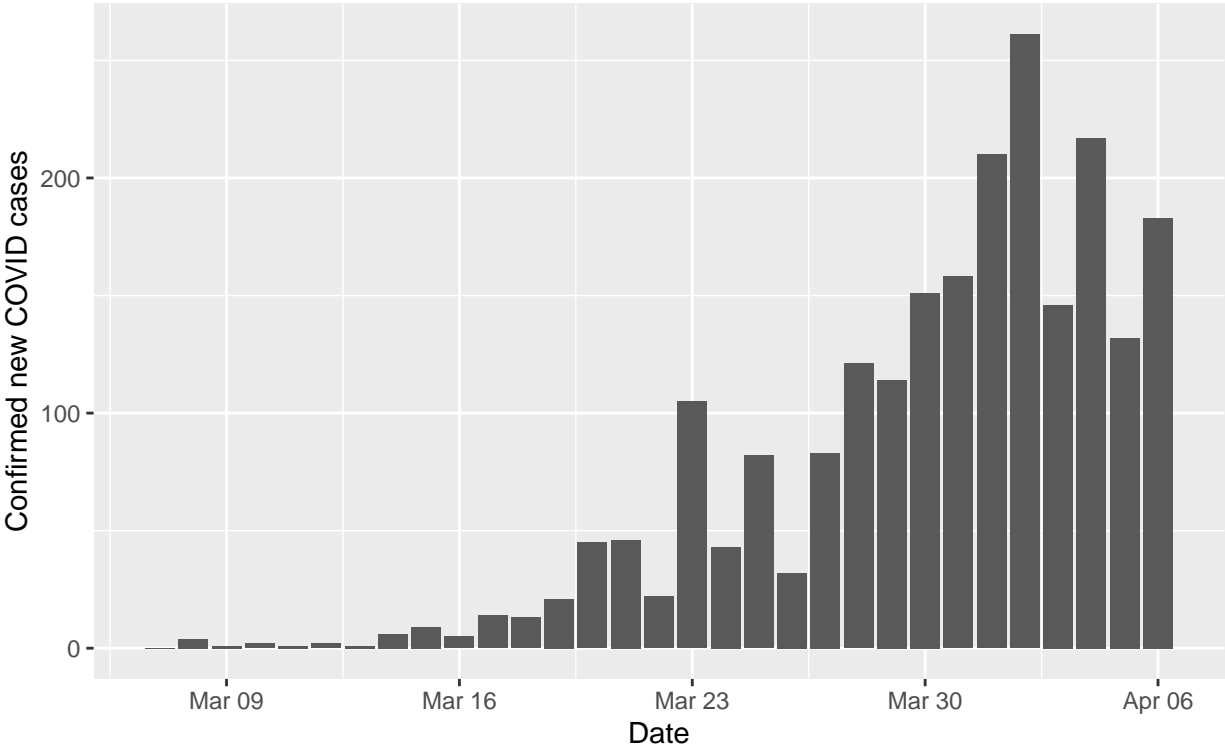
Rolling 3–day rate of growth: Total confirmed COVID cases
South Carolina

Total COVID−related deaths
South Carolina
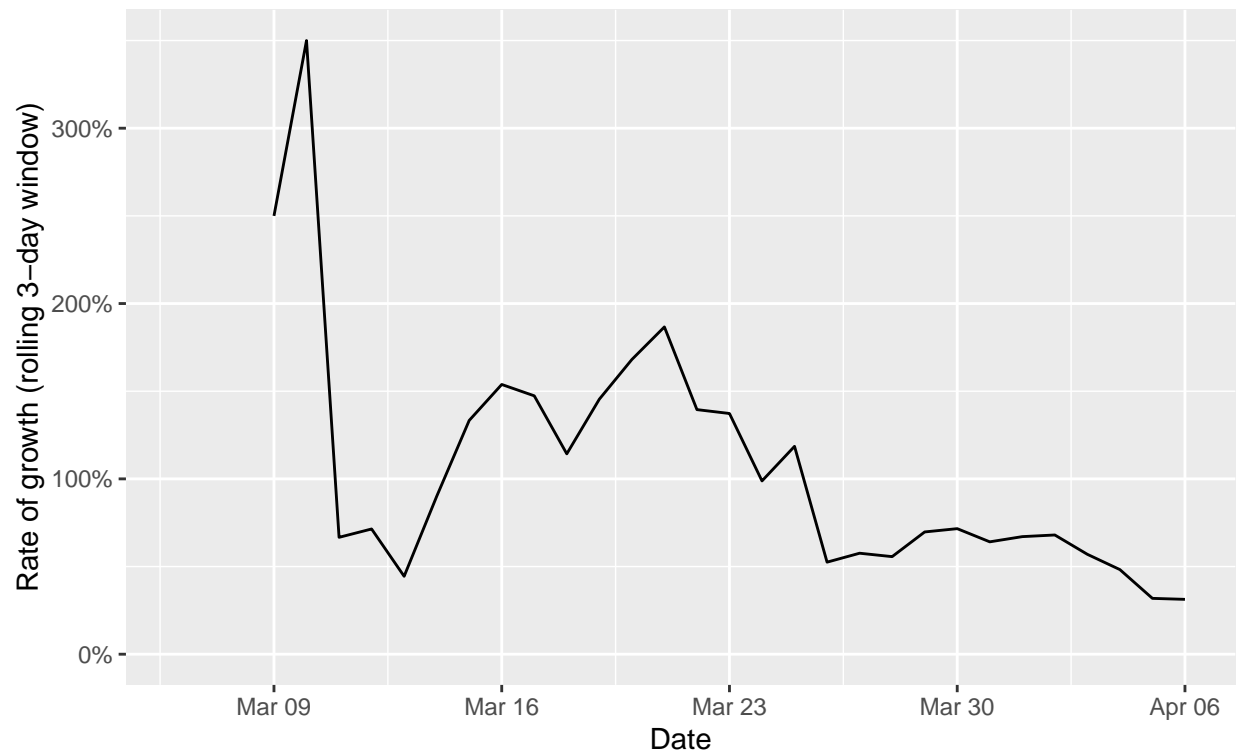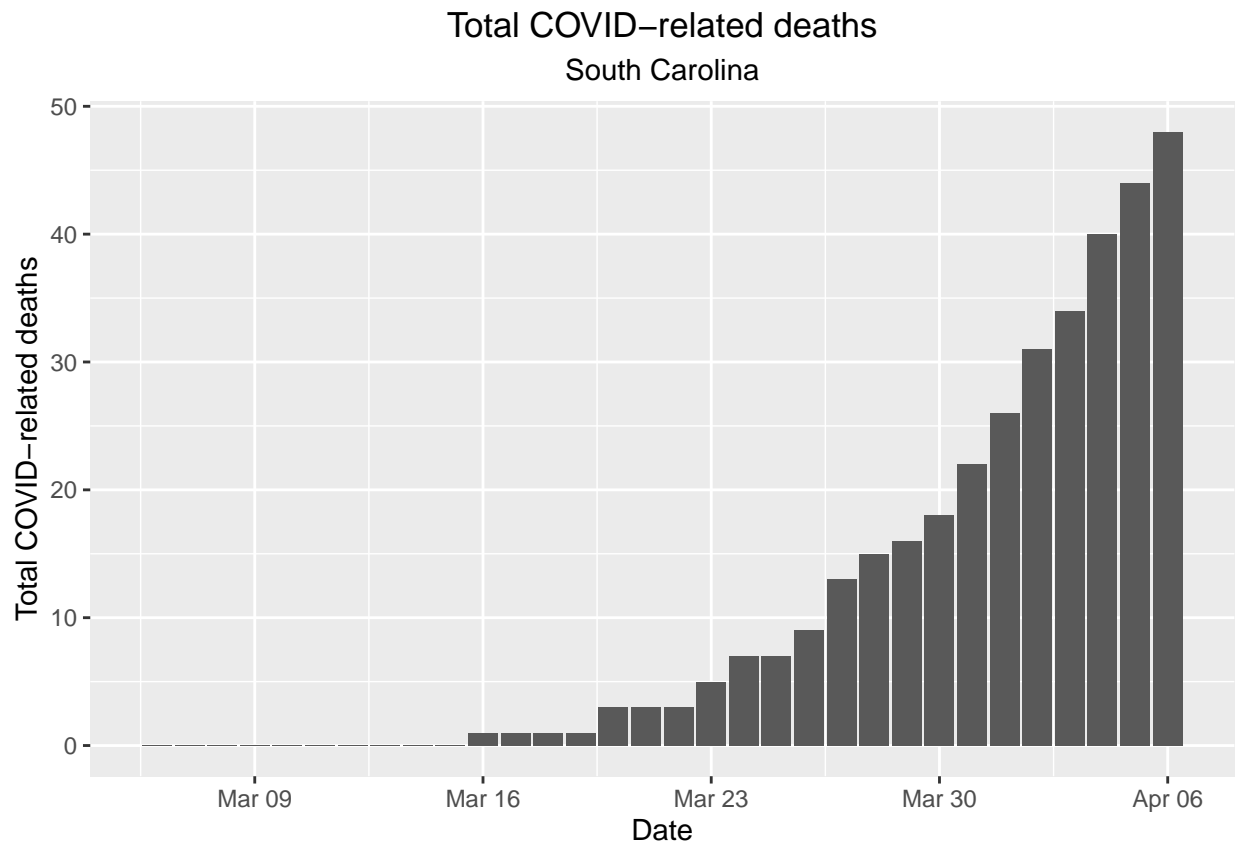
New COVID−related deaths by day
South Carolina
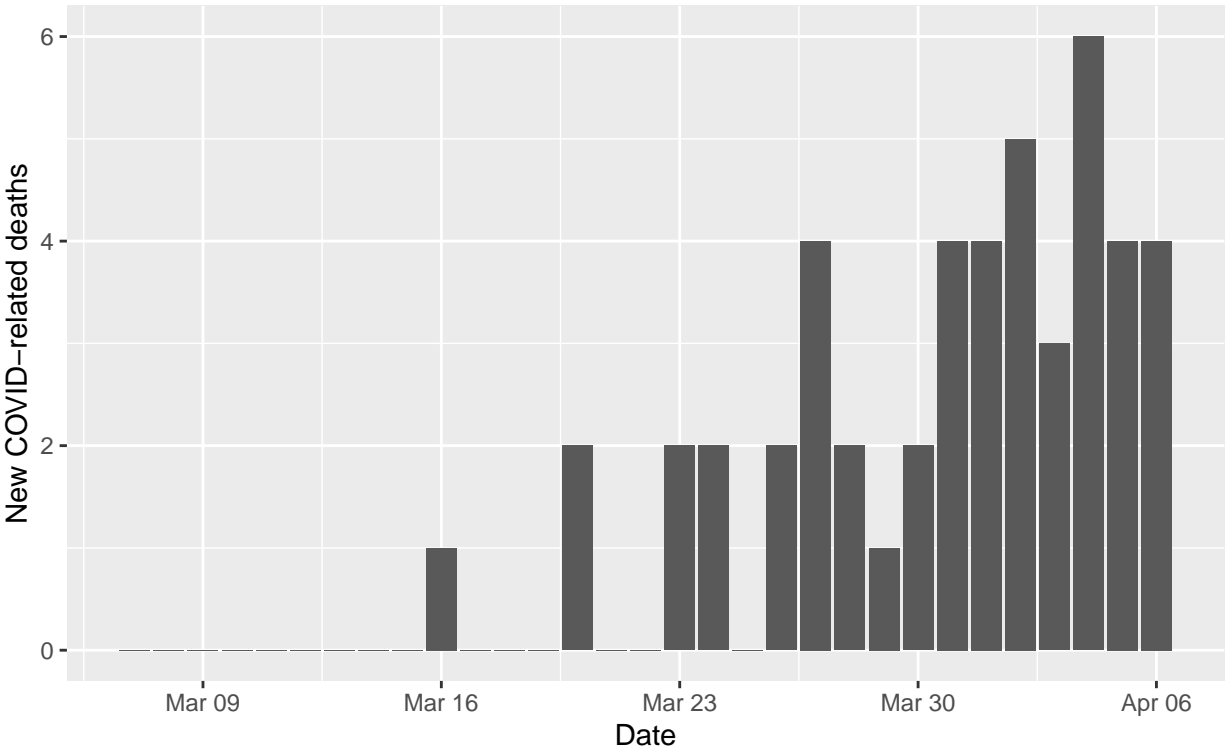
Rolling 3−day rate of growth: Total COVID−related deaths
South Carolina

Tennessee

Confirmed cases
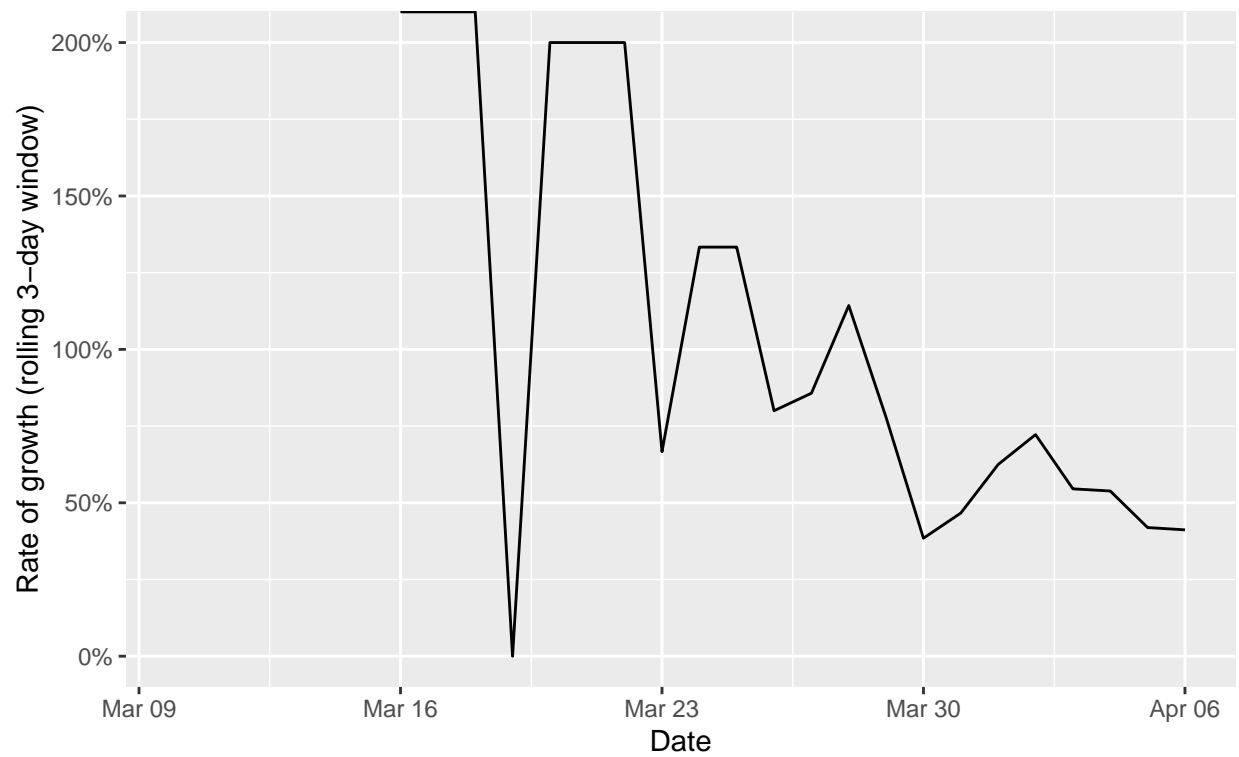
Total confirmed COVID cases
Tennessee
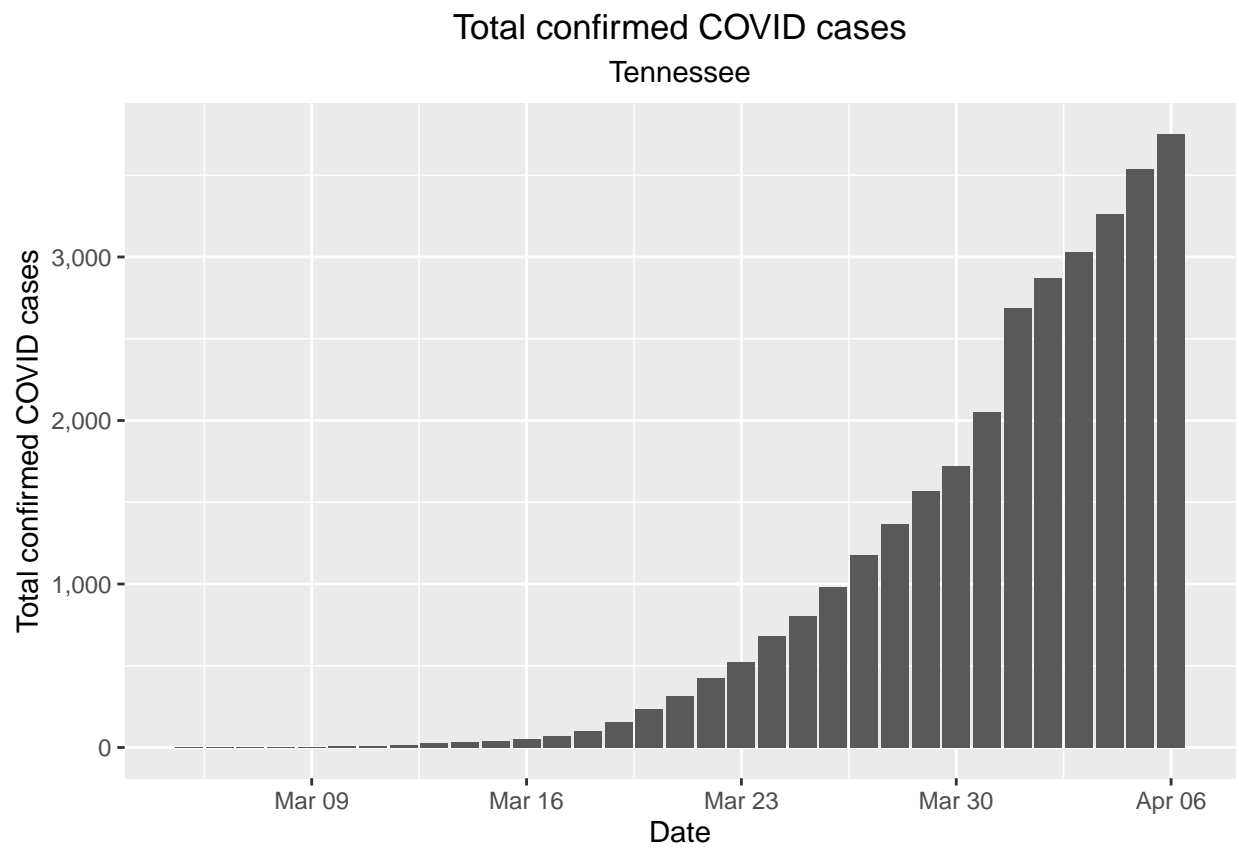
Confirmed new COVID cases by day
Tennessee
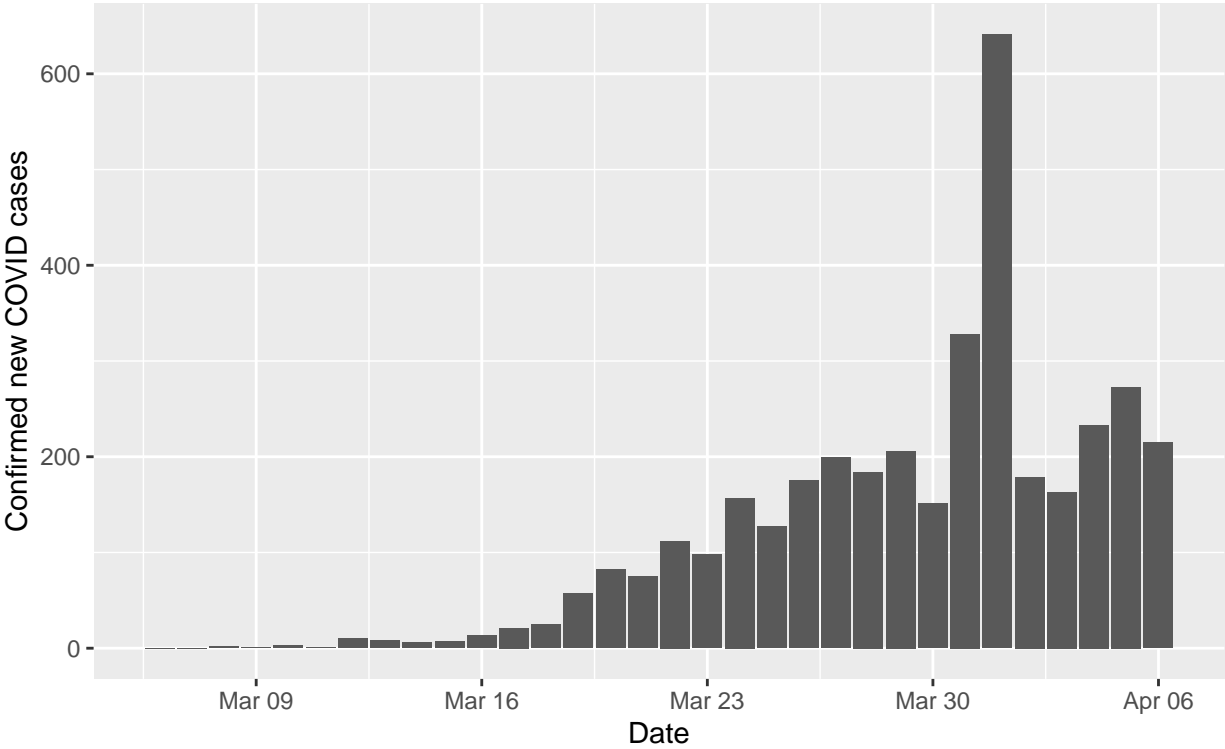
Rolling 3–day rate of growth: Total confirmed COVID cases

Tennessee

Deaths

Total COVID−related deaths
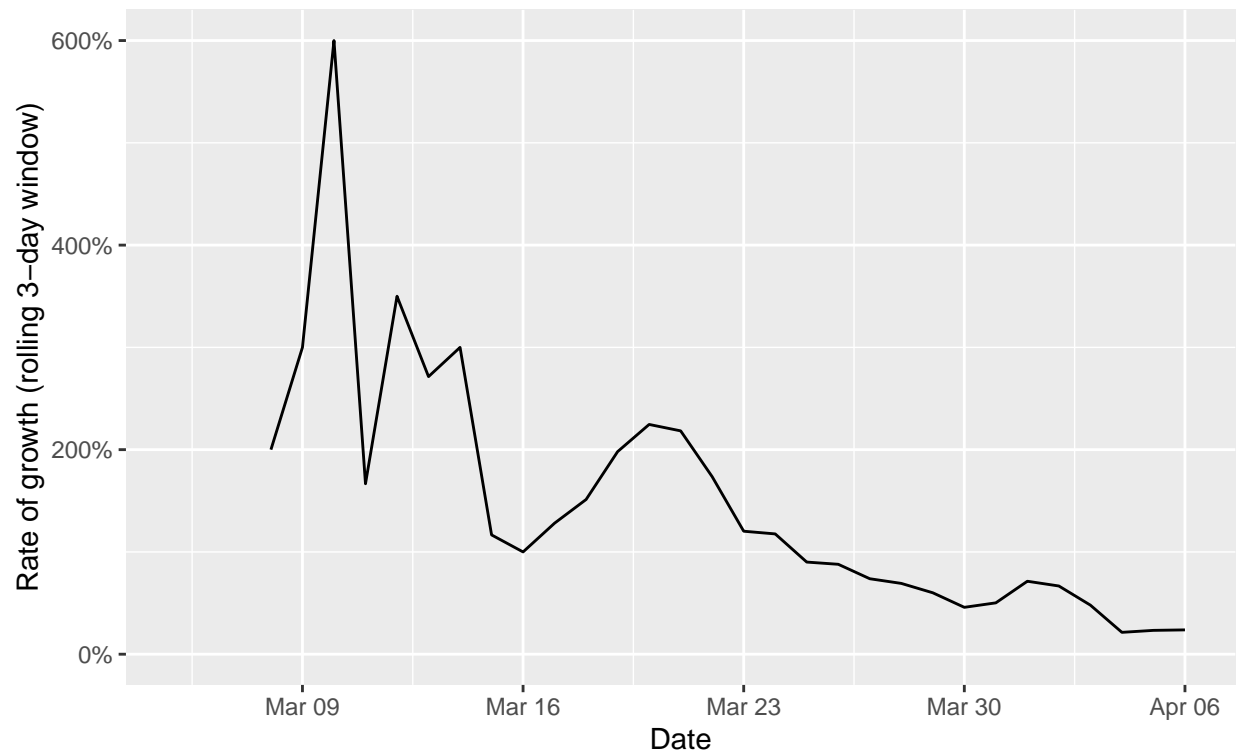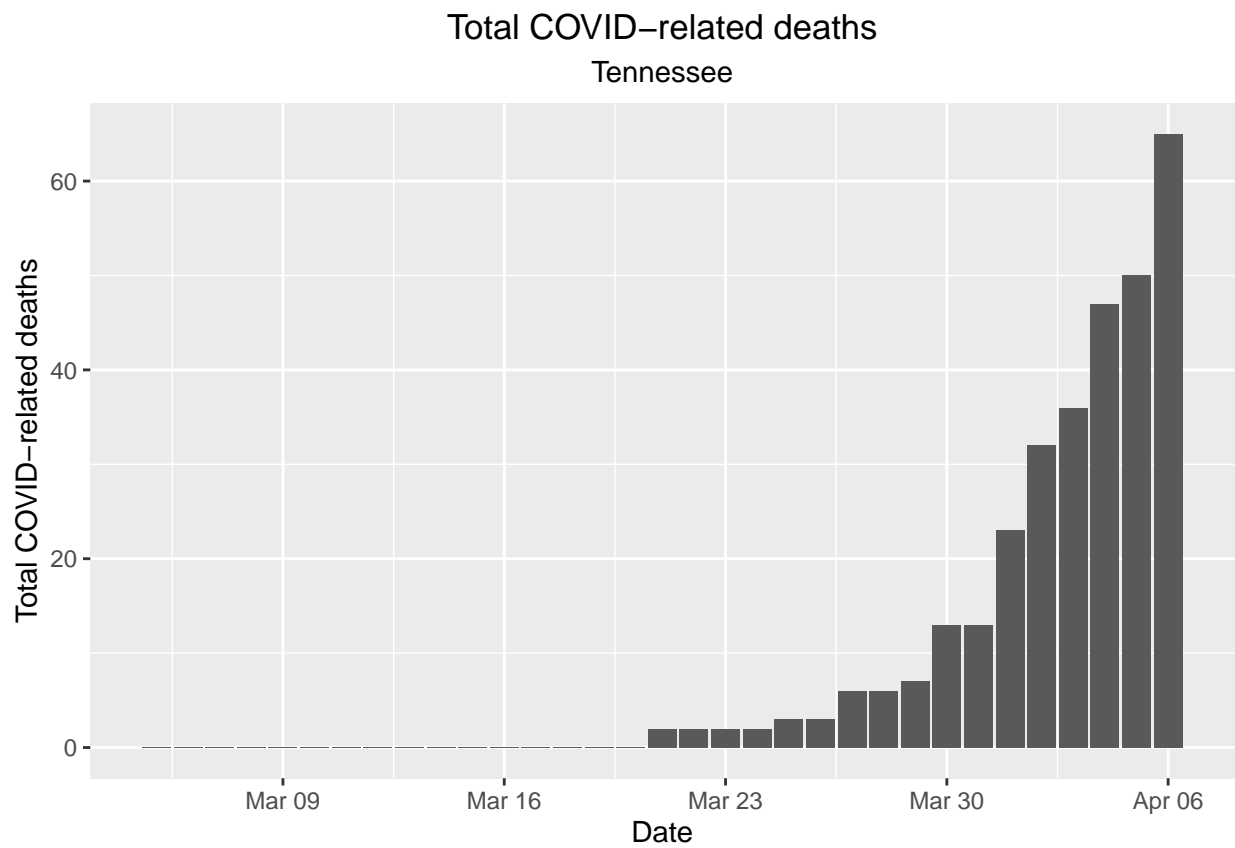
Tennessee

New COVID−related deaths by day
Tennessee
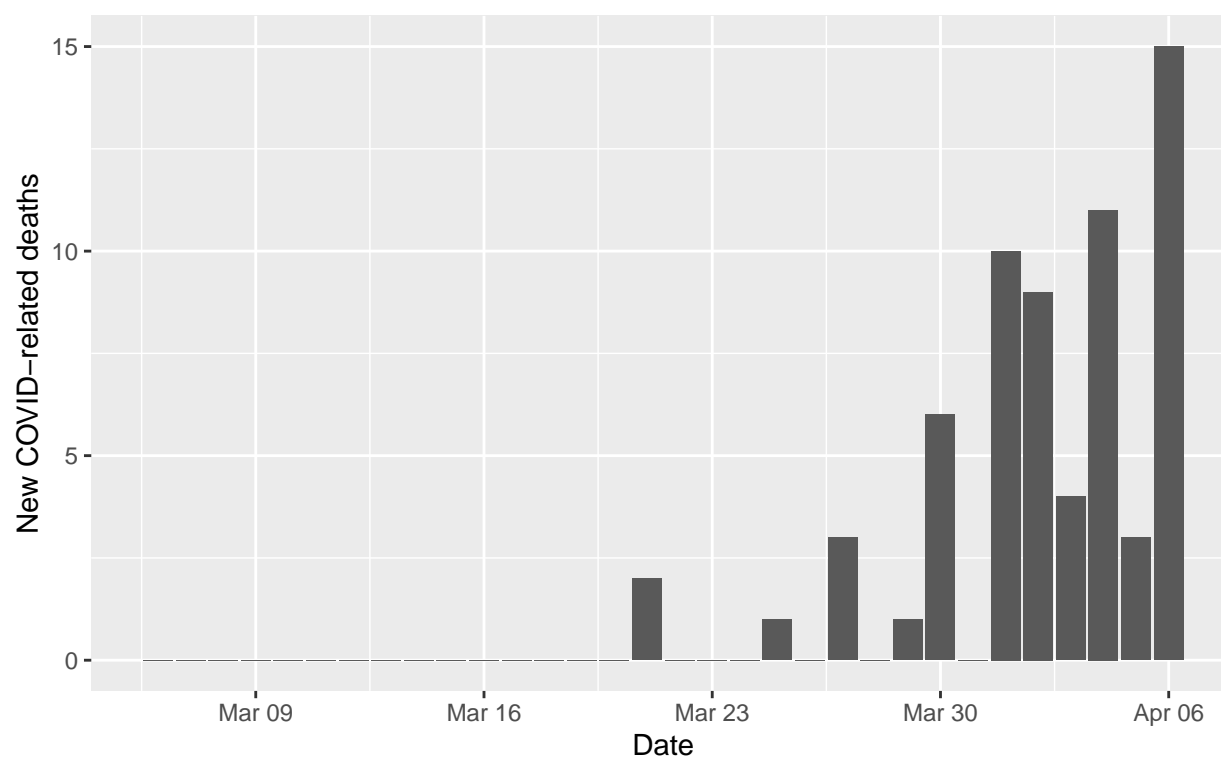
Rolling 3−day rate of growth: Total COVID−related deaths

Tennessee

Pierce County, Washington

Confirmed cases
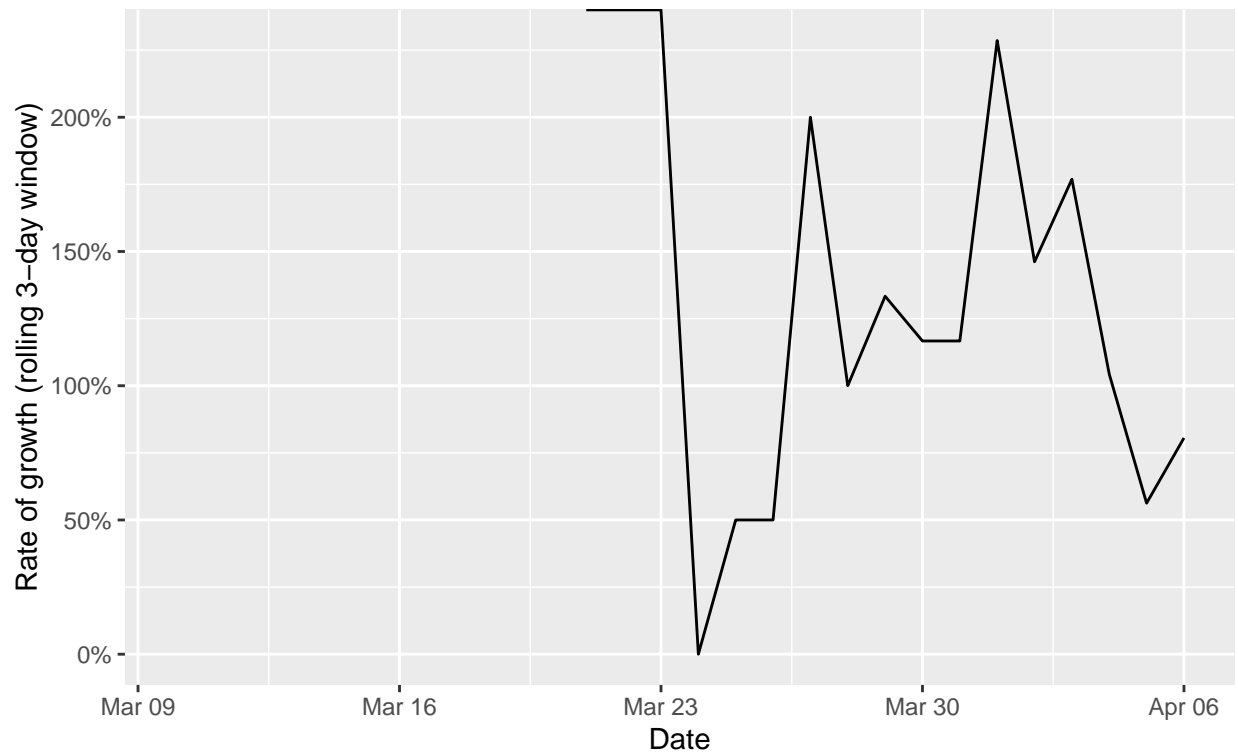
Total confirmed COVID cases
Pierce County, Washington
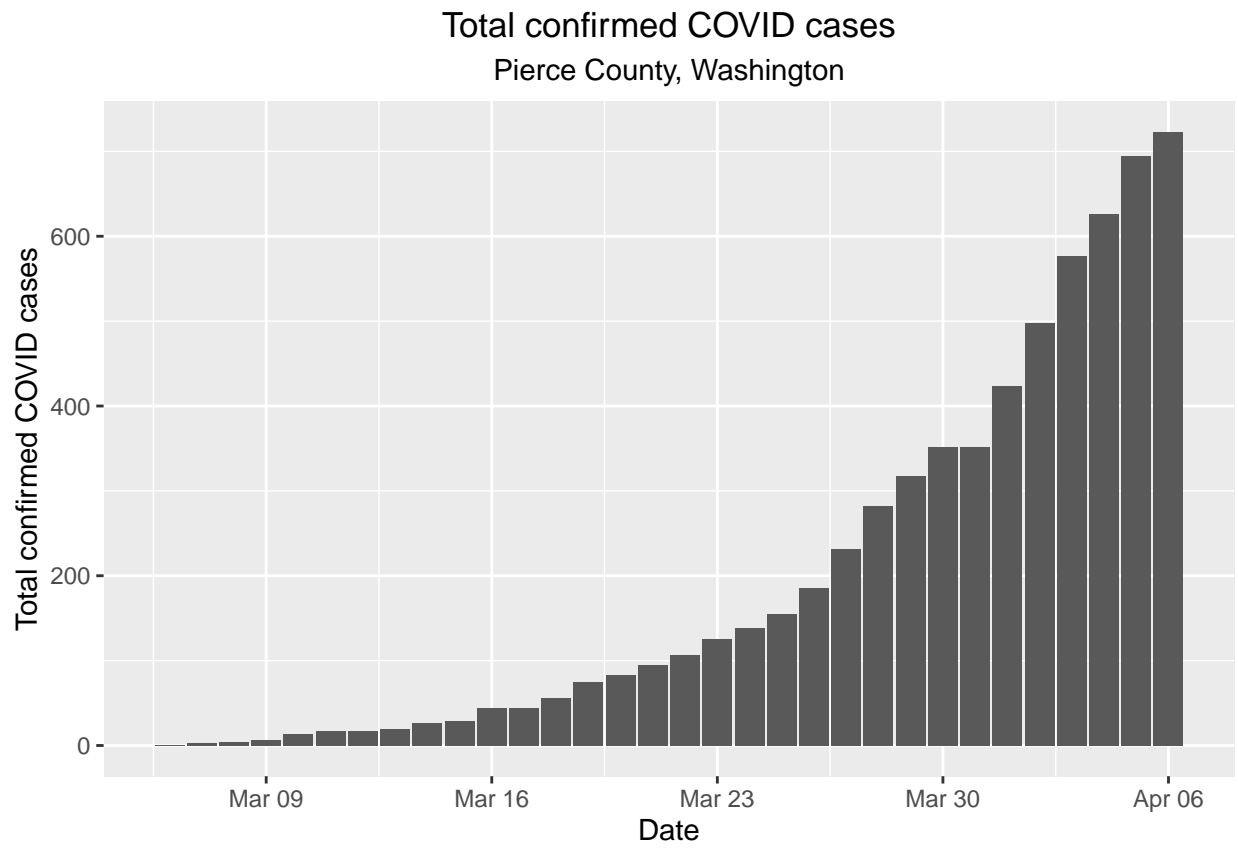
Confirmed new COVID cases by day
Pierce County, Washington

Total COVID−related deaths
Pierce County, Washington
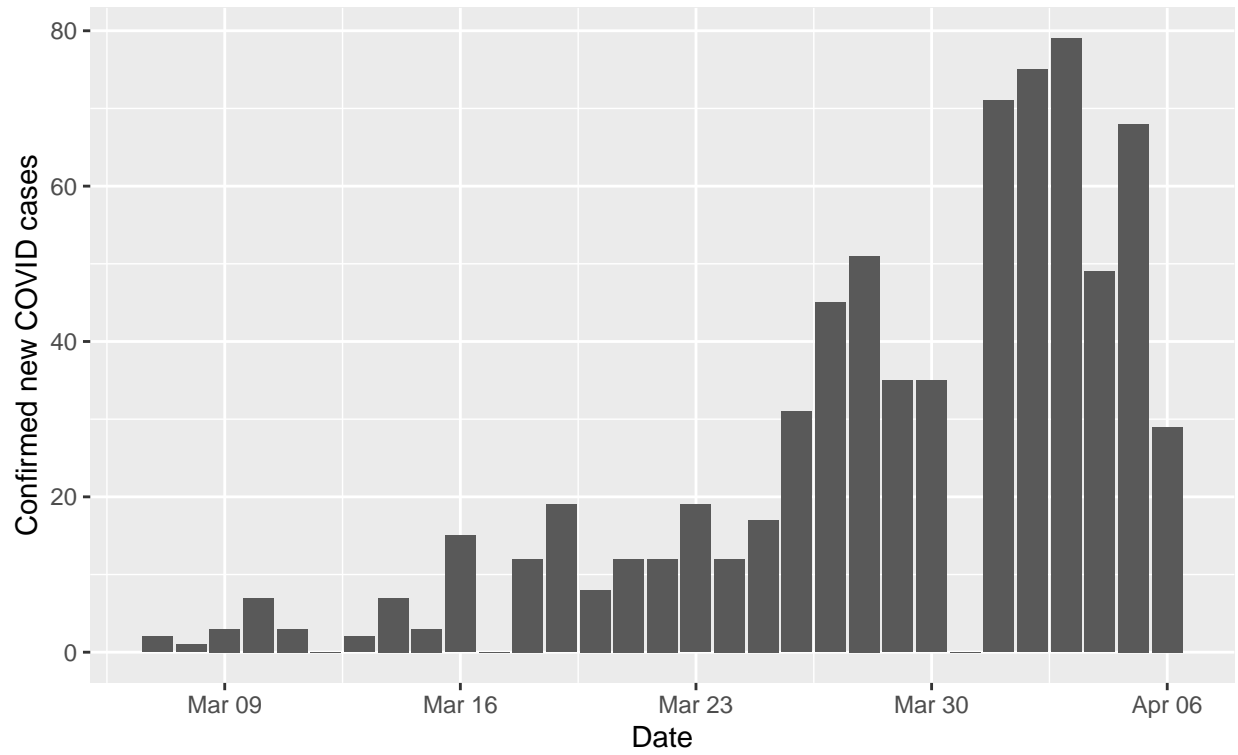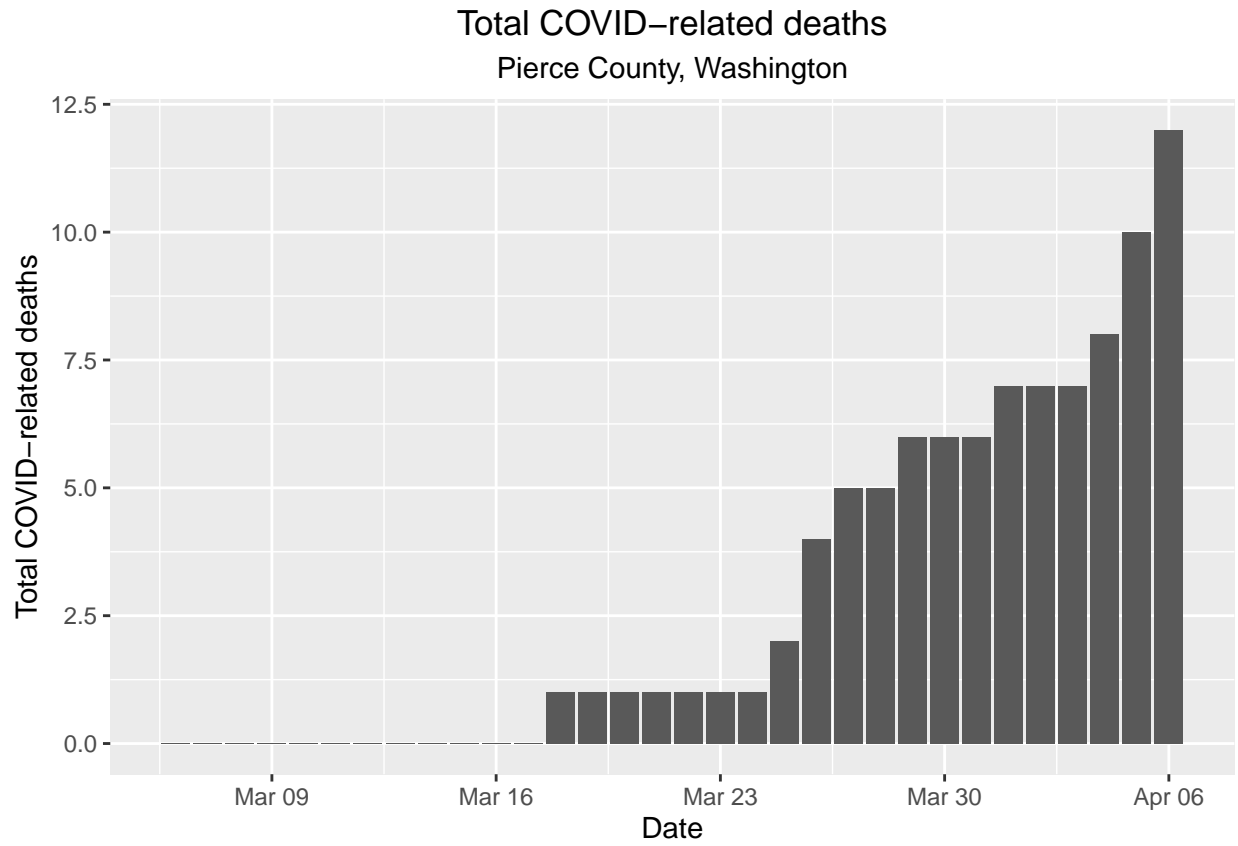
New COVID−related deaths by day
Pierce County, Washington

Orange County, California

Confirmed cases
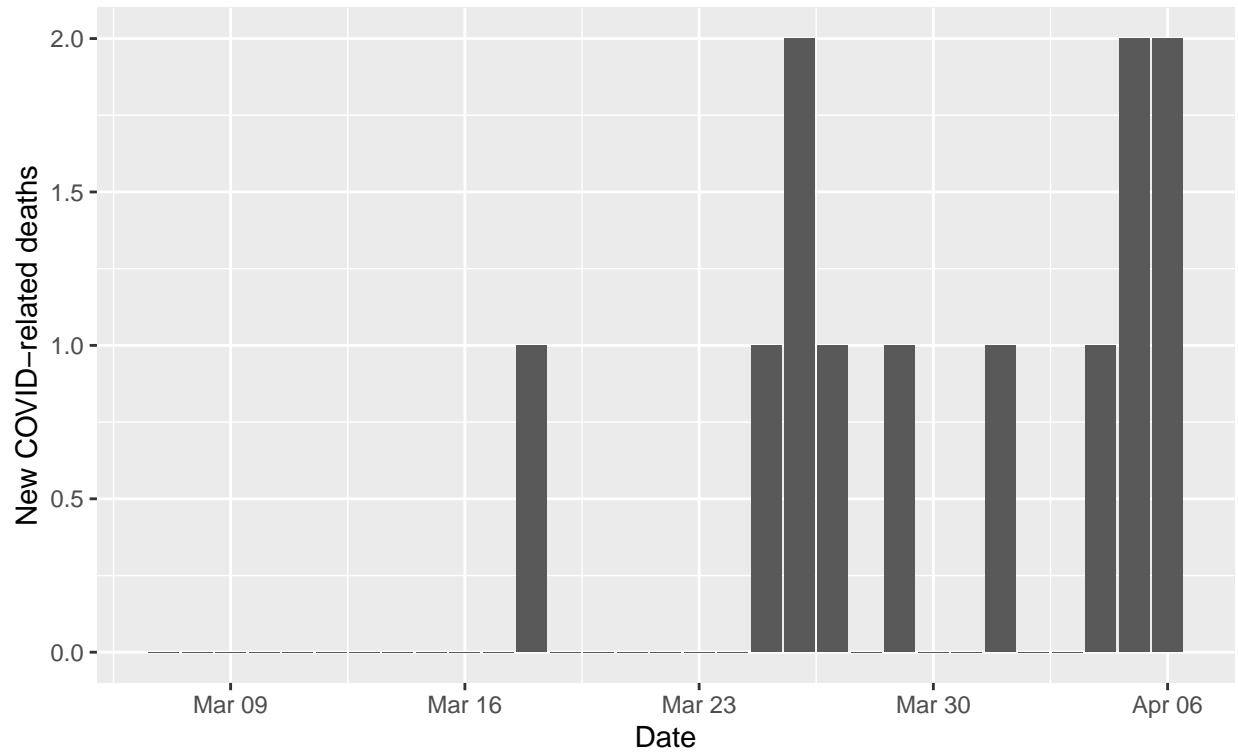
Total confirmed COVID cases
Orange County, California
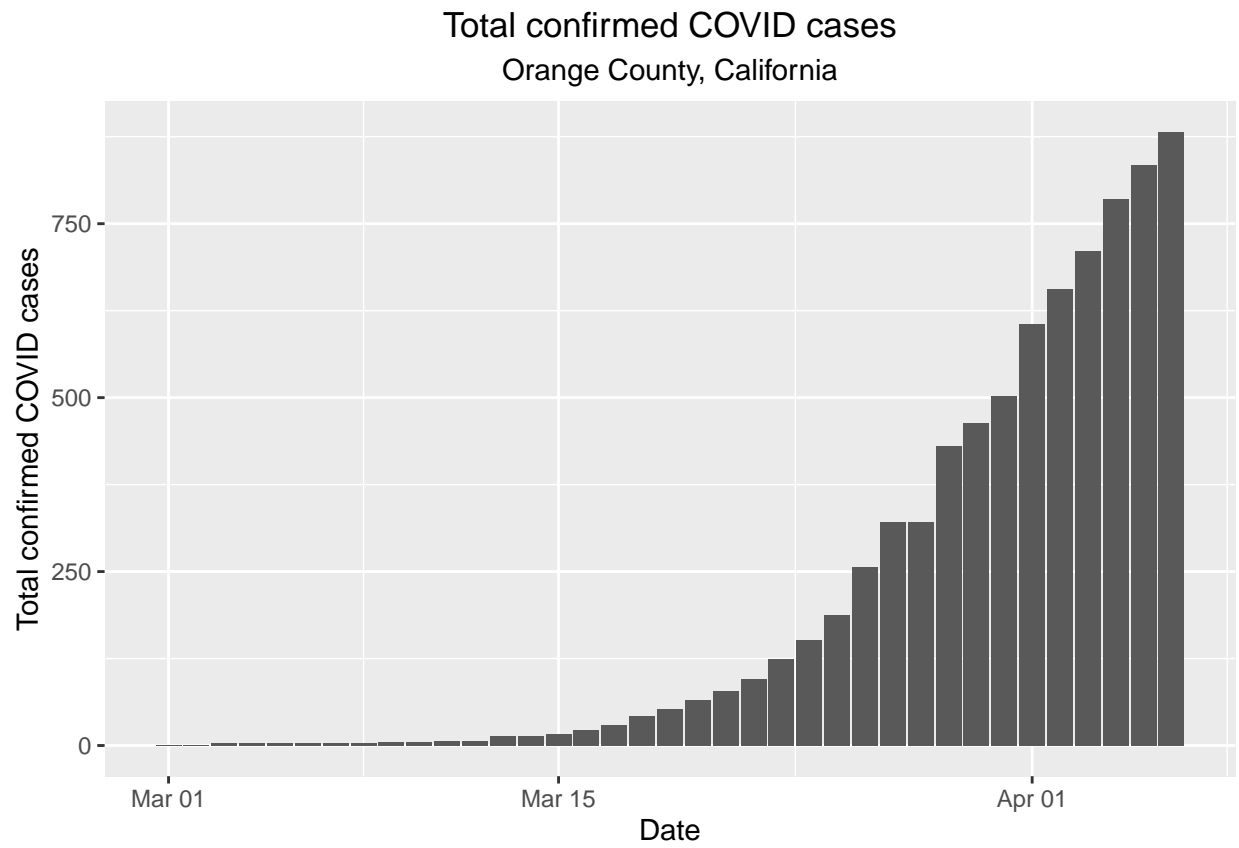
Confirmed new COVID cases by day
Orange County, California

Deaths

Total COVID−related deaths
Orange County, California
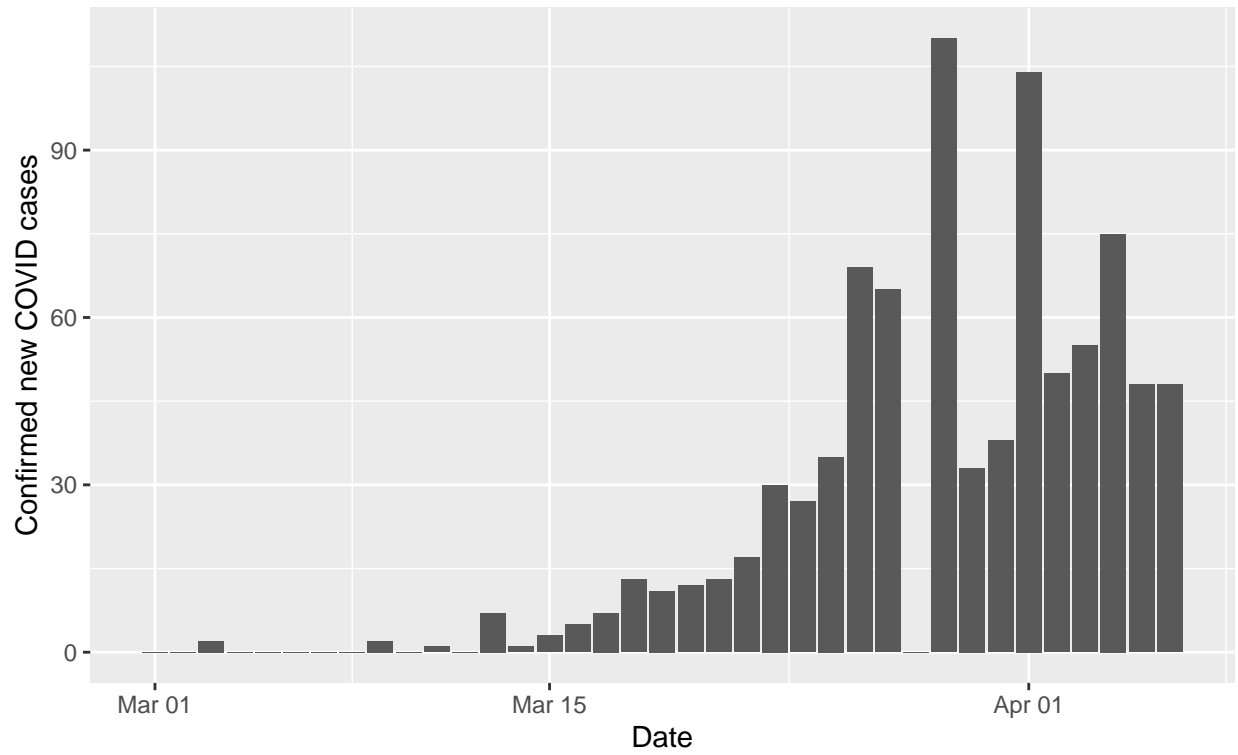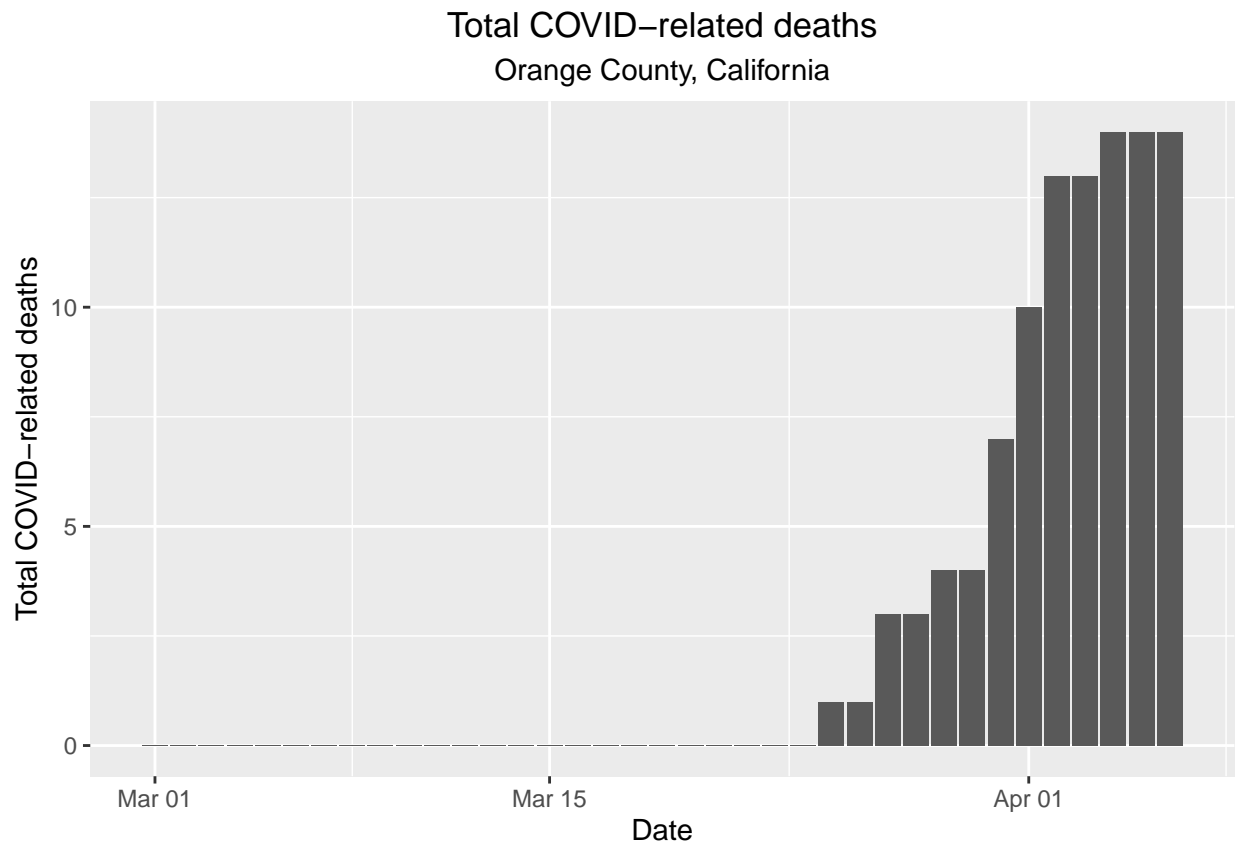
New COVID−related deaths by day
Orange County, California

Richland County, South Carolina

Confirmed cases
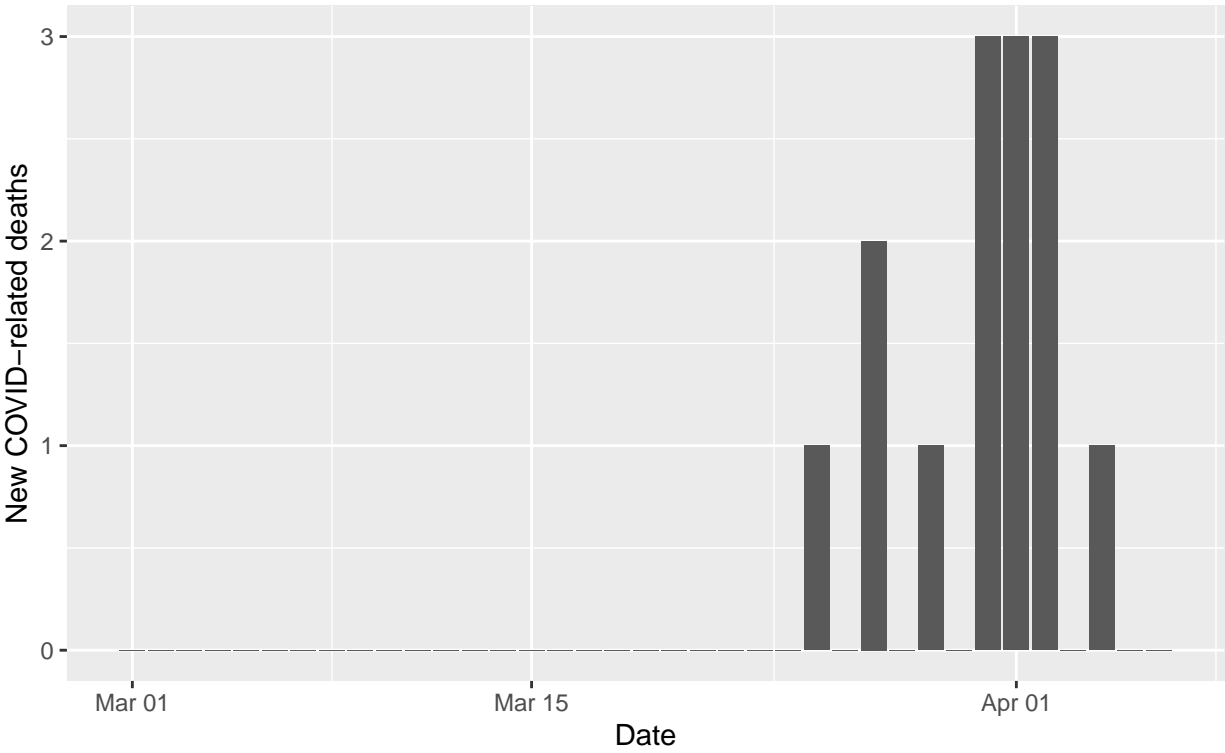
Total confirmed COVID cases
Richland County, South Carolina
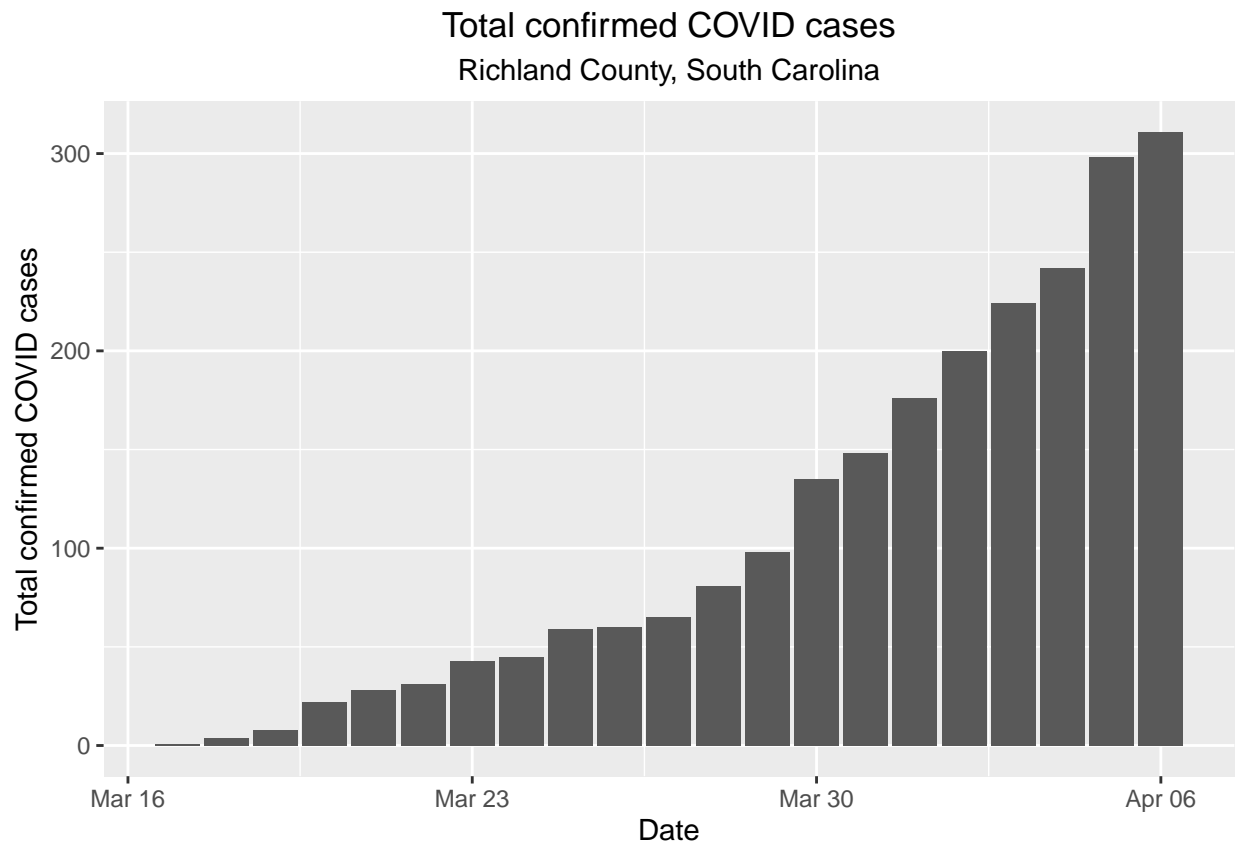
Confirmed new COVID cases by day
Richland County, South Carolina

Deaths

Total COVID−related deaths
Richland County, South Carolina
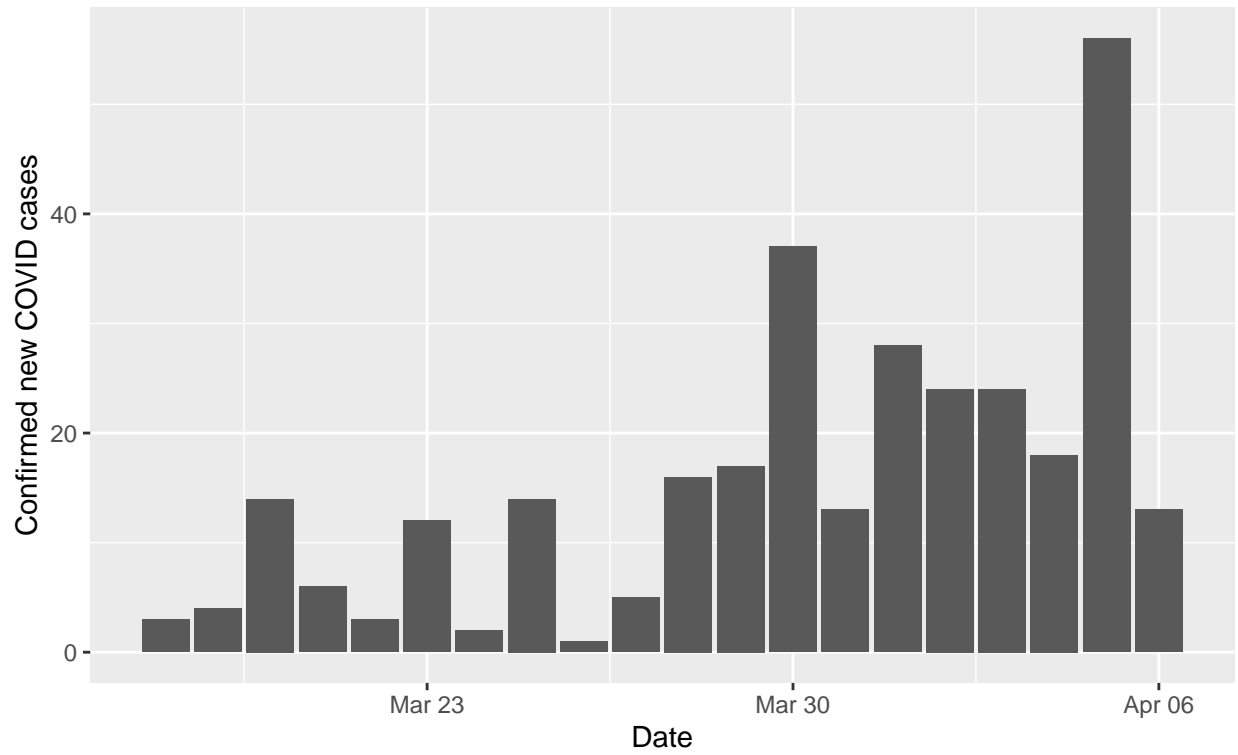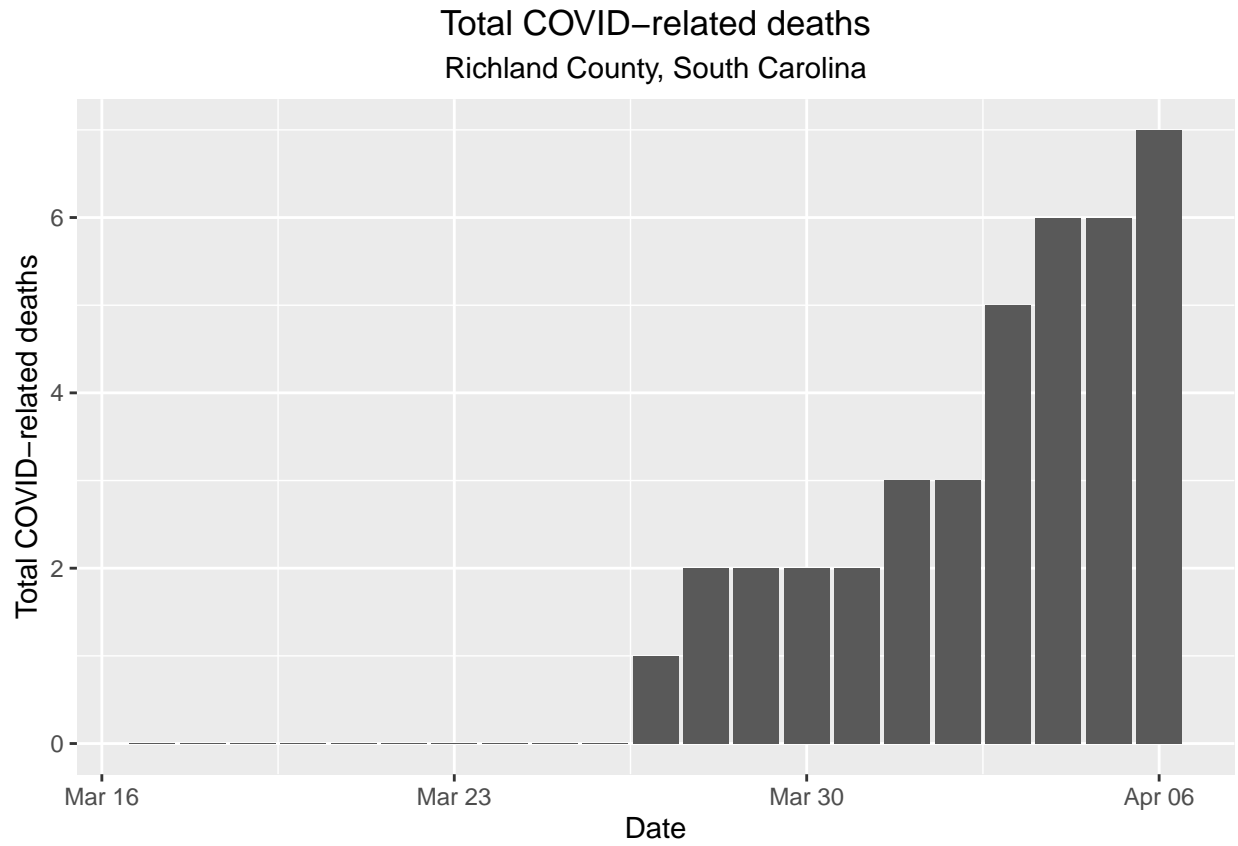
New COVID−related deaths by day
Richland County, South Carolina

York County, South Carolina

Confirmed cases
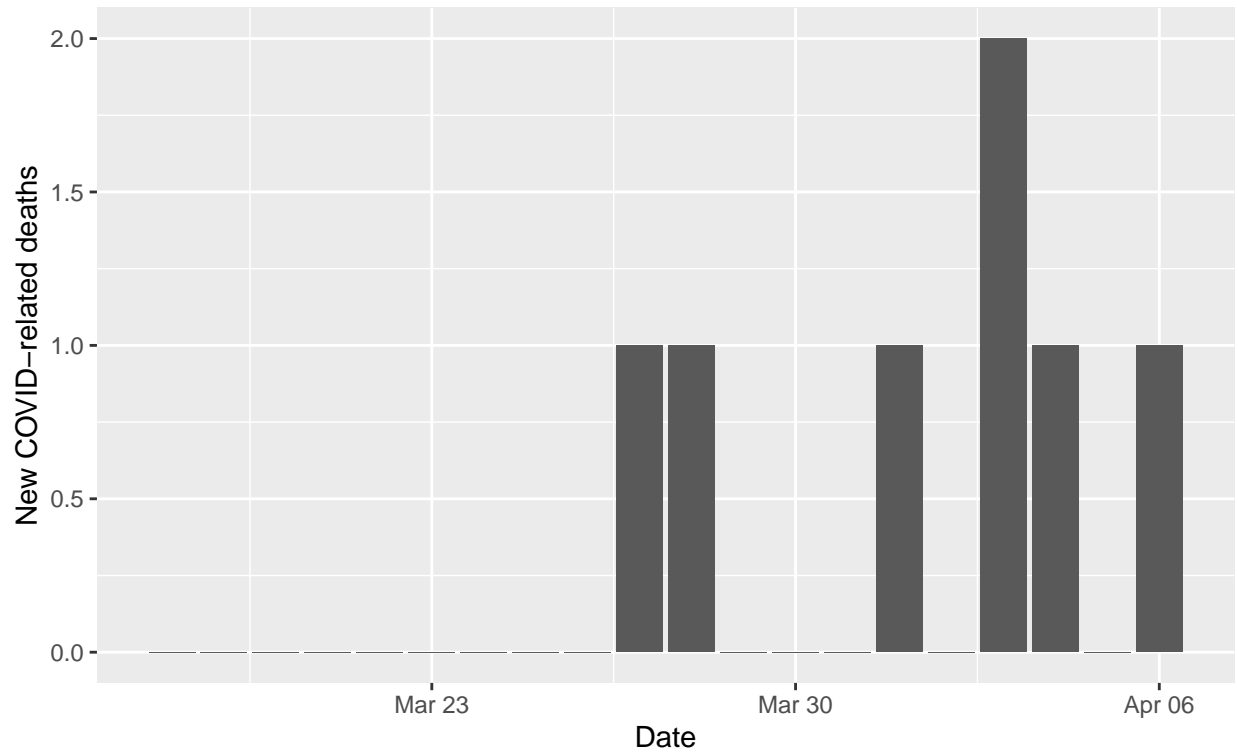
Total confirmed COVID cases
York County, South Carolina
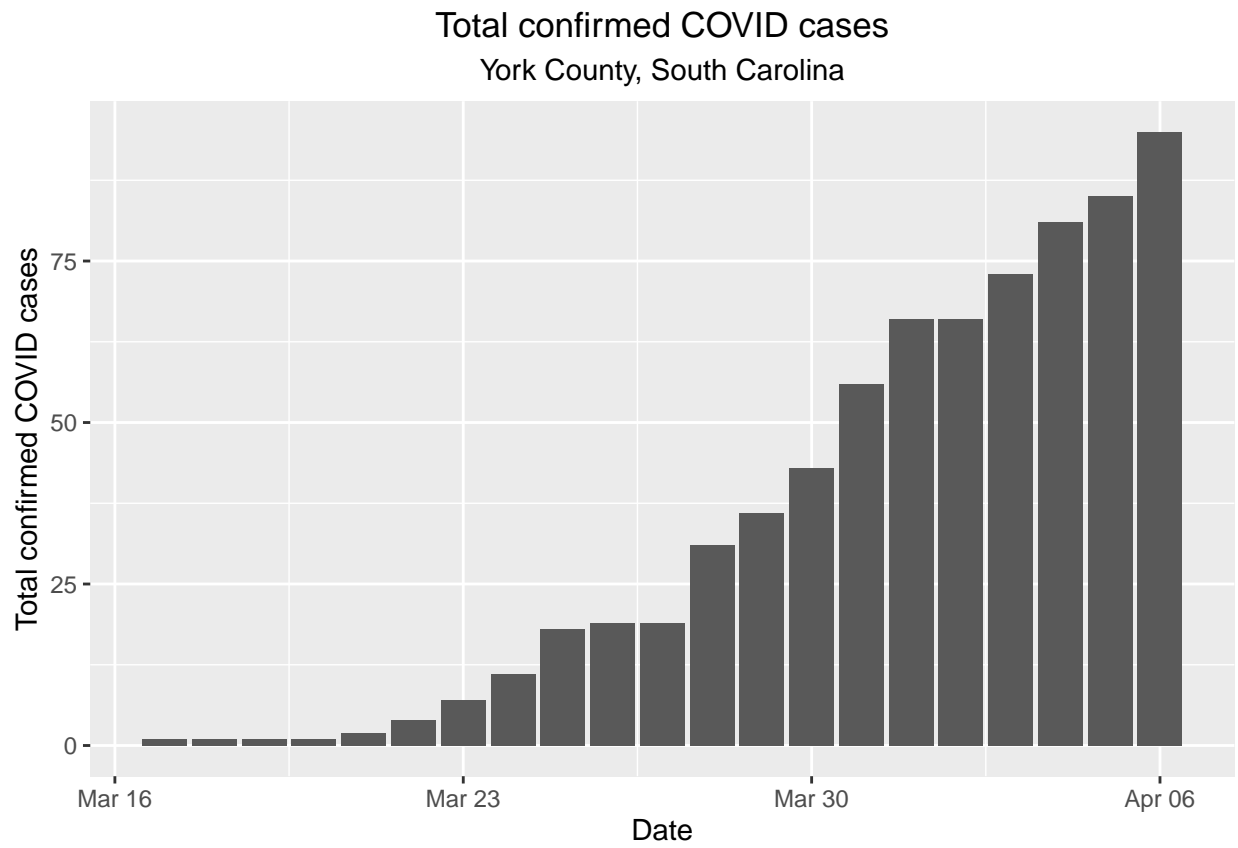
Confirmed new COVID cases by day
York County, South Carolina

Deaths

Total COVID−related deaths
York County, South Carolina
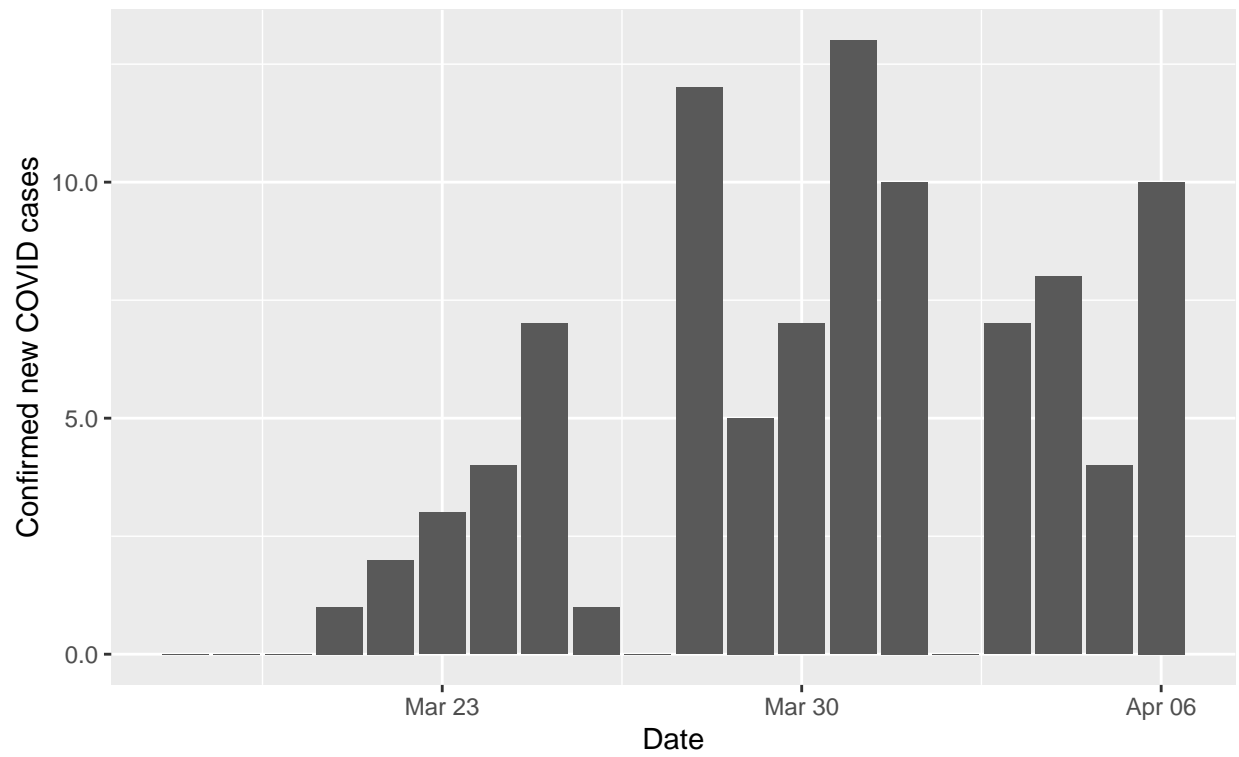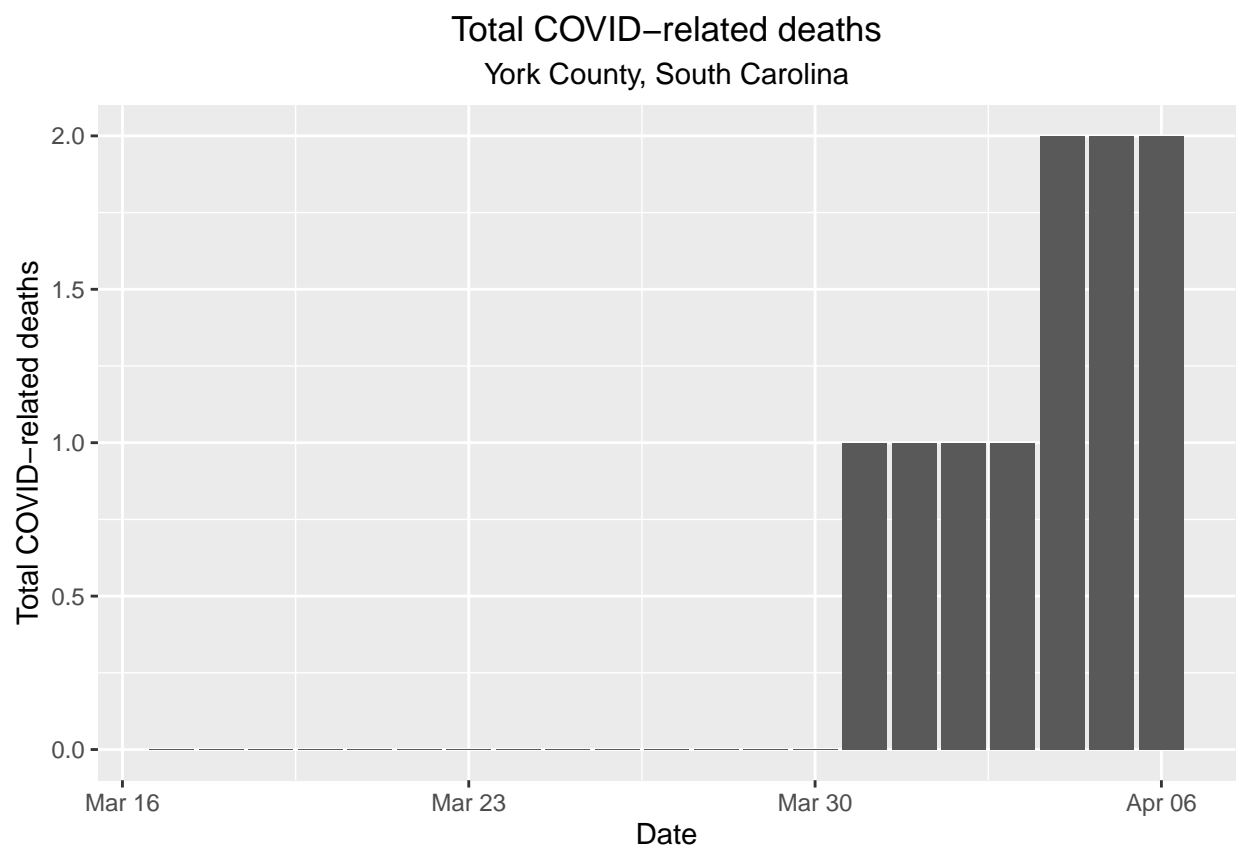
New COVID−related deaths by day
York County, South Carolina

Davidson County, Tennessee

Confirmed cases
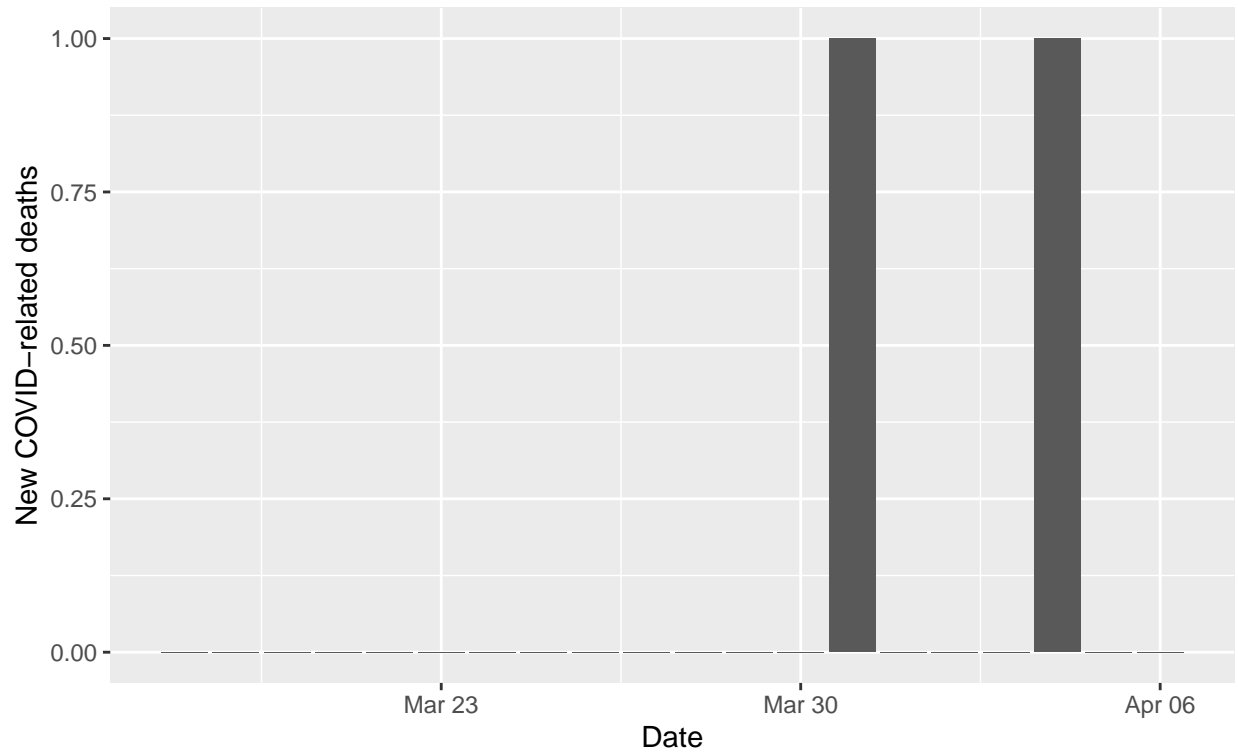
Total confirmed COVID cases
Davidson County, Tennessee
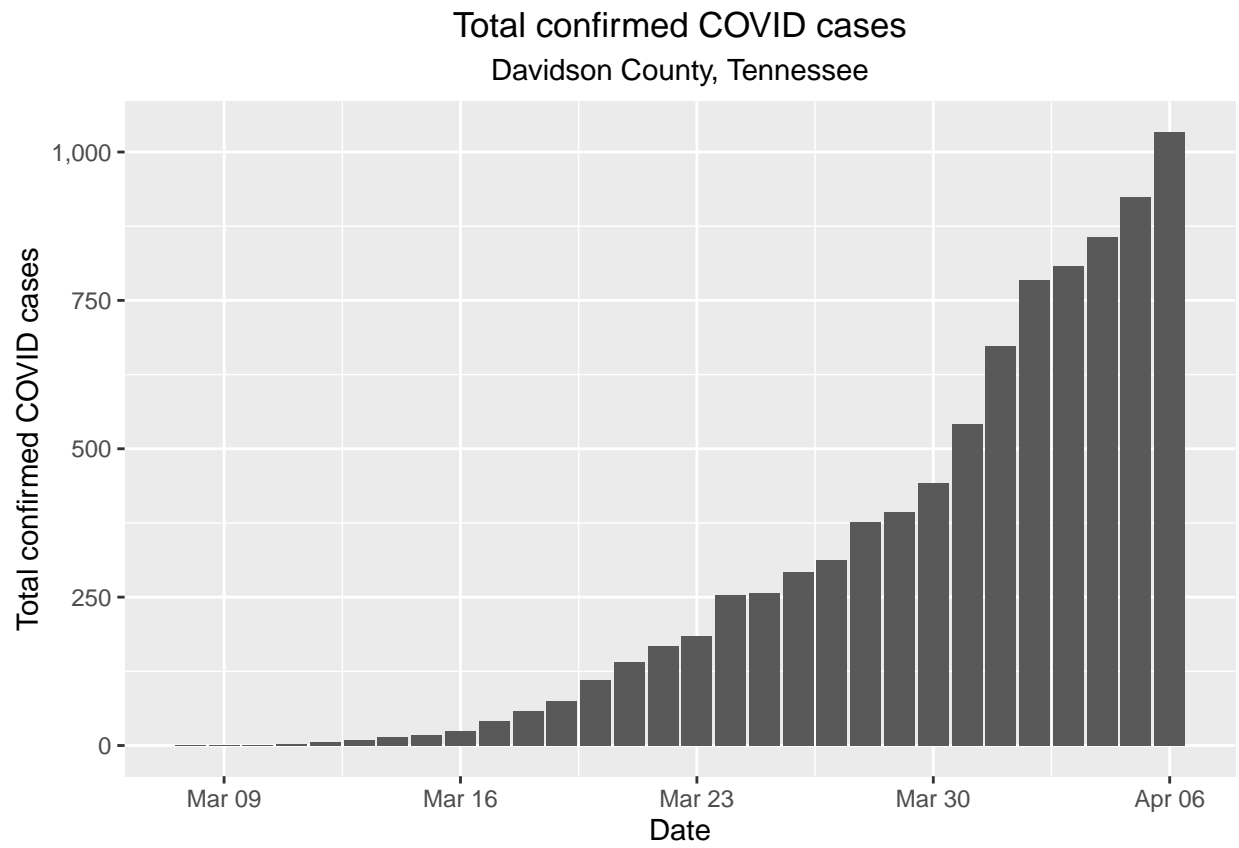
Confirmed new COVID cases by day

Davidson County, Tennessee

Deaths

Total COVID−related deaths
Davidson County, Tennessee

New COVID−related deaths by day
Davidson County, Tennessee
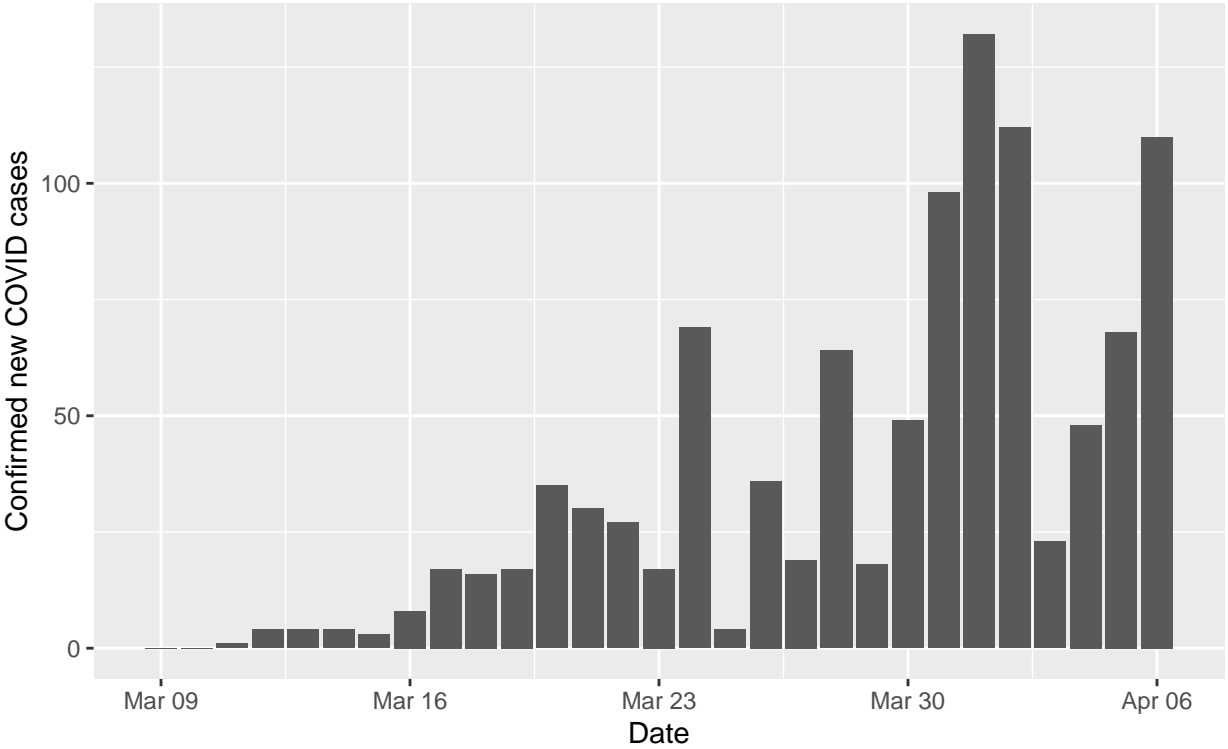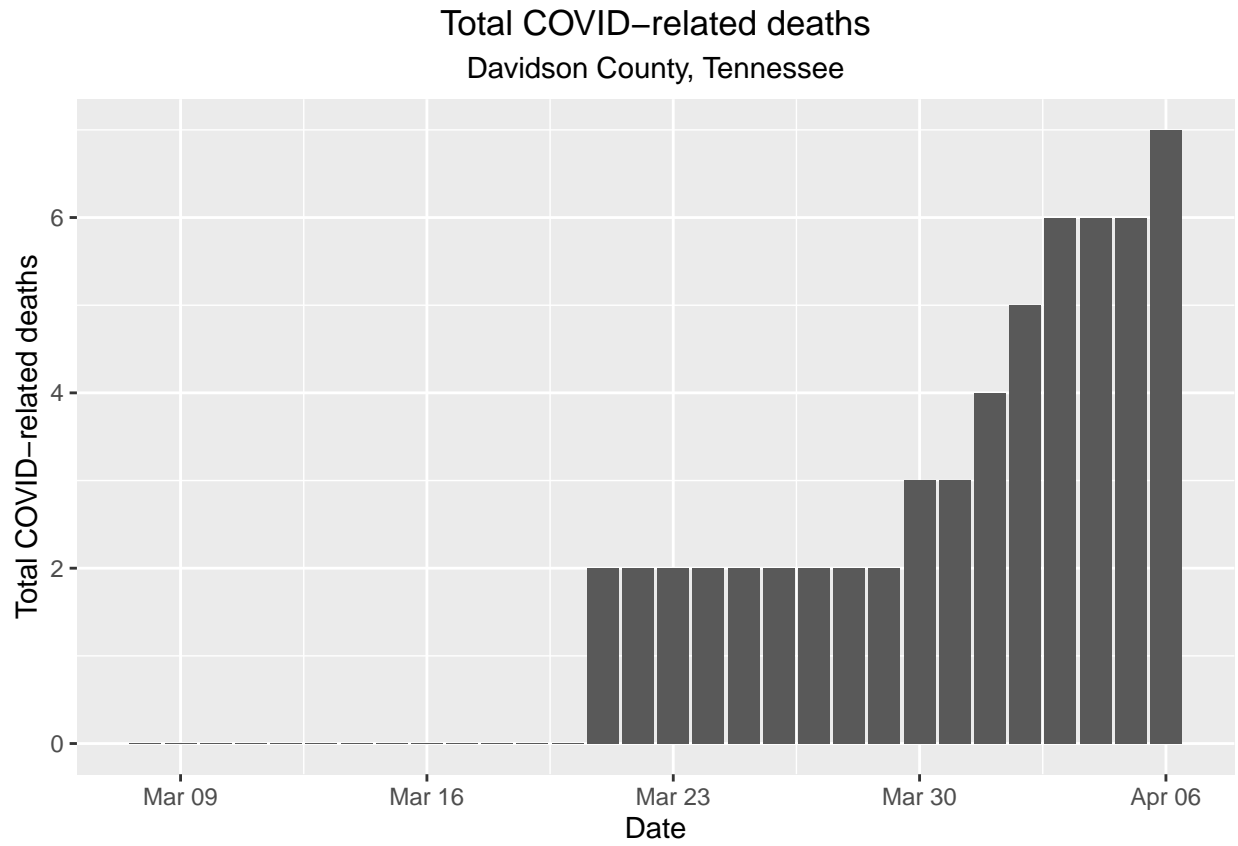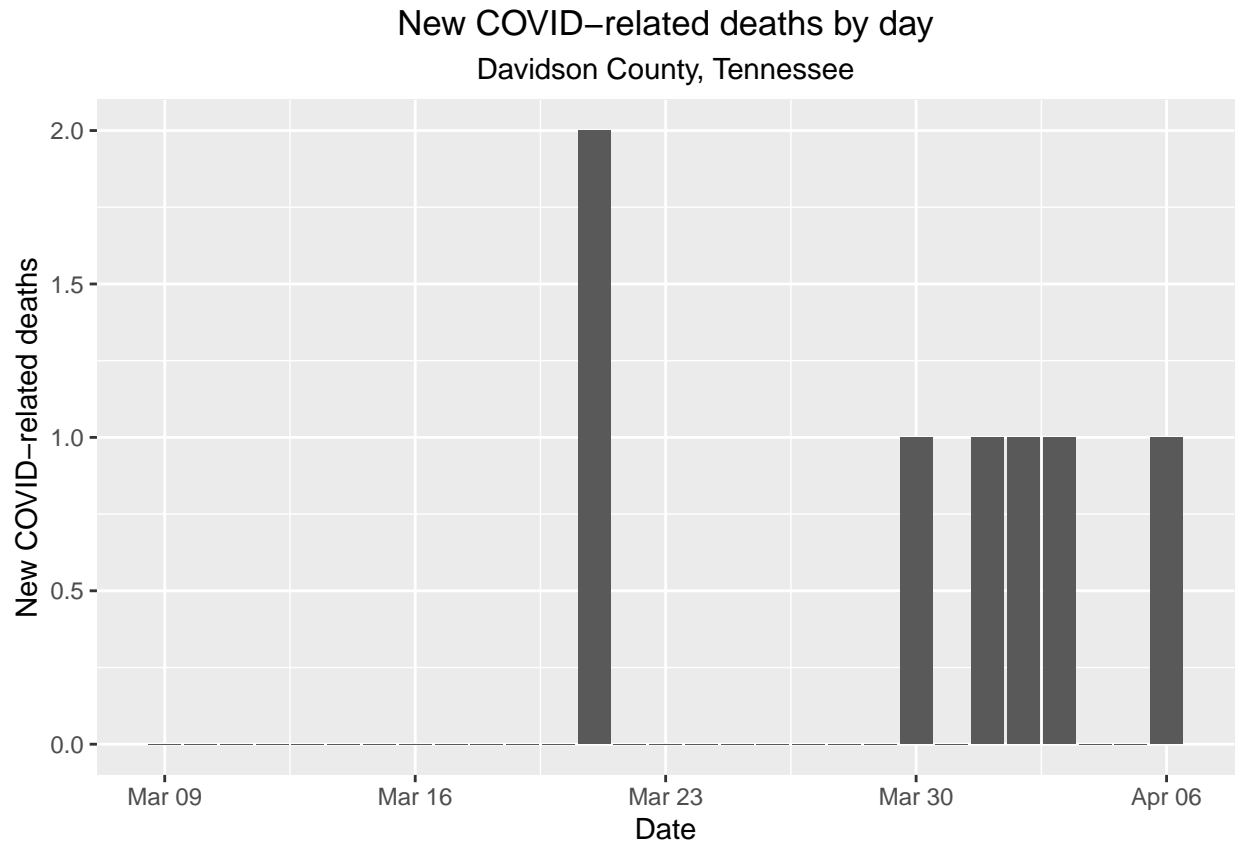
Compare state data based on population

Total confirmed cases

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

```
##                          state casesPerMillion
##  1:                    New York           6,718
##  2:                  New Jersey           4,626
##  3:                   Louisiana           3,198
##  4:               Massachusetts           2,007
##  5:                 Connecticut           1,937
##  6:                    Michigan           1,715
##  7:        District of Columbia           1,554
##  8:                  Washington           1,101
##  9:                Pennsylvania           1,021
## 10:                Rhode Island           1,021
## 11:                    Illinois             967
## 12:                    Colorado             898
## 13:                     Vermont             870
## 14:                    Delaware             804
## 15:                     Indiana             736
## 16:                     Georgia             711
## 17:                    Maryland             669
## 18:                       Idaho             654
```

```
## 19:                   Nevada                 639
## 20:                  Florida                 634
## 21:              Mississippi                 583
## 22:                Tennessee                 549
## 23:            New Hampshire                 525
## 24:                     Utah                 522
## 25:                 Missouri                 443
## 26:           South Carolina                 433
## 27:                Wisconsin                 419
## 28:               California                 412
## 29:                  Alabama                 409
## 30:                     Ohio                 380
## 31:                    Maine                 371
## 32:                  Wyoming                 366
## 33:                  Arizona                 338
## 34:                 Virginia                 337
## 35:                 Oklahoma                 335
## 36:               New Mexico                 327
## 37:             South Dakota                 325
## 38:                 Arkansas                 307
## 39:                     Iowa                 299
## 40:                  Montana                 298
## 41:             North Dakota                 295
## 42:                   Kansas                 292
## 43:                    Texas                 279
## 44:           North Carolina                 273
## 45:                   Hawaii                 271
## 46:                   Oregon                 268
## 47:                   Alaska                 258
## 48:                 Kentucky                 236
## 49:                 Nebraska                 226
## 50:            West Virginia                 192
## 51:                Minnesota                 174
## 52:              Puerto Rico                 160
## 53:                     Guam                <NA>
## 54: Northern Mariana Islands                <NA>
## 55:           Virgin Islands                <NA>
##                        state casesPerMillion
```

Total confirmed COVID cases per million residents
States with 10 highest counts as of April 06, 2020
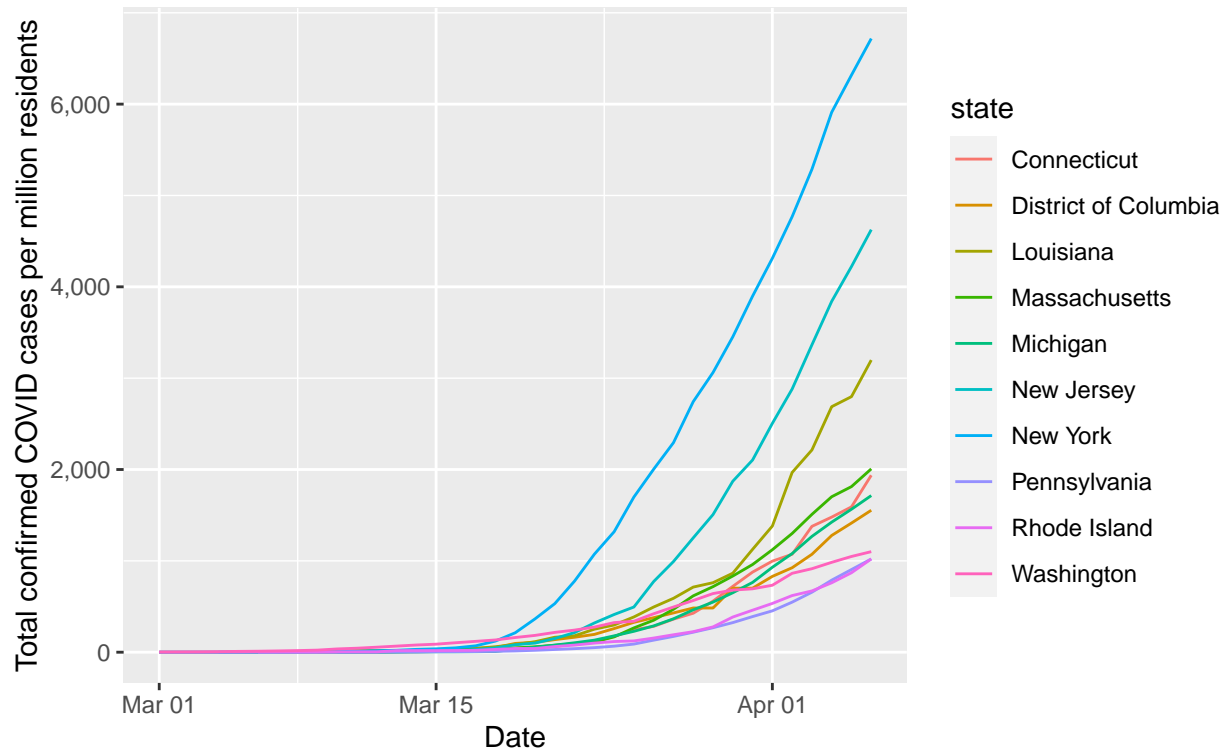
New confirmed cases

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

```
##                          state casesNewPerMillion
##   1:              New York              1,430
##   2:             New Jersey              1,260
##   3:              Louisiana                983
##   4:            Connecticut                558
##   5:          Massachusetts                498
##   6:    District of Columbia                481
##   7:               Michigan                446
##   8:           Pennsylvania                363
##   9:           Rhode Island                350
##  10:               Delaware                341
##  11:               Illinois                264
##  12:                Vermont                246
##  13:                Indiana                225
##  14:               Maryland                212
##  15:             Washington                186
##  16:               Colorado                171
##  17:                Florida                156
##  18:                Georgia                149
##  19:                 Nevada                137
##  20:                   Utah                129
```

```
## 21:        New Hampshire              128
## 22:         Mississippi              127
## 23:         South Dakota             114
## 24:            Tennessee             105
## 25:       South Carolina             103
## 26:             Virginia             101
## 27:             Missouri              99
## 28:                 Ohio              97
## 29:              Alabama              96
## 30:              Arizona              95
## 31:           California              94
## 32:           New Mexico              91
## 33:            Wisconsin              89
## 34:                Idaho              87
## 35:             Oklahoma              85
## 36:                Texas              84
## 37:              Wyoming              79
## 38:                 Iowa              78
## 39:               Kansas              78
## 40:       North Carolina              74
## 41:             Nebraska              73
## 42:         North Dakota              68
## 43:             Kentucky              64
## 44:             Arkansas              62
## 45:        West Virginia              57
## 46:               Oregon              55
## 47:              Montana              53
## 48:                Maine              49
## 49:               Hawaii              48
## 50:               Alaska              45
## 51:          Puerto Rico              42
## 52:            Minnesota              34
## 53:                 Guam            <NA>
## 54: Northern Mariana Islands        <NA>
## 55:        Virgin Islands           <NA>
##                       state casesNewPerMillion
```

New confirmed COVID cases per million resident (3–day rolling average)
States with 10 highest counts as of April 06, 2020

Total deaths

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

```
##                       state deathsPerMillion
##  1:               New York              244
##  2:             New Jersey              113
##  3:              Louisiana              110
##  4:               Michigan               72
##  5:            Connecticut               57
##  6:             Washington               50
##  7:          Massachusetts               37
##  8:                Vermont               36
##  9:   District of Columbia               34
## 10:                Georgia               27
## 11:               Colorado               26
## 12:           Rhode Island               25
## 13:               Illinois               24
## 14:                Indiana               20
## 15:                 Nevada               18
## 16:            Mississippi               17
## 17:               Delaware               15
## 18:               Maryland               15
## 19:              Wisconsin               14
## 20:           Pennsylvania               13
```

```
## 21:                    Ohio              12
## 22:                Oklahoma              12
## 23:                 Florida              11
## 24:                Kentucky              11
## 25:                 Alabama              10
## 26:                 Arizona               9
## 27:              California               9
## 28:                Missouri               9
## 29:          South Carolina               9
## 30:               Tennessee               9
## 31:                  Kansas               8
## 32:                   Idaho               7
## 33:                    Iowa               7
## 34:                   Maine               7
## 35:           New Hampshire               6
## 36:                  Oregon               6
## 37:             Puerto Rico               6
## 38:                Virginia               6
## 39:                  Alaska               5
## 40:                Arkansas               5
## 41:               Minnesota               5
## 42:                 Montana               5
## 43:                Nebraska               5
## 44:              New Mexico               5
## 45:                   Texas               5
## 46:            South Dakota               4
## 47:                    Utah               4
## 48:                  Hawaii               3
## 49:          North Carolina               3
## 50:            North Dakota               3
## 51:           West Virginia               2
## 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 06, 2020

New deaths

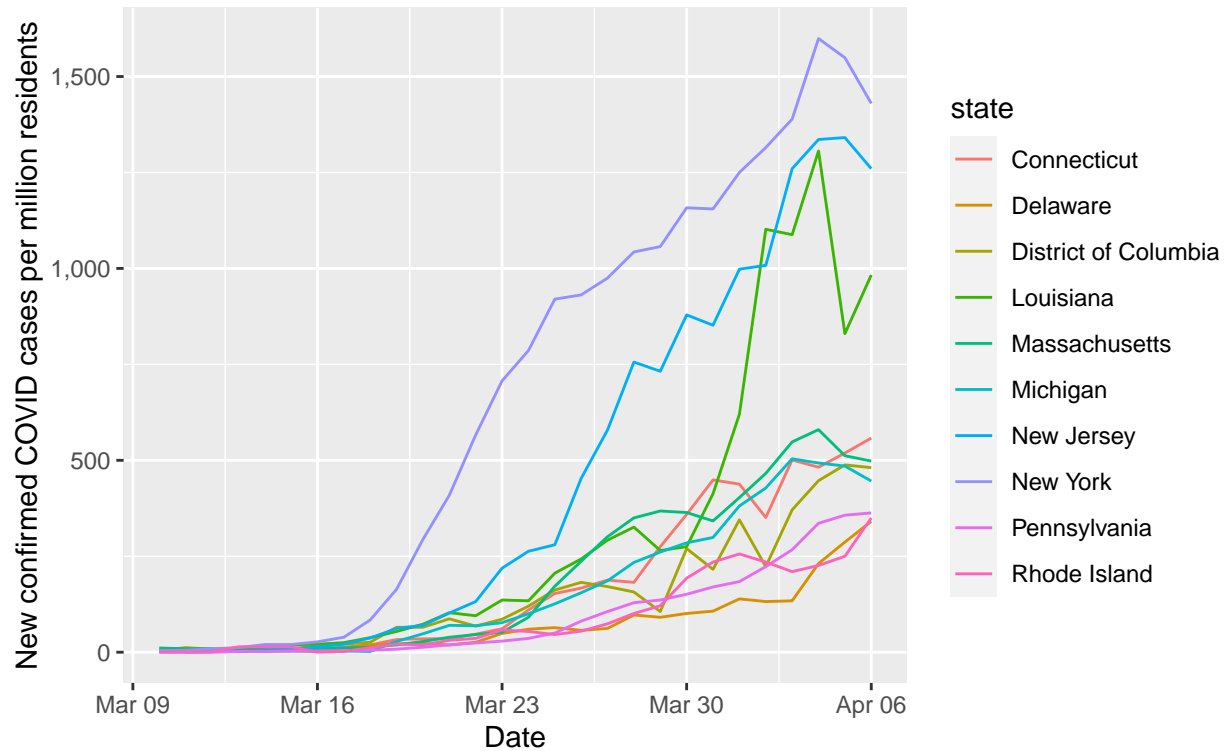Table of new deaths per million residents: rolling 3-day average (all 50 states)
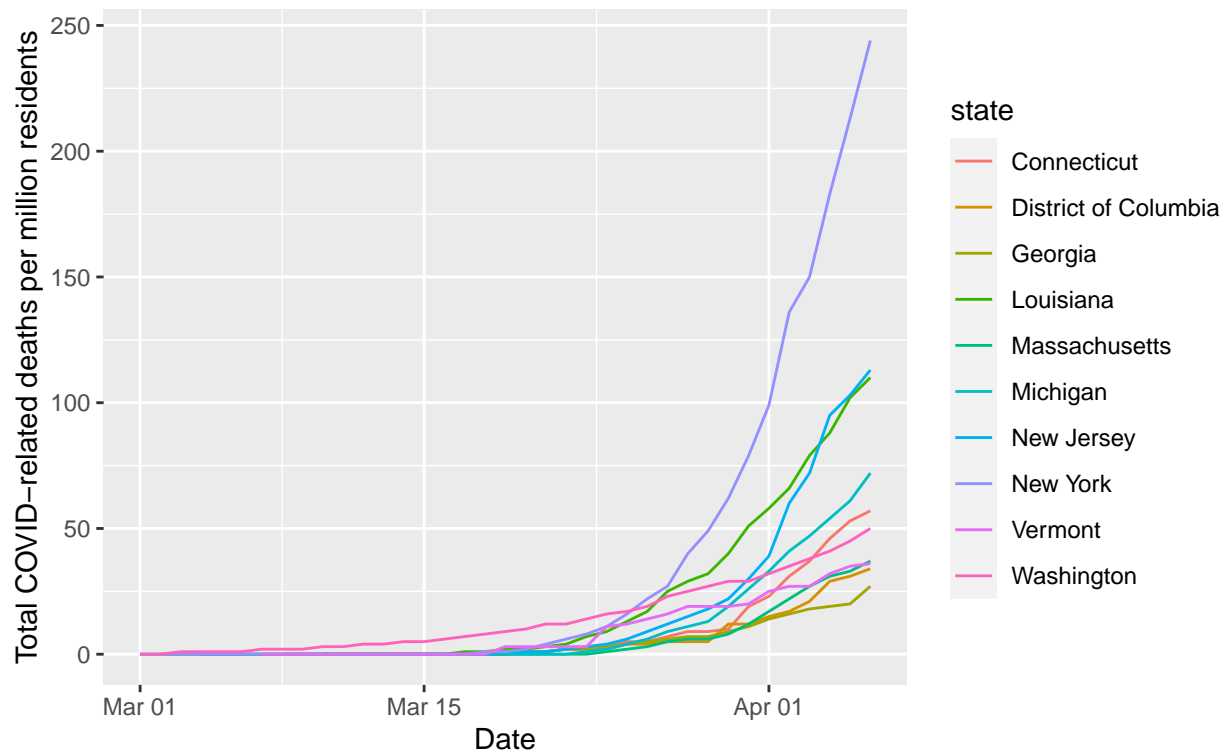
```
##                         state deathsNewPerMillion
##  1:                   New York                  93
##  2:                 New Jersey                  40
##  3:                  Louisiana                  30
##  4:                   Michigan                  24
##  5:                Connecticut                  20
##  6:       District of Columbia                  12
##  7:               Rhode Island                  12
##  8:                 Washington                  11
##  9:                    Georgia                   9
## 10:              Massachusetts                   9
## 11:                    Vermont                   9
## 12:                   Maryland                   8
## 13:                   Illinois                   7
## 14:                Mississippi                   7
## 15:                   Colorado                   6
## 16:                    Indiana                   5
## 17:               Pennsylvania                   5
## 18:                  Wisconsin                   5
## 19:                       Iowa                   4
## 20:                   Kentucky                   4
```

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

w COVID–related deaths per million resident (3–day rolling average)
States with 10 highest counts as of April 06, 2020
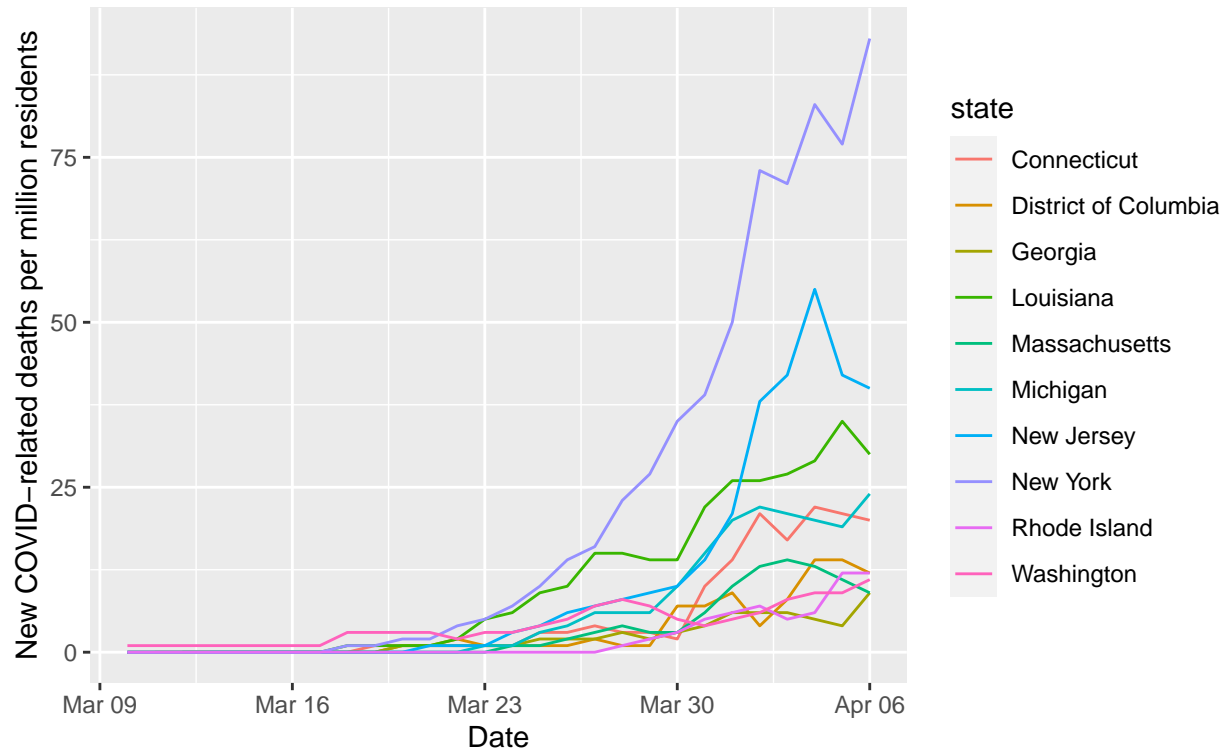
Compare new cases based on stay-at-home orders

- 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 inherentely 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.

New COVID cases vs.stay-at-home order

New cases are a 3-day rolling average per million residents