



Scientific Research Monitoring on COVID-19

6 June 2020

For accessing the full series of published scientific reports please visit the following link:

<https://www.doh.gov.ae/ar/covid-19/Healthcare-Professionals/Scientific-Publication>

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.
- Two strain have been identified for SARS-COV2 (L type (more aggressive) and S type .and 3 cluster groups.

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).

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.

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.
- Also more therapies are currently under investigation including immunomodulatory, antimalarial and others.
- Vaccination are under clinical trial stage in many countries around the world.

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) data from china

Today's Highlights



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

Scientific Research

- **Public Health Policy:** commentary article about pregnant worker policy stated that the medical community needs to be cautious in their conclusions and protect vulnerable workers until safety can be established for both mother and baby.
- **Clinical Feature:** Five children with COVID19 in Italian hospital had cardiac injury thus warrant careful monitoring of cardiac complication in this population.
- **Public Health response:** a modelling study on UK system found Intensive lockdown-type measures at local levels for repeated short periods may be effective for preventing the health-care system from being overwhelmed.

WHO daily report



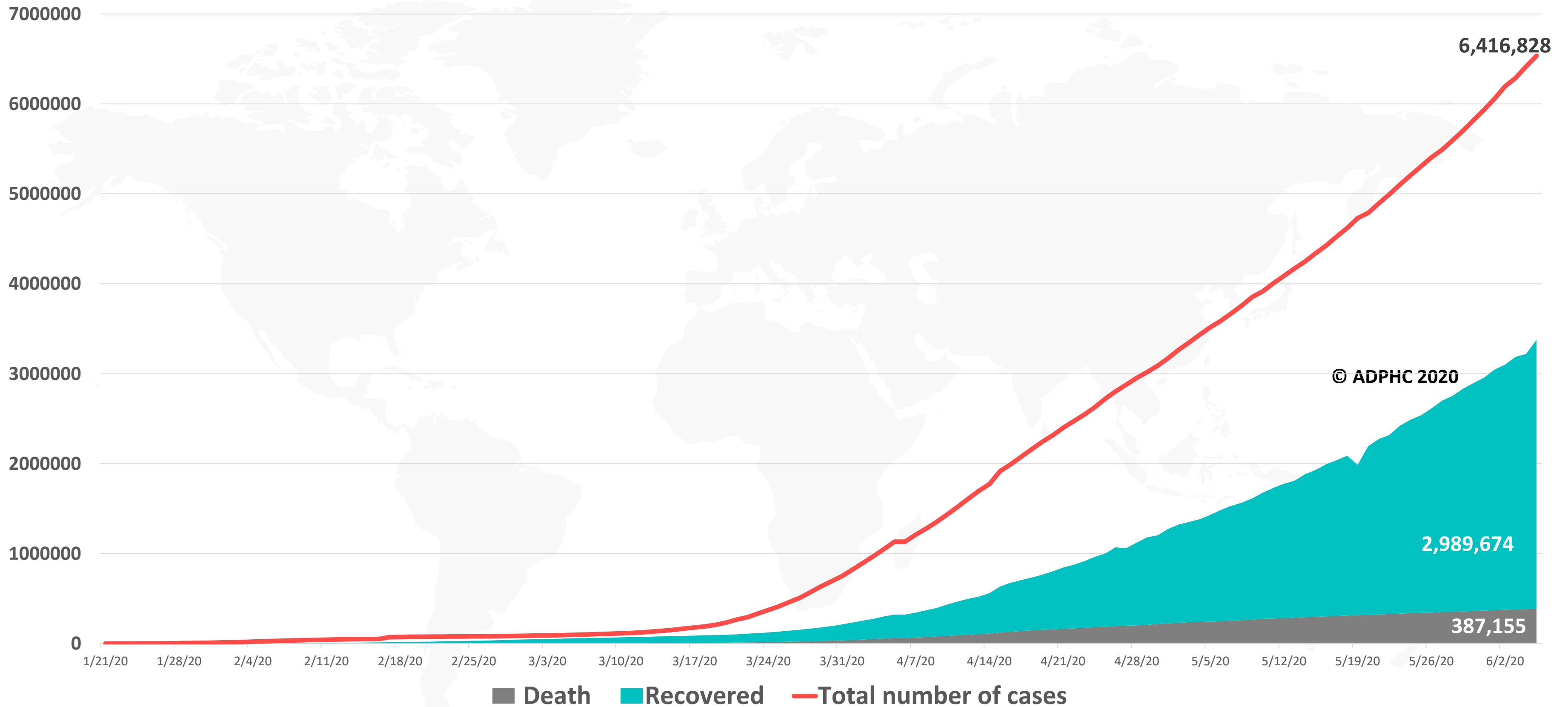
WHO Daily Report 4 June 2020

- WHO Director-General Dr Tedros announced updated guidance on [the use of masks for the control of COVID-19](#). This guidance is based on evolving evidence, and provides updated advice on who should wear a mask, when it should be worn and of what it should be made.
- Digital tools offer opportunities to strengthen contact tracing for COVID-19. WHO has published interim guidance on considerations, opportunities and challenges of integrating digital tools into contact tracing methods.
- WHO has published interim guidance for the poliomyelitis (polio) surveillance network in the context of COVID-19. One of its aims is to highlight the decision-making framework to guide the level of polio surveillance activities at country level in the context of the ongoing pandemic.
- Since the beginning of the COVID-19 pandemic, air passenger and cargo services have been severely disrupted. To address the impact of the pandemic, the International Civil Aviation Organization has published '[Take-off: Guidance for Air Travel](#) through the COVID-19 Public Health Crisis'.

Epidemiology



Figure 1: Total number of infected, recovered, and death cases (January 21st to Jun 5, 2020)

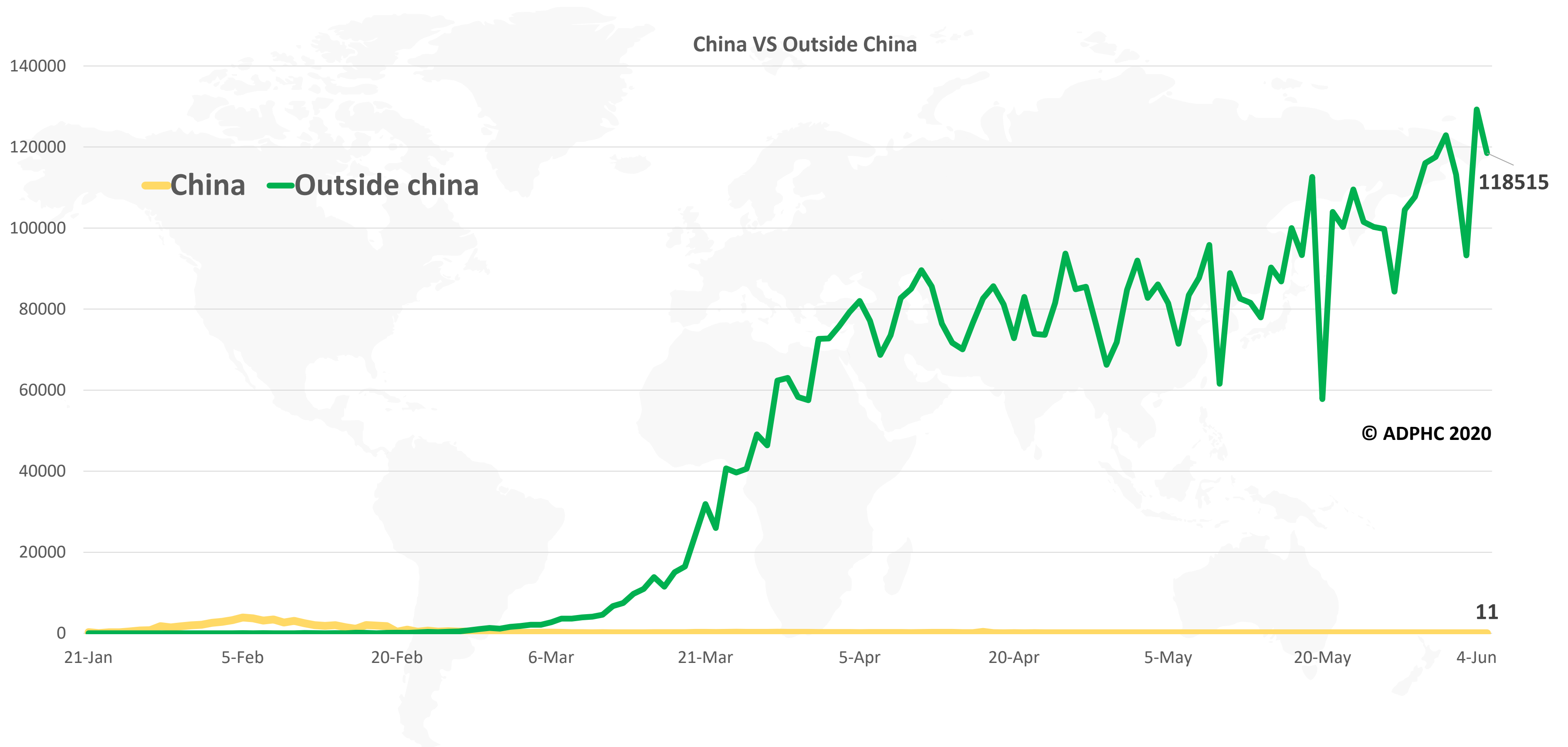


Line graph published by Abu Dhabi Public Health Center 2020.

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



Figure 2: Daily new infected COVID-19 cases reported between (January 21 to Jun 5, 2020).



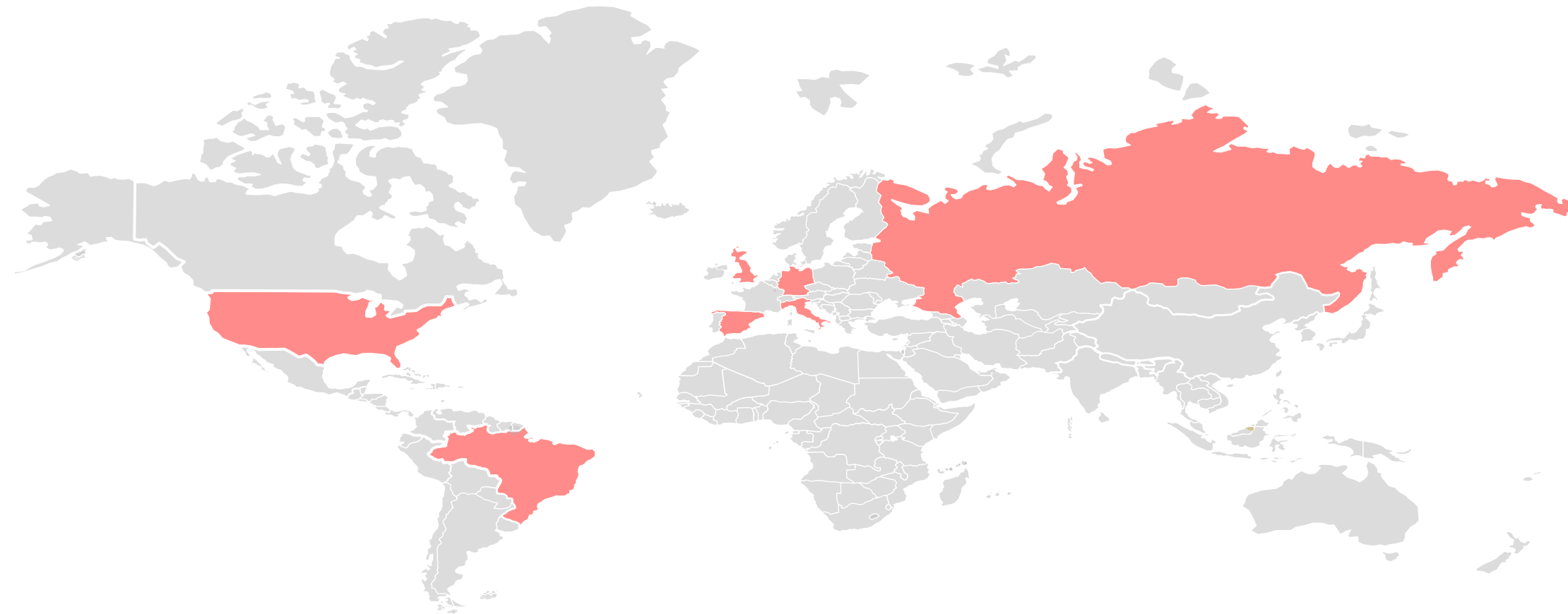
Line graph published by Abu Dhabi Public Health Center 2020.

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

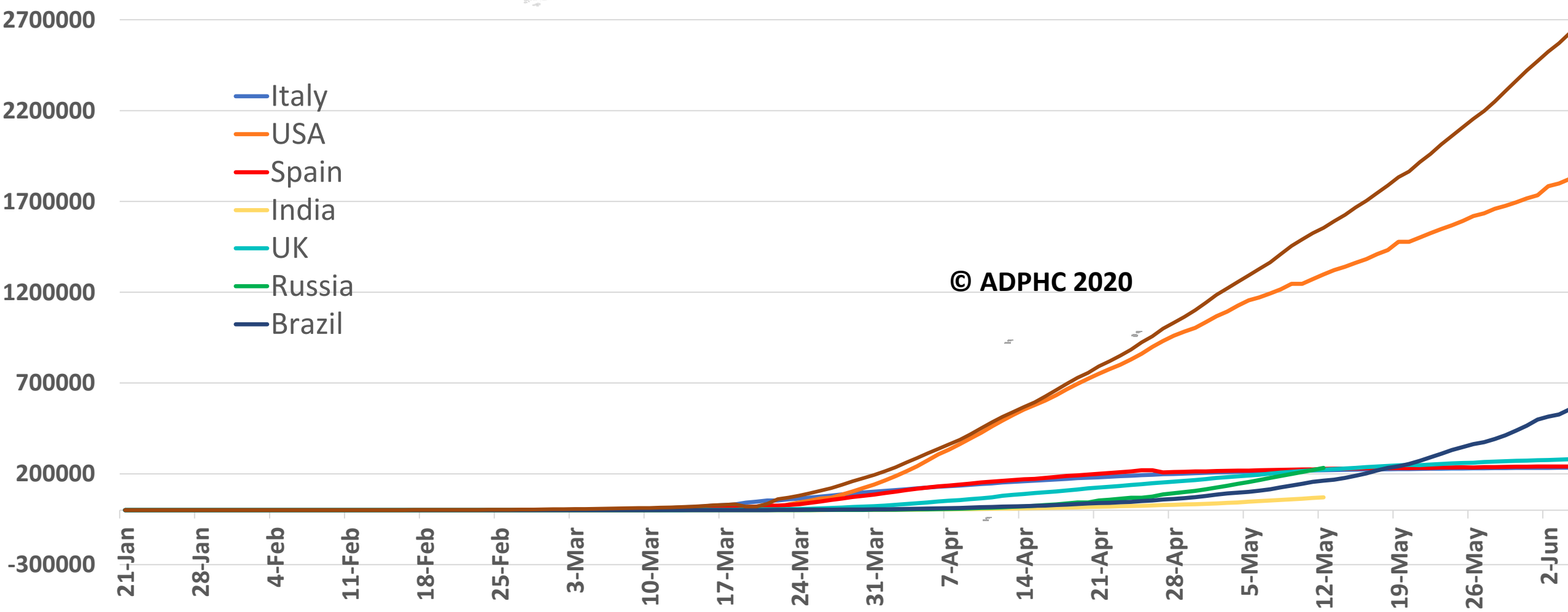
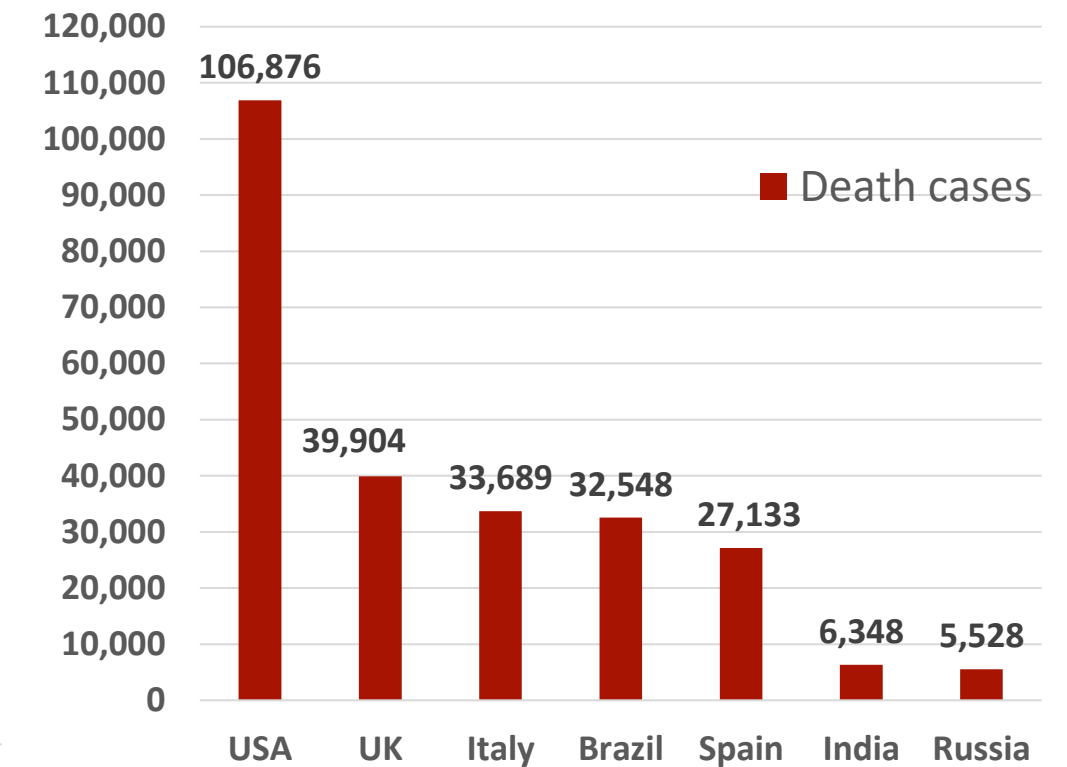
Epidemiology



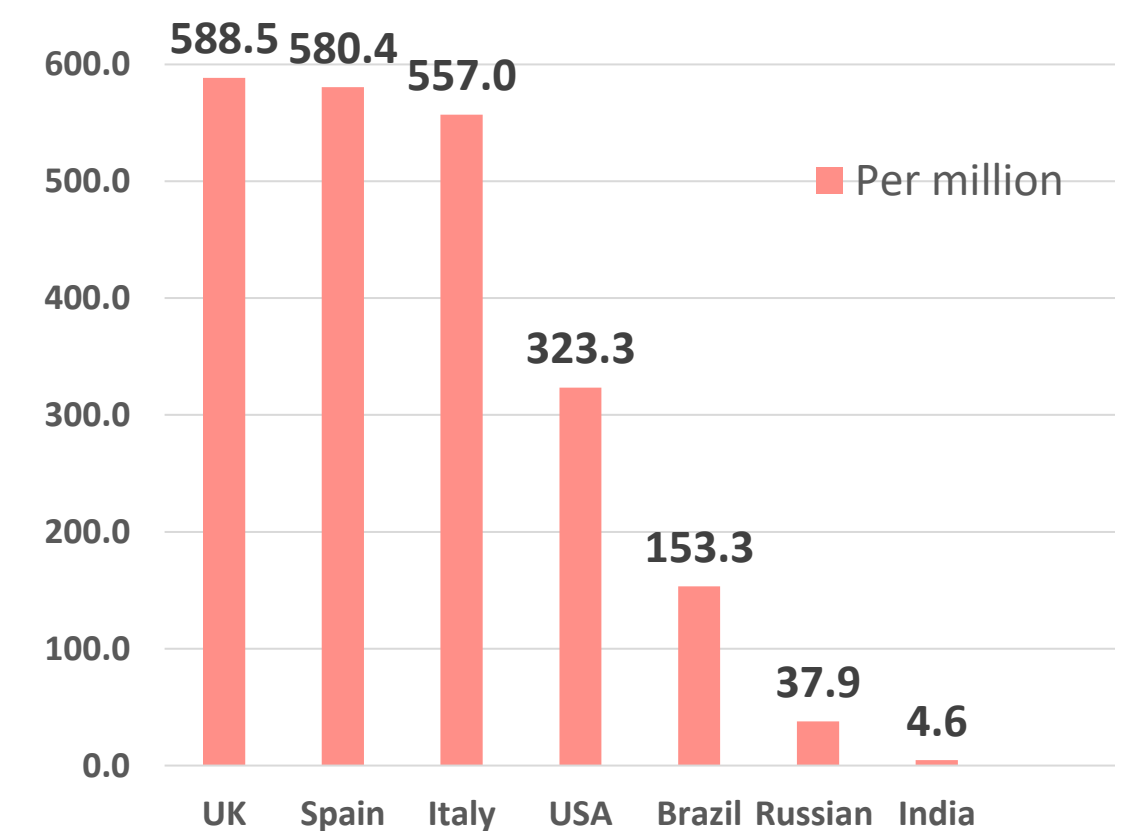
Figure 3 : Top 7 countries in the total number of cases due to COVID-19 (January 21 to Jun 5, 2020).



TOTAL DEATHS



DEATHS PER MILLION



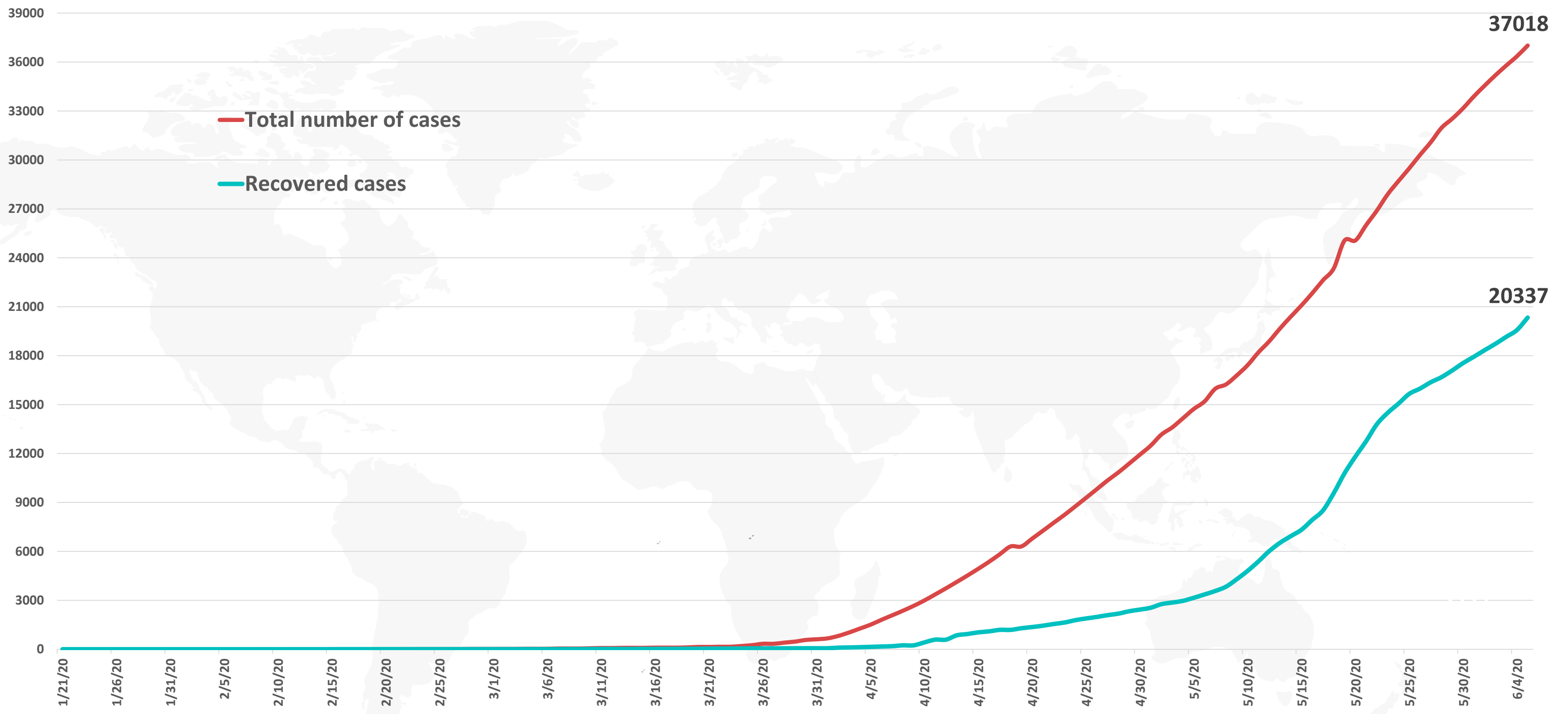
Line graph published by Abu Dhabi Public Health Center 2020.

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

Epidemiology



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



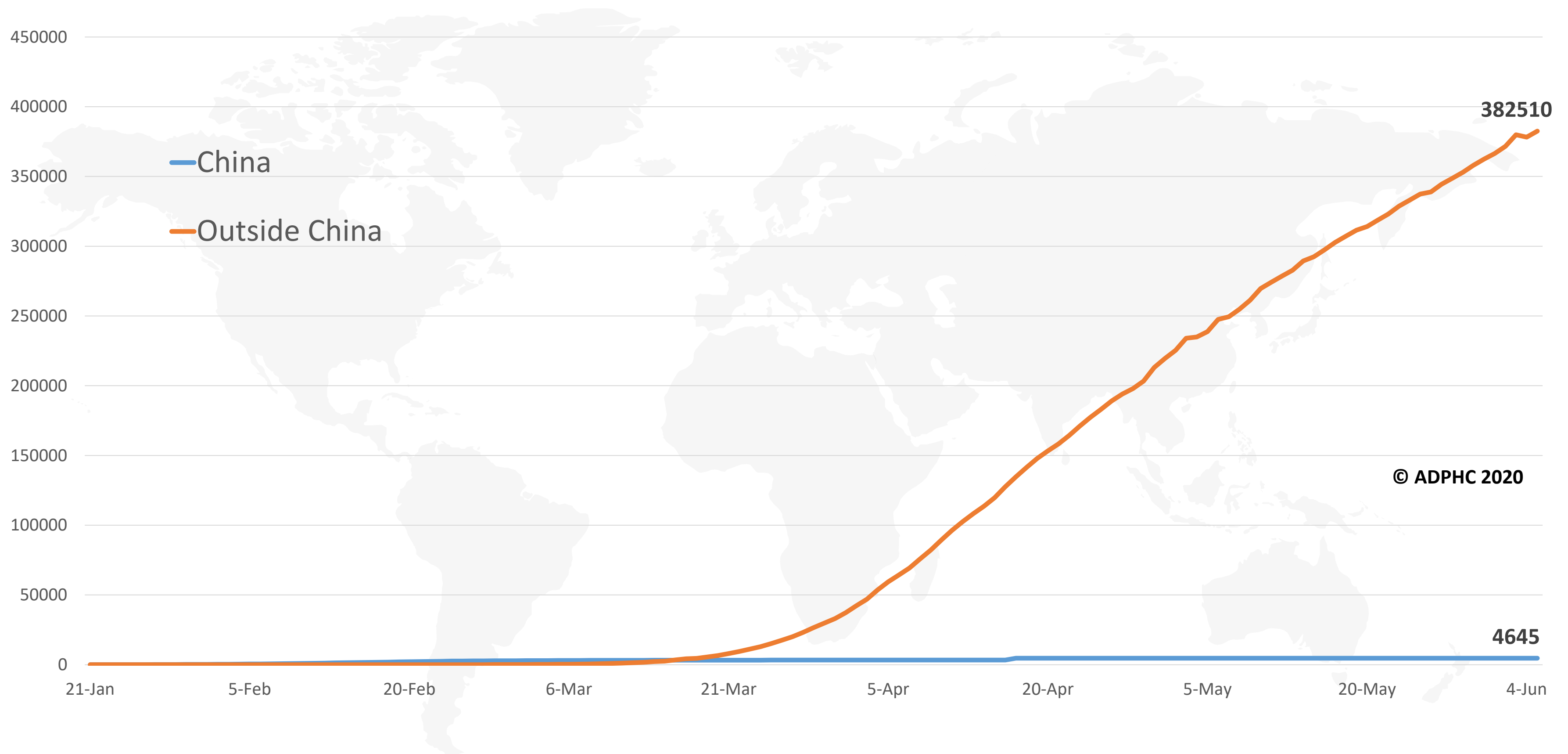
Line graph published by Abu Dhabi Public Health Center 2020.

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 22 to Jun 5, 2020).



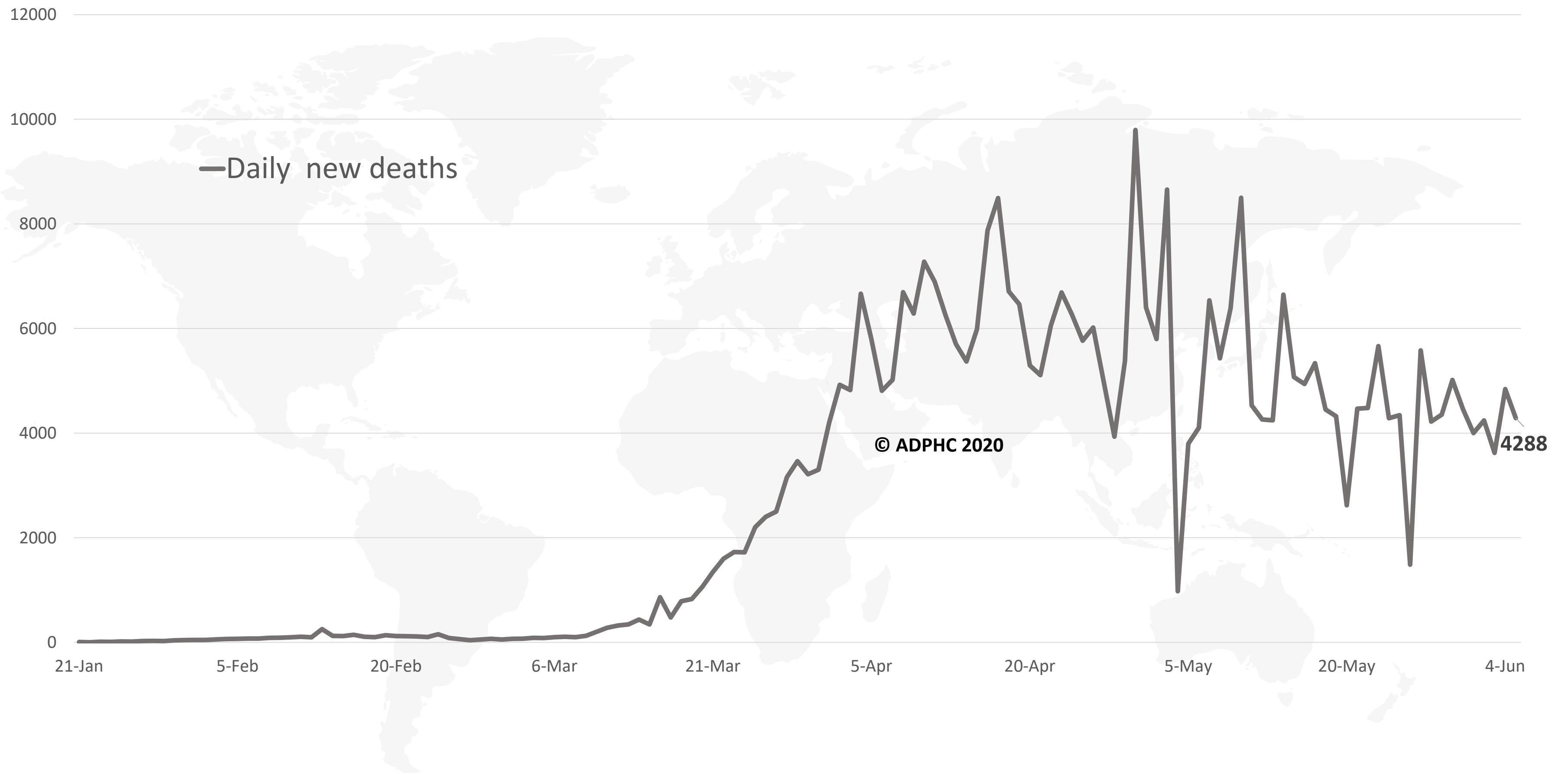
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Line graph published by Abu Dhabi Public Health Center 2020.

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



Figure 6: Global daily new deaths due to COVID-19 (January 22 to Jun 5, 2020).



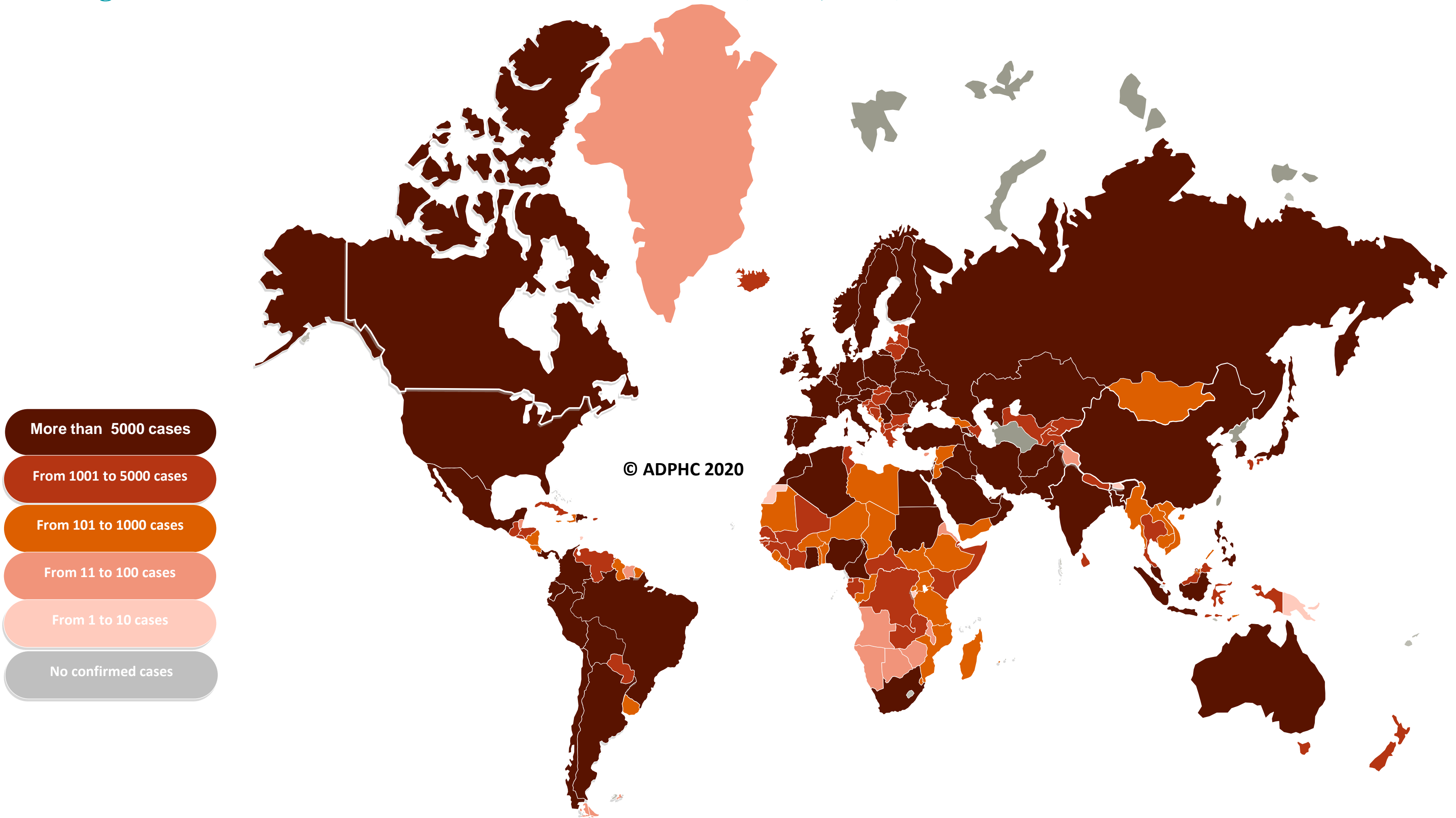
Line graph published by Abu Dhabi Public Health Center 2020.

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

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Figure 7a : Global distribution of COVID-19 cases (Jun 5, 2020).



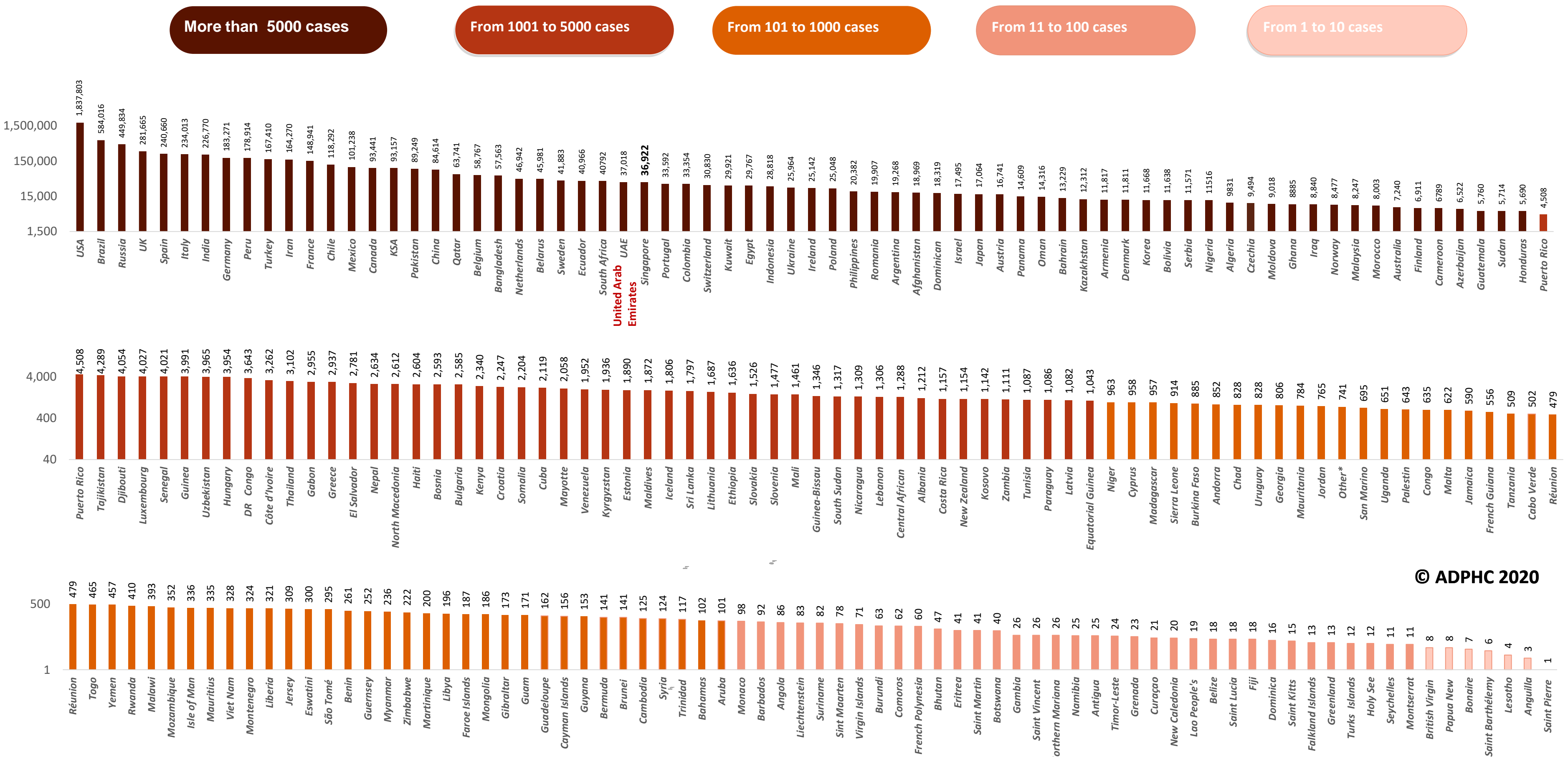
- More than 5000 cases
- From 1001 to 5000 cases
- From 101 to 1000 cases
- From 11 to 100 cases
- From 1 to 10 cases
- No confirmed cases

Map chart published by Abu Dhabi Public Health Center 2020.

Epidemiology



Figure 7B: Bar chart illustrate the global distribution of COVID19 cases Jun 5, 2020)



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Other*:includes cases and deaths reported under the international conveyance(Diamond Princess)

Map chart published by Abu Dhabi Public Health Center 2020.

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

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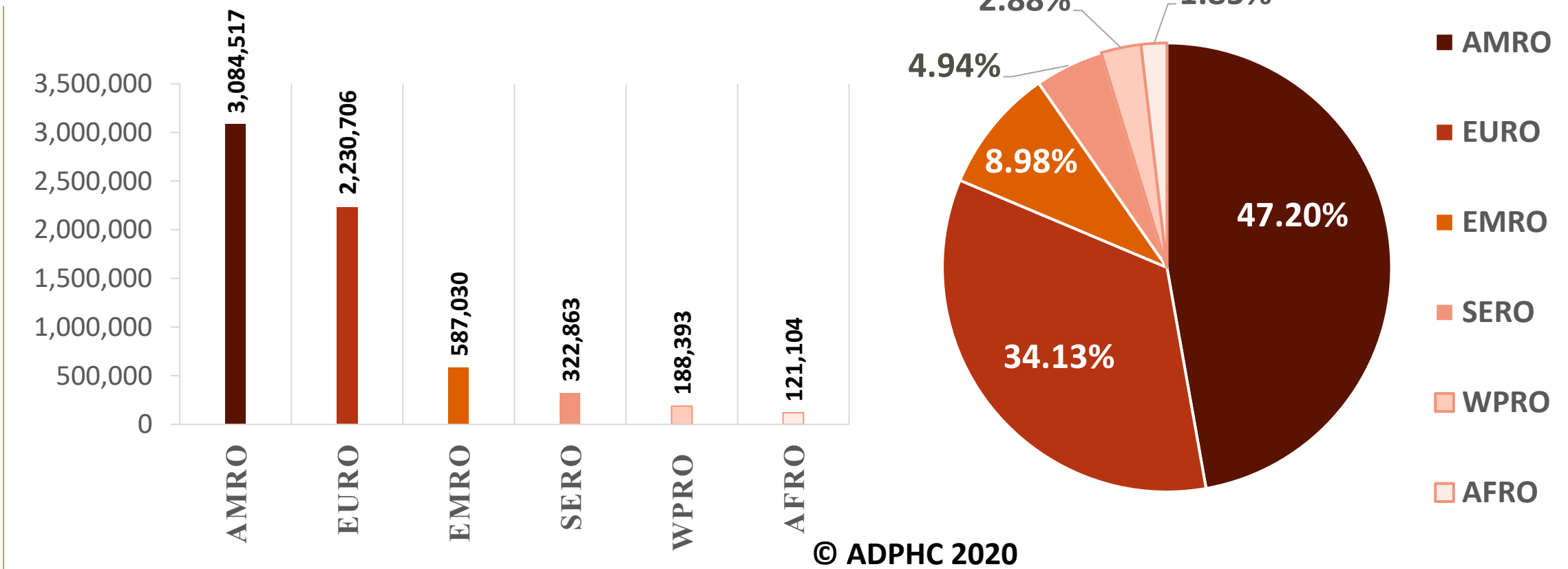
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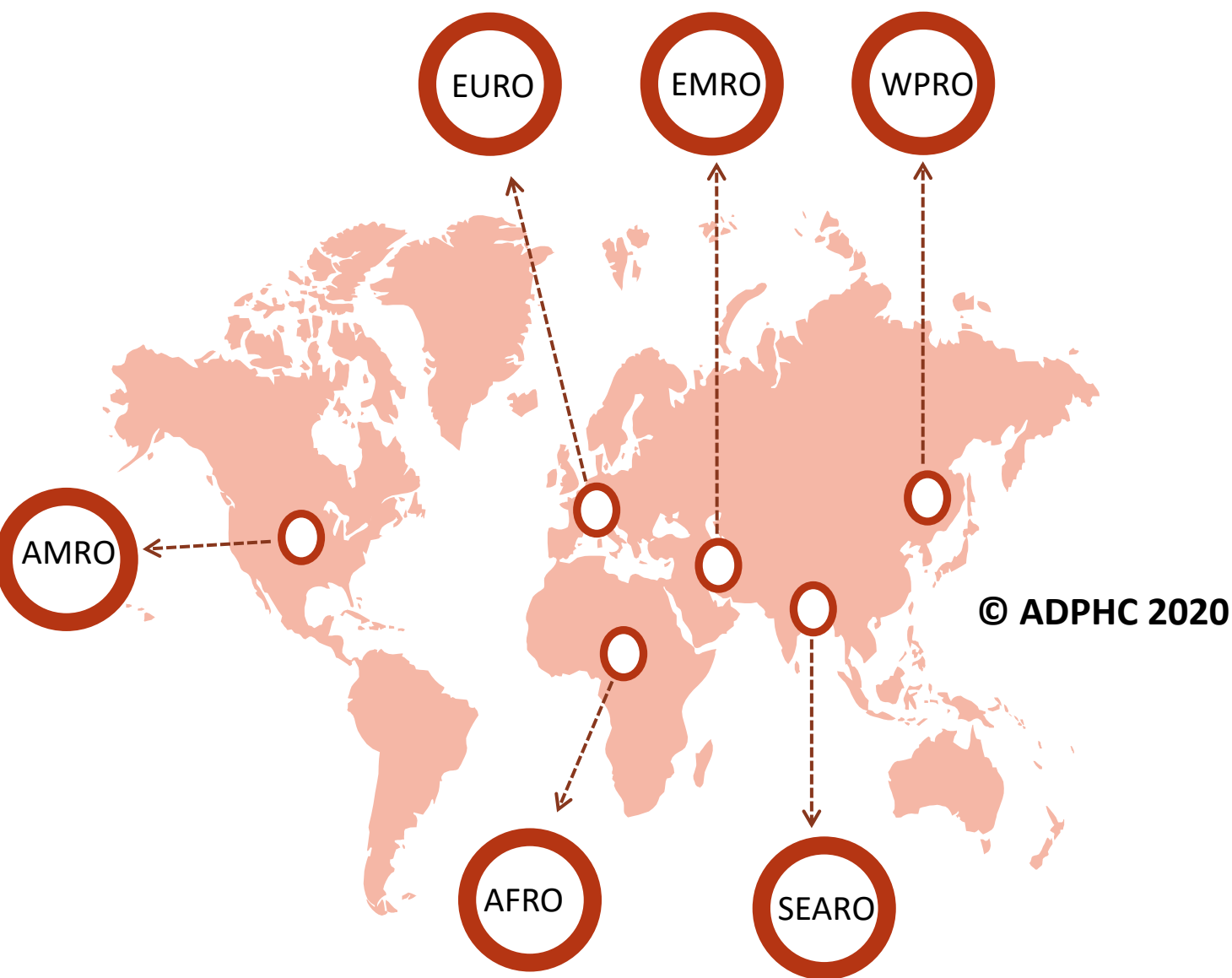
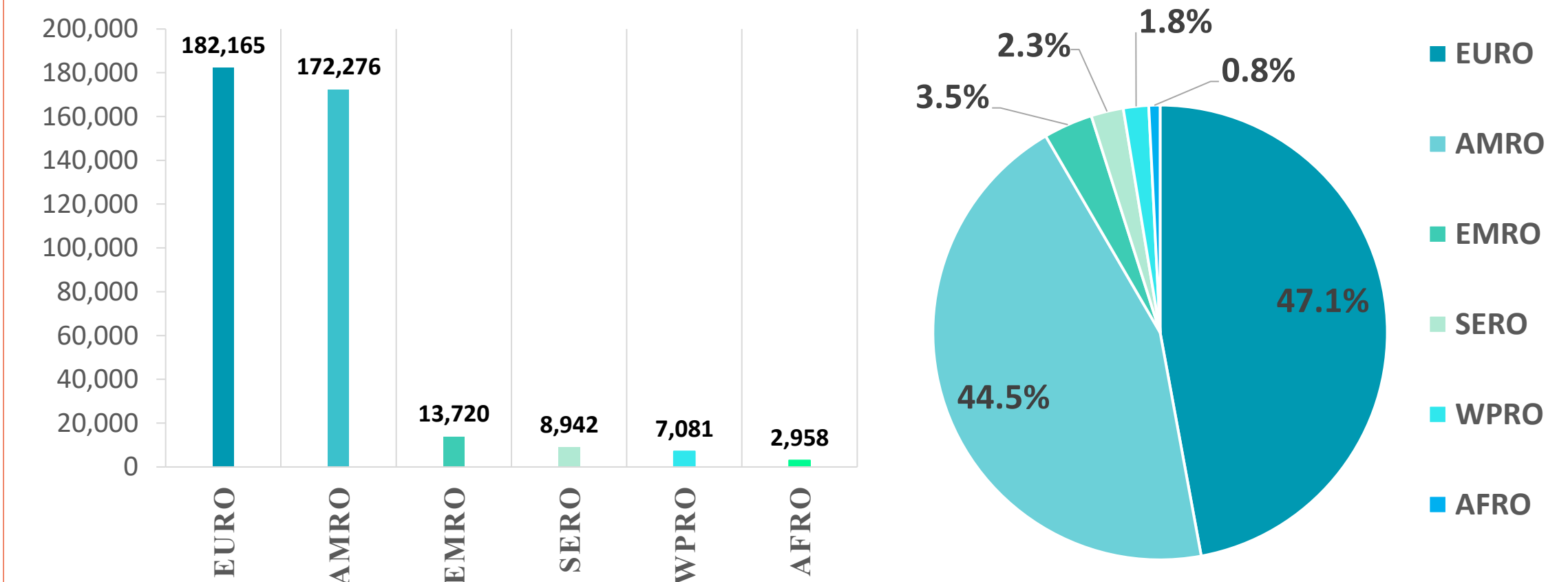


Figure 8: illustrate the Global distribution of COVID19 cases per region (Jun 5, 2020)

INFECTED



DEATH



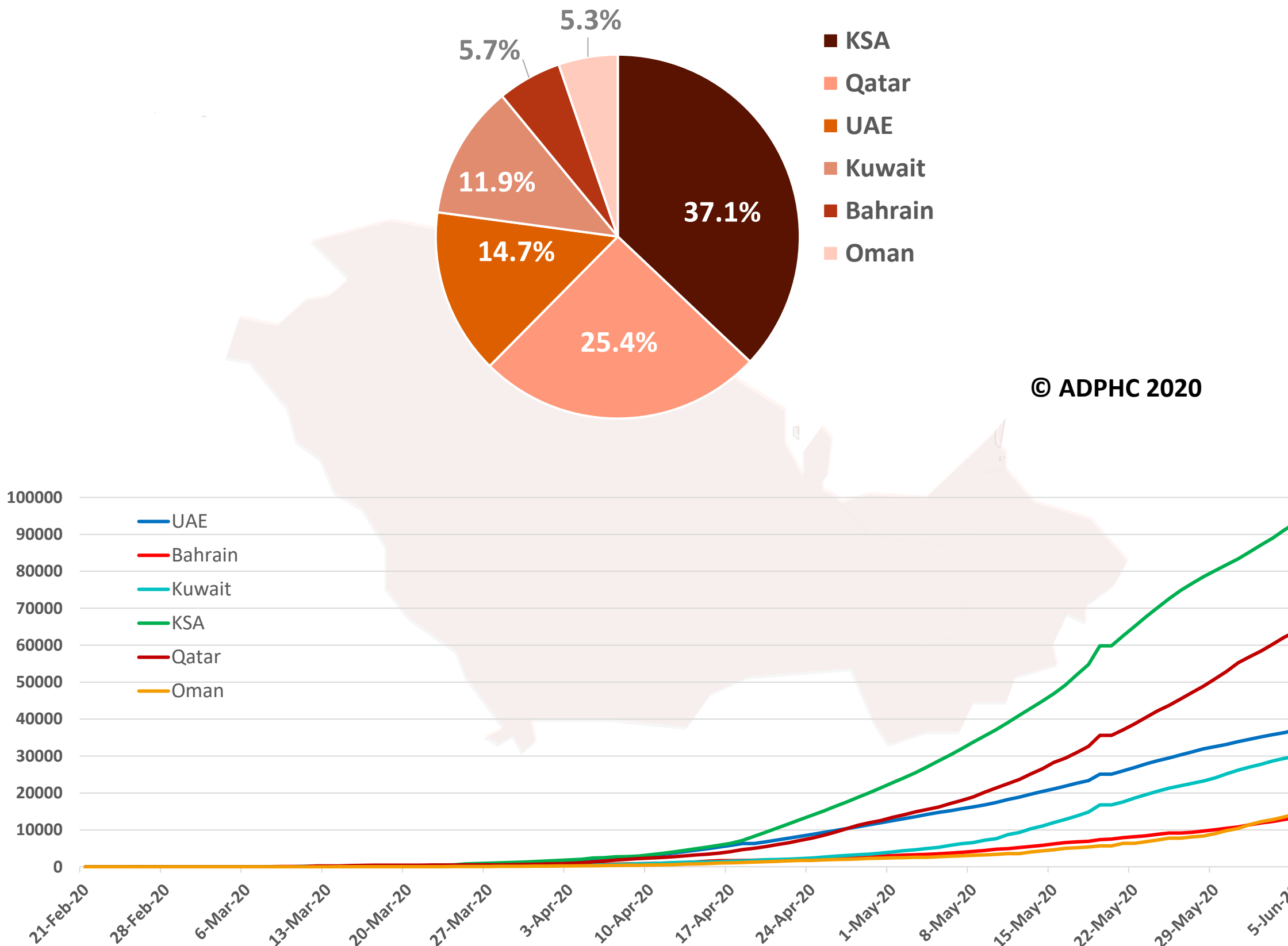
Map chart published by Abu Dhabi Public Health Center 2020.

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

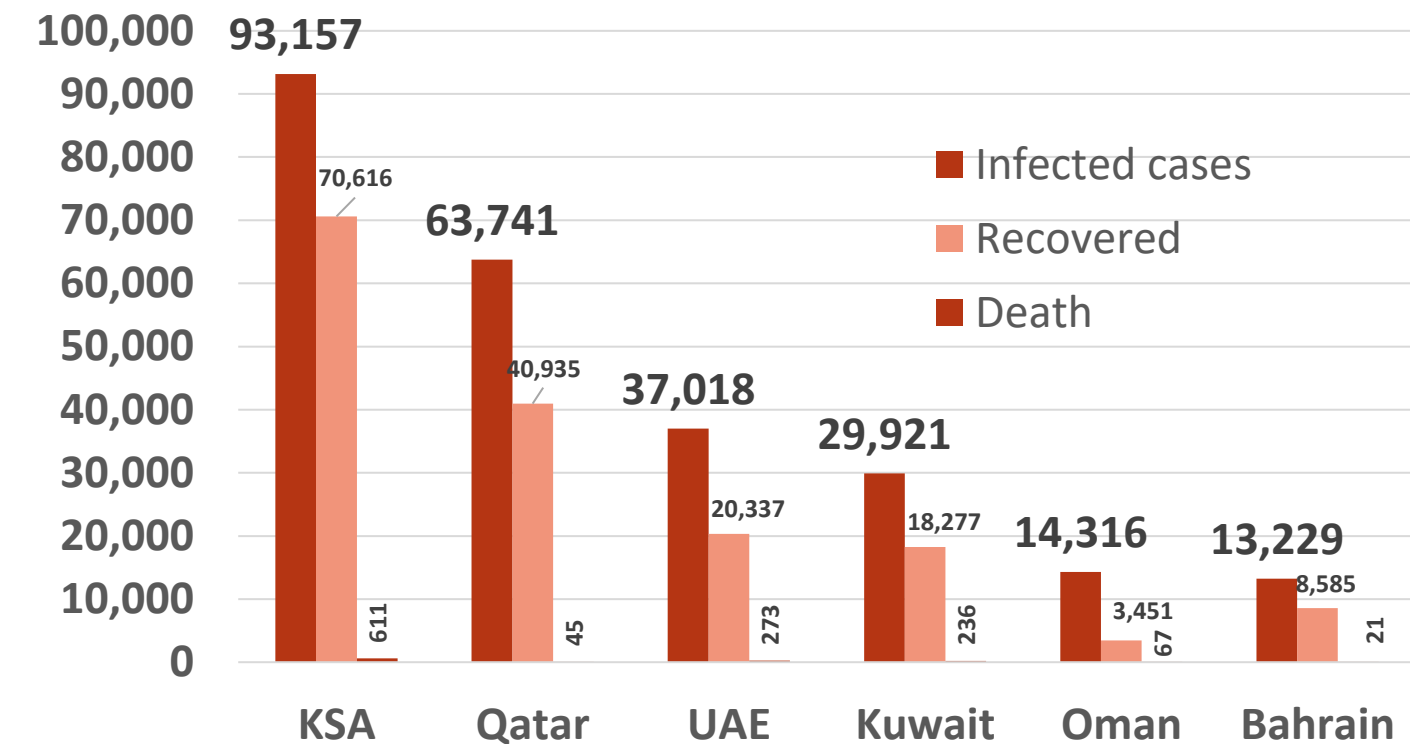


Figure 9: Comparative analysis of the distribution of COVID19 cases in GCC countries (Jun 5, 2020)

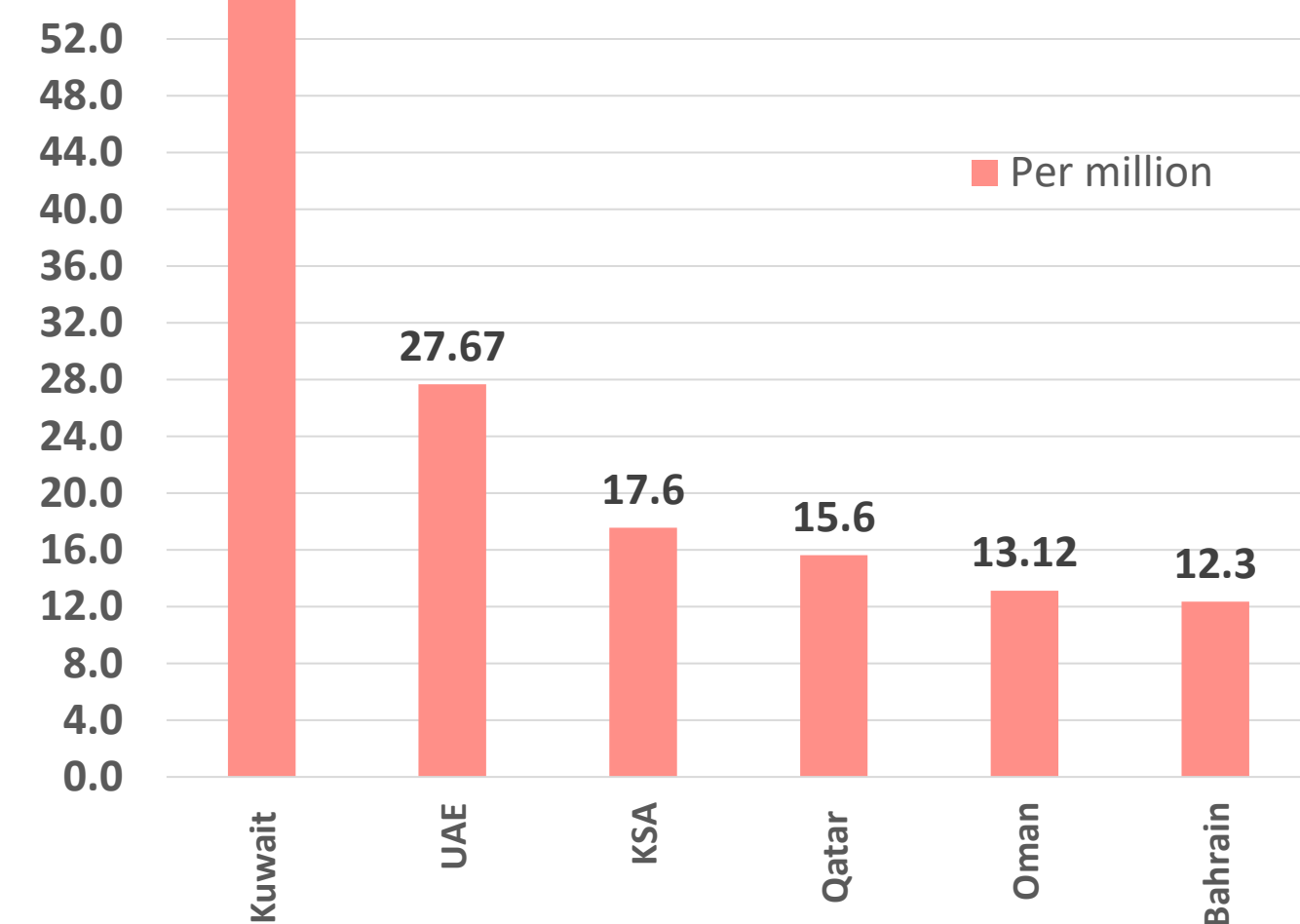
TOTAL NUMBER OF INFECTED CASES



Total number of infected, recovered and Deaths



Death per million



charts published by Abu Dhabi Public Health Center 2020.

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

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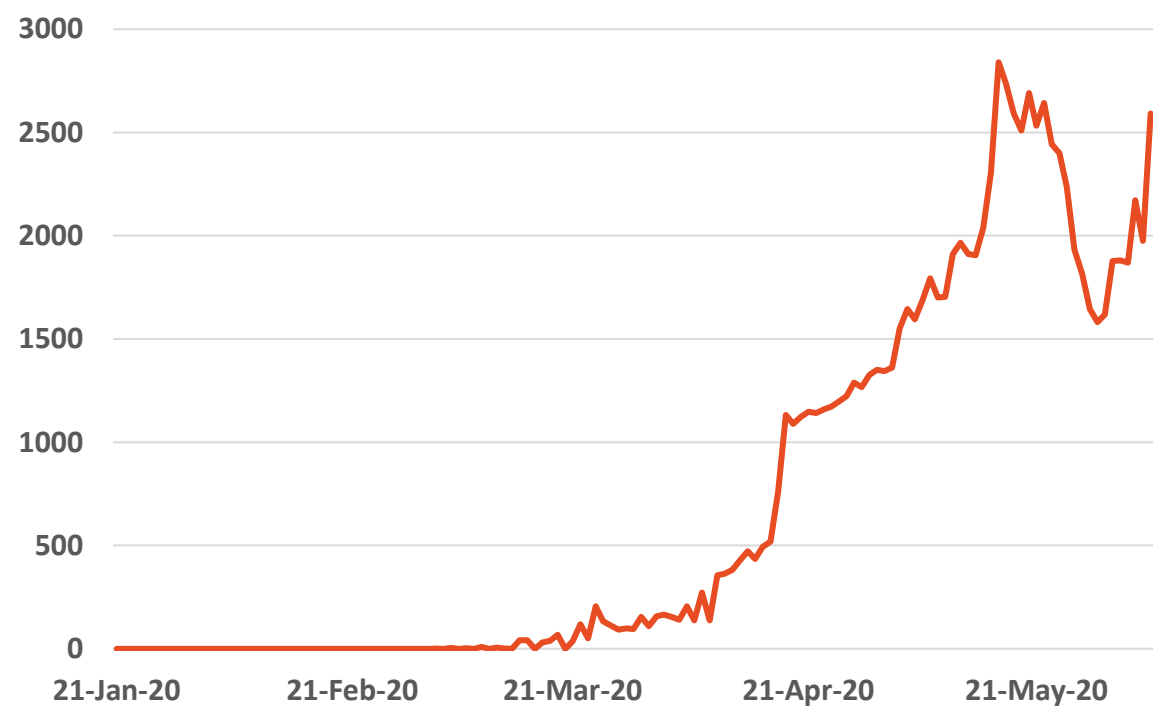
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Epidemiology



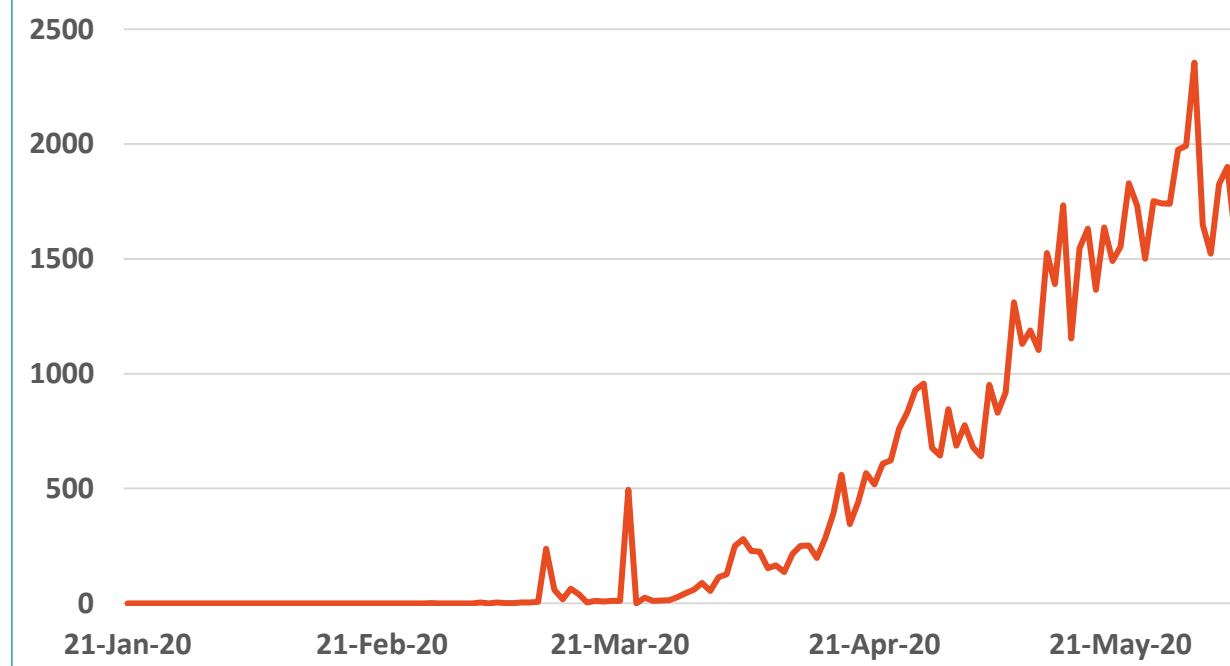
Figure 10: Comparative analysis of the distribution of COVID19 new cases in GCC countries (June 5, 2020)

KSA



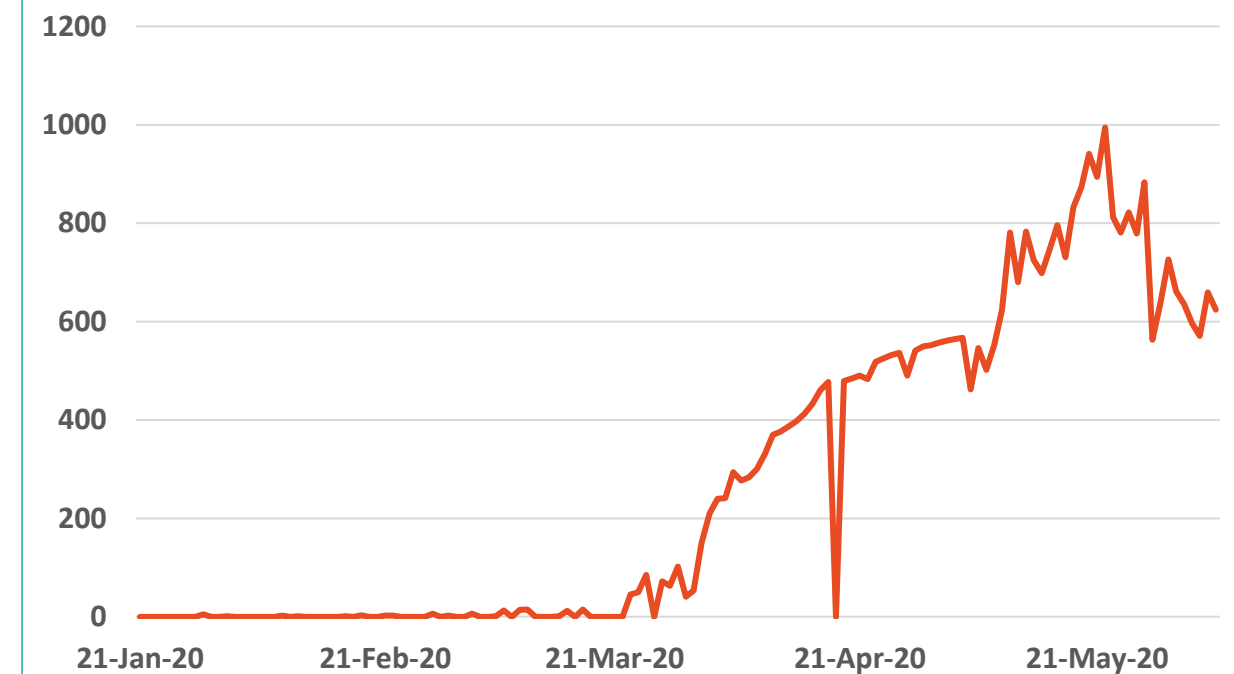
Source : KSA ministry of health & GCCStat

Qatar



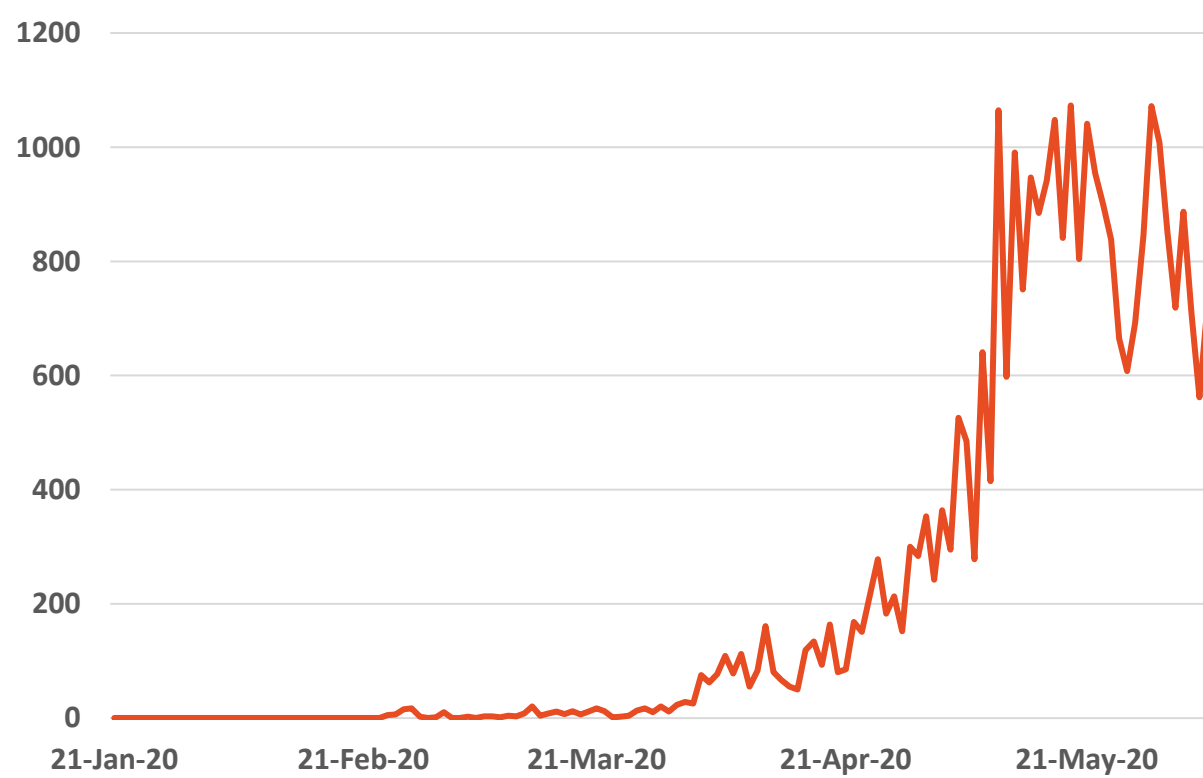
Source : Qatar ministry of health & GCCStat

UAE



Source : UAE ministry of health & GCCStat

Kuwait



Source : Kuwait ministry of health & GCCStat

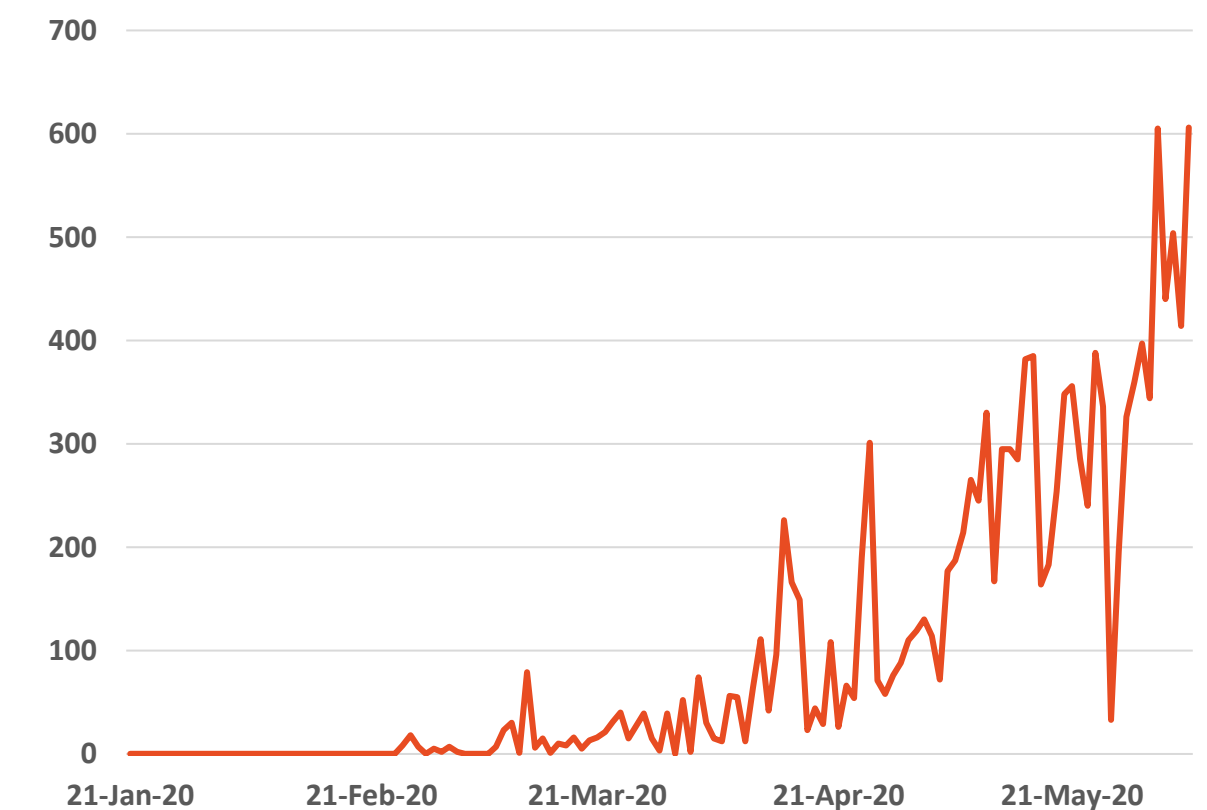
Oman

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Source : Oman ministry of health & GCCStat

Bahrain



Source : WHO & GCCStat

Epidemiology



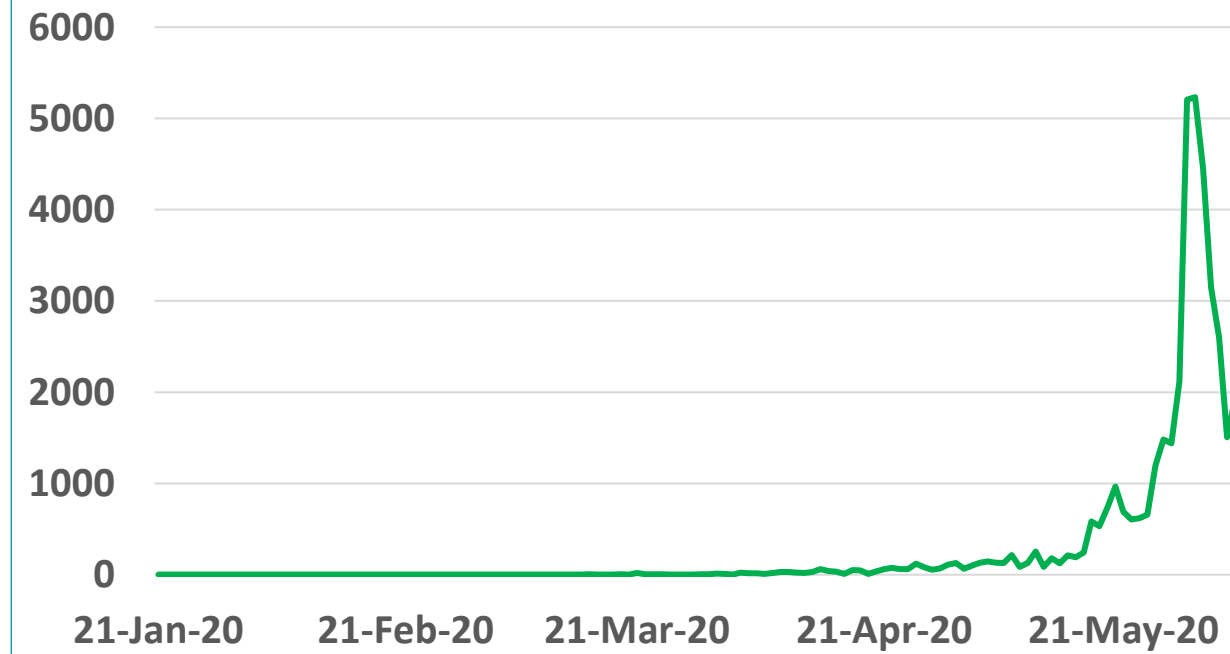
Figure 11 : Comparative analysis of the distribution of COVID19 newly recovered cases in GCC countries (June 5, 2020)

KSA



Source : KSA ministry of health & GCCStat

Qatar



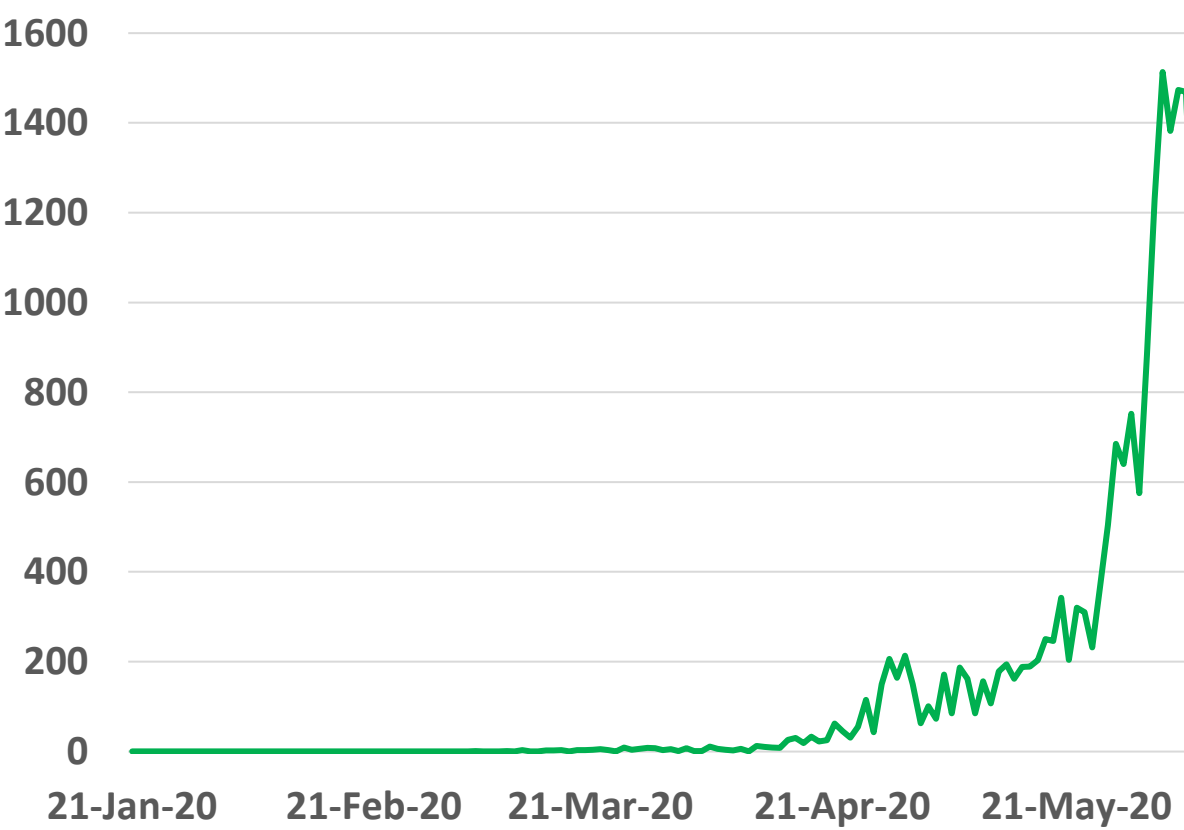
Source : Qatar ministry of health & GCCStat

UAE



Source : UAE ministry of health & GCCStat

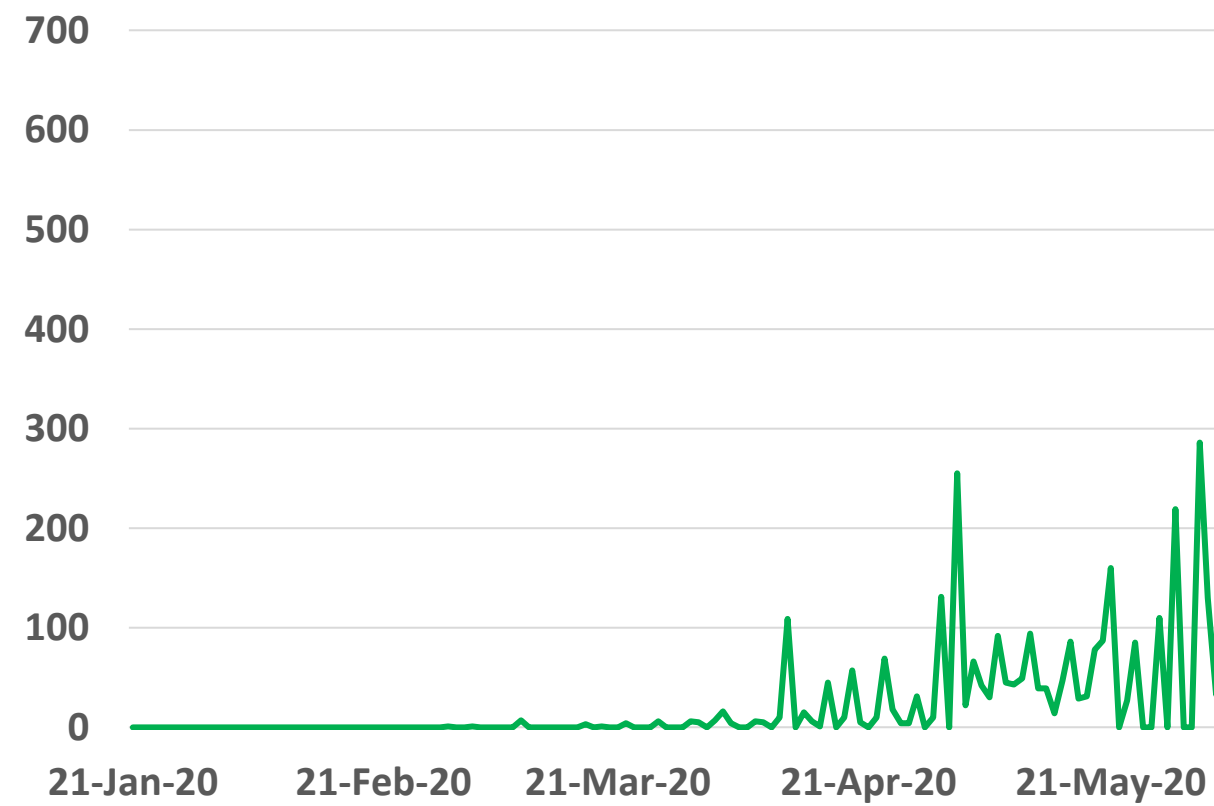
Kuwait



Source : Kuwait ministry of health & GCCStat

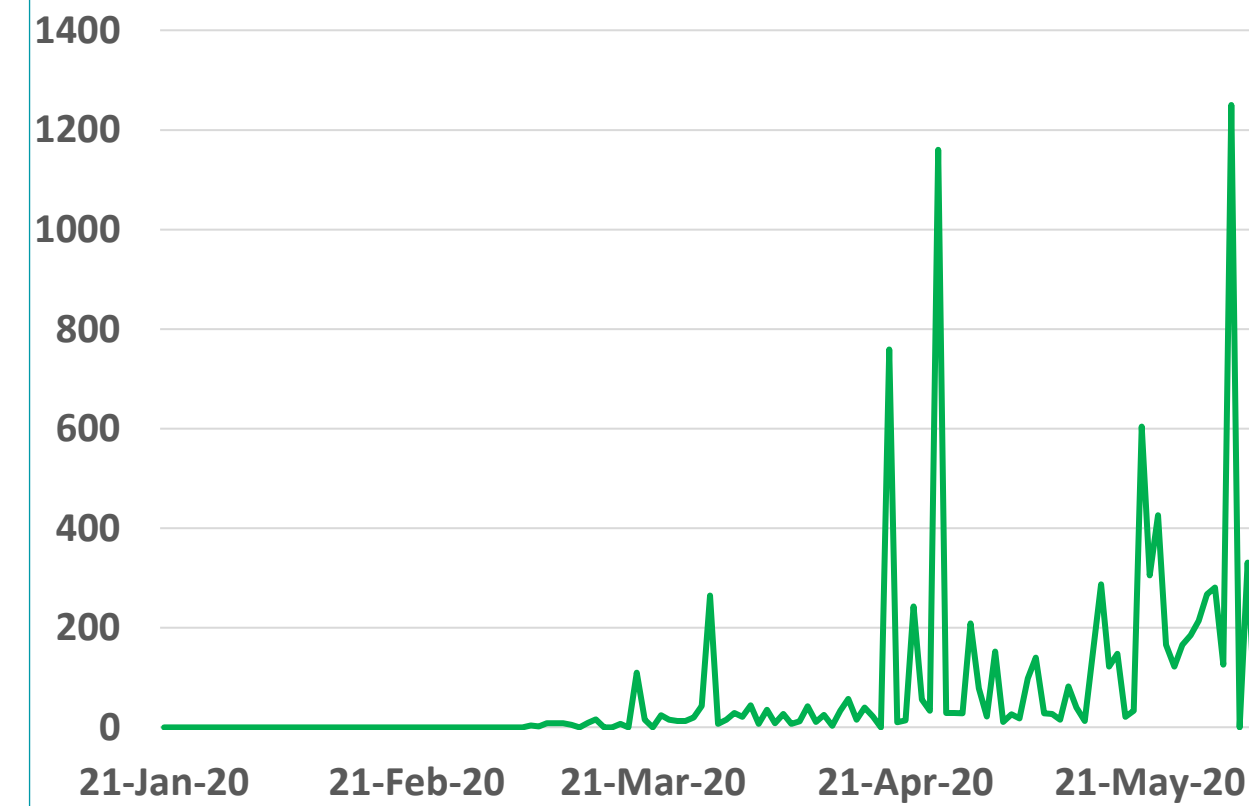
Oman

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Source : Oman ministry of health & GCCStat

Bahrain



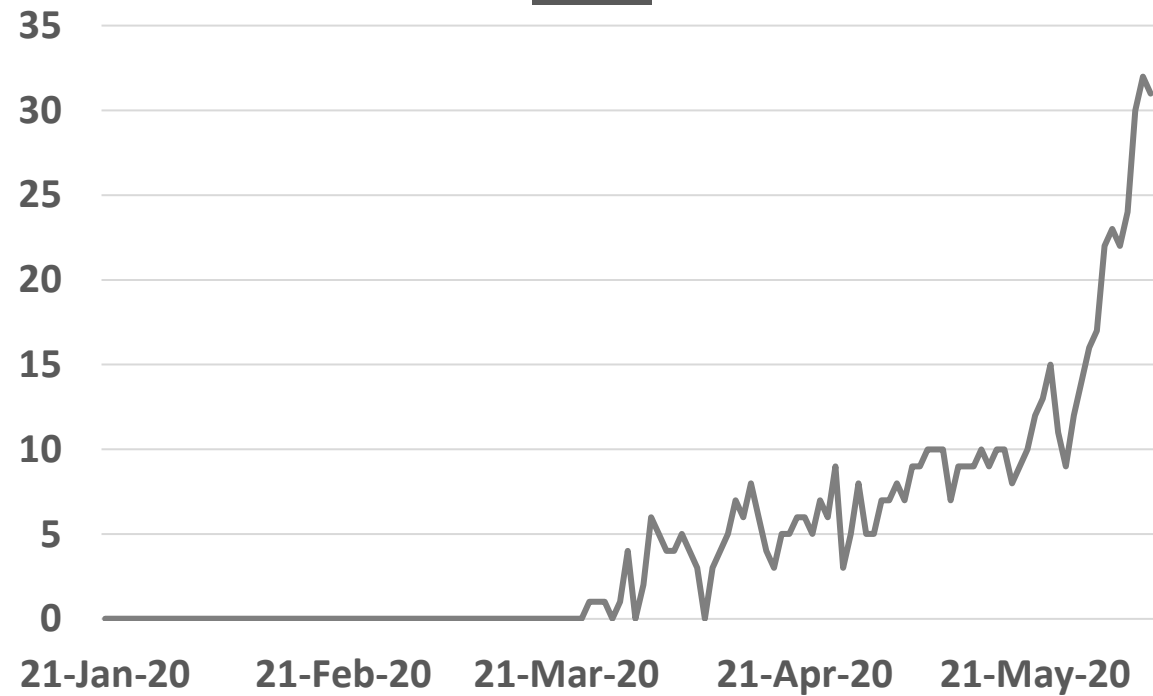
Source : WHO & GCCStat

Epidemiology



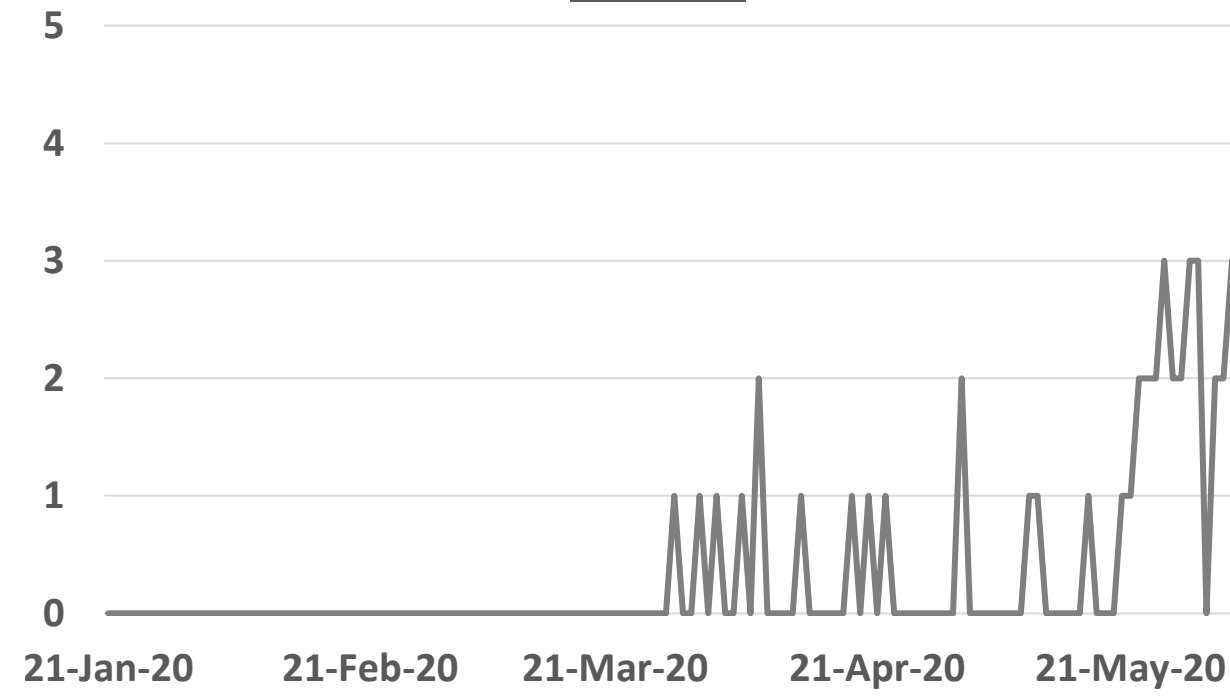
Figure 12: Comparative analysis of the distribution of COVID19 newly death cases in GCC countries (June 5, 2020)

KSA



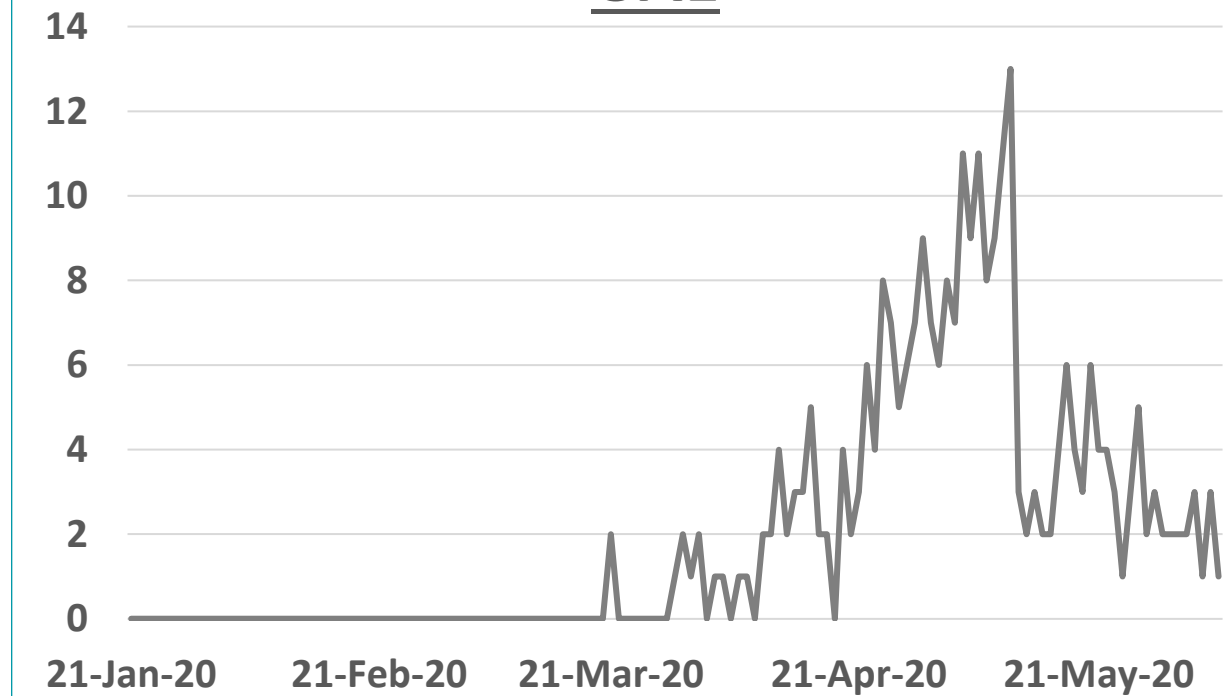
Source : KSA ministry of health & GCCStat

Qatar



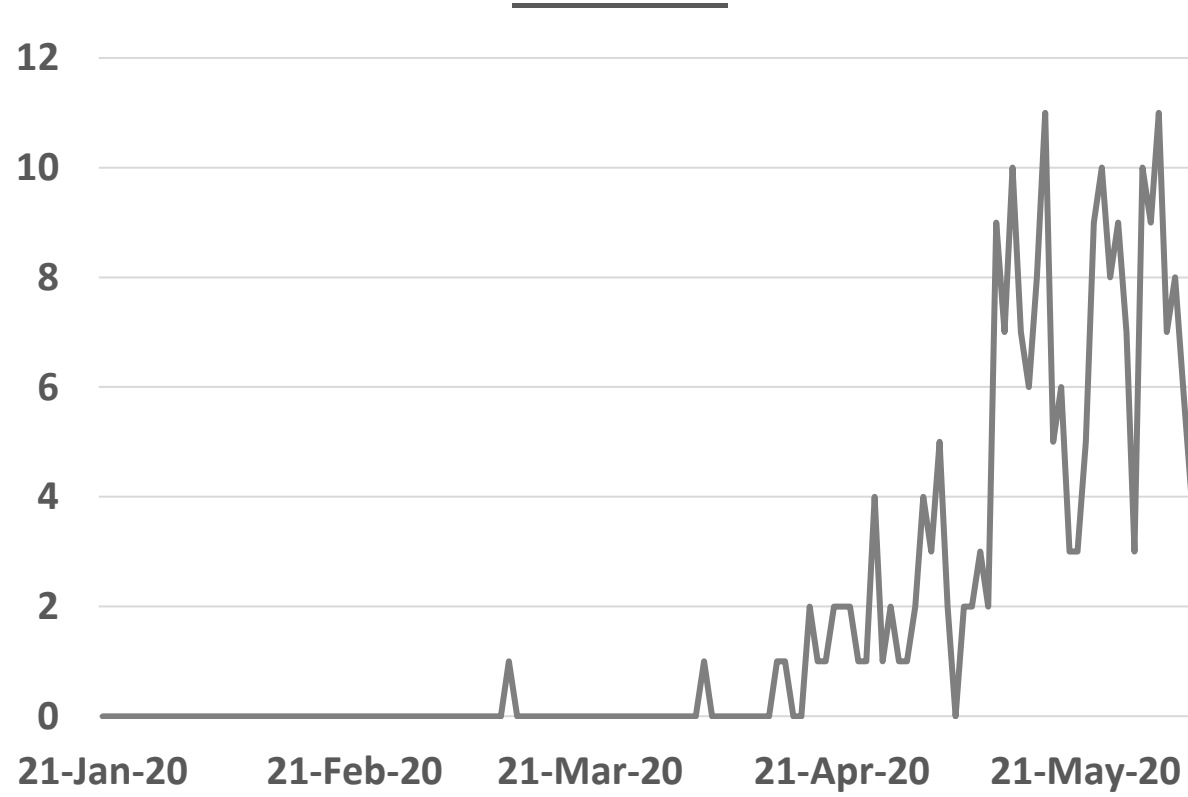
Source : Qatar ministry of health & GCCStat

UAE



Source : UAE ministry of health & GCCStat

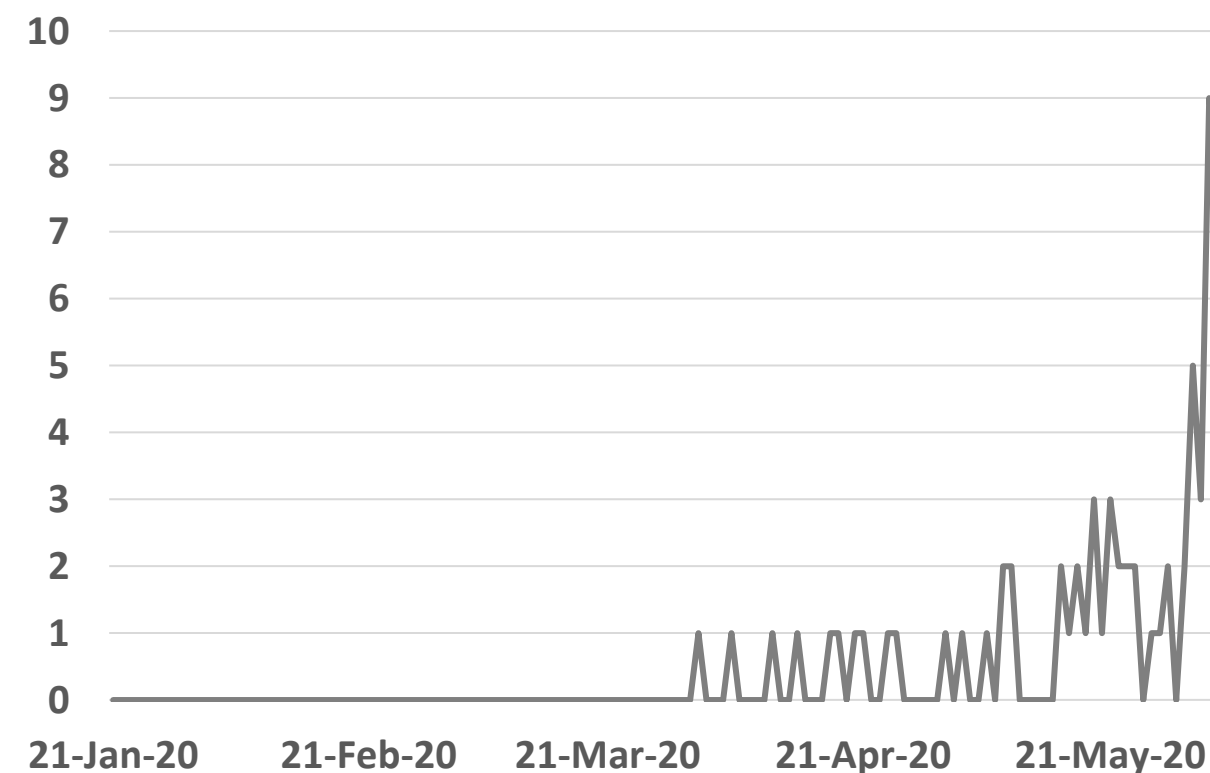
Kuwait



Source : Kuwait ministry of health & GCCStat

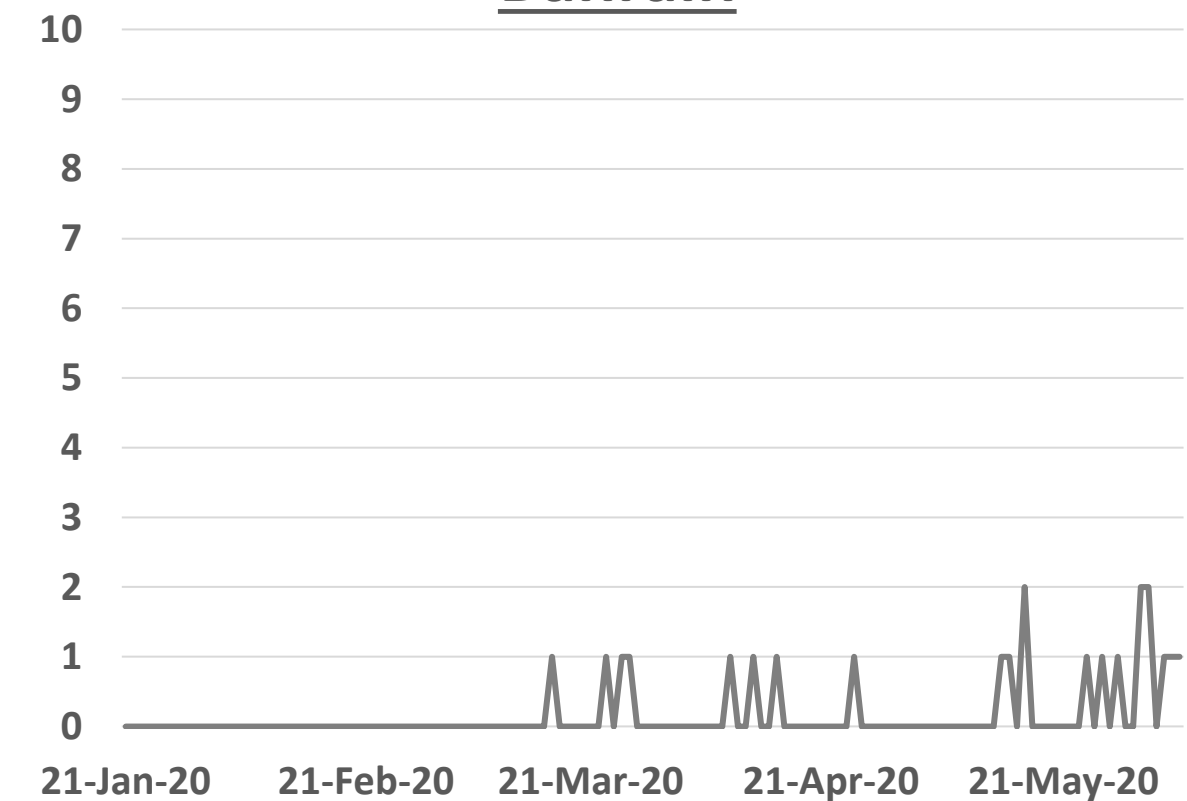
Oman

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Source : Oman ministry of health & GCCStat

Bahrain



Source : WHO & GCCStat



Public Health policy

Article 1: COVID-19 and essential pregnant worker policies

Published: June 2, 2020 in [Lancet](#)

Summary:

This is a commentary article discussing a study published on March about the clinical features of pregnant women with COVID19 .

In past epidemics (e g , H1N1 influenza, Middle East respiratory syndrome, and severe acute respiratory syndrome), pregnant women and their offspring have been at increased risk of morbidity and mortality.

the maternal, fetal, and neonatal outcomes reported by this study is good.

In this study, it is important to note that all of the women were full-term (≥ 37 weeks) and underwent caesarean section within 3 days of presentation. Prompt delivery allowed for experimental treatment in all women **with no diverse side effects**; all patients received antiviral treatment, including ganciclovir, oseltamivir, interferon, and Arbidol (ie, umifenovir) tablets. Traditional Chinese medicine, such as Jinye Baidu granules or Lianhuaqingwen capsules and steroids.

Conclusion

Despite that the results of this research assumes pregnancy is low risk. low risk should not be assumed in the absence of multicenter databases to study pregnancy-related outcomes.

The safety of the mentioned above interventions during pregnancy is not established, infection in the first, second, or early third trimester, without immediate delivery, might not lead to similar favorable outcomes.

As the possibility of vertical transmission can't be excluded and as SARS-CoV-2 infection induces a hypercoagulable state, including elevated levels of D-dimer and fibrinogen, and sometimes progresses to **disseminated intravascular coagulation**, the medical community needs to be cautious in their conclusions and **protect vulnerable workers until safety can be established for both mother and baby.**



Article 2: Acute myocardial injury: a novel clinical pattern in children with COVID-19

Published: June 1, 2020 in [the lancet](#)

Summary:

- Nine patients with COVID-19 were admitted (between March 15 and April 25, 2020) to the pediatric intensive care unit (PICU) at Children's Hospital V Buzzi, Italy. Of those, five patients (mean age 84.4 months) had cardiac injury and mild to moderate cardiac dysfunction emphasized by reduced ejection fraction. They were previously healthy and had fever and gastrointestinal symptoms as initial signs at home.
- Blood examinations showed elevated level of cardiac enzymes and inflammation markers. Four children had cardiac wall dysfunction and abnormal electrocardiogram was found with nonspecific changes including sinus tachycardia, and ST and T-wave abnormalities. Patient 2 developed atrial fibrillation and had reversible acute kidney injury.
- Mean length of PICU and hospital stay was 3.4 and 7.2 days respectively. All children were discharged to the ward with a normal cardiac function and good clinical conditions. This case series strengthens the message that children with COVID-19 should be monitored carefully to recognize cardiac involvement and to prevent a severe and critical course of illness.



Article 3: Effects of non-pharmaceutical interventions on COVID-19 cases, deaths, and demand for hospital services in the UK: a modelling study

Published: 02 June 2020 in [the lancet](#)

Summarized by subject matter expert

Summary:

This article estimated the impact of non-drug based interventions on the number of new cases, deaths from Covid-19, and admission to intensive care unit (ICU).

What are non-pharmaceutical interventions?

- School closures
- Physical distancing
- Shielding of high risk groups of all ages & 70+ older adults
- Self-isolation of symptomatic cases

How the study was done?

- This is a modeling study using data of 66.4 million people.
- The non-pharmaceutical interventions were applied individually and also in a combination of all to estimate the impact on Covid-19 burden.

What the study found?

- Without any measures, there could be **23 million Covid-19 cases (85% of population) in the UK up to December 2021.**
- **42% of these cases may show clinical symptoms of disease.**
- This may result in **350,000 deaths due to Covid-19.**

- When implemented alone, none of these shorter-duration interventions were able to decrease health-care need to below available capacity.
- Neither school closures, physical distancing, shielding of older people, nor self-isolation alone would decrease the new cases.
- Combination of all measures together projected to have a greater impact in reducing the number of new cases.
- However, lifting the interventions led to a rapid increase in new cases.

Public Health Message

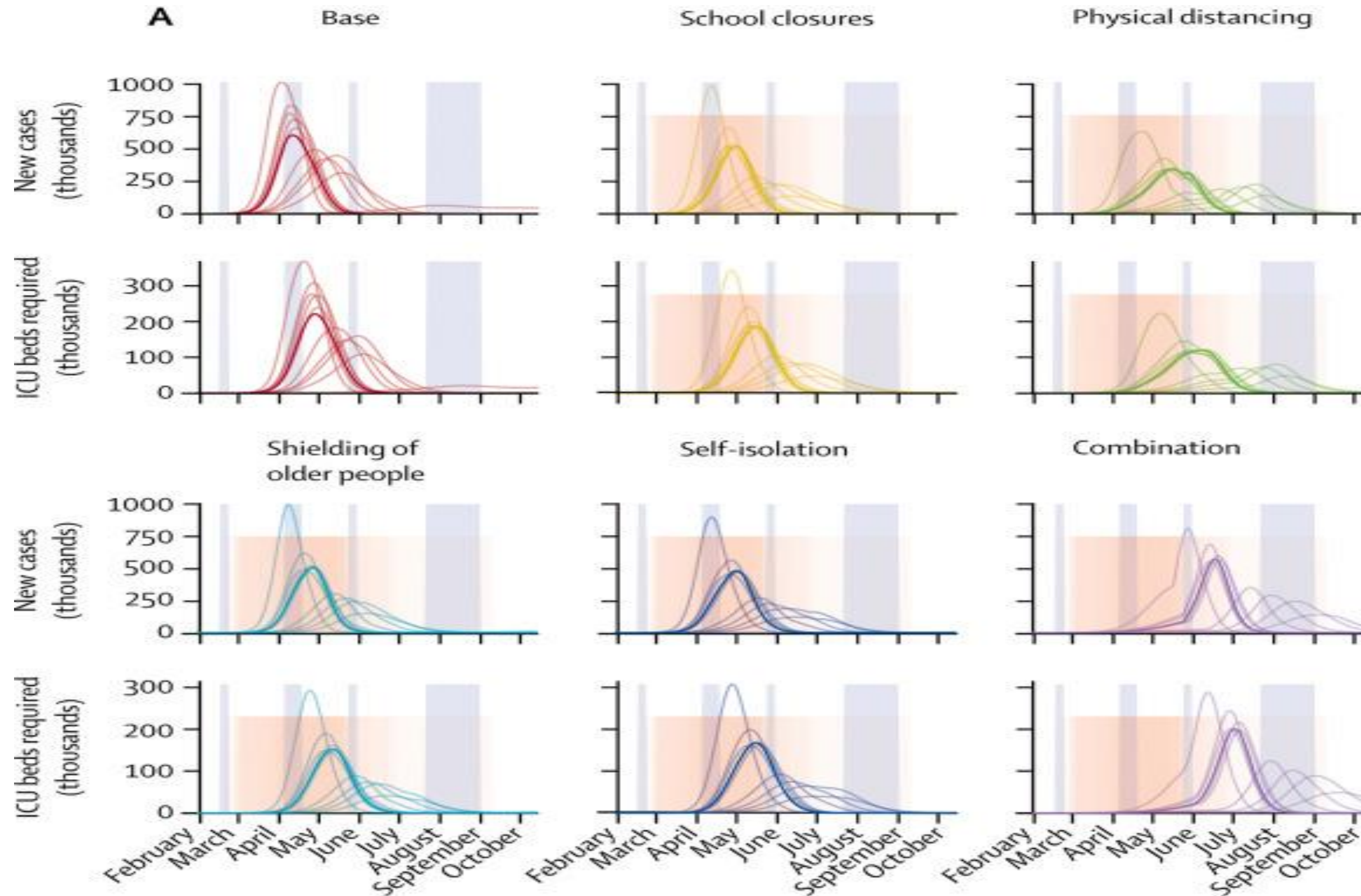
- In the absence of control measures, a Covid-19 pandemic could quickly overwhelm the health-care systems.
- A combination of moderate interventions **may lower the number of new cases, but number of ICU admission would far exceed available capacity.**
- **Intensive lockdown-type measures at local levels for repeated short periods** may be effective for preventing the health-care system from being overwhelmed.

Public Health Response:



Article: Cont.,
Summary:

Summarized by subject matter expert



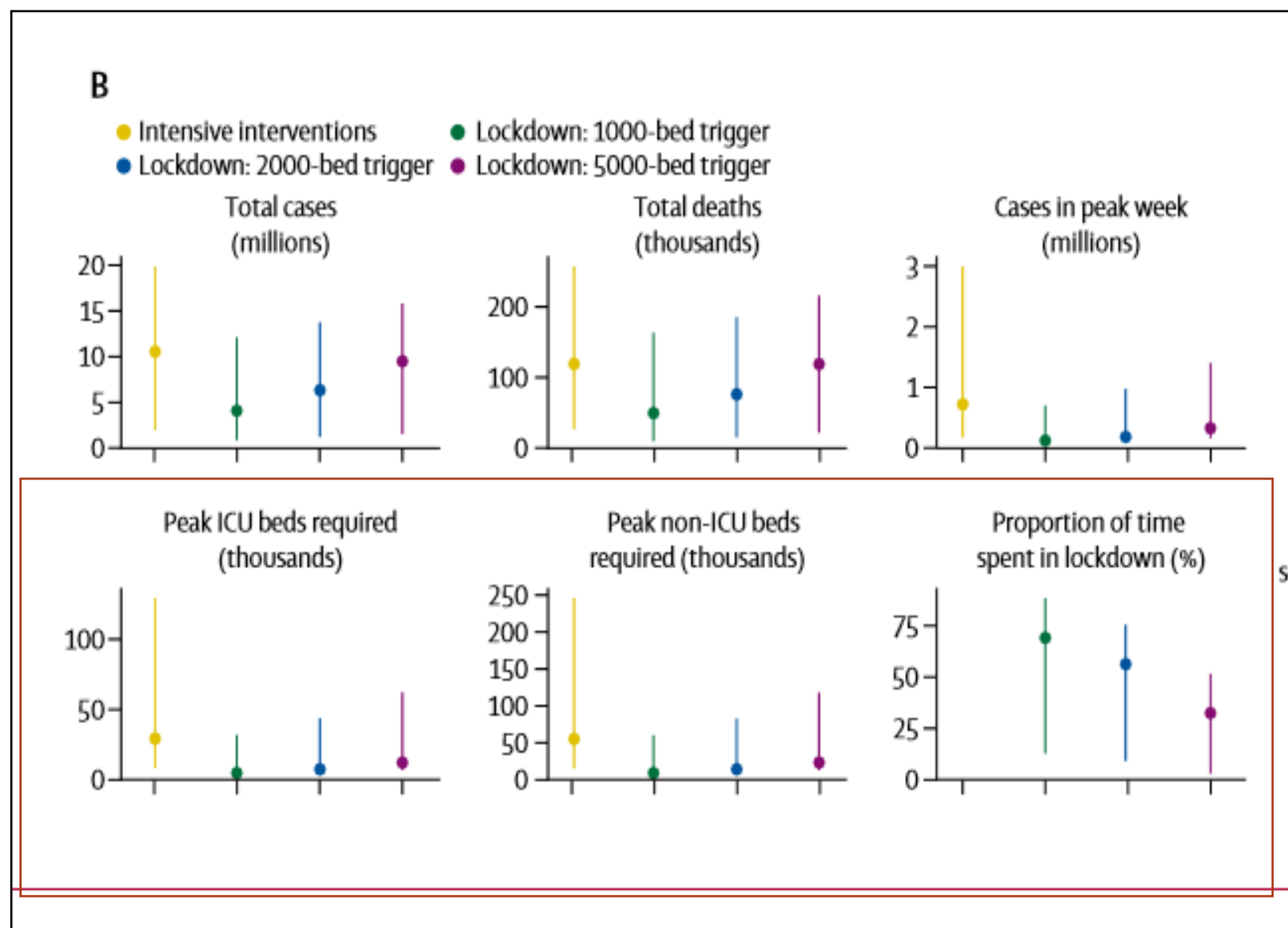
Impact of interventions lasting 12 weeks

(A) Daily incidence of new cases and prevalence of ICU beds required over the course of the simulated scenarios in the UK, from February to October, 2020. Divisions on the x-axis show the beginning of each calendar month. From 200 realisations of each projection, 11 representative simulations are shown: one for each decile of the total number of cases, with **the bold curve showing the simulation resulting in the median projected number of cases**. Tall blue shaded regions show scheduled school holiday closures, and pink shaded regions show the distribution of 12-week interventions.



Summarized by subject matter expert

Article 2: Cont., Summary:



	Intensive interventions	Lockdown with 1000-bed trigger	Lockdown with 2000-bed trigger	Lockdown with 5000-bed trigger
Total cases, millions*	11 (1-9-20)	4.1 (0-85-12)	6.3 (1-2-14)	9.5 (1-5-16)
Total deaths*	120 000 (27 000-260 000)	50 000 (9300-160 000)	76 000 (15 000-190 000)	120 000 (22 000-220 000)
Cases in peak week	720 000 (170 000-3 000 000)	120 000 (46 000-700 000)	180 000 (86 000-980 000)	330 000 (160 000-1 400 000)
Deaths in peak week	8300 (2300-37 000)	1400 (510-9000)	2100 (930-13 000)	3400 (1800-17 000)
Peak ICU beds required	29 000 (8300-130 000)	4900 (1800-32 000)	7500 (3500-44 000)	12 000 (6700-62 000)
Peak non-ICU beds required	55 000 (15 000-250 000)	9100 (3600-60 000)	14 000 (6800-83 000)	23 000 (13 000-120 000)
Time to peak cases, weeks	19 (10-69)	60 (8-92)	60 (8-72)	35 (8-69)
Time spent in lockdown (Jan 29, 2020—Dec 31, 2021)	-	69% (13-88)	56% (9-76)	33% (2-52)
Total infected, millions*	27 (5-3-46)	11 (2-1-29)	17 (3-0-33)	25 (4-4-38)

Data are median (95% prediction interval) and are given to two significant figures. Time to peak cases is measured from Jan 29, 2020. Totals are calculated up to Dec 31, 2021. ICU=intensive care unit. *Simulations were run to Dec 31, 2021, so reported total cases, deaths, and infections under the lockdown projections do not capture any cases, deaths, or infections occurring after this point.

Table 2: Projected impact of intensive control measures and lockdown in the UK

Figure and the table : explain scenario in which more intense lockdown measures if implemented for shorter periods, against a general background of physical distancing measures, might be able to keep projected case numbers at a level that would not overwhelm the health system