

ABU DHABI PUBLIC  
HEALTH CENTRE

مركز أبوظبي  
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# Scientific Research Monitoring on COVID-19

09 April 2020

# Summary on COVID19



## SARS-COV2 virus

- The virus have been sequenced and found to be similar to MERS-CoV and SARS-CoV. Research revealed that the virus originated in a bat reservoir.
- New designation for the disease and the virus: COVID-19 and SARS-COV2.
- SARS-COV2 stay viable in aerosol for hours and in surface up to 3 days.
- Two strain have been identified for SARS-COV2 (L type (more aggressive ) and S type .

## Transmission

- Transmission from human to human has been confirmed. Incubation period ranges from 5 days and can reach up to 14 days.
- Suggested human-to-human transmission occurs through droplets, contact and fomites, similar to Severe Acute Respiratory Syndrome (SARS).
- Isolation is the best measure to control transmission.

## Clinical features and outcome

- Non-specific and the disease presentation can range from no symptoms (asymptomatic) to severe pneumonia and death.
- Highest risk for severe disease and death include people aged over 60 years and those with underlying conditions
- Pregnant women infected with SARS-COV2 may experience symptoms similar to those of non-pregnant adults. No evidence suggests transmission from mother to newborn if infected late in pregnancy. No evidence of transmission through breast milk.

## Therapies and vaccination

- Efforts currently in developing therapies for this virus focus on previously known medications and vaccination for MERS-CoV and SARS-CoV. In addition to other type of medication.
- WHO forum held 11-12 Feb 2020 to mobilize research on COVID19 vaccinations and therapies.

# Summary on COVID19 (Cont.)

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## COVID19 in figure

- 80% of laboratory confirmed patients have had mild to moderate disease
- 13.8% have severe disease.
- 6.1% are critical
- Children account for 2.4% of all reported cases.(less than 19 years)



# Todays' Highlights

All articles presented in this report represents the authors' views and not necessarily represents Abu Dhabi Public Health Center views or directions.

## Scientific Research

**Public health response:** A modeling study assessing the impact of non-pharmacological intervention in 11 European countries showed that those interventions can lead to 64% reduction in Rt and overall 59,000 death averted.

**Public health response:** article explaining why French response was criticized in handling COVID19 outbreak.

**Public Health Response:** a study in South Korea describe the challenges in subclinical manifestation of COVID19.

*Due to abundant COVID19 information resources and given the urgent need to keep up with the updates .Below is a cluster of other academic articles for interested reviewer.*

*Listed articles may represent information that has been previously shared in the report and/or may target specific technical audience .*

## Others

[US Public Concerns About the COVID-19 Pandemic From Results of a Survey Given via Social Media](#)

[Baseline Characteristics and Outcomes of 1591 Patients Infected With SARS-CoV-2 Admitted to ICUs of the](#)

[Lombardy Region, Italy](#)

[Critical Illness in Patients With COVID-19](#)

[Age, Complexity, and Crisis — A Prescription for Progress in Pandemic](#)



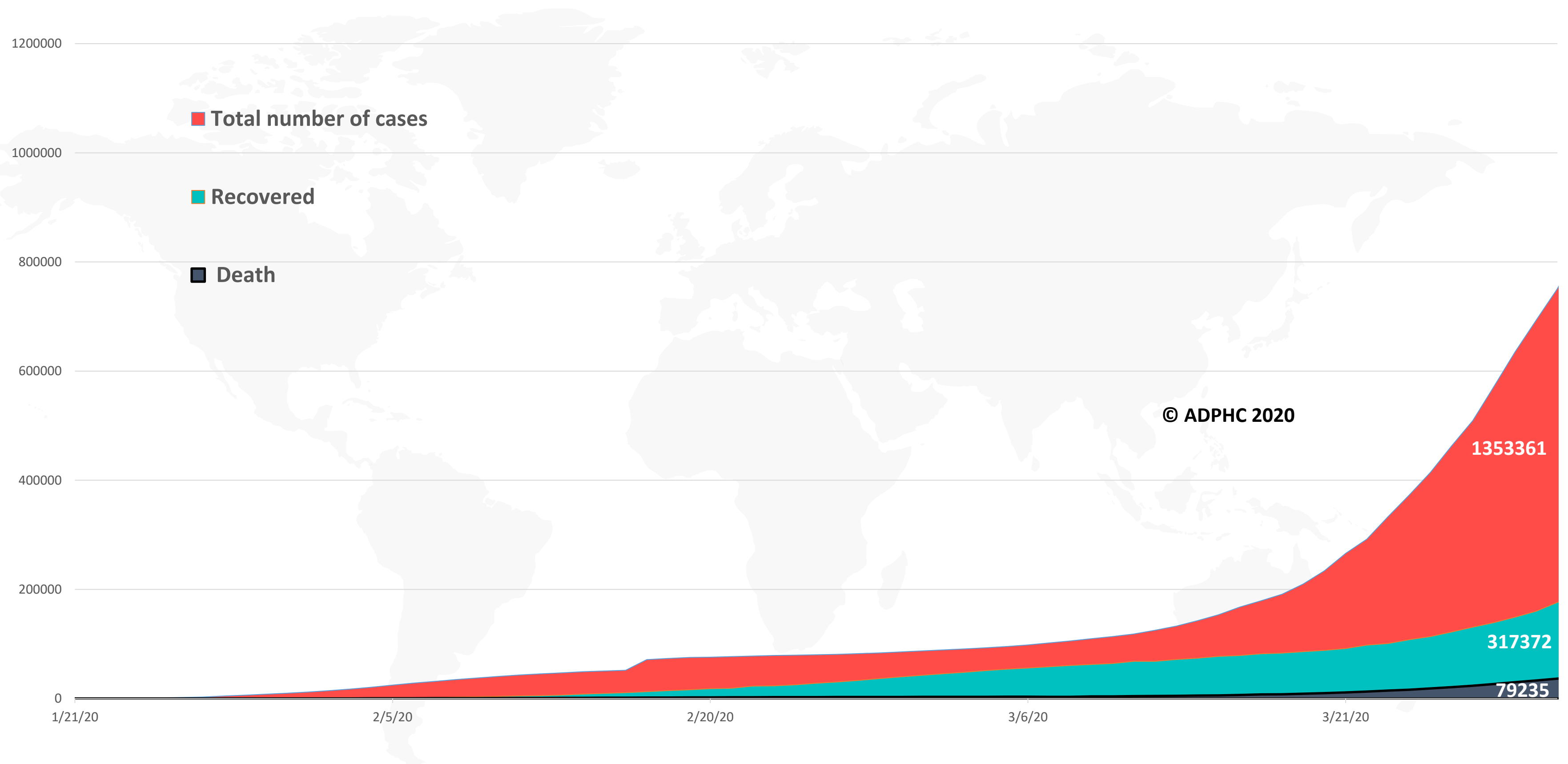
## WHO daily report

- One new country/territory/area reported cases of COVID-19 in the past 24 hours: Saint Pierre and Miquelon.
- WHO has published a guidance document on the rational use of personal protective equipment (PPE) in healthcare and home care settings, as well as during the handling of cargo.
- WHO has listed the first two diagnostic tests for emergency use during the COVID-19 pandemic. The move should help increase access to quality-assured, accurate tests for the disease. It also means that the tests can now be supplied by the United Nations and other procurement agencies supporting the COVID19 response.
- WHO has published a guideline on food safety, ‘COVID-19 and Food Safety: Guidance for Food Businesses’.
- The Global Health Cluster, which WHO leads, has been supporting 29 countries to implement the Global Humanitarian Response Plan for COVID-19.
- Main new point mentioned in DG of WHO 8<sup>th</sup> of April 2020 general briefing.
  - *Today, 130 scientists, funders and manufacturers from around the world have signed a statement committing to work with WHO to speed the development of a vaccine against COVID-19.*
  - *In the coming days, WHO will be releasing an updated strategy, and a revised Strategic Preparedness and Response Plan, with an estimate of **the financial needs for the next phase of the response.***
  - *This is a special time of year for Christians, Jews and Muslims around the world.*
  - *Today WHO has published **practical considerations and recommendations for faith-based communities.***
  - *We know that COVID-19 means billions of **believers are not able to celebrate in the way they usually would.***
  - *But we wish everyone a safe and joyful Easter, Passover and **Ramadan.***

# Epidemiology



Figure 1: Total number of infected, recovered, and death cases (January 21<sup>st</sup> to April 8<sup>th</sup>, 2020)

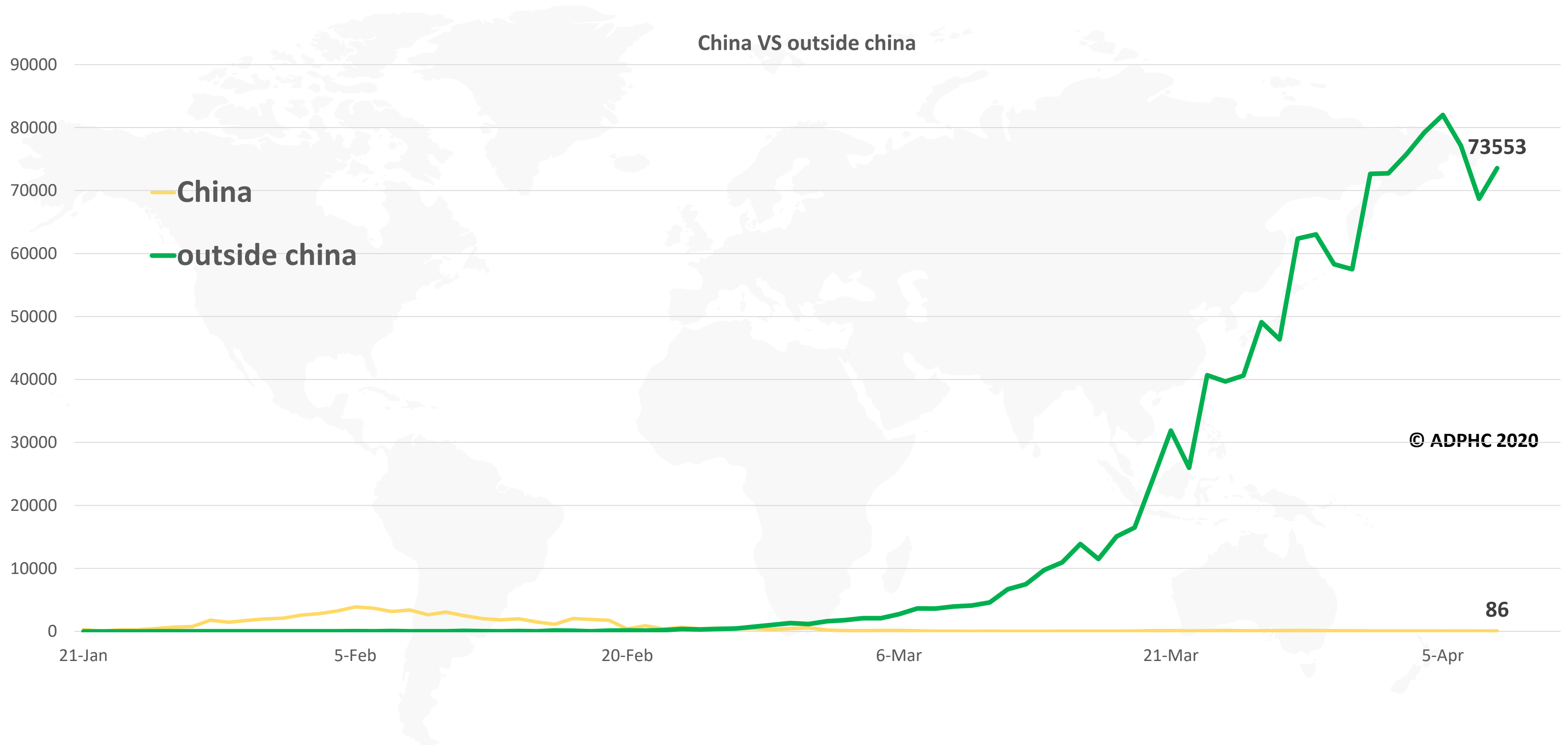


Line graph published by Abu Dhabi Public Health Center 2020.

Data resources: [WHO](#), [John Hopkins University](#)



**Figure 2: Daily new infected COVID-19 cases reported between (January 21 to April 8<sup>th</sup>, 2020).**



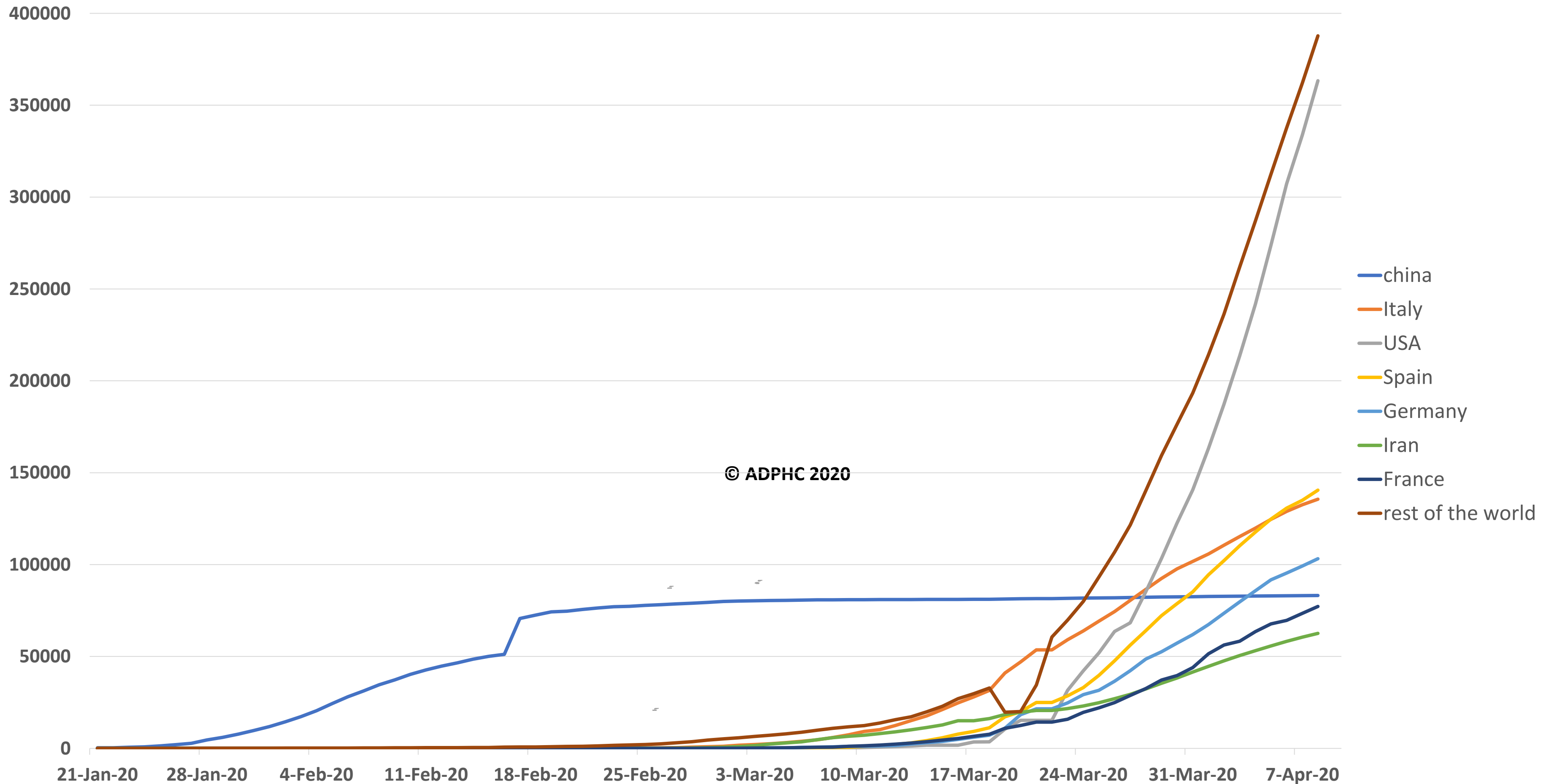
Line graph published by Abu Dhabi Public Health Center 2020.

Data resources: [WHO](https://www.who.int/)

# Epidemiology



Figure 3 : Top 7 countries in the total number of cases due to COVID-19 (January 21 to April 8<sup>th</sup>, 2020).



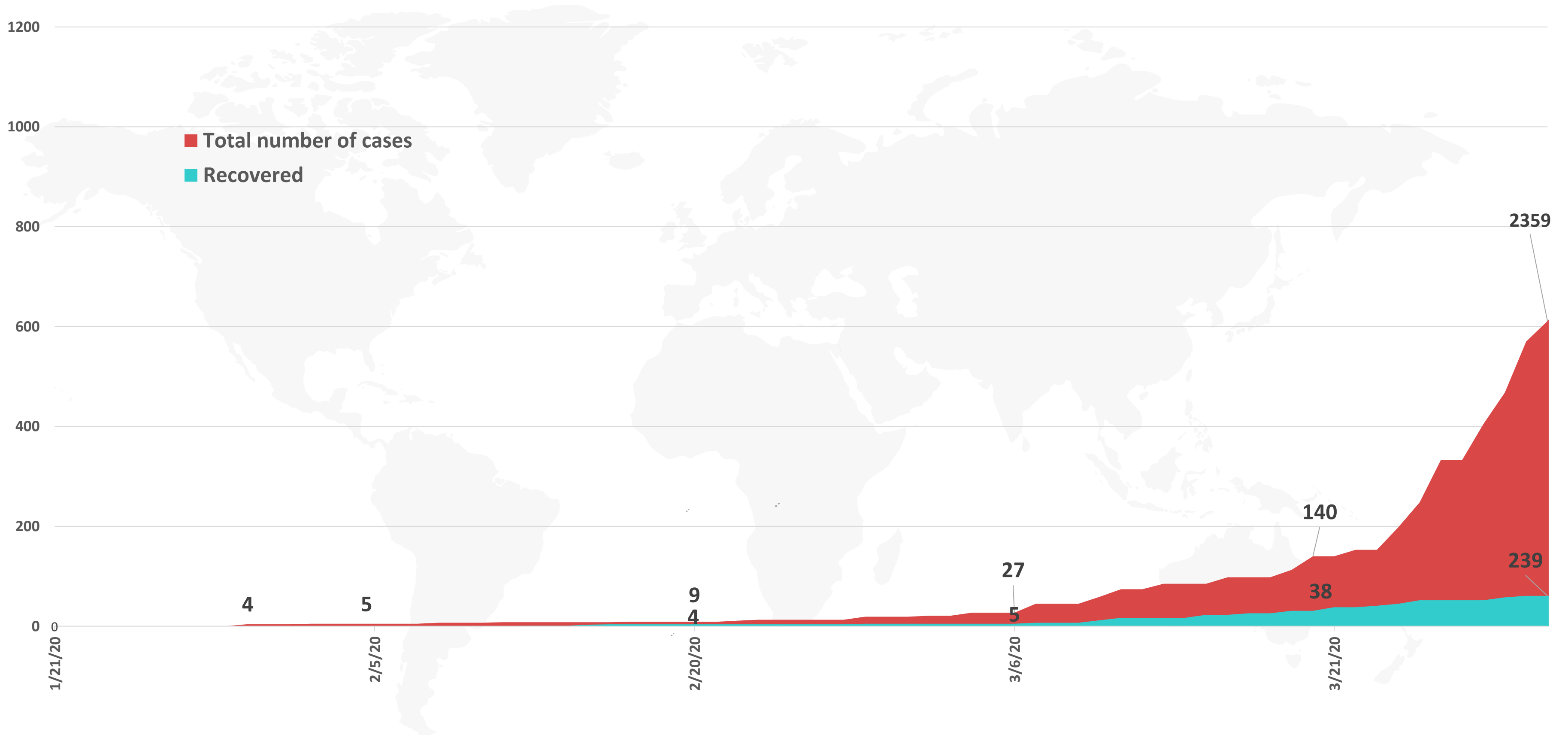
Line graph published by Abu Dhabi Public Health Center 2020.

Data resources: [WHO](https://www.who.int/)





**Figure 4: Total number of COVID-19 infected and recovered cases in UAE over time**



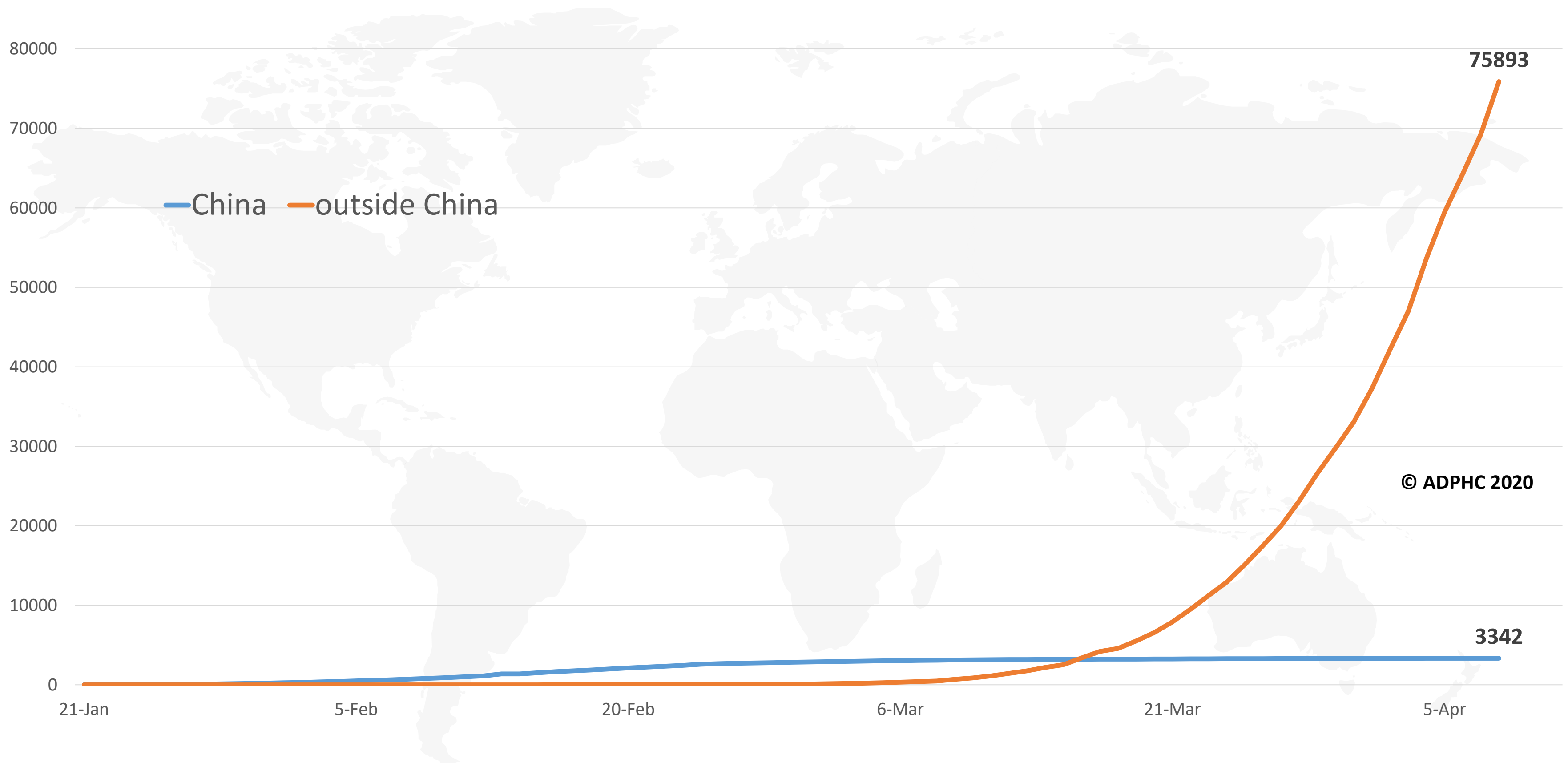
Line graph published by Abu Dhabi Public Health Center 2020.

Data resources: [WHO](#), [John Hopkins University](#)

# Epidemiology



**Figure 5: Total number of death due to COVID-19 reported by China and the rest of the world (January 21 to April 8<sup>th</sup>, 2020).**



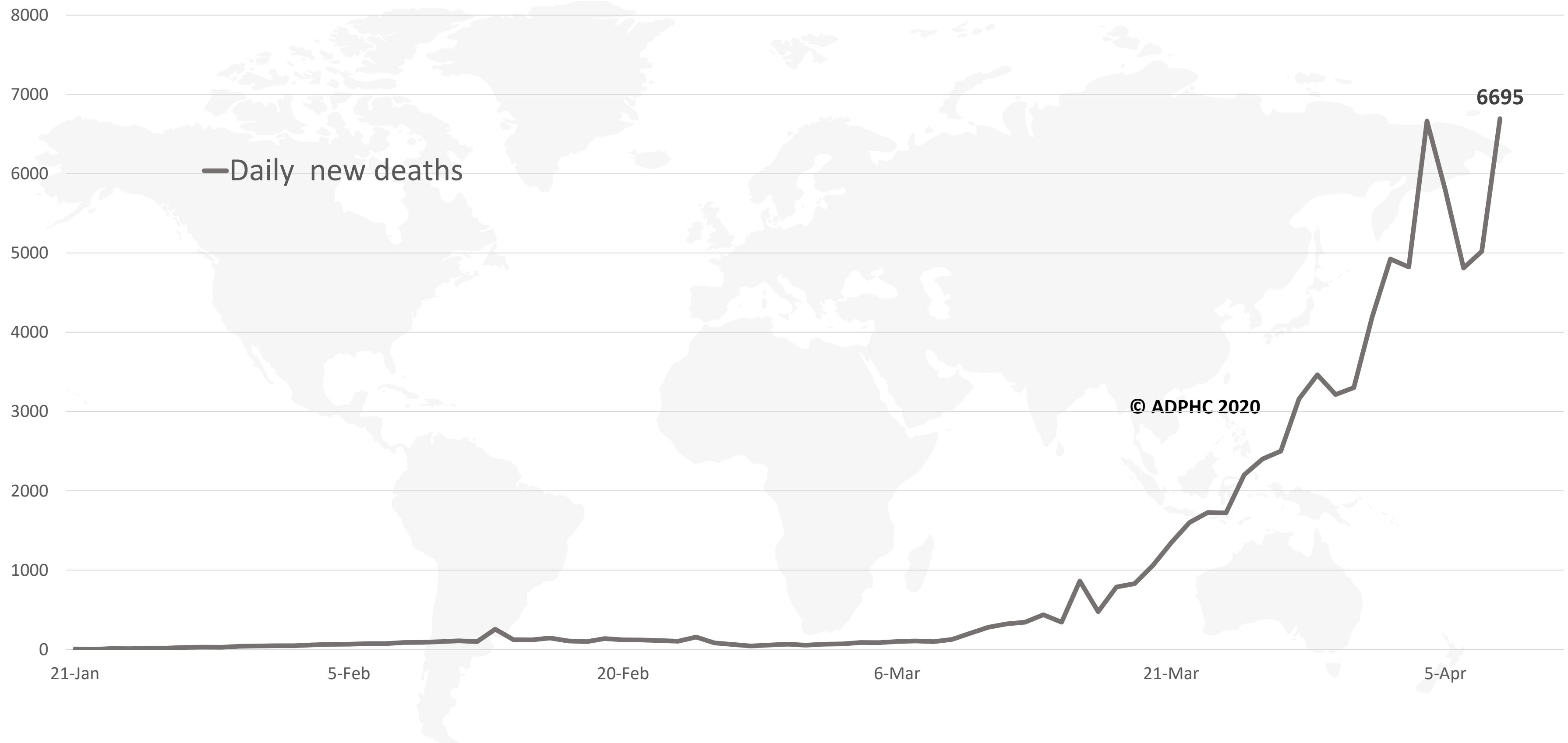
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Line graph published by Abu Dhabi Public Health Center 2020.

Data resources: [WHO](https://www.who.int/)



**Figure 6: Global daily new deaths due to COVID-19 (January 21 to April 8<sup>th</sup>, 2020).**



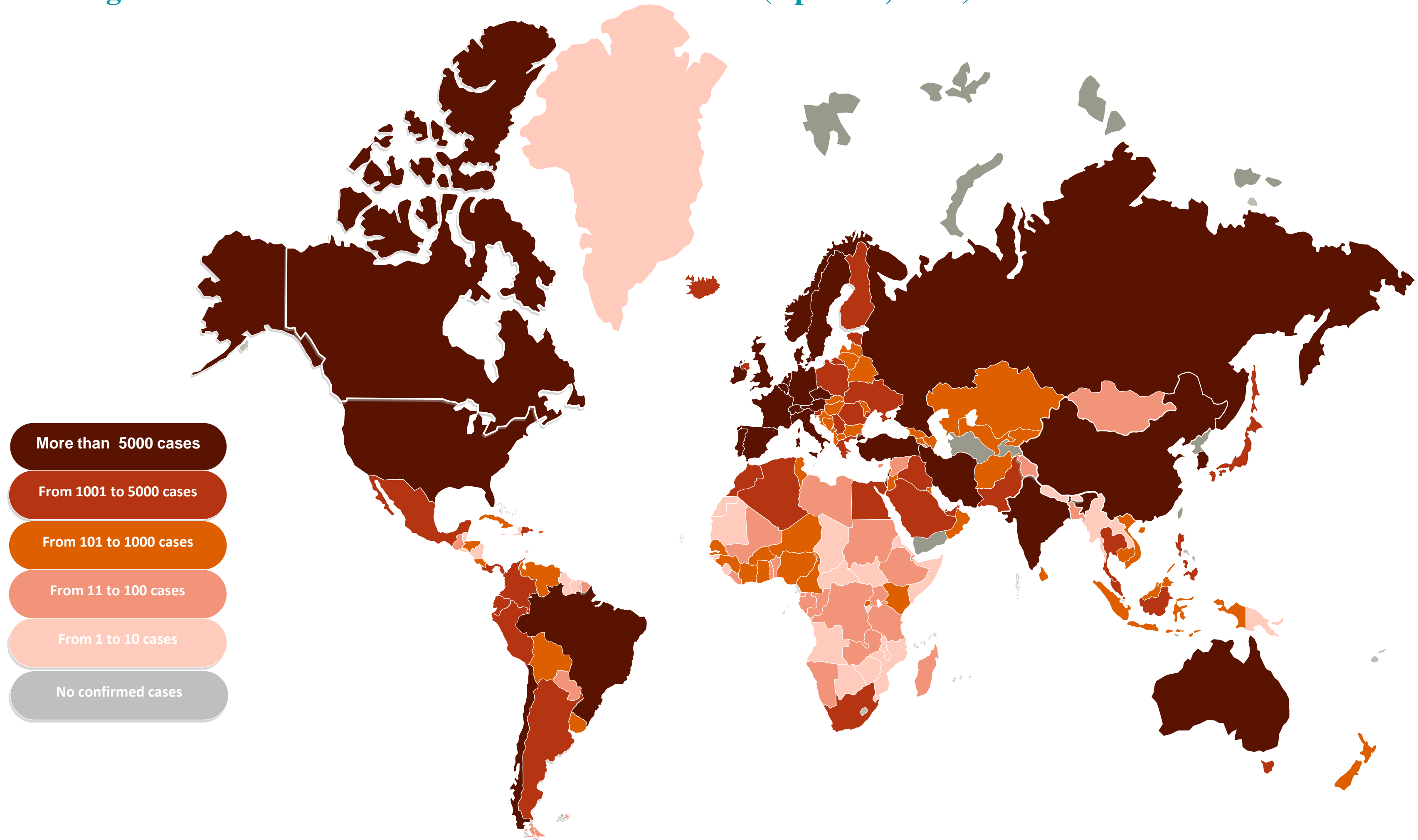
Line graph published by Abu Dhabi Public Health Center 2020.

Data resources: [WHO](#)

# Epidemiology



Figure 7a : Global distribution of COVID-19 cases (April 8<sup>th</sup>, 2020).

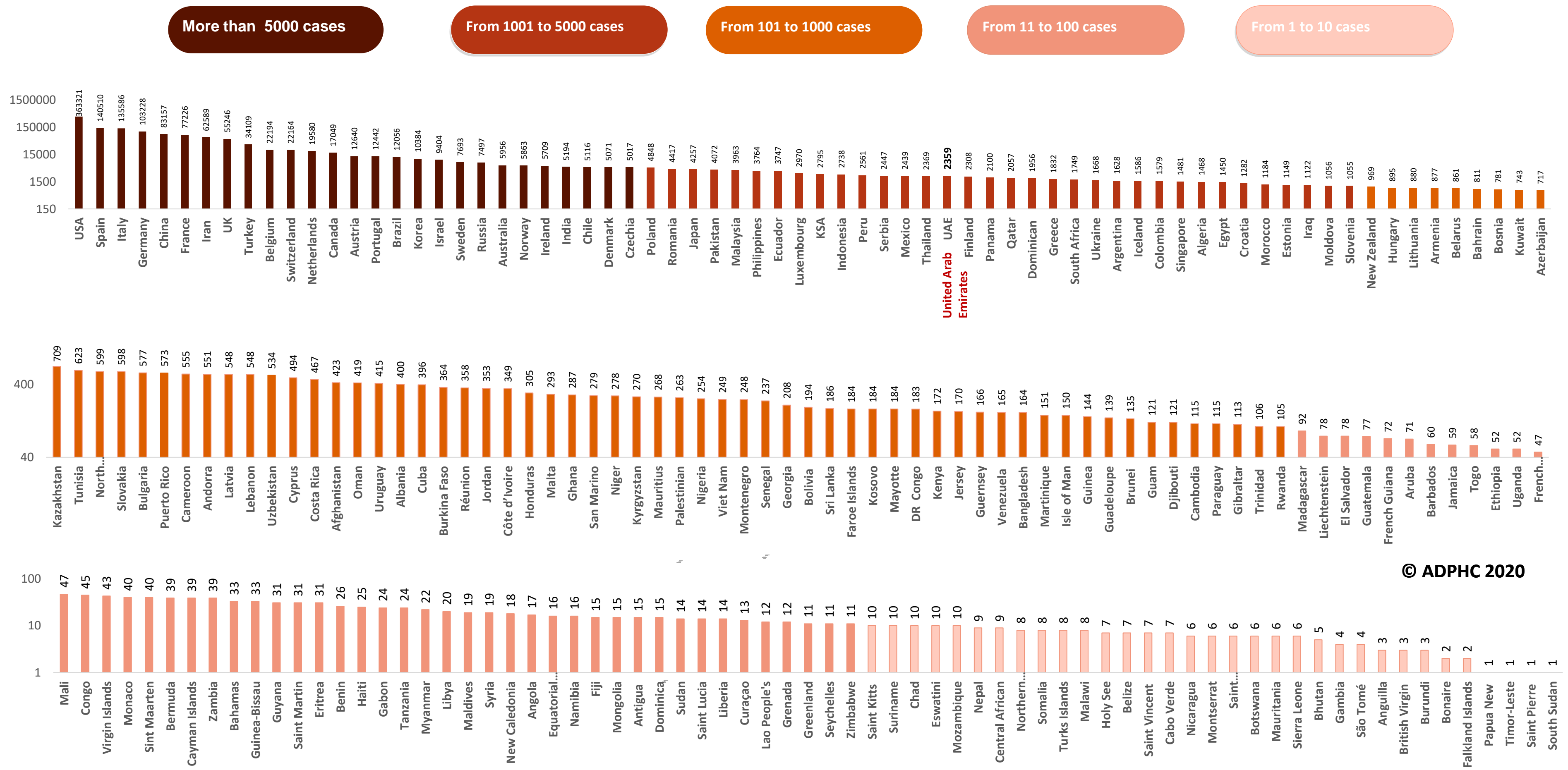


Map chart published by Abu Dhabi Public Health Center 2020.

# Epidemiology



Figure 7B: Bar chart illustrate the global distribution of COVID19 cases April 8<sup>th</sup>, 2020)



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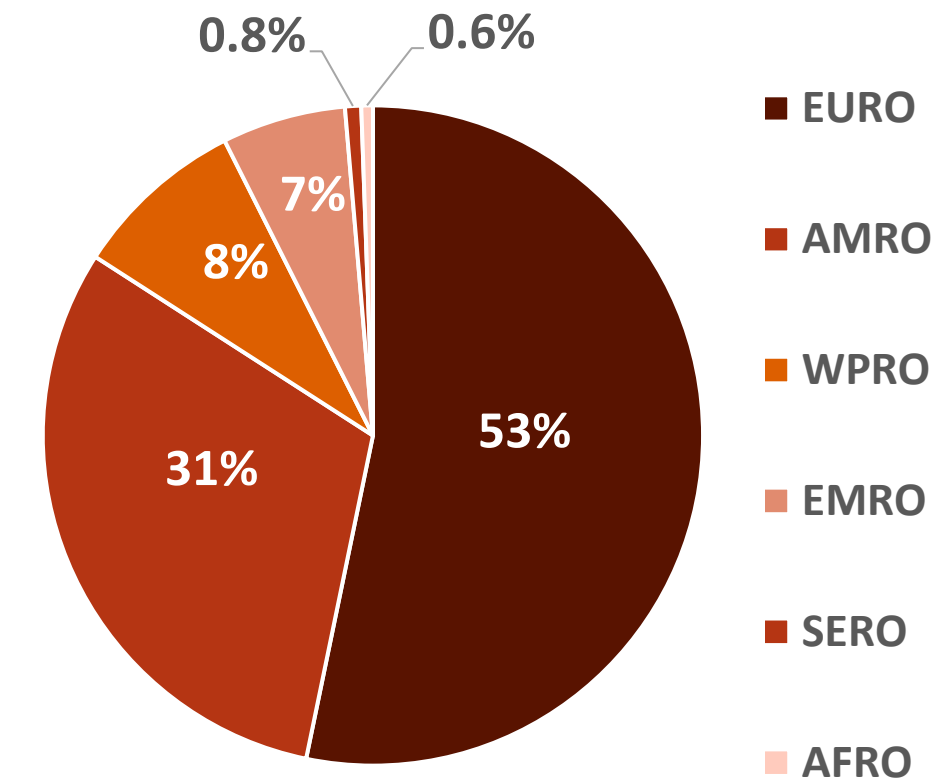
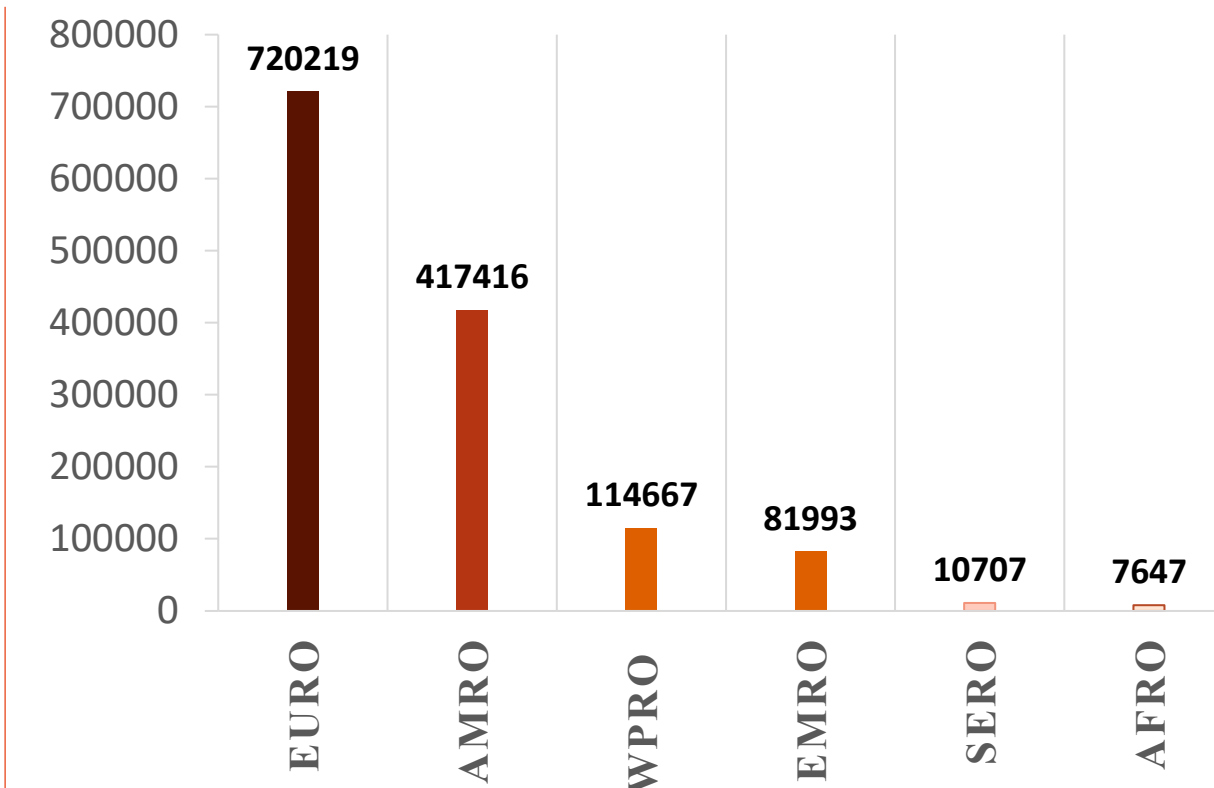
Map chart published by Abu Dhabi Public Health Center 2020.

Data resources: [WHO](http://www.who.int)

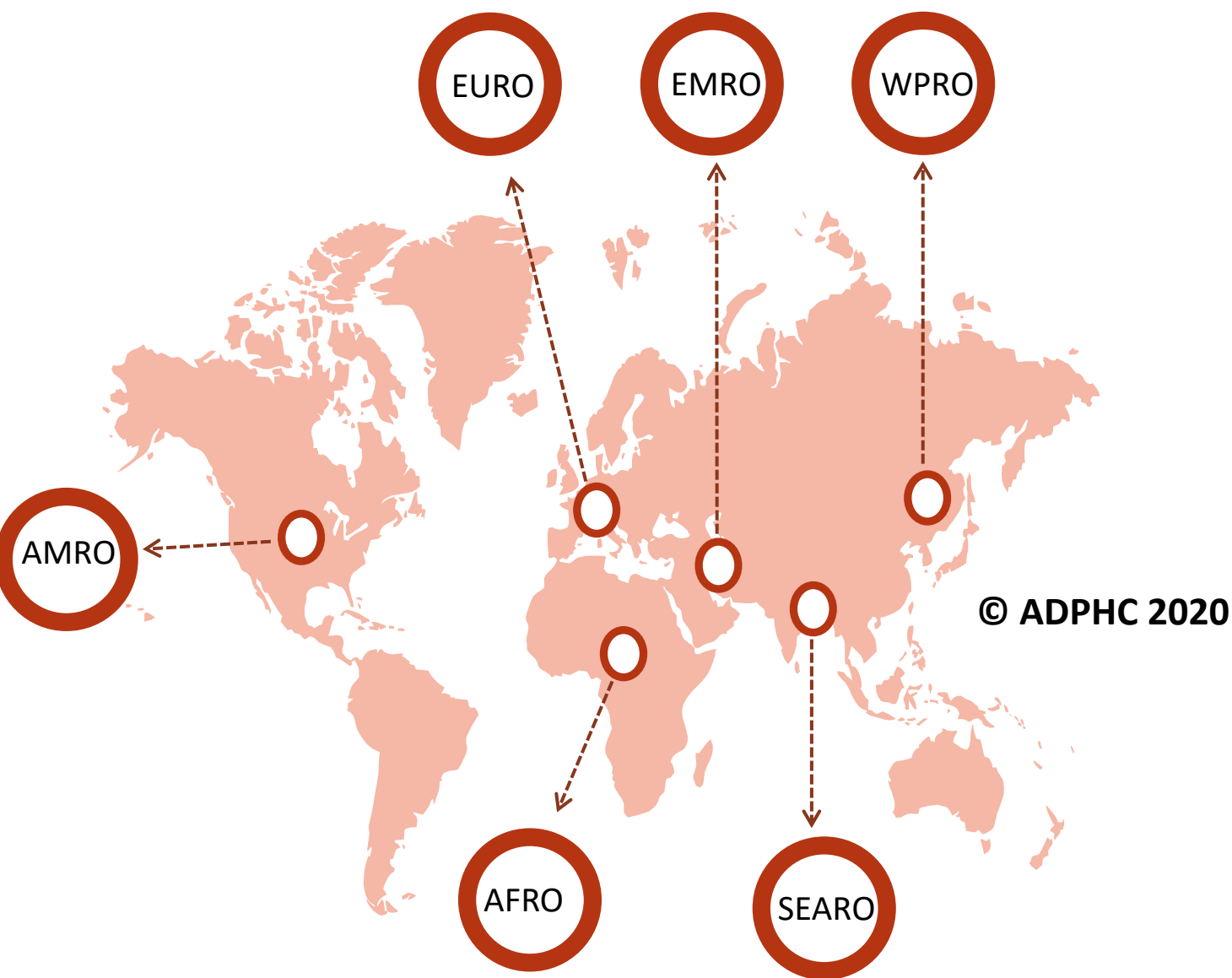
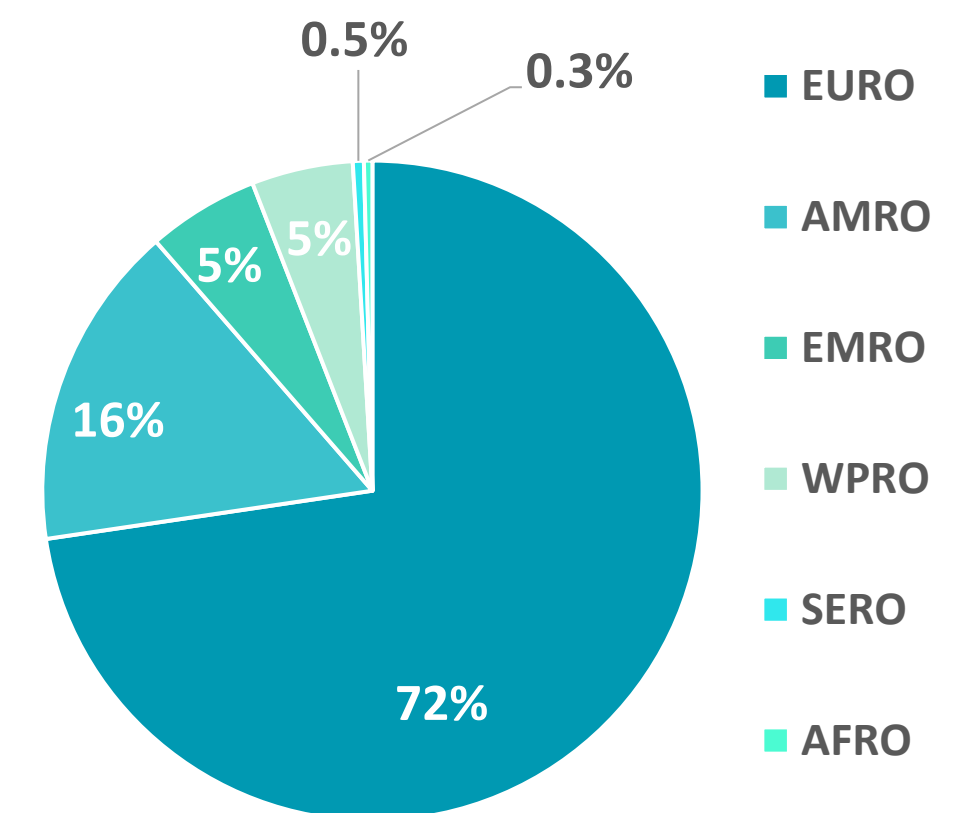
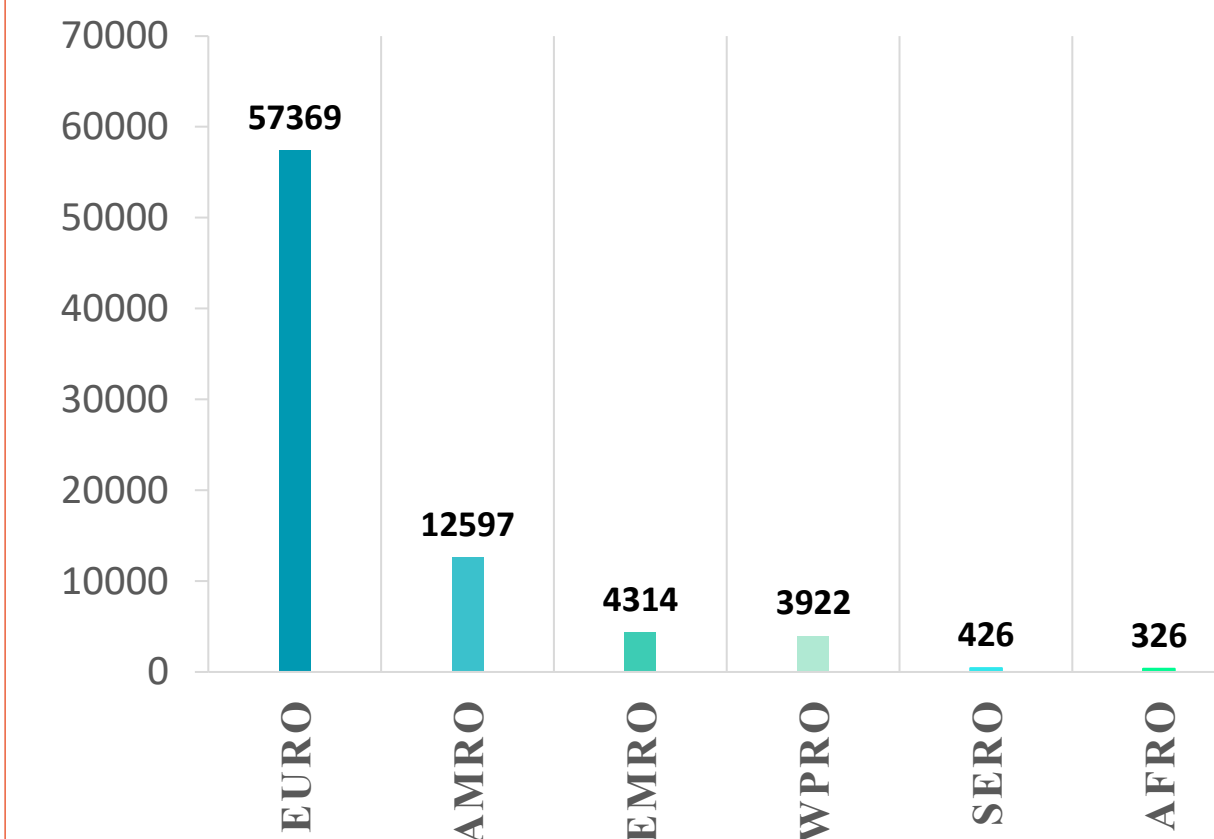


Figure 8: illustrate the Global distribution of COVID19 cases per region (April 8<sup>th</sup>, 2020)

## INFECTED



## DEATH



Map chart published by Abu Dhabi Public Health Center 2020.

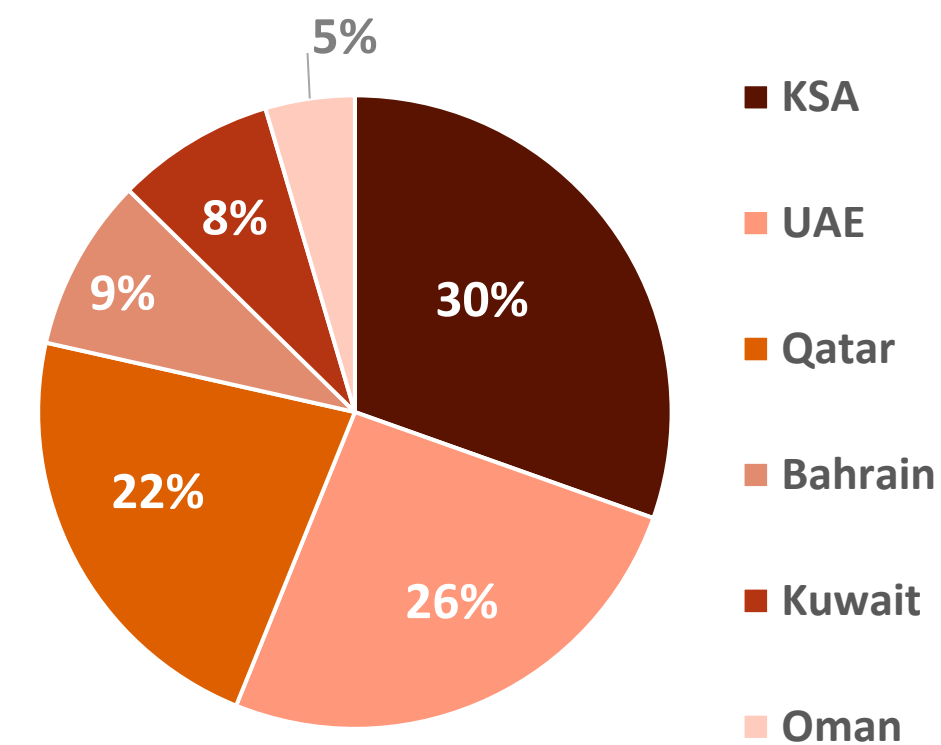
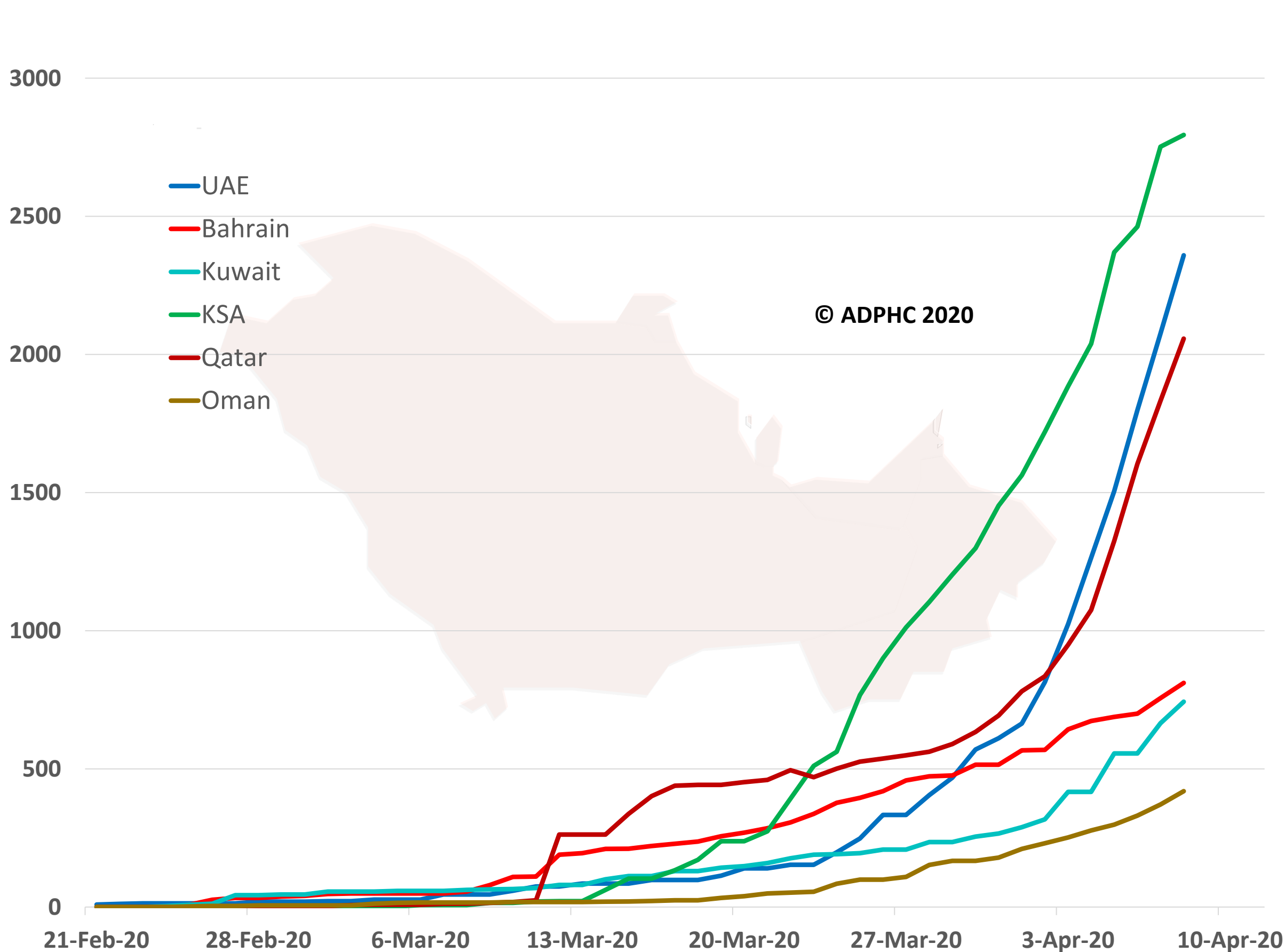
Data resources: [WHO](https://www.who.int/)

# Epidemiology

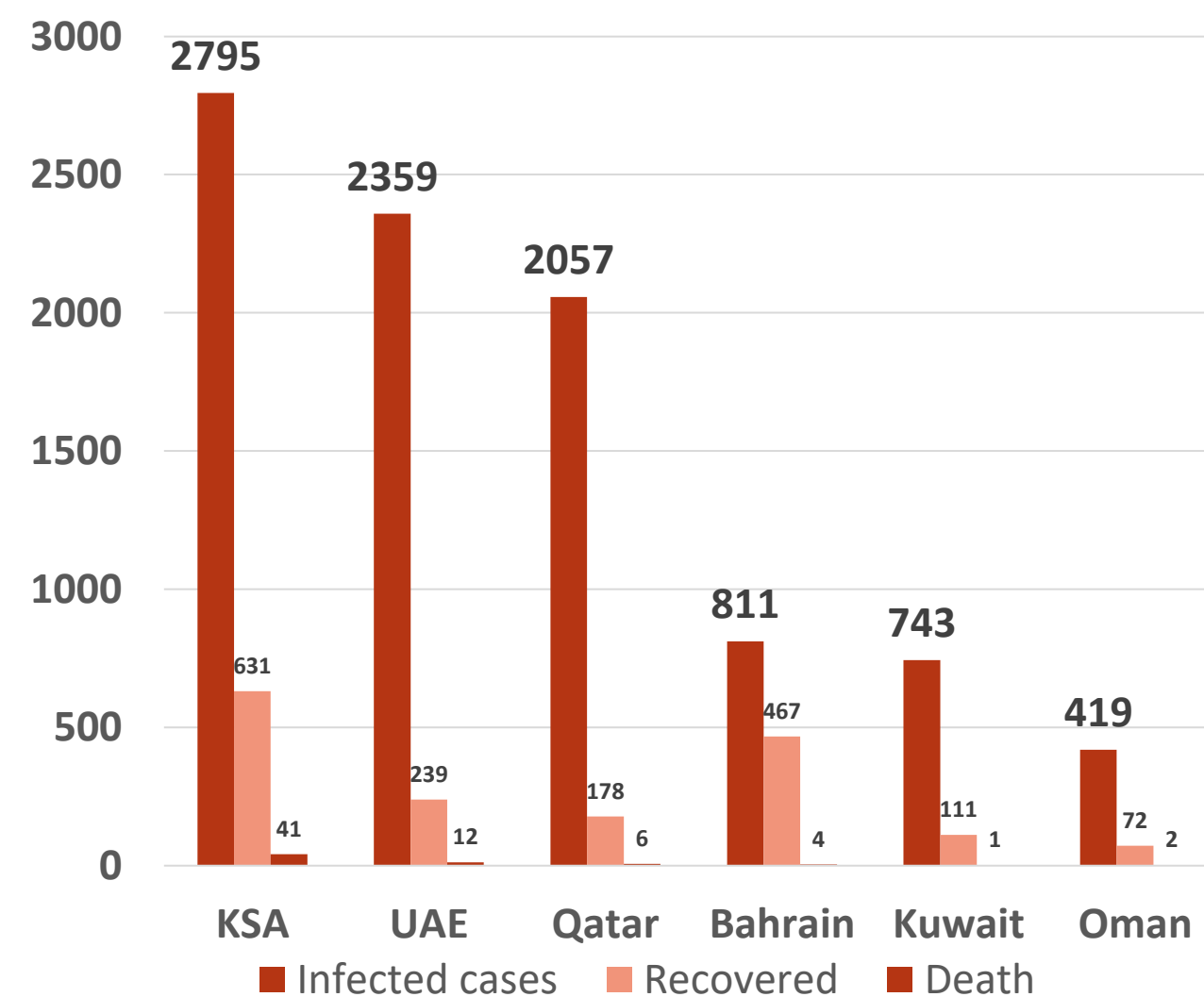


**Figure 9: Comparative analysis of the distribution of COVID19 cases in GCC countries (April 8<sup>th</sup>, 2020)**

## TOTAL NUMBER OF INFECTED CASES



## Total number of infected, recovered and Deaths



Map chart published by Abu Dhabi Public Health Center 2020.

Data resources: [WHO](https://www.who.int/)

# Public health response



## Article 1 : Estimating the number of infections and the impact of non-pharmaceutical interventions on COVID-19 in 11 European countries

**Published:** March 30, 2020 by [Imperial College](#)

### Summary:

Using mathematical modelling, the article discusses the impact of non-pharmaceutical interventions on COVID-19 in 11 European countries in using two measures of evaluation

(effective reproductive number  $R_t$  and on the number of death)

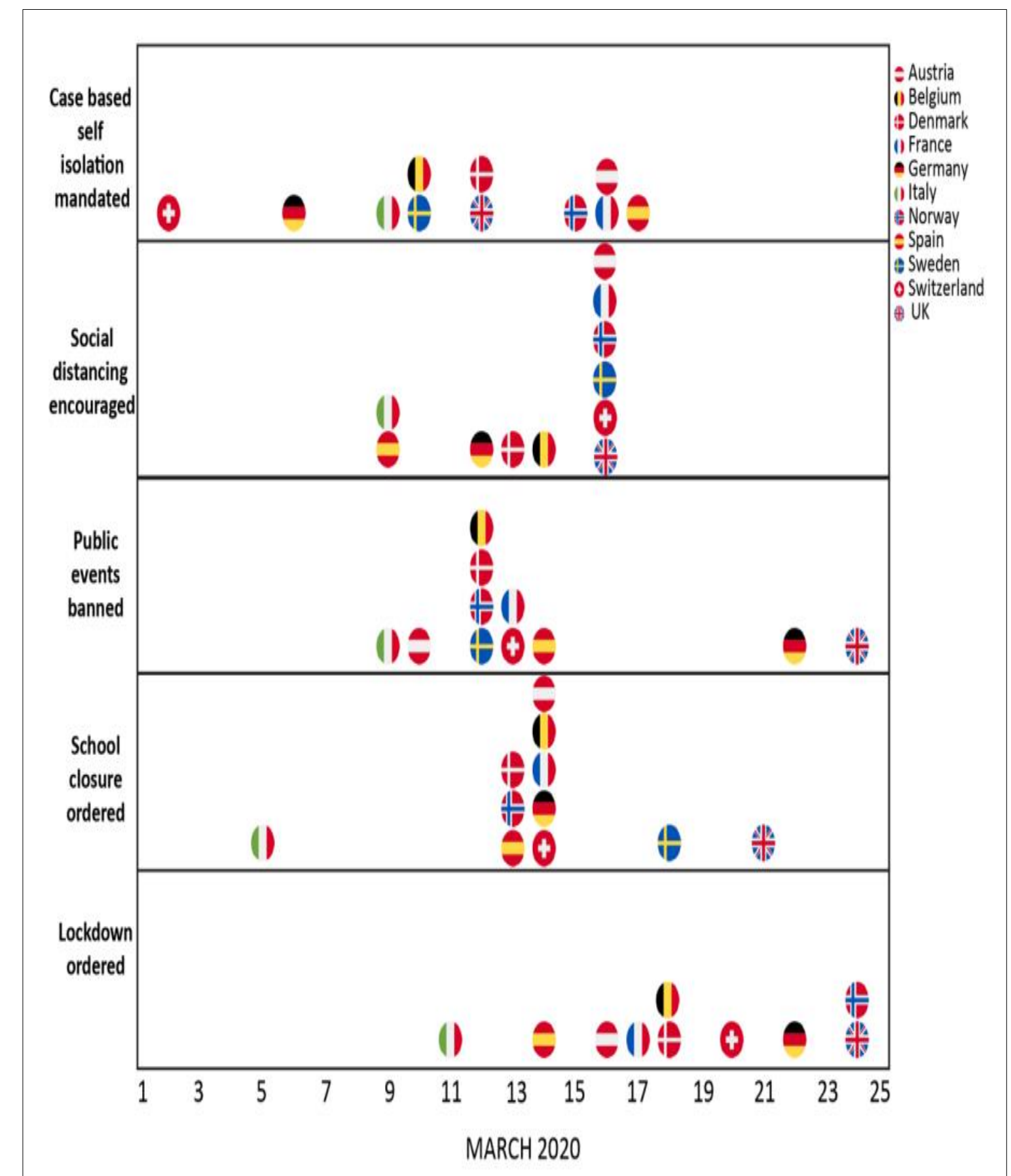
Non-pharmaceutical interventions implemented across the 11 European countries to control COVID-19 transmission, as in the figure.

### Findings :

#### A. Impact of the non-pharmaceutical interventions on the $R_t$ .

- Pre-interventions: the average  $R_t$  in the 11 European countries was estimated at 3.9 and post intervention reduced to 1.43 leading to 64% reduction.
- The study suggests that the **non-pharmaceutical interventions** have together had a substantial impact on transmission, as measured by changes in the estimated  $R_t$ . However, the study **couldn't achieve a conclusive evidence whether current interventions are sufficient to drive  $R_t$  below 1.**

Reviewed by subject matter expert



**Figure:** Intervention timings for the 11 European countries included in the study





# Public Health Response :

## Article 1: Cont., Summary:

### B. Impact of the non-pharmaceutical interventions on the number of deaths

The study total forecasted deaths since the beginning of the epidemic up to 31 March **if giving tow scenarios with/out interventions:** .

- Across the 11 European countries, since the beginning of the epidemic, the study estimated that 59,000 [21,000-120,000] **deaths have been averted** due to the **non-pharmaceutical interventions** .
- In Italy and Spain, where the epidemic is advanced, 38,000 [13,000- 84,000] and 16,000 [5,400-35,000] **deaths have been averted**, respectively.

### Key Public Health Messages and Learning Lessons

- Major non-pharmaceutical interventions have had a substantial impact in reducing transmission in countries with more advanced epidemics.
- However, it is too early to be sure whether similar reductions will be seen in countries at earlier stages of their epidemic.
- While its difficult to determine which set of interventions have been most successful, implementing combined interventions is recommended as we can already see changes in the trends of new deaths.

Table 1 : estimation of forecasted death in 11 European countries

Country	Observed Deaths to 28th March (observed)	Model estimated deaths to 28th March (our model)	Model estimated deaths to 31 March (our model)	Model estimated deaths to 31 March (counterfactual model assuming no interventions have occurred)	Model deaths averted to 31 March (difference between counterfactual and actual)
Austria	68	88 [57 - 130]	140 [88 - 210]	280 [140 - 560]	140 [34 - 380]
Belgium	289	310 [230 - 420]	510 [370 - 730]	1,100 [590 - 2,100]	560 [160 - 1,500]
Denmark	52	61 [38 - 92]	93 [58 - 140]	160 [84 - 310]	69 [15 - 200]
France	1,995	1,900 [1,500 - 2,500]	3,100 [2,300 - 4,200]	5,600 [3,600 - 8,500]	2,500 [1,000 - 4,800]
Germany	325	320 [240 - 410]	570 [400 - 810]	1,100 [570 - 2,400]	550 [91 - 1,800]
Italy	9,136	10,000 [8,200 - 13,000]	14,000 [11,000 - 19,000]	52,000 [27,000 - 98,000]	38,000 [13,000 - 84,000]
Norway	16	17 [7 - 33]	26 [11 - 51]	36 [14 - 81]	9.9 [0.82 - 38]
Spain	4,858	4,700 [3,700 - 6,100]	7,700 [5,500 - 11,000]	24,000 [13,000 - 44,000]	16,000 [5,400 - 35,000]
Sweden	92	89 [61 - 120]	160 [110 - 240]	240 [140 - 440]	82 [12 - 250]
Switzerland	197	190 [140 - 250]	310 [220 - 440]	650 [330 - 1,500]	340 [71 - 1,100]
United Kingdom	759	810 [610 - 1,100]	1,500 [1,000 - 2,100]	1,800 [1,200 - 2,900]	370 [73 - 1,000]
All	17,787	19,000 [16,000 - 22,000]	28,000 [23,000 - 36,000]	87,000 [53,000 - 140,000]	59,000 [21,000 - 120,000]

# Transmission



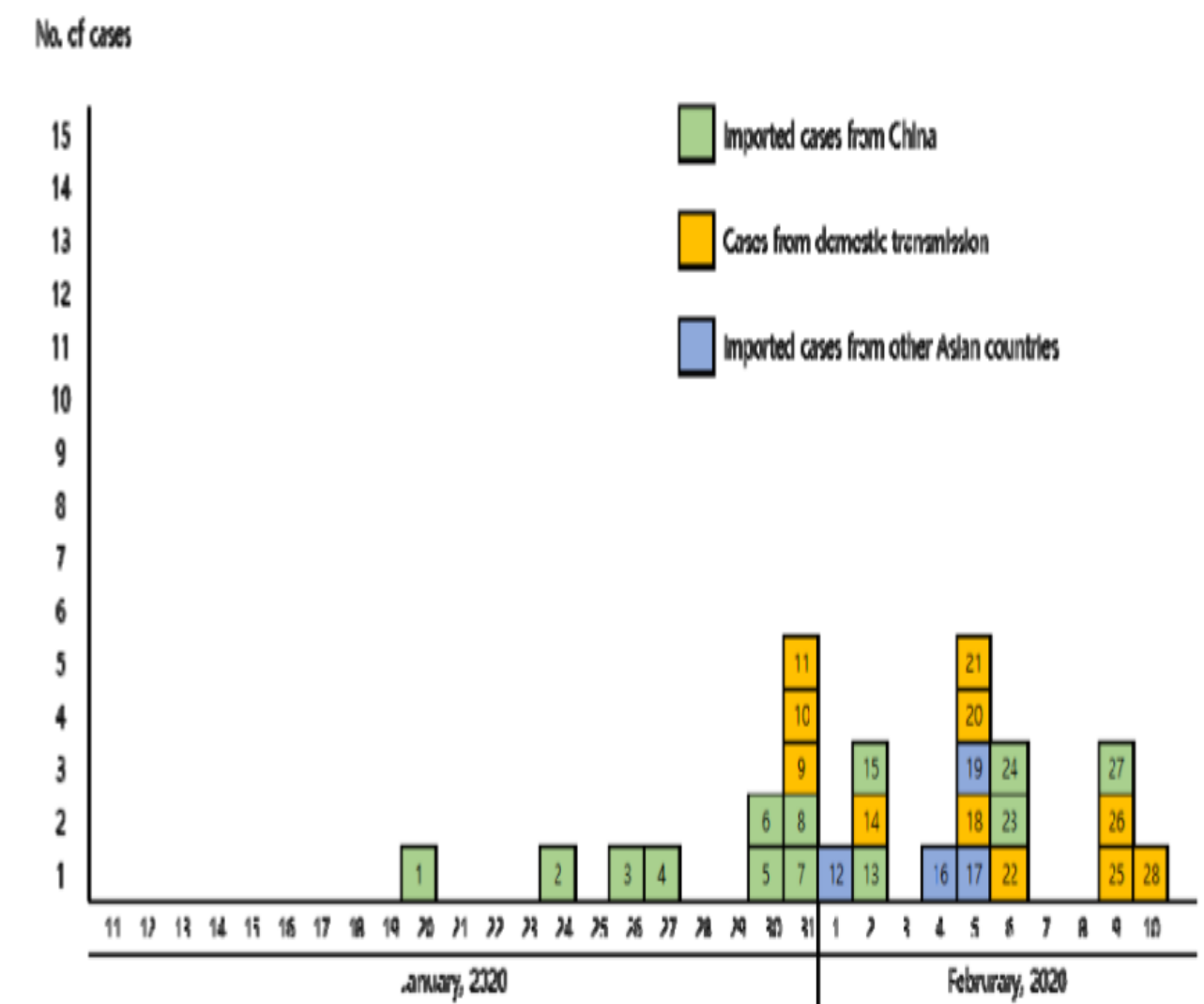
## Article 2: Covid-19 in South Korea — Challenges of Subclinical Manifestations

Published: April 6, 2020 by [NEMJ](#)

### Summary:

- There were 28 cases of laboratory-confirmed COVID-19 in South Korea as of February 10, 2020. Of those, 13 (46%) were imported cases from China, 11 (40%) were from domestic transmission, and 4 (14%) were imported cases from other Asian countries (Japan, Thailand, and Singapore).
- Locally acquired cases (n=11) of COVID-19 involved delayed diagnosis. It is anticipated that delays in detection of infected patients may be associated with subclinical manifestations and diverse initial symptoms that make it difficult for clinicians to diagnose the case.
- Among the reported infected patients (n=28), asymptomatic cases (n=3) were diagnosed by surveillance testing. Although asymptomatic transmission has been suggested; however, it is not clear if the patients with COVID-19 are infectious during the incubation period or if they are infectious primarily when they have symptoms.
- An **improved assessment of viral shedding** are required to better understand about transmission dynamics and infection-control practices. Early detection of COVID-19 is difficult due to distinct subclinical nature in some patients.

Figure S1. Epidemic curve of the SARS-CoV-2 infections according to the date of laboratory-confirmed diagnosis in South Korea as of February 10th, 2020





## **Article 3: The French response to COVID-19: intrinsic difficulties at the interface of science, public health, and policy**

**Published:** April 7, 2020 by [the lancet](#)

### **Summary:**

- French authorities claim that their policy towards the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) pandemic has been evidence-based—they appointed an advisory board of 11 scientists to help manage the crisis. However, sticking to conventional approaches might jeopardize the science-policy interface. The below explain why:
- First, France does not adopt learn time lesson while observing the ovulation of COVID19.
  - Although the outbreak started concomitantly in South Korea, Italy; South Korea was able to control the epidemic 6 weeks later, while France and Italy have increased cases.
  - lockdown of the country as late as March 9 in Italy and March 17 in France!
  - France did not have the logistic capacity to promote mass testing, (limited number of accredited laboratories (n 45) and SARS-COV-2 reagents for RT-PCR.
    - **Authorities argued that systematic testing was not needed** as soon as the epidemic had generalized (then policy have been reversed on March 28 with the aim of managing a way out from the lockdown).
- Second, the government maintain the first round of national elections on March 15 but enforced a closure of schools (this giving a conflicted messages in regard to social distancing policy )
- Third, preliminary—although inconclusive—results about the use of **hydroxychloroquine and azithromycin** for treatment of COVID-19 have fueled ethical controversies in the biomedical community with extensive media coverage. Only referring to randomized clinical trials to prove efficacy of **treatment without considering alternative evaluation methods** for providing quicker evidence in a context of urgency has reduced the ability of authorities to mitigate the effect of irrational online rumors and regulate prescription practices of health professionals.