

Kieran Healy

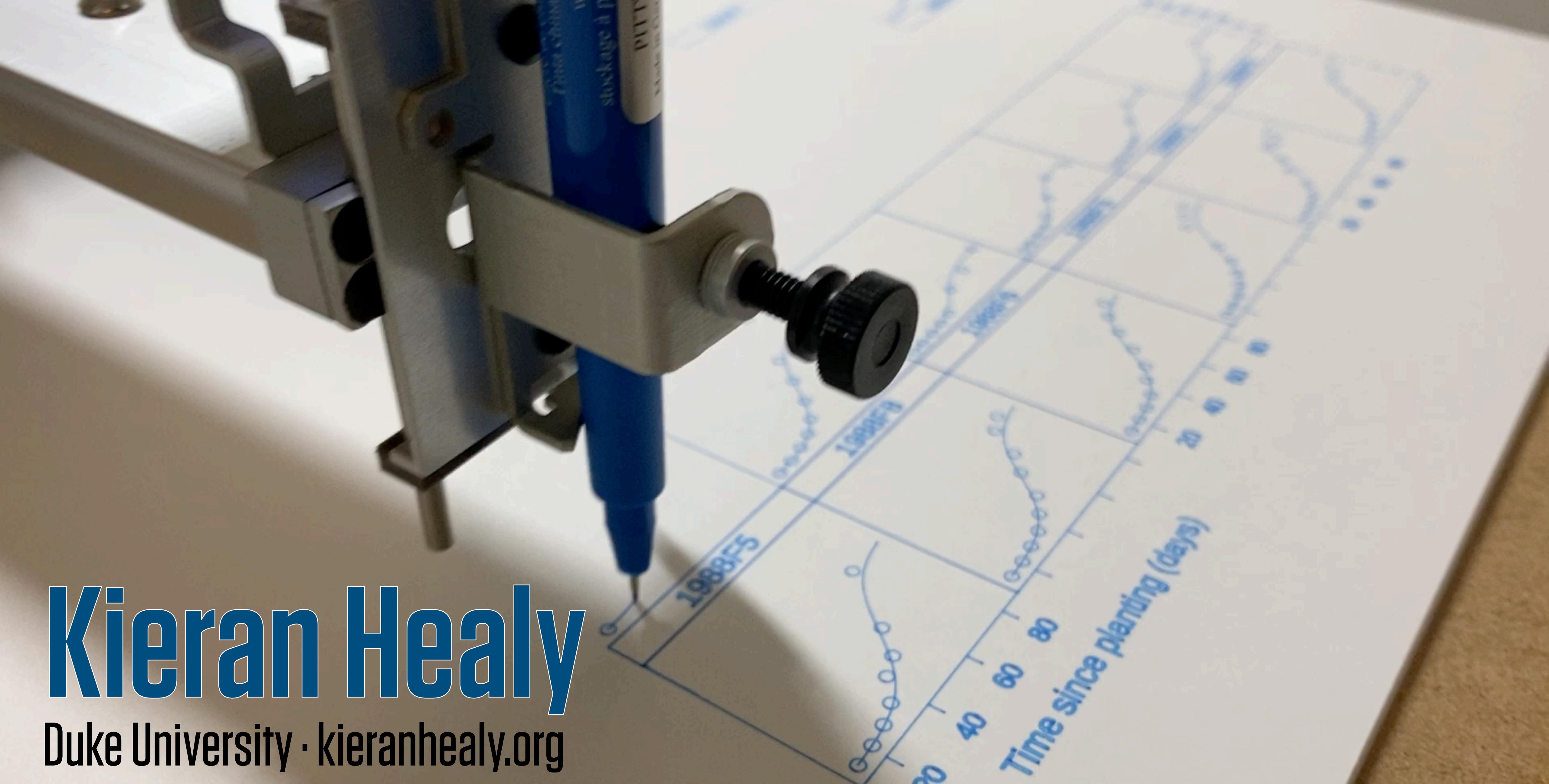
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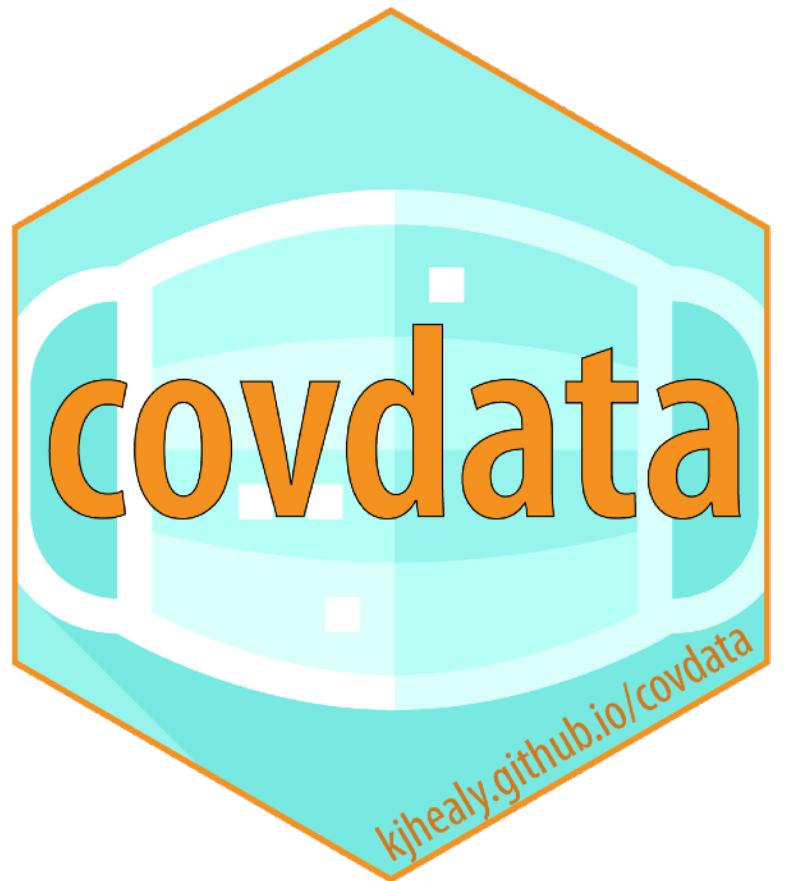
@kjhealy



github.com/kjhealy



<https://kieranhealy.org/resources/>



COVID data from a variety of sources



Activity data from Apple and Google

What's in the Box

Cross-National Case and Fatality Counts from the ECDC

U.S. Testing, Case & Fatality Data from the COVID Tracking Project

U.S. Data from the CDC/NCHS

U.S. Data from the New York Times

Short-Term Mortality Fluctuation Data from the HMD

Activity and Mobility Data from Apple and Google

Other Tables: Policy Data, Country Codes, US State Populations

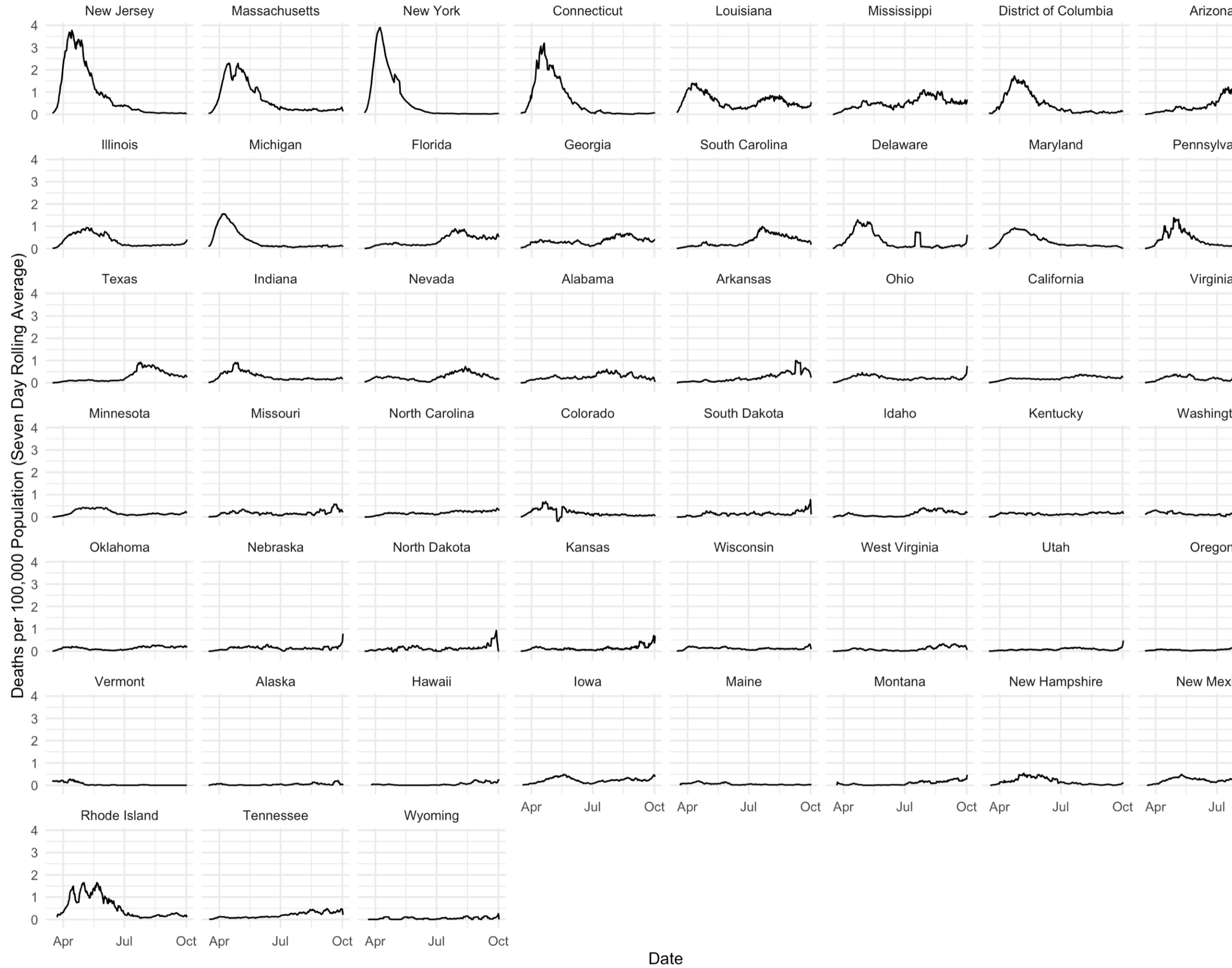
COVID Tracking Project Data

```
library(tidyverse) # Optional but strongly recommended
library(covdata)
covus

# A tibble: 345,506 x 7
  date      state fips data_quality_grade measure
  <date>    <chr> <chr> <chr>            <chr>
  1 2020-10-02 AK    02     A     positive
  2 2020-10-02 AK    02     A     negative
  3 2020-10-02 AK    02     A     pending
  4 2020-10-02 AK    02     A     hospitalized_currently
  5 2020-10-02 AK    02     A     hospitalized_cumulative
  6 2020-10-02 AK    02     A     in_icu_currently
  7 2020-10-02 AK    02     A     in_icu_cumulative
  8 2020-10-02 AK    02     A     on_ventilator_currently
  9 2020-10-02 AK    02     A     on_ventilator_cumulative
 10 2020-10-02 AK    02     A     recovered
# ... with 345,496 more rows
# count measure_label
# <dbl> <chr>
# 9040 Positive Tests
# 460250 Negative Tests
# NA Pending Tests
# 41 Currently Hospitalized
# NA Cumulative Hospitalized
# NA Currently in ICU
# NA Cumulative in ICU
# 6 Currently on Ventilator
# NA Cumulative on Ventilator
# 5042 Recovered
```

Average Death Rate per capita from COVID-19: US States and Washington, DC

COVID Tracking Project data as of Friday, October 2, 2020. Seven-day rolling average.



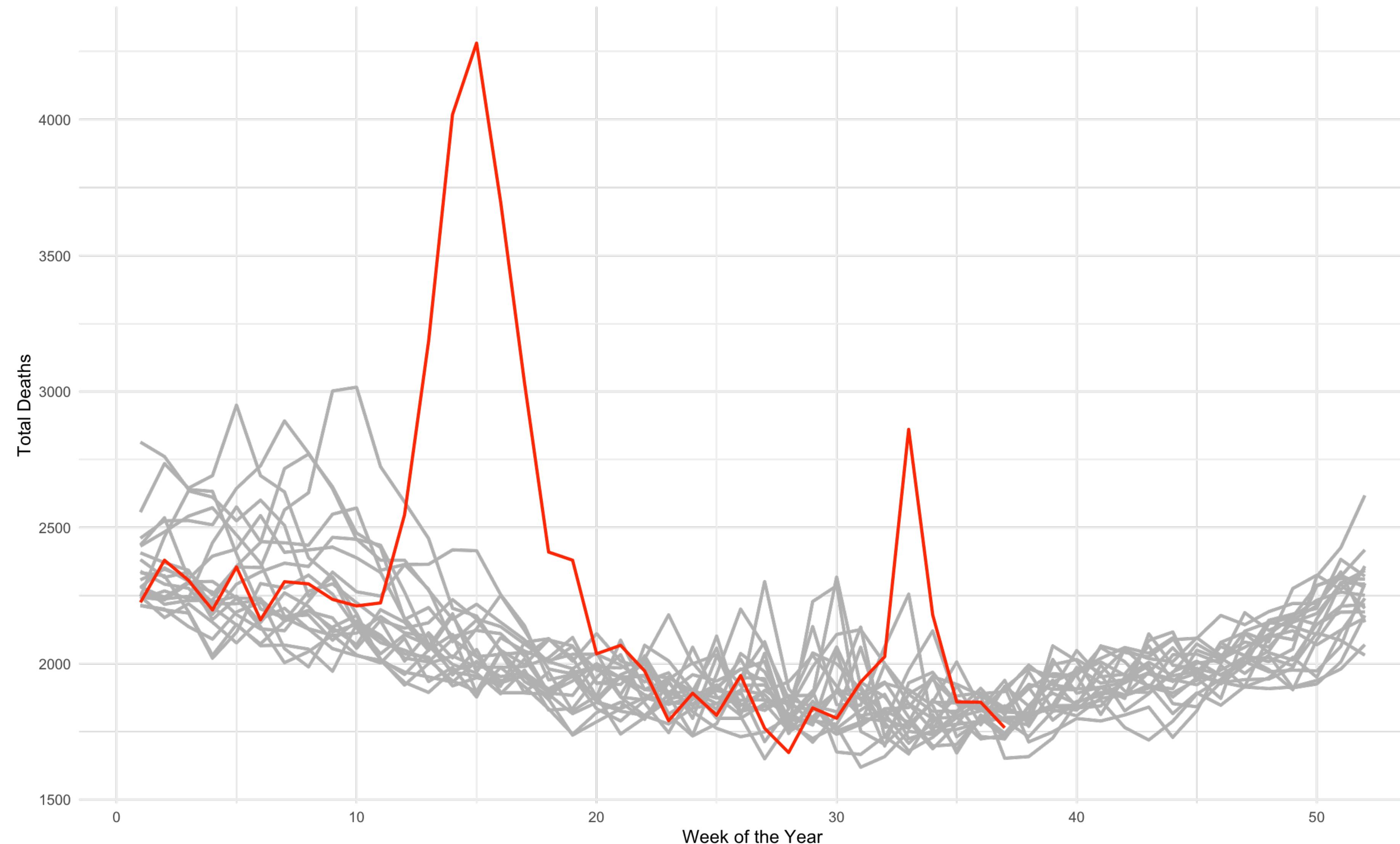
<https://mortality.org>

```
> stmf
# A tibble: 450,945 x 17
  country_code cname iso2 continent iso3 year week sex split split_sex forecast approx_date age_group death_count death_rate deaths_total rate_total
  <chr>        <chr> <chr> <chr>    <dbl> <dbl> <chr> <dbl>    <dbl> <dbl> <date>   <chr>          <dbl>      <dbl>      <dbl>      <dbl>
1 AUT         Austria AT Europe AUT     2000    1 m     0     0     0 2000-01-09 0-14            7 0.000520 814 0.0109
2 AUT         Austria AT Europe AUT     2000    1 m     0     0     0 2000-01-09 15-64           183 0.00351 814 0.0109
3 AUT         Austria AT Europe AUT     2000    1 m     0     0     0 2000-01-09 65-74           212 0.0376 814 0.0109
4 AUT         Austria AT Europe AUT     2000    1 m     0     0     0 2000-01-09 75-84           249 0.0951 814 0.0109
5 AUT         Austria AT Europe AUT     2000    1 m     0     0     0 2000-01-09 85+             163 0.232 814 0.0109
6 AUT         Austria AT Europe AUT     2000    1 f     0     0     0 2000-01-09 0-14            2 0.000156 1053 0.0132
7 AUT         Austria AT Europe AUT     2000    1 f     0     0     0 2000-01-09 15-64           104 0.00200 1053 0.0132
8 AUT         Austria AT Europe AUT     2000    1 f     0     0     0 2000-01-09 65-74           141 0.0196 1053 0.0132
9 AUT         Austria AT Europe AUT     2000    1 f     0     0     0 2000-01-09 75-84           338 0.0614 1053 0.0132
10 AUT        Austria AT Europe AUT    2000    1 f     0     0     0 2000-01-09 85+            468 0.224 1053 0.0132
# ... with 450,935 more rows
```

Short-Term Mortality Fluctuations from the Human Mortality Database

Weekly recorded deaths in Belgium, 2000-2020

Year — 2000-2019 — 2020

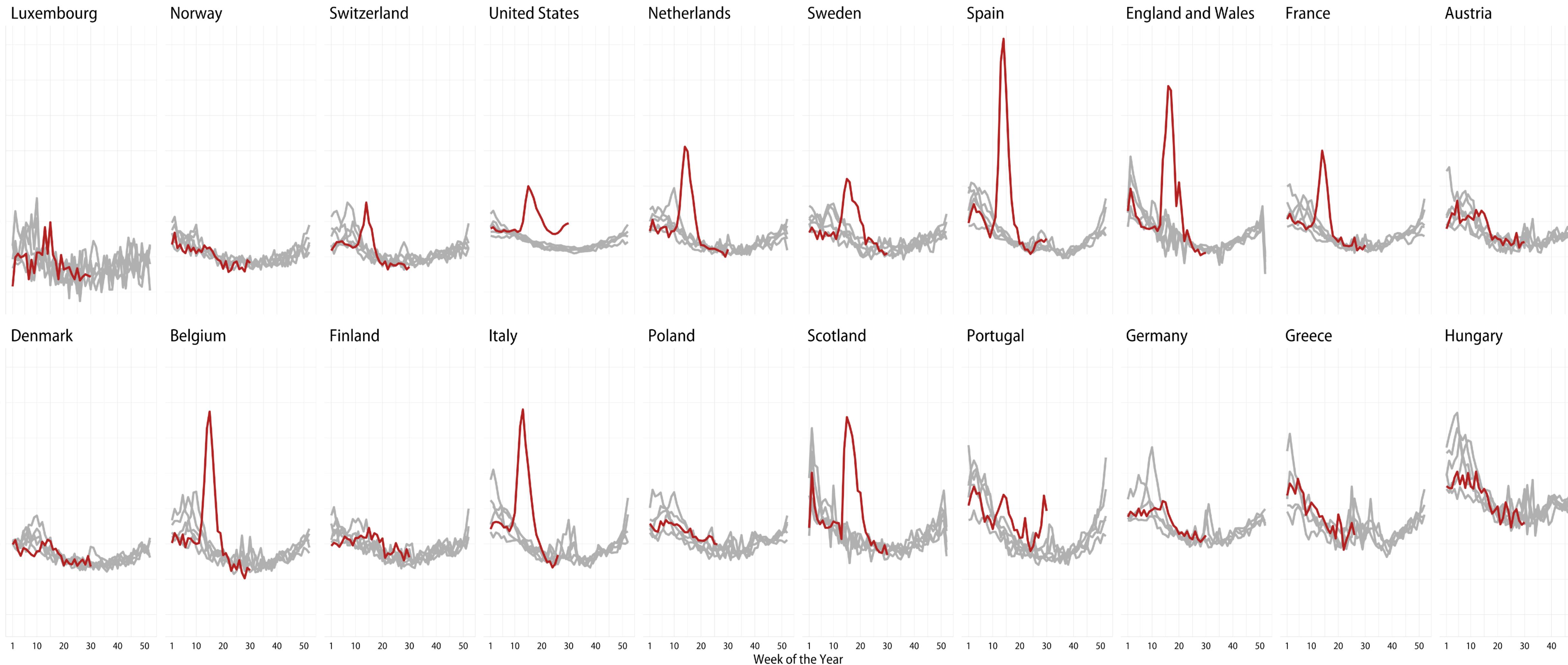


Short-Term Mortality Fluctuations from the Human Mortality Database

Overall Weekly Death Rates

Comparing 2020 with 2015-2019 across selected countries. Countries are shown top left to bottom right ordered from lowest to highest average mortality rate in 2015-2019.

Year 2015-2019 2020



Data for 2020 is for Weeks 1 to 30. Graph: @kjhealy. Data: Human Mortality Database, mortality.org

Short-Term Mortality Fluctuations from the Human Mortality Database

```
nchs_wdc
```

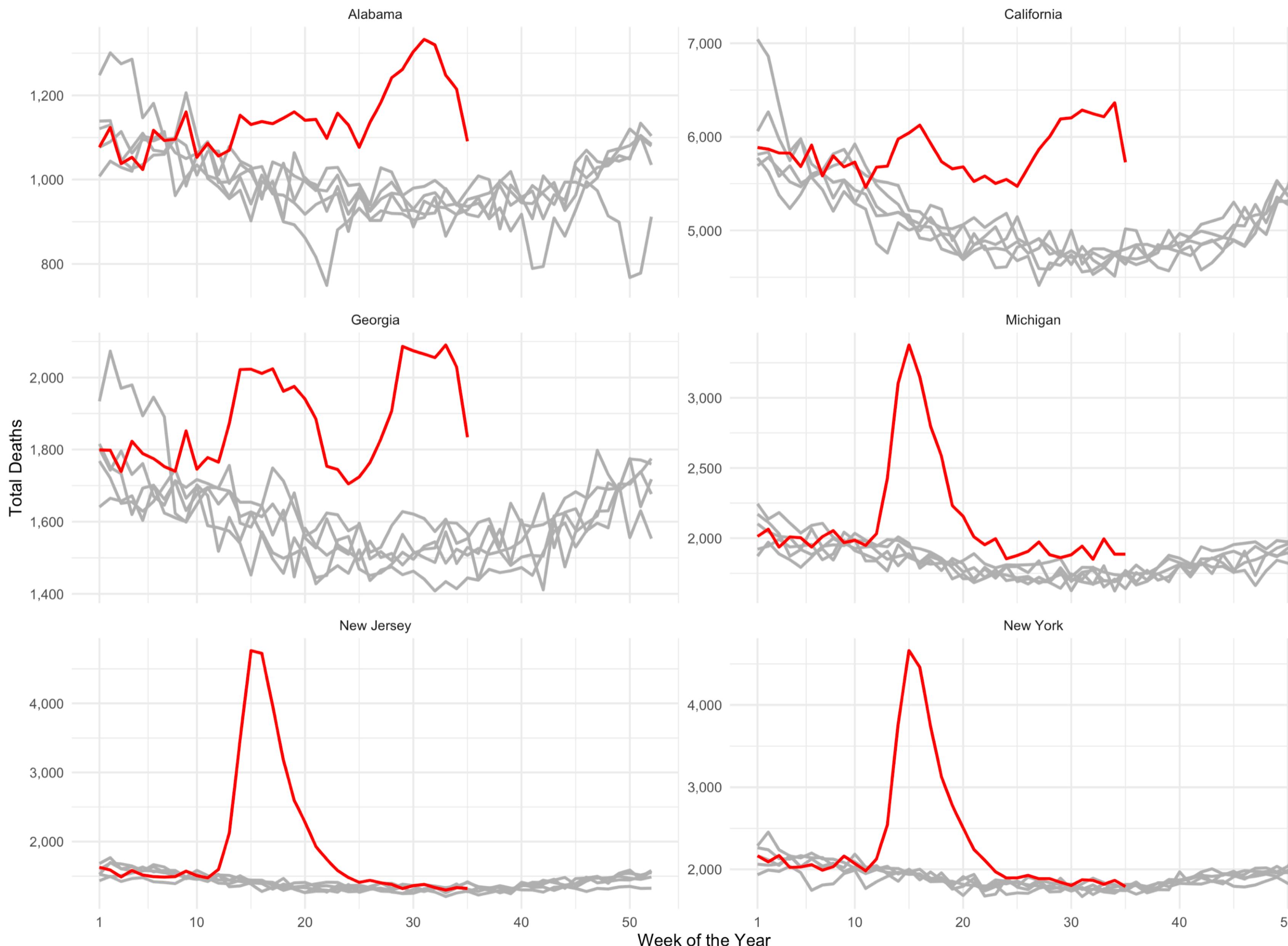
#>	# A tibble: 256,077 x 7	jurisdiction	year	week	week_ending_date	cause_detailed	n	cause
#>		<chr>	<dbl>	<dbl>	<date>	<chr>	<dbl>	<chr>
#> 1	Alabama	Alabama	2014	1	2014-01-04	All Cause	355	All Cau...
#> 2	Alabama	Alabama	2014	1	2014-01-04	Alzheimer disease (...)	10	Alzheim...
#> 3	Alabama	Alabama	2014	1	2014-01-04	Cerebrovascular dis...	18	Cerebro...
#> 4	Alabama	Alabama	2014	1	2014-01-04	Chronic lower respi...	20	Chronic...
#> 5	Alabama	Alabama	2014	1	2014-01-04	Diabetes mellitus (...)	NA	Diabetes
#> 6	Alabama	Alabama	2014	1	2014-01-04	Diseases of heart (...)	87	Disease...
#> 7	Alabama	Alabama	2014	1	2014-01-04	Influenza and pneum...	NA	Influen...
#> 8	Alabama	Alabama	2014	1	2014-01-04	Malignant neoplasms...	60	Cancer
#> 9	Alabama	Alabama	2014	1	2014-01-04	Natural Cause	327	Natural...
#> 10	Alabama	Alabama	2014	1	2014-01-04	Nephritis, nephroti...	NA	Kidney ...
#> # ...	with 256,067 more rows							

Newly-Updated US Mortality Measures from the CDC/NCHS

Weekly recorded deaths from all causes

2020 data are for Weeks 1 to 35. Raw Counts, each state has its own y-axis scale.

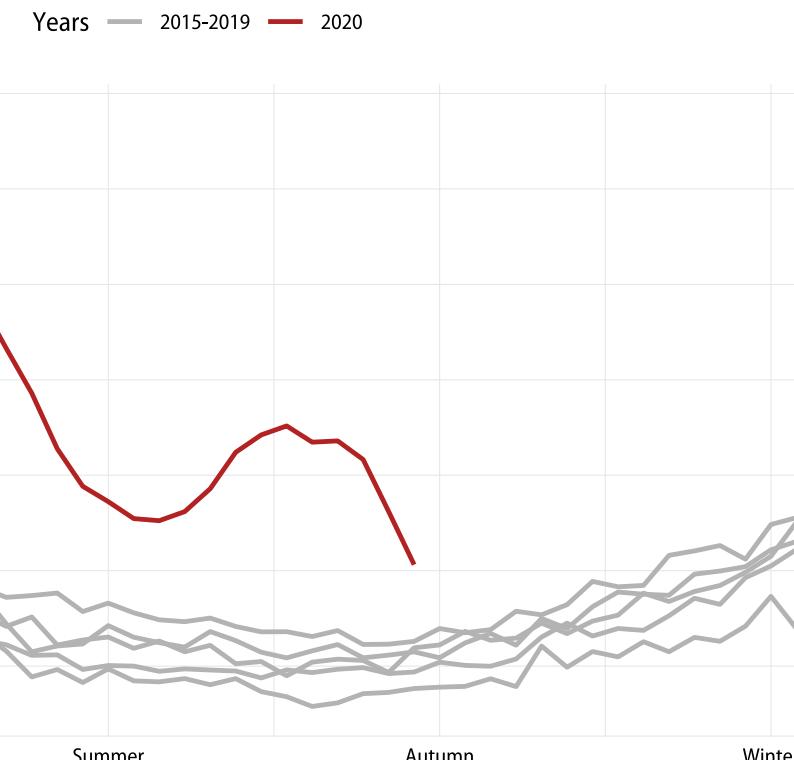
Years — 2015-2019 — 2020



United States

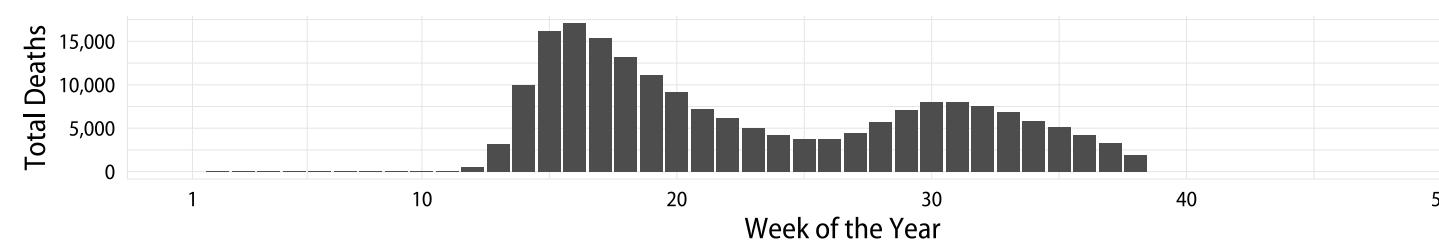
Weekly recorded deaths from all causes

2020 data are for Weeks 1 to 35. Raw Counts.



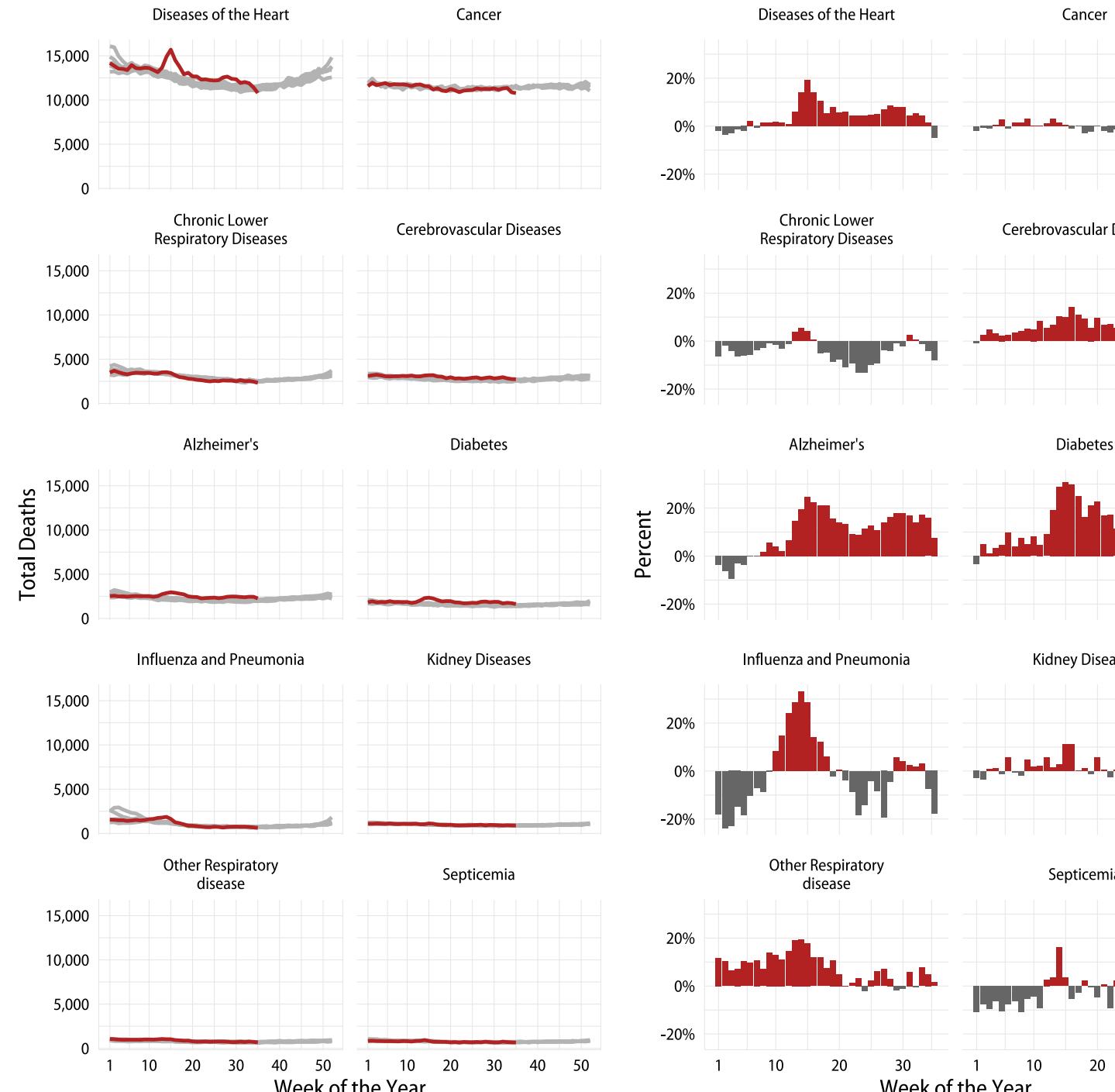
Weekly deaths recorded as COVID-19 (Multiple cause)

Raw counts.



Weekly deaths from selected causes

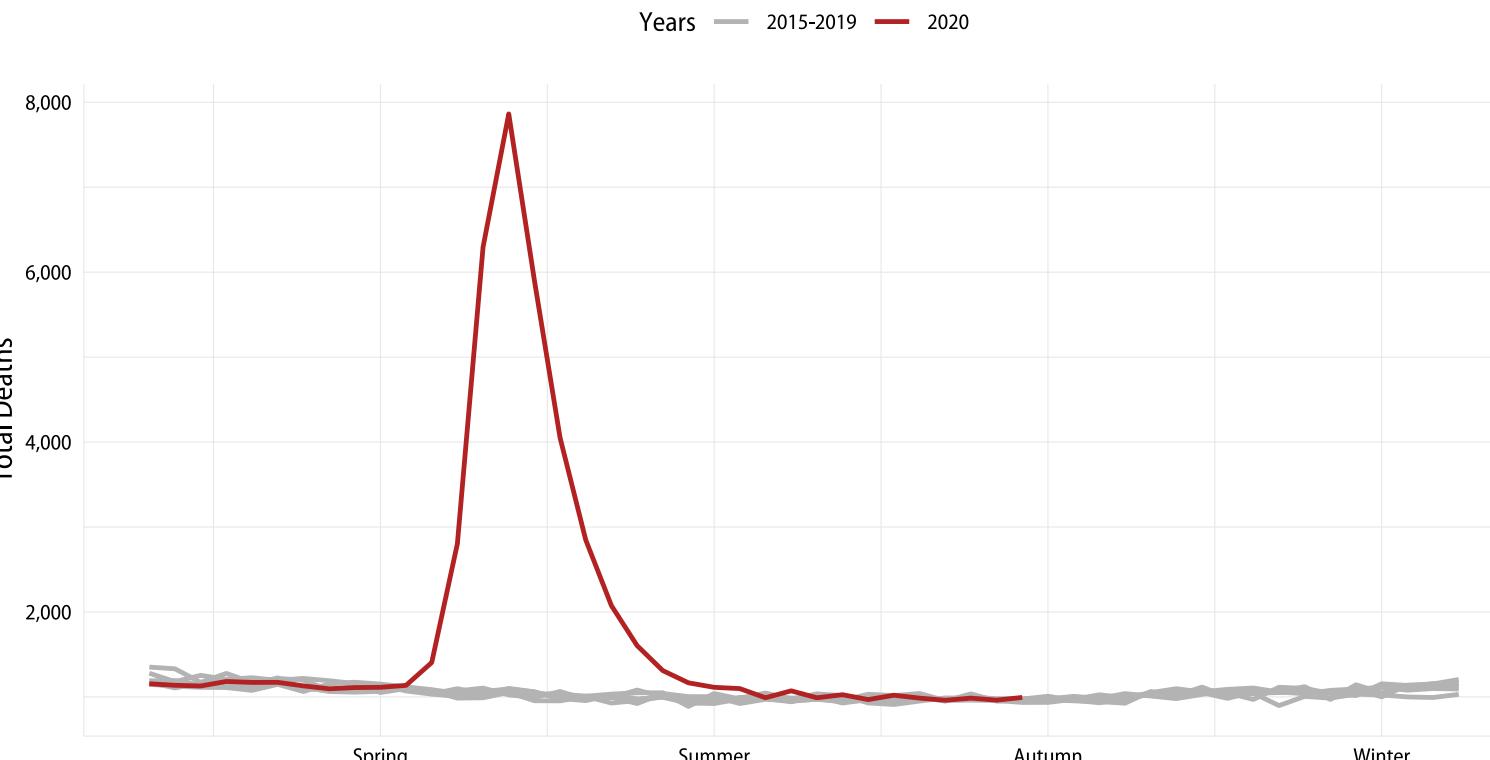
Panels ordered by number of deaths. Raw Counts.



New York City

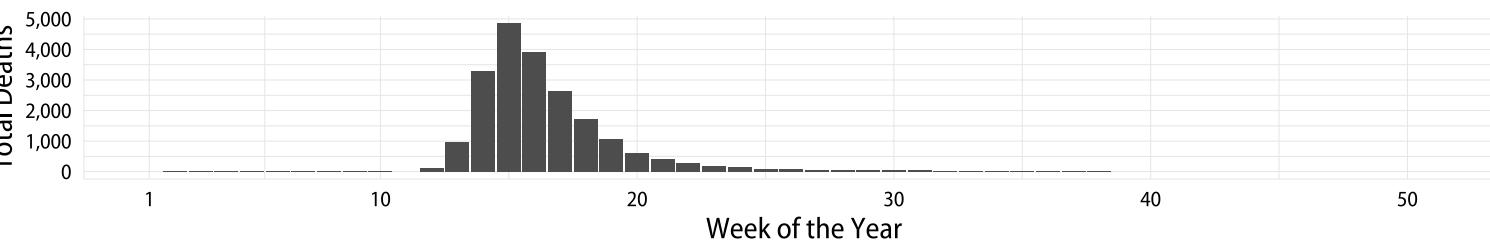
Weekly recorded deaths from all causes

2020 data are for Weeks 1 to 35. Raw Counts.



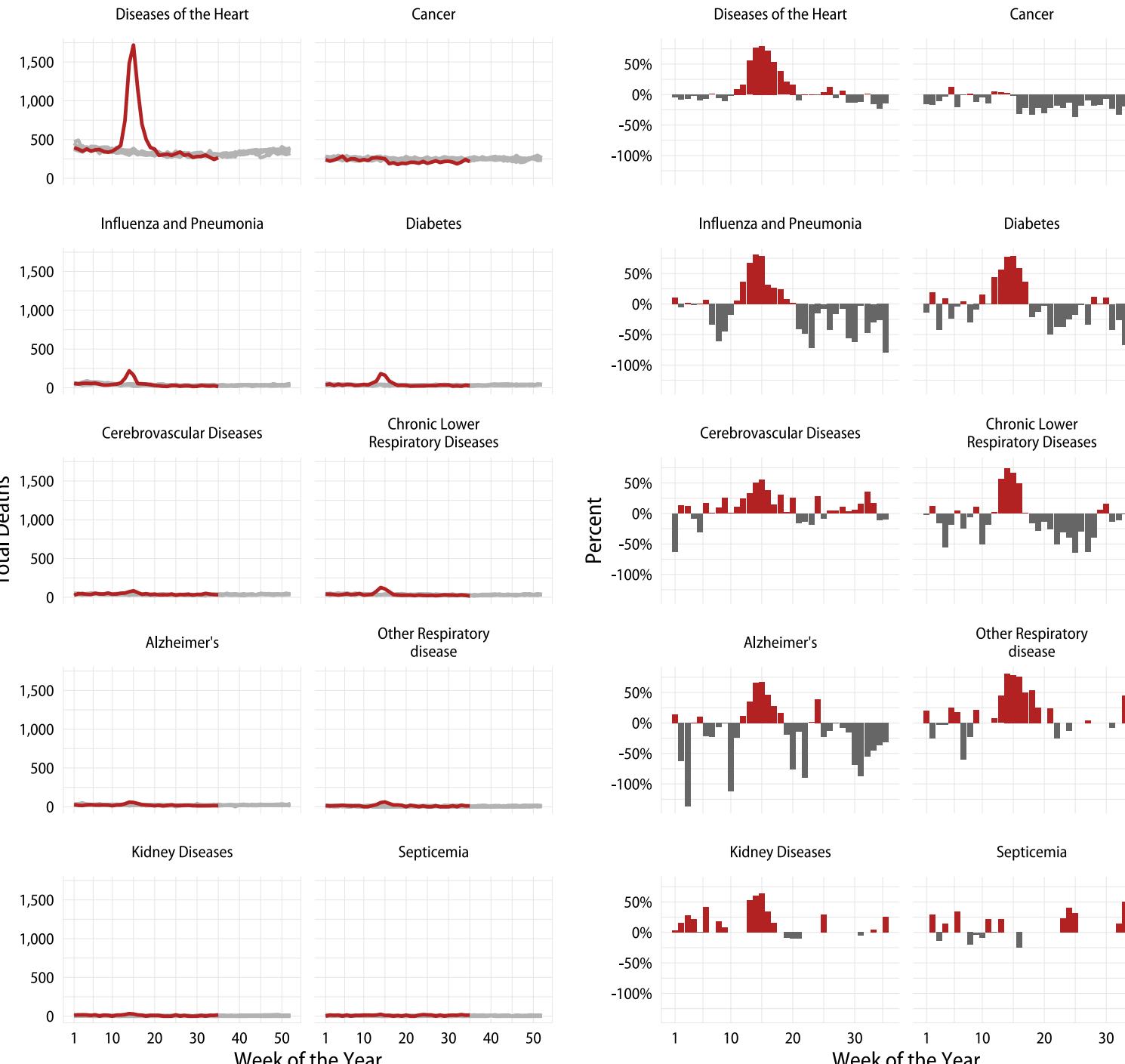
Weekly deaths recorded as COVID-19 (Multiple cause)

Raw counts.



Weekly deaths from selected causes

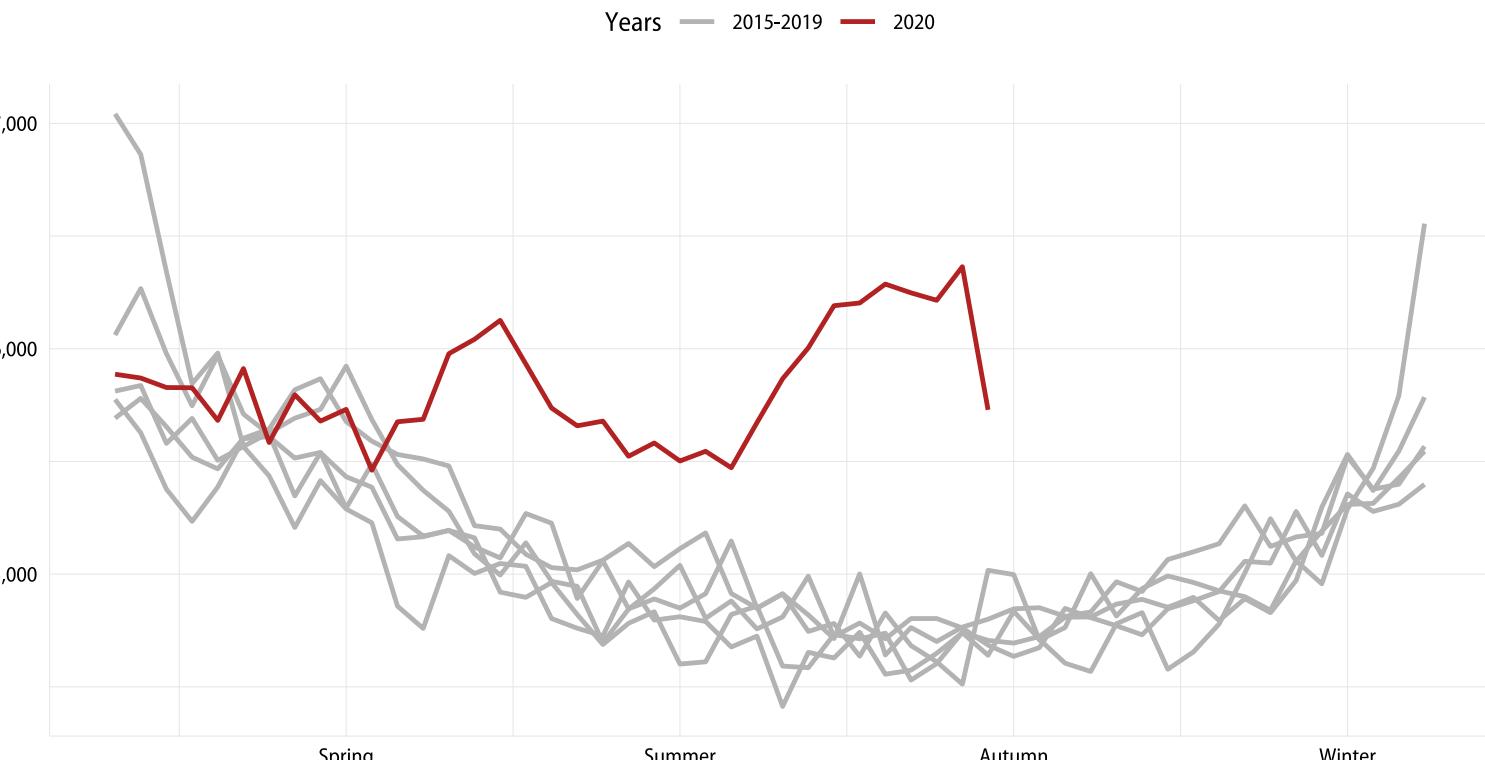
Panels ordered by number of deaths. Raw Counts.



California

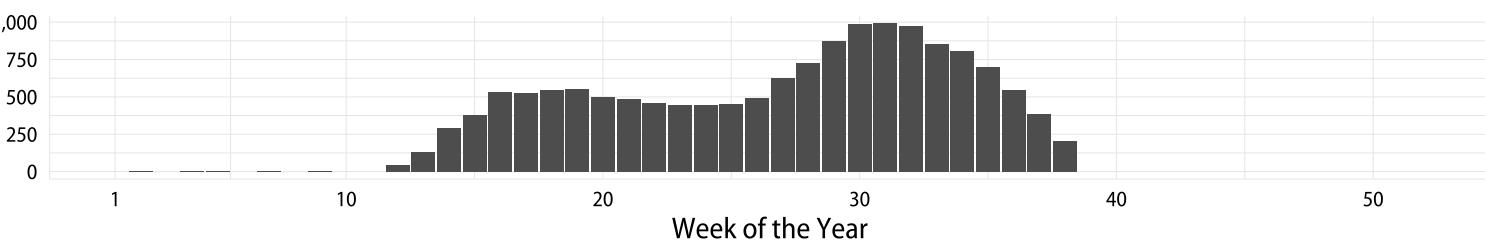
Weekly recorded deaths from all causes

2020 data are for Weeks 1 to 35. Raw Counts.



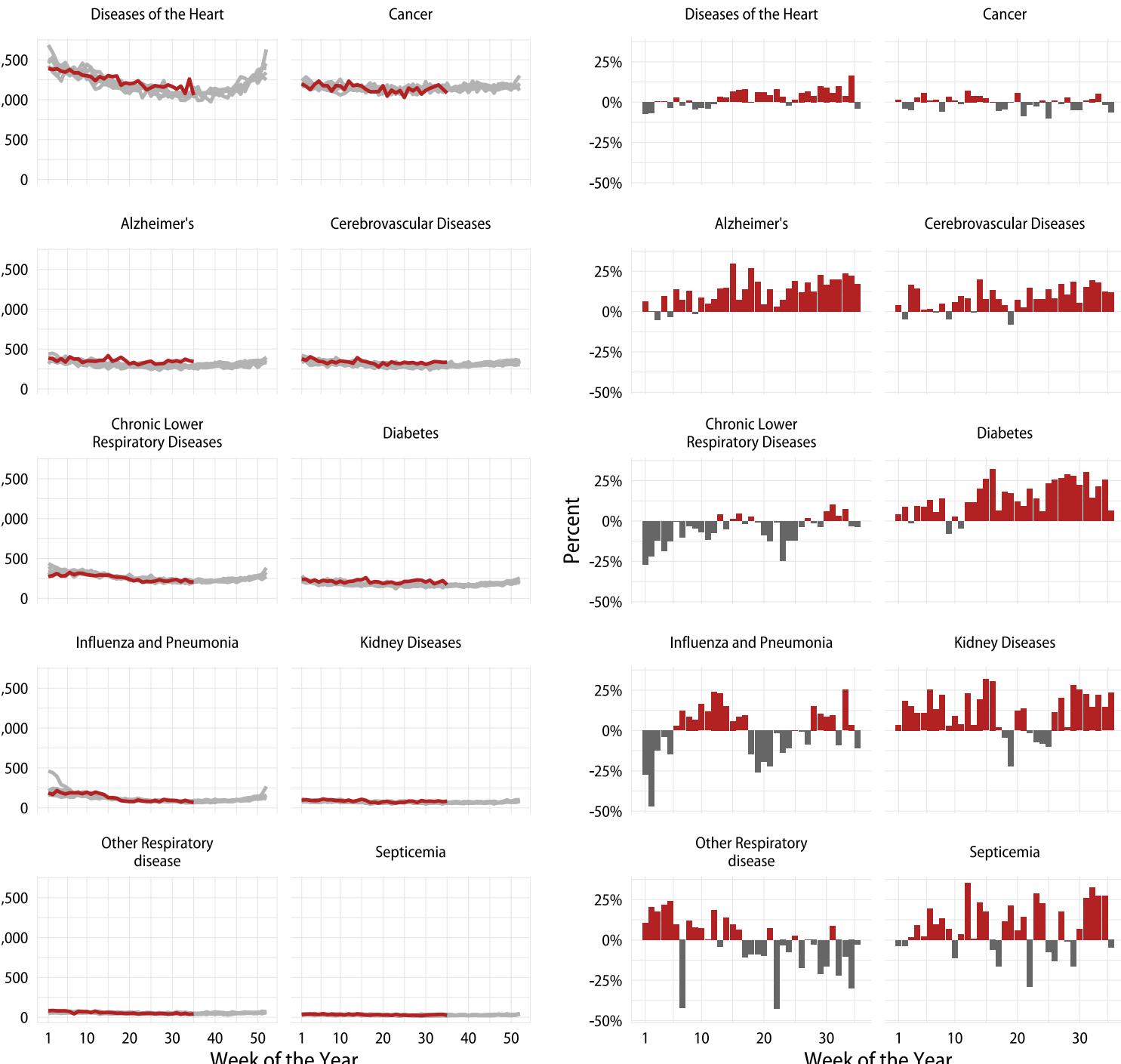
Weekly deaths recorded as COVID-19 (Multiple cause)

Raw counts.



Weekly deaths from selected causes

Panels ordered by number of deaths. Raw Counts.

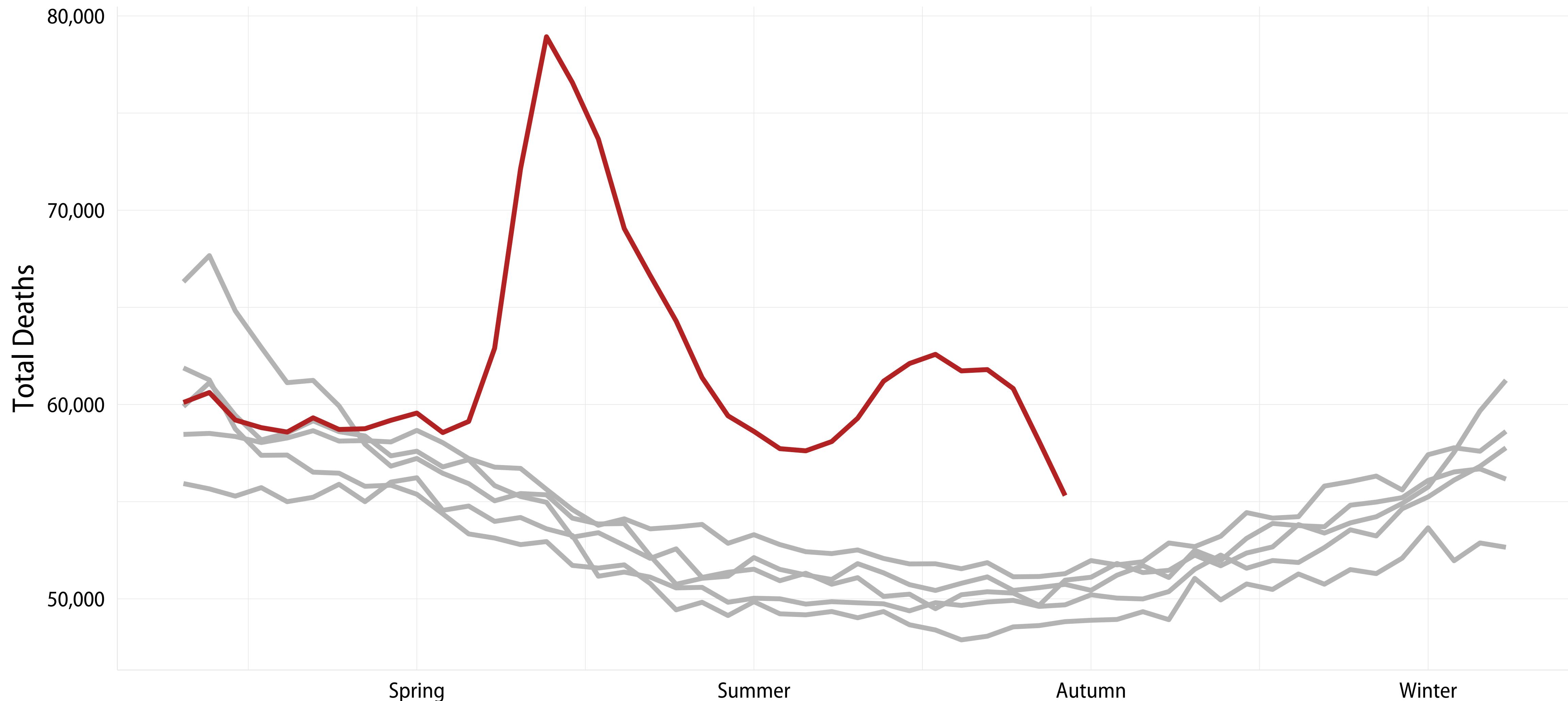


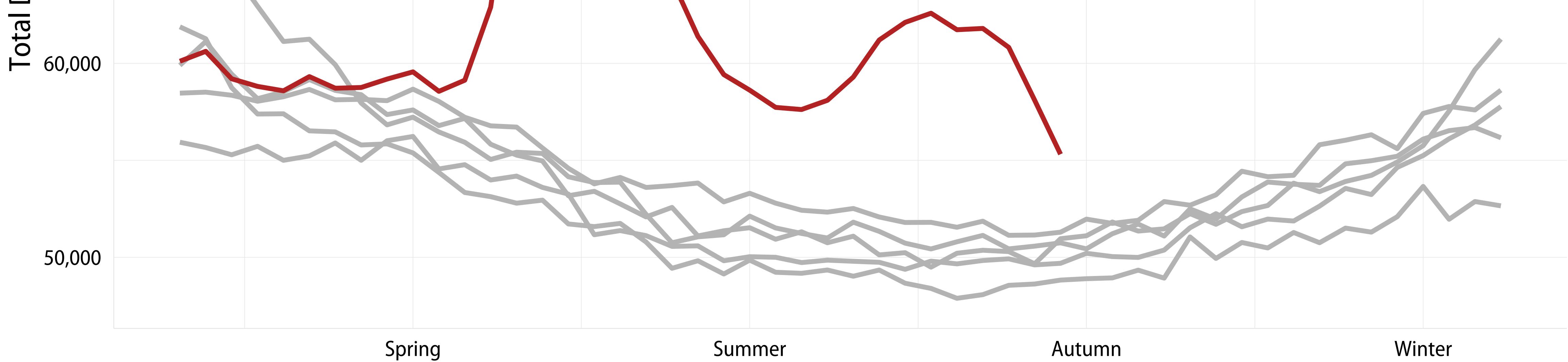
United States

Weekly recorded deaths from all causes

2020 data are for Weeks 1 to 35. Raw Counts.

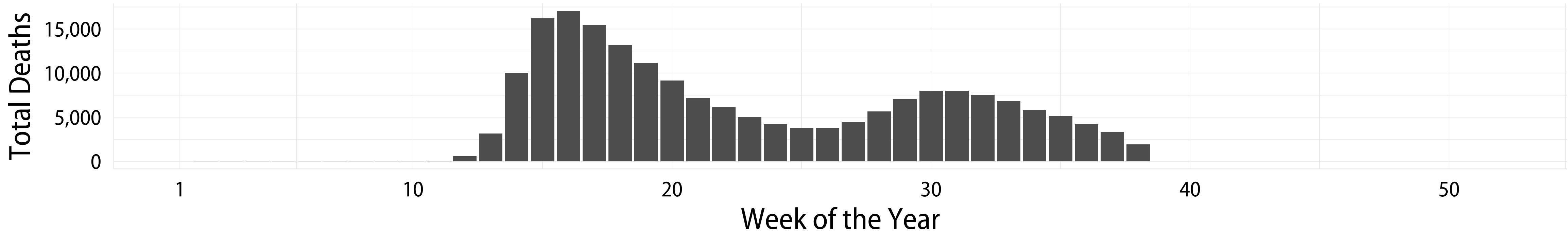
Years — 2015-2019 — 2020





Weekly deaths recorded as COVID-19 (Multiple cause)

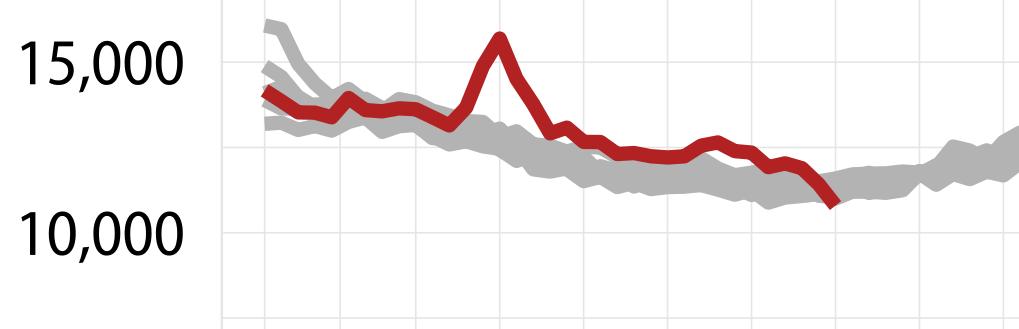
Raw counts.



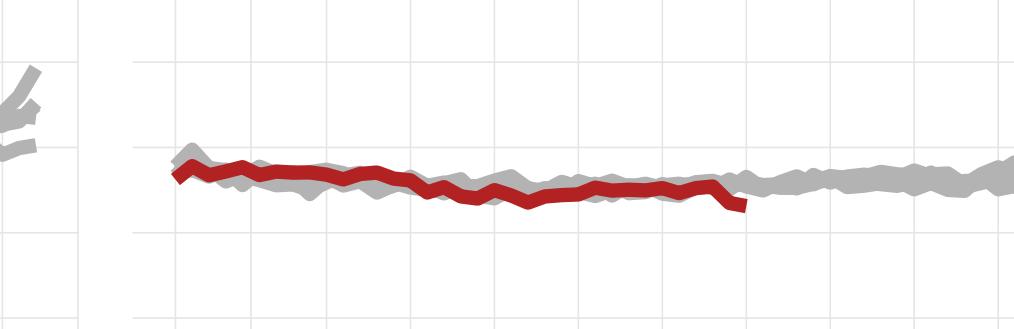
Weekly deaths from selected causes

Panels ordered by number of deaths. Raw Counts.

Diseases of the Heart



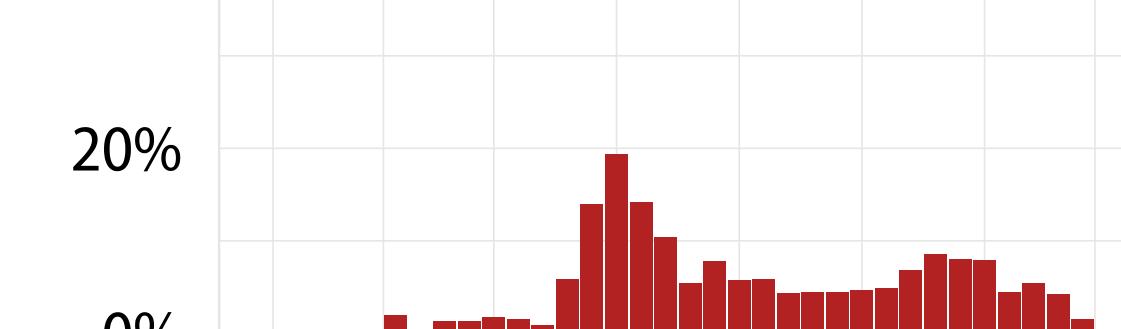
Cancer



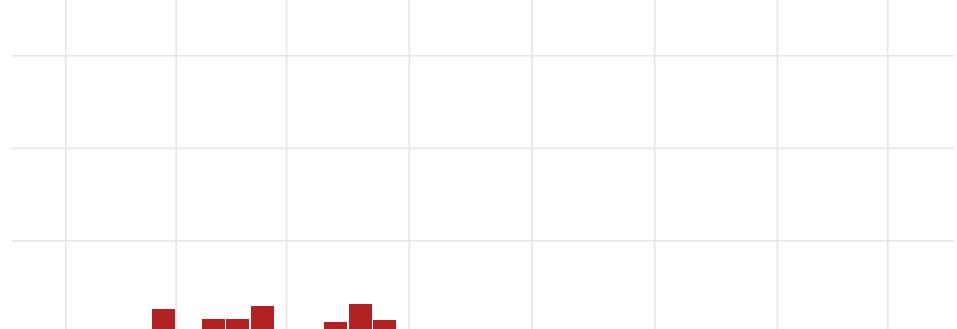
Percent difference from 2015-2019 average

Data for weeks 1 to 35 only.

Diseases of the Heart

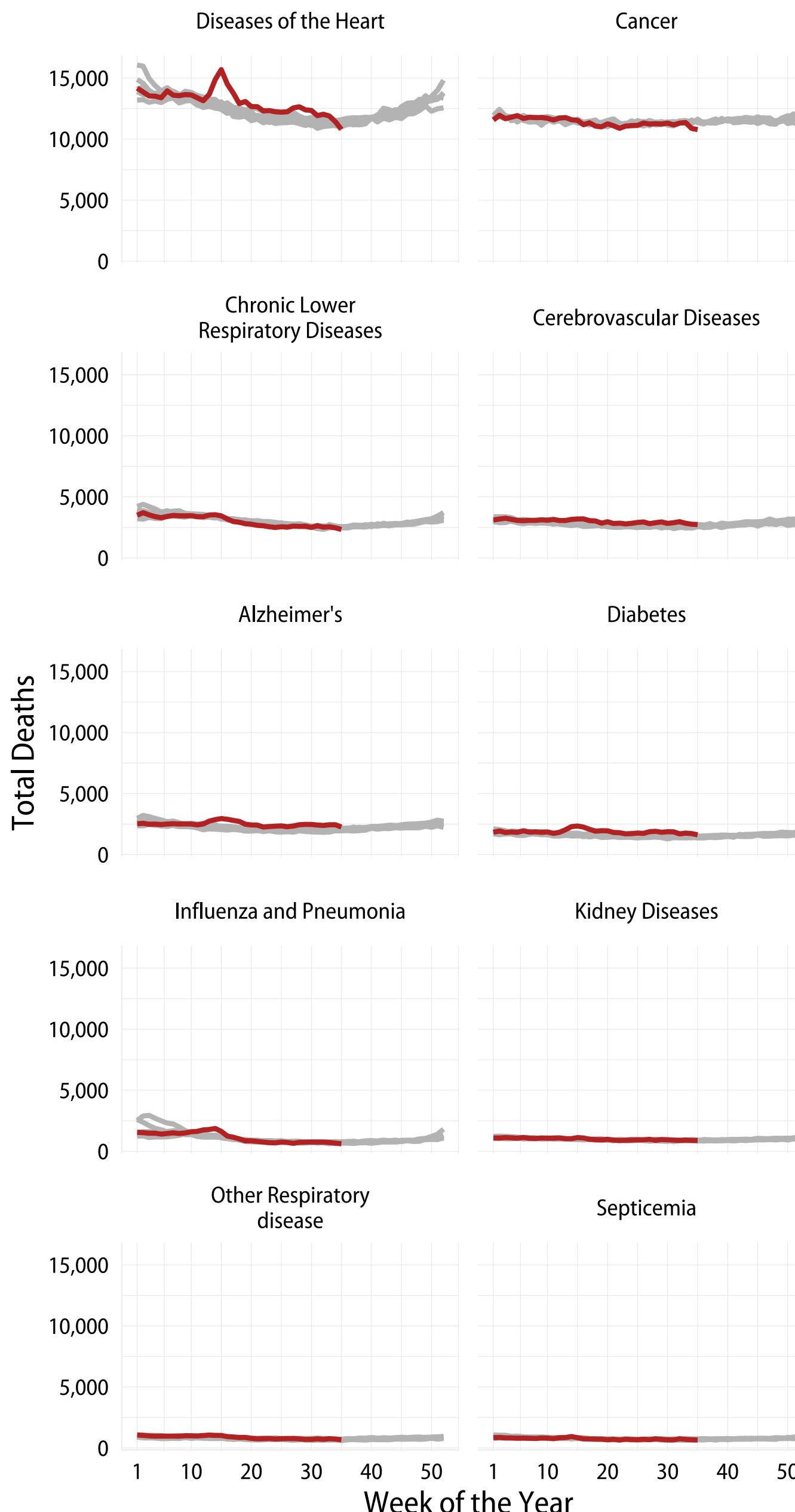


Cancer



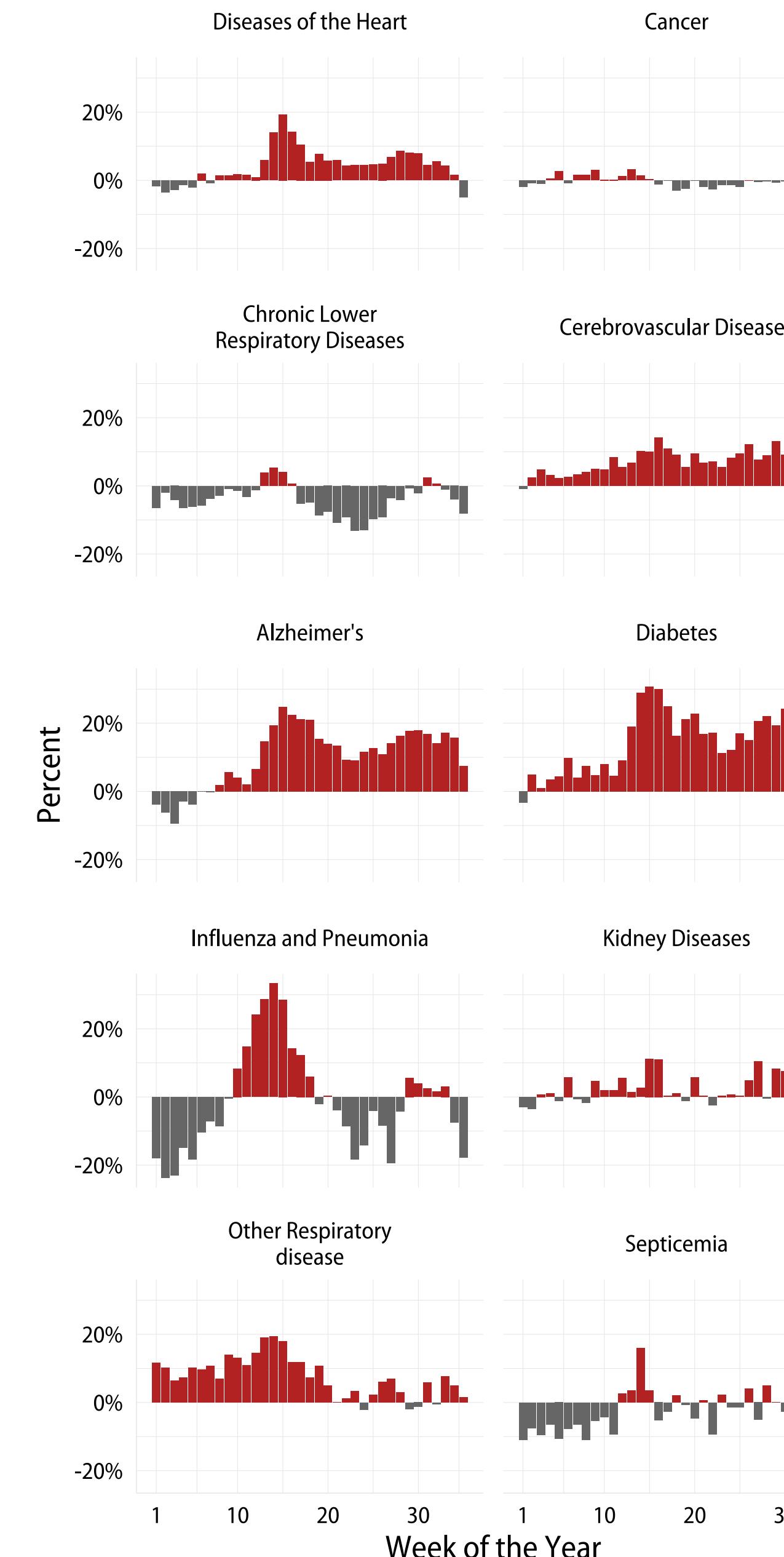
Weekly deaths from selected causes

Panels ordered by number of deaths. Raw Counts.



Percent difference from 2015-2019 average

Data for weeks 1 to 35 only.



To reproduce the
Figures on these Slides

https://github.com/kjhealy/ctp_talk/