Adoption and impact of non-pharmaceutical interventions for COVID-19

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Package

Extract variables of potential interest from linelist

```
## Parsed with column specification:
## cols(
##   .default = col_character(),
##   ID = col_double(),
##   `wuhan(0)_not_wuhan(1)` = col_double(),
##   latitude = col_double(),
##   longitude = col_double(),
##   data_moderator_initials = col_logical(),
##   V34 = col_logical(),
##   V35 = col_logical(),
##   V36 = col_logical(),
##   V37 = col_logical(),
##   V38 = col_logical(),
##   V39 = col_logical(),
##   V40 = col_logical(),
##   V41 = col_logical()
## )
```

```
## See spec(...) for full column specifications.
```

```
## Warning: 656 parsing failures.
##  row                     col           expected actual                    file
## 5835 data_moderator_initials 1/0/T/F/TRUE/FALSE     SL 'raw-data/linelist.csv'
## 5836 data_moderator_initials 1/0/T/F/TRUE/FALSE     SL 'raw-data/linelist.csv'
## 5837 data_moderator_initials 1/0/T/F/TRUE/FALSE     SL 'raw-data/linelist.csv'
## 5838 data_moderator_initials 1/0/T/F/TRUE/FALSE     SL 'raw-data/linelist.csv'
## 5839 data_moderator_initials 1/0/T/F/TRUE/FALSE     SL 'raw-data/linelist.csv'
## .... ..................... .................. ...... ......................
## See problems(...) for more details.
```

```
## # A tibble: 14,619 x 6
##    country city       province date_confirmation travel_history_l~ import_status
##    <chr>   <chr>      <chr>    <chr>             <chr>             <chr>
##  1 China   Chaohu Ci~ Anhui    22.01.2020        Wuhan             imported
##  2 China   Baohe Dis~ Anhui    23.01.2020        Luzhou Hunan, vi~ imported
```

```
##  3 China   High-Tech~ Anhui    23.01.2020        Yinzhou Hunan, v~ imported
##  4 China   High-Tech~ Anhui    23.01.2020        <NA>              local
##  5 China   Feidong C~ Anhui    23.01.2020        Wuhan             imported
##  6 China   Lu'an City Anhui    24.01.2020        <NA>              local
##  7 China   Fuyang Ci~ Anhui    22.01.2020        Wuhan             imported
##  8 China   Huaibei C~ Anhui    25.01.2020        Wuhan             imported
##  9 China   Huainan C~ Anhui    26.01.2020        Wuhan             imported
## 10 China   Hefei City Anhui    23.01.2020        Wuhan             imported
## # ... with 14,609 more rows
```

Estimate fraction that are imported

- Based on linelist data alone. Only countries with at least 20 total cases present are shown.
- Based on linelist data and WH0 sit reps
- Summarise and report

Country	Cases	Fraction imported (linelist only)	Fraction imported (WHO sit reps)
Vietnam	16	0.69	0.69
Kuwait	58	1.00	0.64
Canada	30	0.75	0.50
Bahrain	49	1.00	0.41
Netherlands	38	0.67	0.32
Thailand	47	0.34	0.30
Singapore	110	0.34	0.29
United Arab Emirates	27	0.35	0.26
Australia	66	0.88	0.23
Malaysia	50	0.65	0.22
Iraq	36	0.44	0.22
Japan	317	0.07	0.17
United States	129	0.50	0.16
India	29	0.14	0.14
Spain	198	0.44	0.12
United Kingdom	89	0.59	0.11
Germany	262	0.32	0.07
Norway	56	0.25	0.07
France	282	0.20	0.03
Italy	3089	0.02	0.00
South Korea	5766	0.02	0.00
Austria	37	0.00	0.00
Iran	2922	0.00	0.00
NA	NA	0.58	NA

Plot cases over time

- Wrangle for countries of interest (with at least 40 cases)

```
## Parsed with column specification:
## cols(
##   date = col_date(format = ""),
```

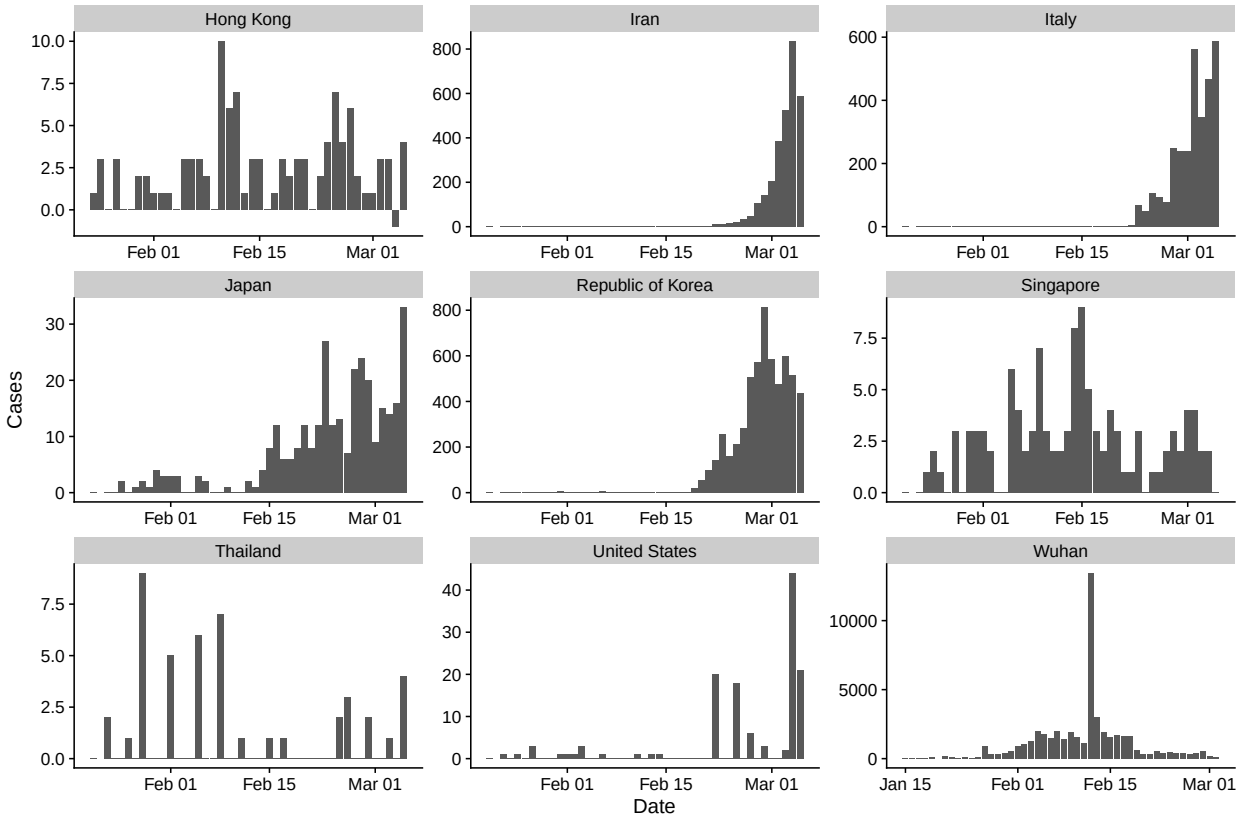
```
##   country = col_character(),
##   cases = col_double()
## )
```

- Get date of first report

Country	Date of first case report
Wuhan	2020-01-15
Republic of Korea	2020-01-20
Japan	2020-01-20
Thailand	2020-01-20
Taiwan	2020-01-21
United States	2020-01-23
Hong Kong	2020-01-23
Singapore	2020-01-24
Italy	2020-01-31
Iran	2020-02-20

- Get case counts
- Plot curves in countries of interest

```
## Warning: Removed 11 rows containing missing values (position_stack).
```



Get interventions

- Plot overall interventions

```
## Warning: Missing column names filled in: 'X8' [8]
```

```
## Parsed with column specification:
## cols(
##   date_intervention = col_date(format = ""),
##   intervention = col_character(),
##   social_distancing = col_character(),
##   country = col_character(),
##   notes = col_character(),
##   ref1 = col_character(),
##   ref2 = col_character(),
##   X8 = col_character()
## )
```

Intervention	Countries that have implemented
Health screening	5
School closure	5
Remote working	4
Travel advisory	4
Government on alert	3
Lockdown	3
Quarantine	3
School closure (not related to outbreak)	3
Travel restriction	3
Isolation	2
Mandatory quarantine	2
Mass gathering advisory	2
Mass gathering cancellation	2
School restrictions	2
Social event cancellation	2
Suspending flights	2
Travel ban	2
University closure	2
Work closure (not related to outbreak)	2
[Extension] school and work closure	1
Border checks	1
Border control	1
Communication distancing	1
Communication general	1
Contact tracing	1
Containment to mitigation	1
Decontamination	1
Enhanced care	1
Entry ban	1
Government announcement	1
Healthcare restrictions	1
Mass gathering ban	1
Medical surveillance	1

Intervention	Countries that have implemented
Prevention measures school	1
Public information	1
Raise awareness flights	1
Raise awareness healthcare staff	1
Raise awareness public	1
Reduced shop hours	1
Resumption public services	1
Social distancing misc	1
Strengthening primary care response	1
Supply	1
Surveillance	1
Travel advice	1

- Social interventions only

Intervention	Countries that have implemented
School closure	5
Remote working	4
Lockdown	3
Quarantine	3
School closure (not related to outbreak)	3
Isolation	2
Mandatory quarantine	2
Mass gathering advisory	2
Mass gathering cancellation	2
School restrictions	2
Social event cancellation	2
University closure	2
Work closure (not related to outbreak)	2
[Extension] school and work closure	1
Communication distancing	1
Contact tracing	1
Healthcare restrictions	1
Mass gathering ban	1
Prevention measures school	1
Reduced shop hours	1
Social distancing misc	1
Travel advice	1
Travel restriction	1

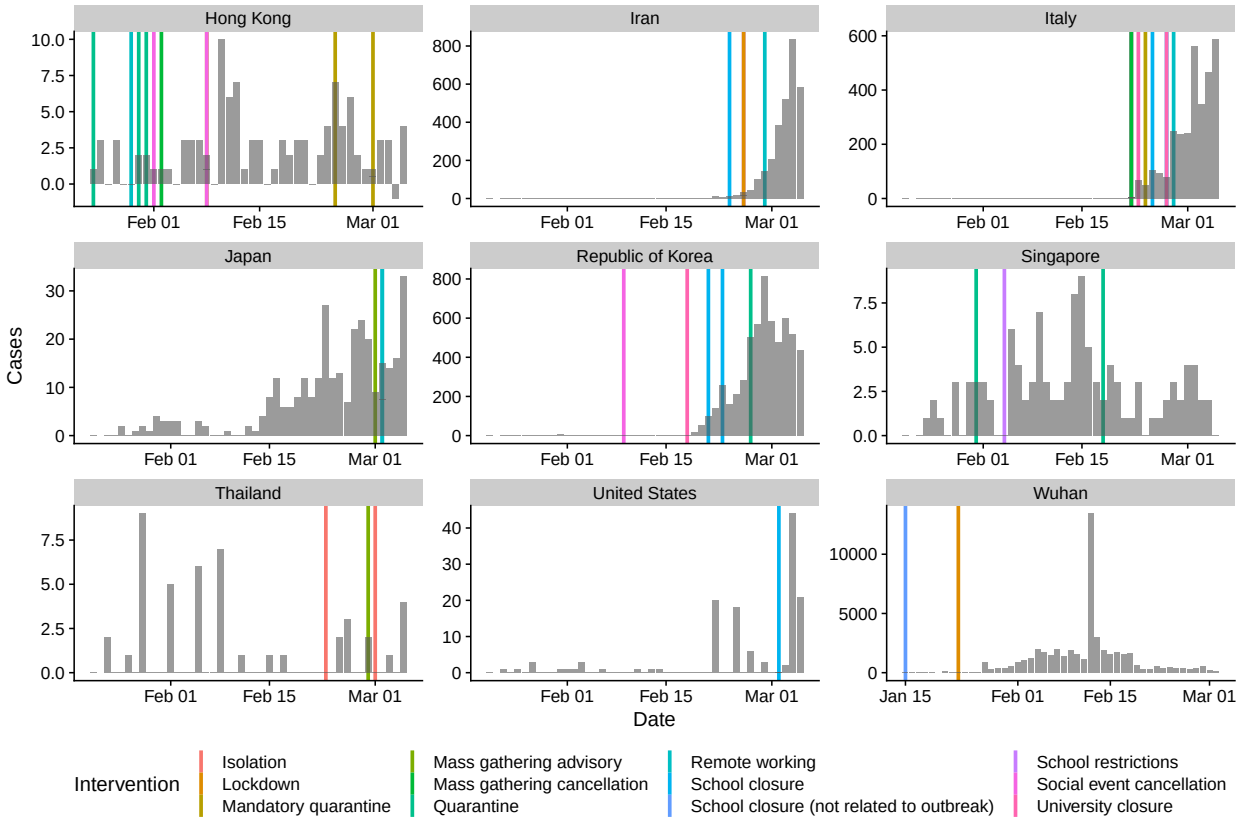
- Non-social interventions

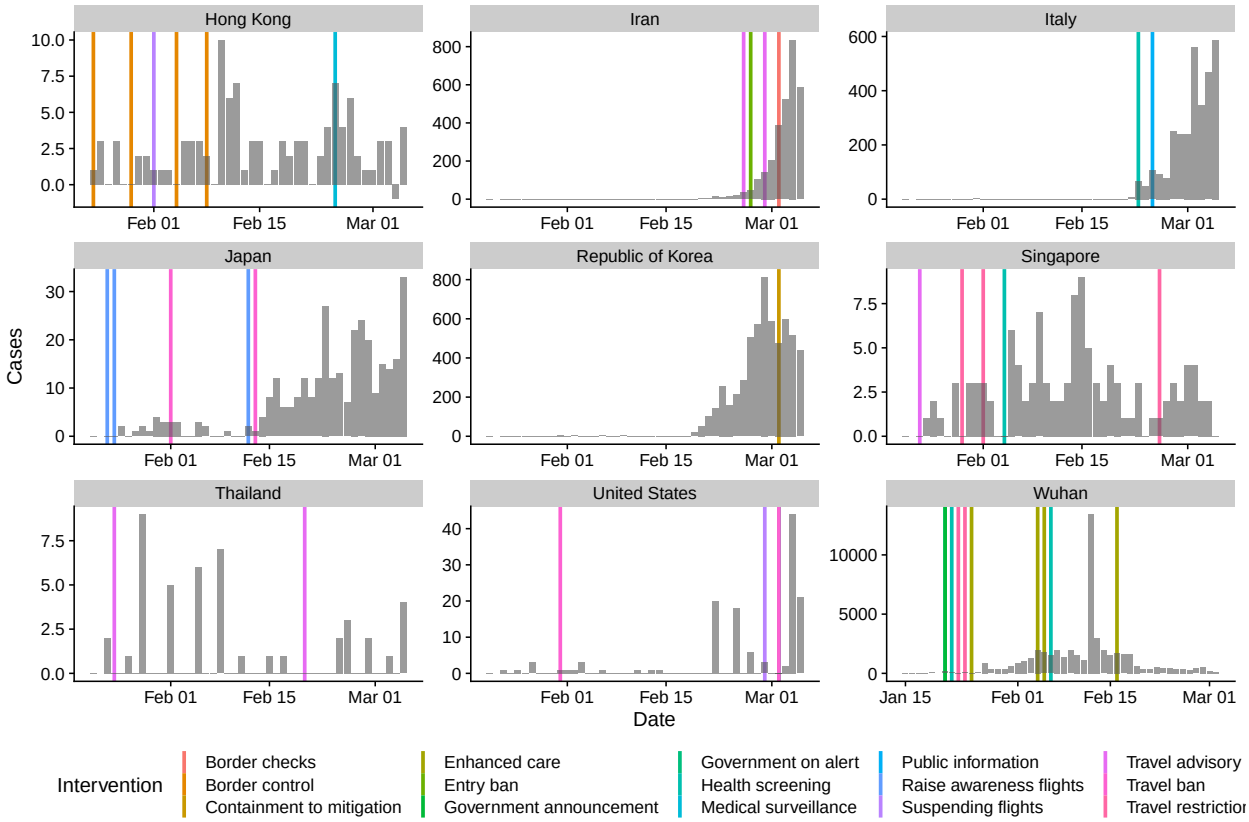
Intervention	Countries that have implemented
Health screening	5
Travel advisory	4
Government on alert	3
Travel restriction	3
Suspending flights	2

Intervention	Countries that have implemented
Travel ban	2
Border checks	1
Border control	1
Communication general	1
Containment to mitigation	1
Decontamination	1
Enhanced care	1
Entry ban	1
Government announcement	1
Medical surveillance	1
Public information	1
Raise awareness flights	1
Raise awareness healthcare staff	1
Raise awareness public	1
Resumption public services	1
Strengthening primary care response	1
Supply	1
Surveillance	1
Travel advice	1

- Plot social interventions

```
## Warning: Removed 11 rows containing missing values (position_stack).
```



- Plot non-social interventions

```
## Warning: Removed 11 rows containing missing values (position_stack).
```