

ABU DHABI PUBLIC
HEALTH CENTRE

مركز أبوظبي
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Scientific Research Monitoring on COVID-19

15 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:** article explain the virtual care transformation in multiple countries in response to COVID 19 pandemic.
- **Virology:** three strains of the virus have been discovered using novel method of analysis that might be a potential tracing tool.
- **Public health response:** modelling study analyzing data for 37 countries indicate that it take countries **Three weeks to moderate , Four weeks to control and Over 6 weeks to contain**

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

- [Public health concerns and unsubstantiated claims at the intersection of vaping and COVID-19](#)
- [Mental Health and the Covid-19 Pandemic](#)
- [Understanding the Dynamics of COVID-19](#)
- [Universal Screening for SARS-CoV-2 in Women Admitted for Delivery](#)



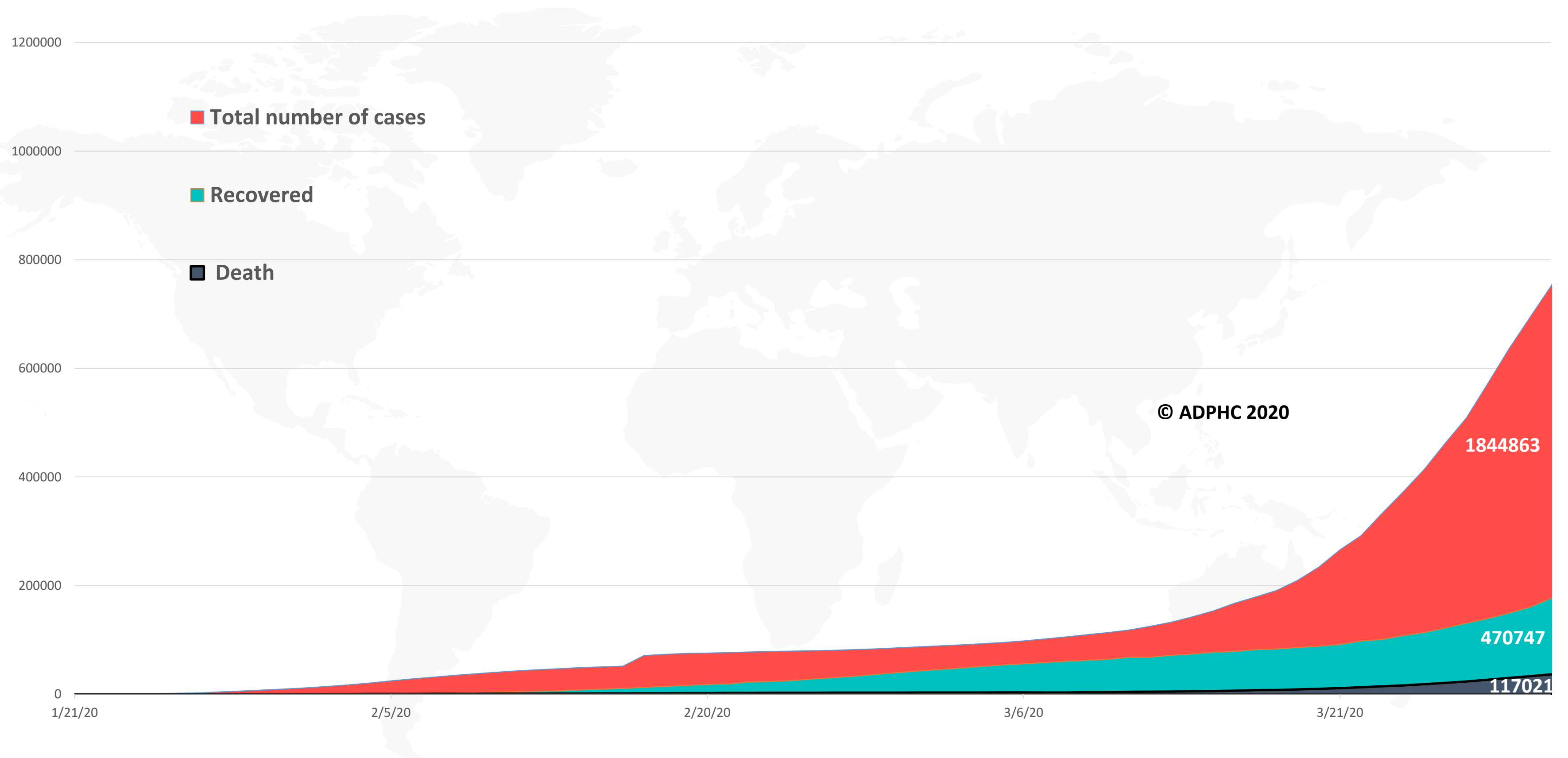
WHO daily report 14 April 2020

- No new country/territory/area reported cases of COVID-19 in the past 24 hours.
- The number of confirmed cases reported by countries reflects national laboratory testing capacity and strategy, thus the interpretation of the number of cases reported should take this into account.
- WHO has published interim guidance on oxygen sources and distribution strategies for COVID-19 treatment. The document describes how to quantify oxygen demand, identify oxygen sources that are available, and select appropriate surge sources to best respond to COVID-19 patients' needs, especially in low-and-middle income countries.
- The Director-General stated in his brief on 14.4.2020 :
 - thanked the United Kingdom for its generous contribution of **£200 million** to the global response to COVID-19, an act which he described as a 'demonstration of global solidarity.
 - all countries to ensure that where stay-at-home measures are used, they must not be at the expense of human rights.
 - Control measures must be lifted slowly, and with control. It cannot happen all at once.
- A group of scientists, physicians, funders and manufacturers from around the world have pledged to collaborate, in coordination with WHO, to help speed up the availability of a vaccine against COVID-19.

Epidemiology



Figure 1: Total number of infected, recovered, and death cases (January 21st to April 14th, 2020)

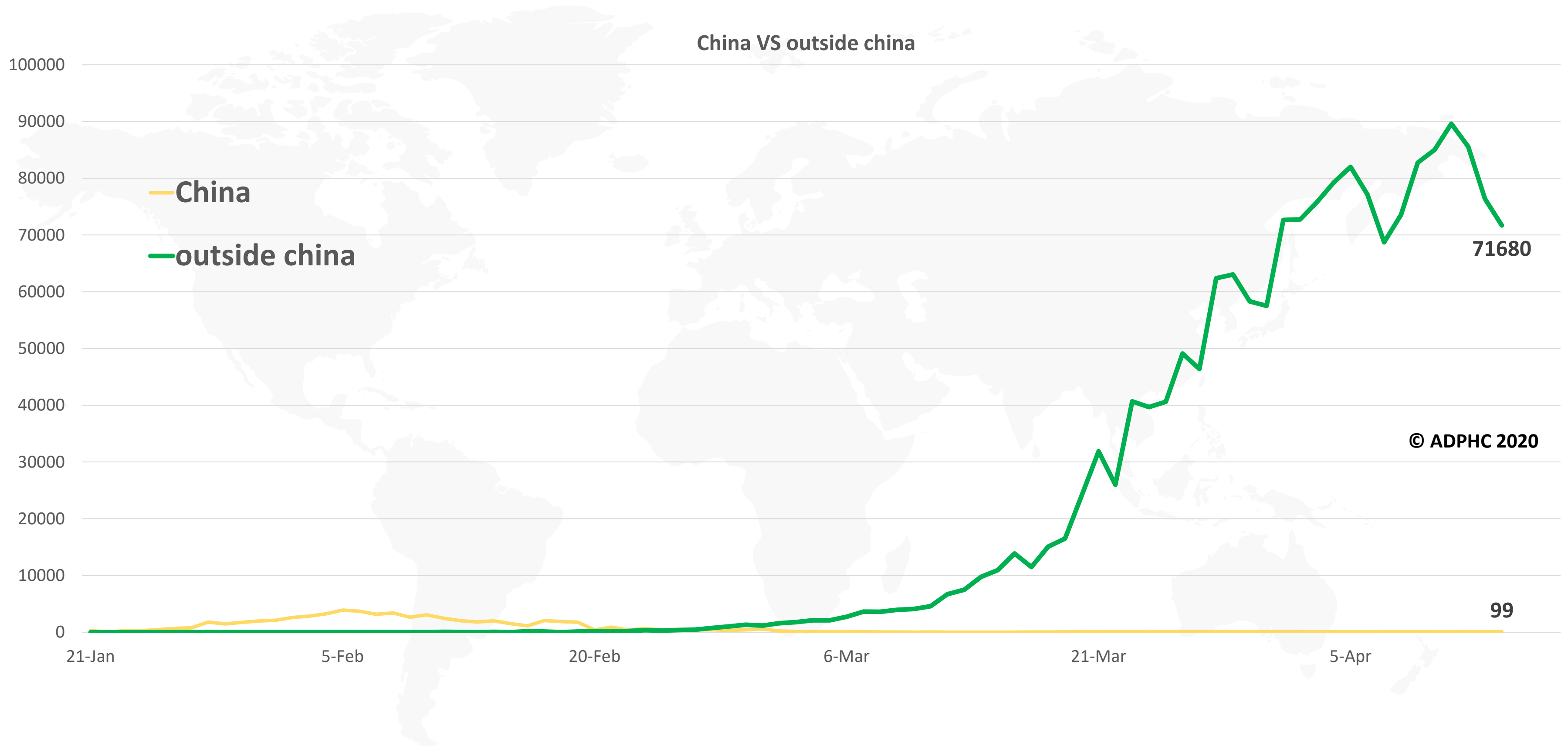


Line graph published by Abu Dhabi Public Health Center 2020.

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



Figure 2: Daily new infected COVID-19 cases reported between (January 21 to April 14^h, 2020).



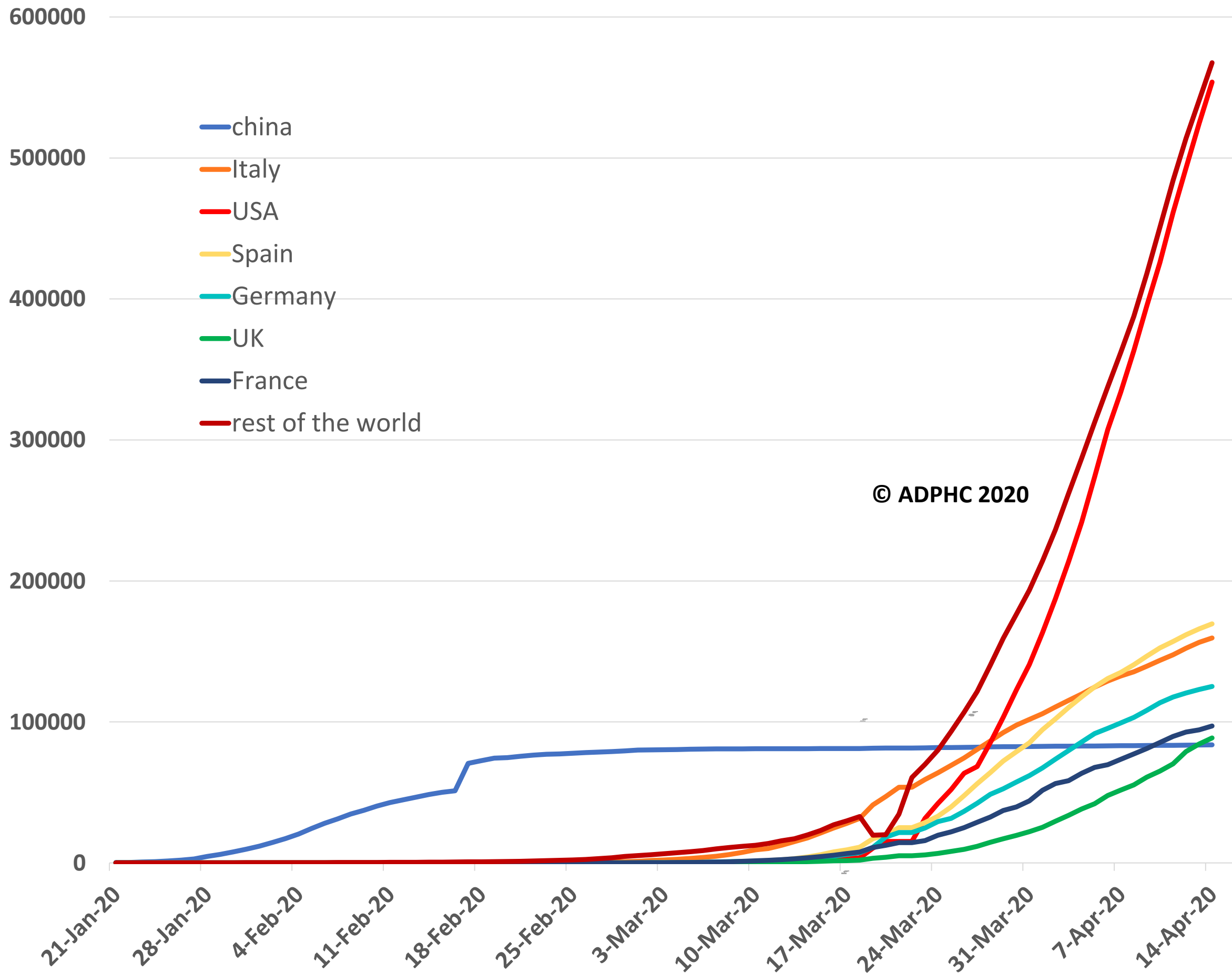
Line graph published by Abu Dhabi Public Health Center 2020.

Data resources: [WHO](#)

Epidemiology



Figure 3 : Top 7 countries in the total number of cases due to COVID-19 (January 21 to April 14th, 2020).

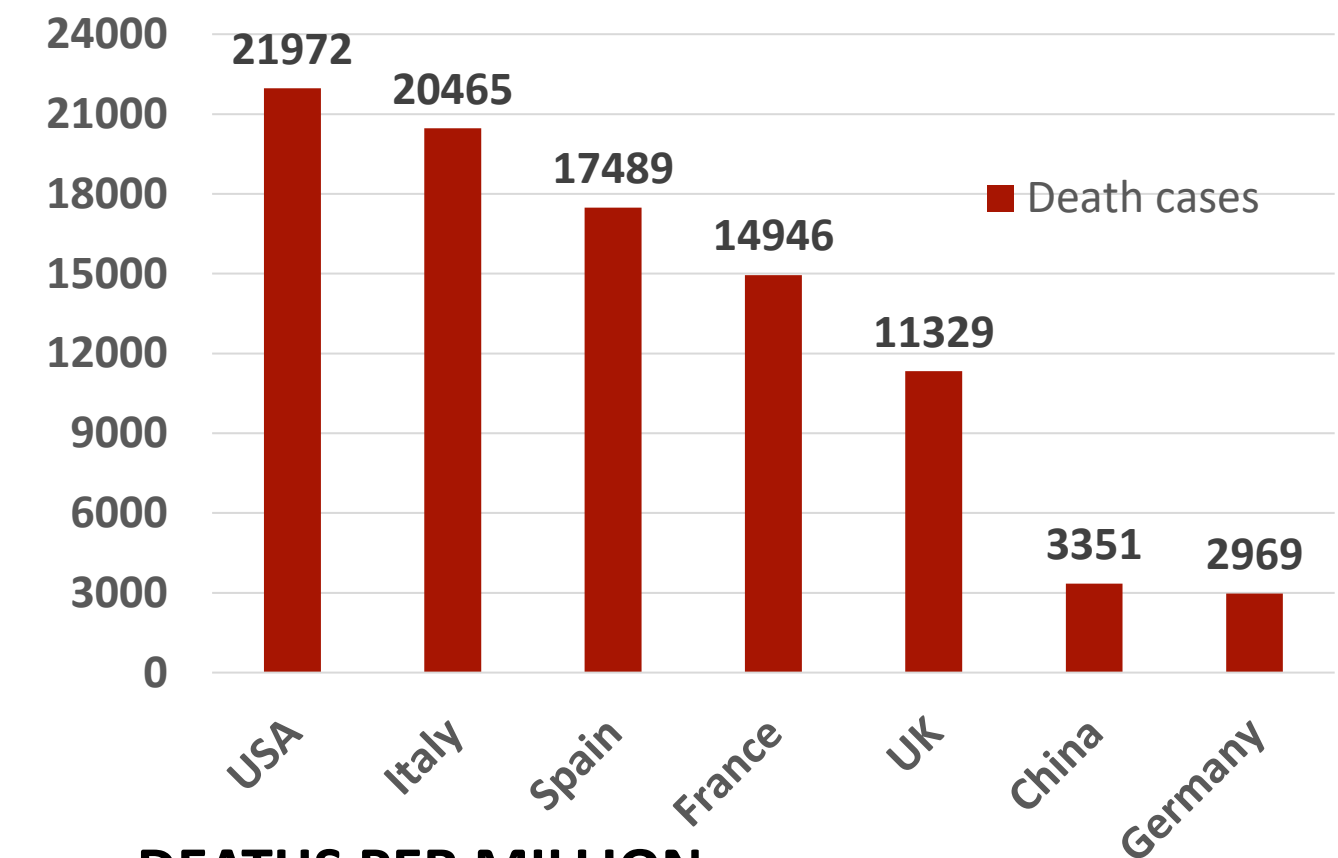


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Line graph published by Abu Dhabi Public Health Center 2020.

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

TOTAL DEATHS



DEATHS PER MILLION

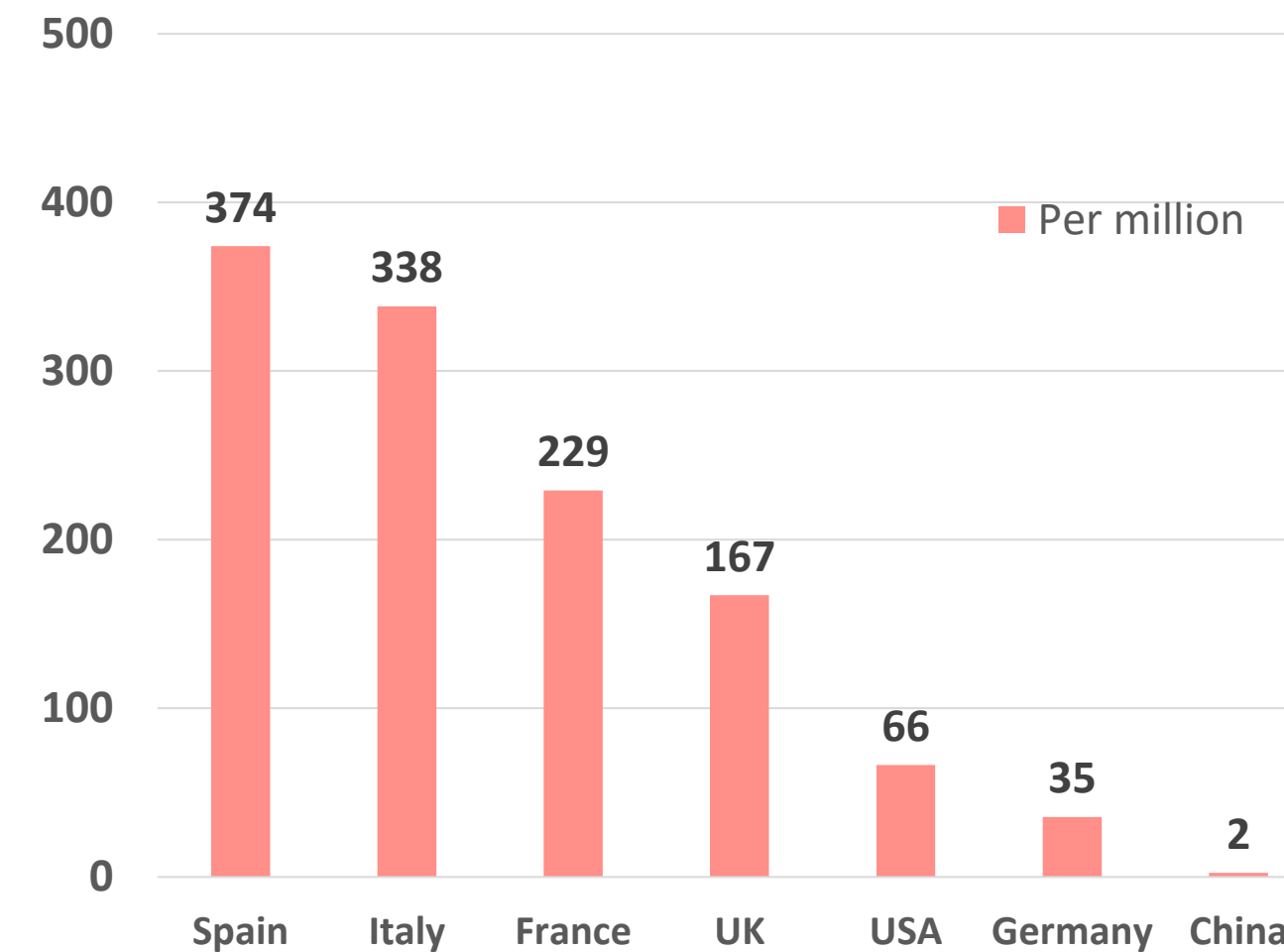
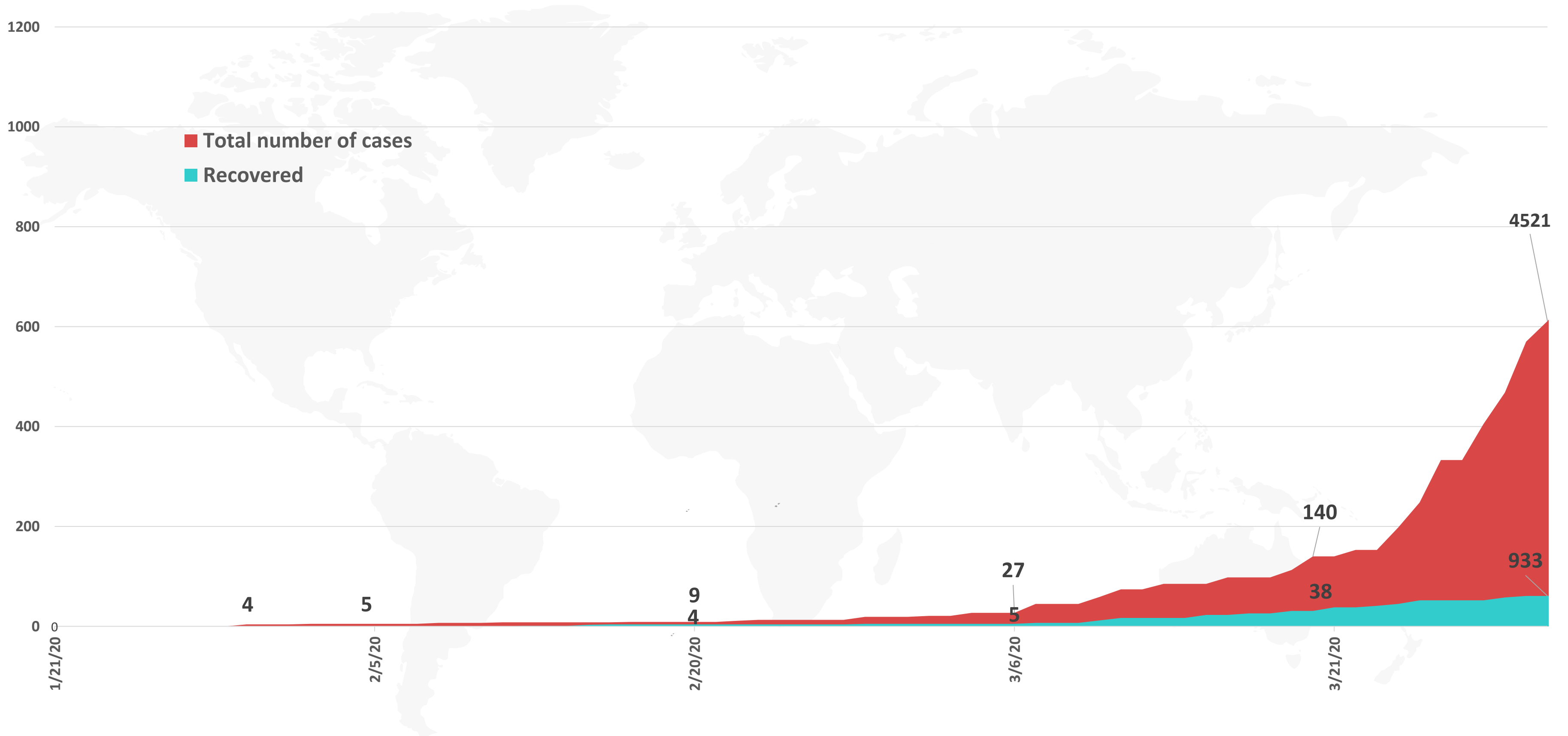




Figure 4: Total number of COVID-19 infected and recovered cases in UAE over time



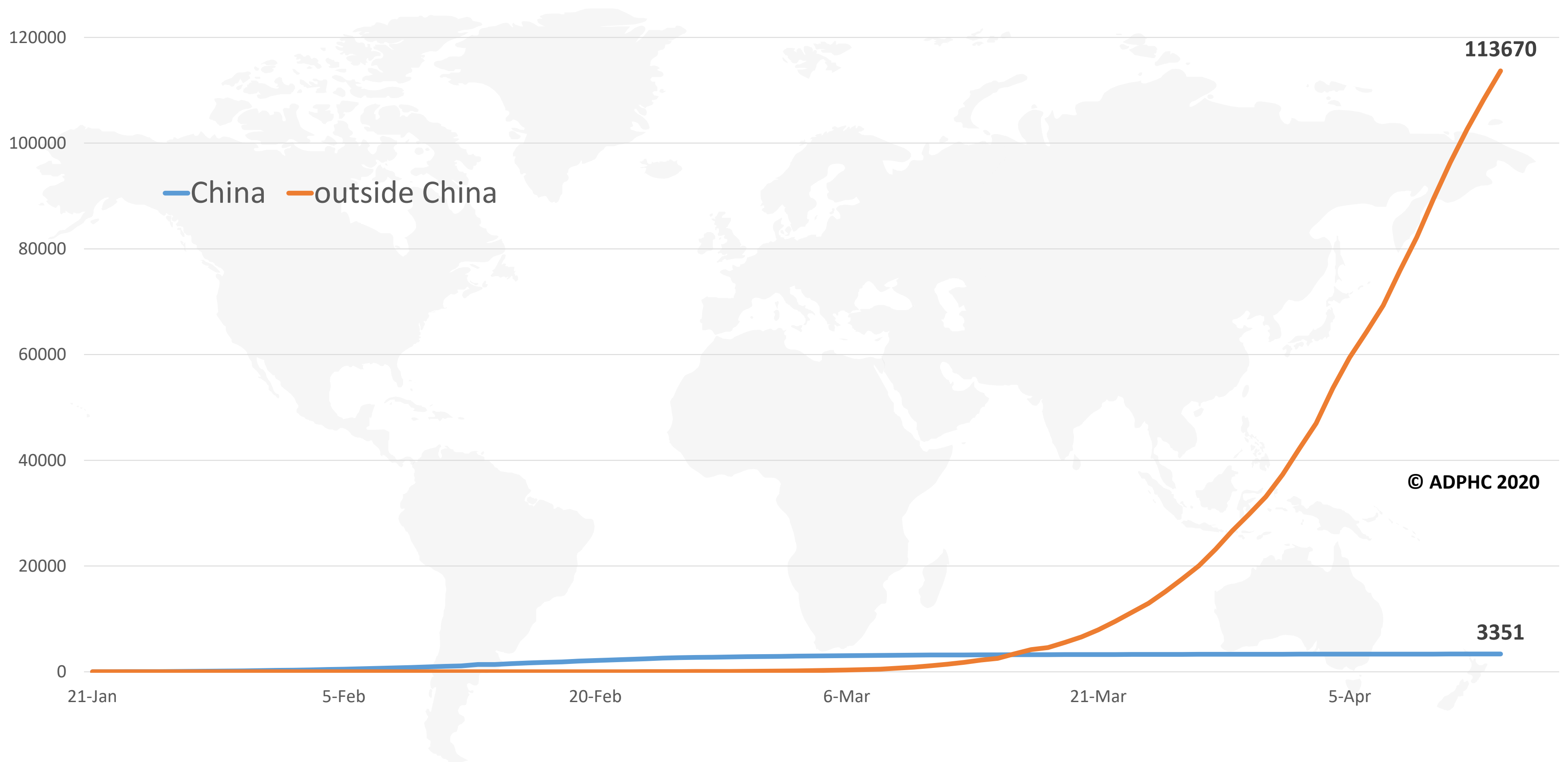
Line graph published by Abu Dhabi Public Health Center 2020.

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 14th, 2020).



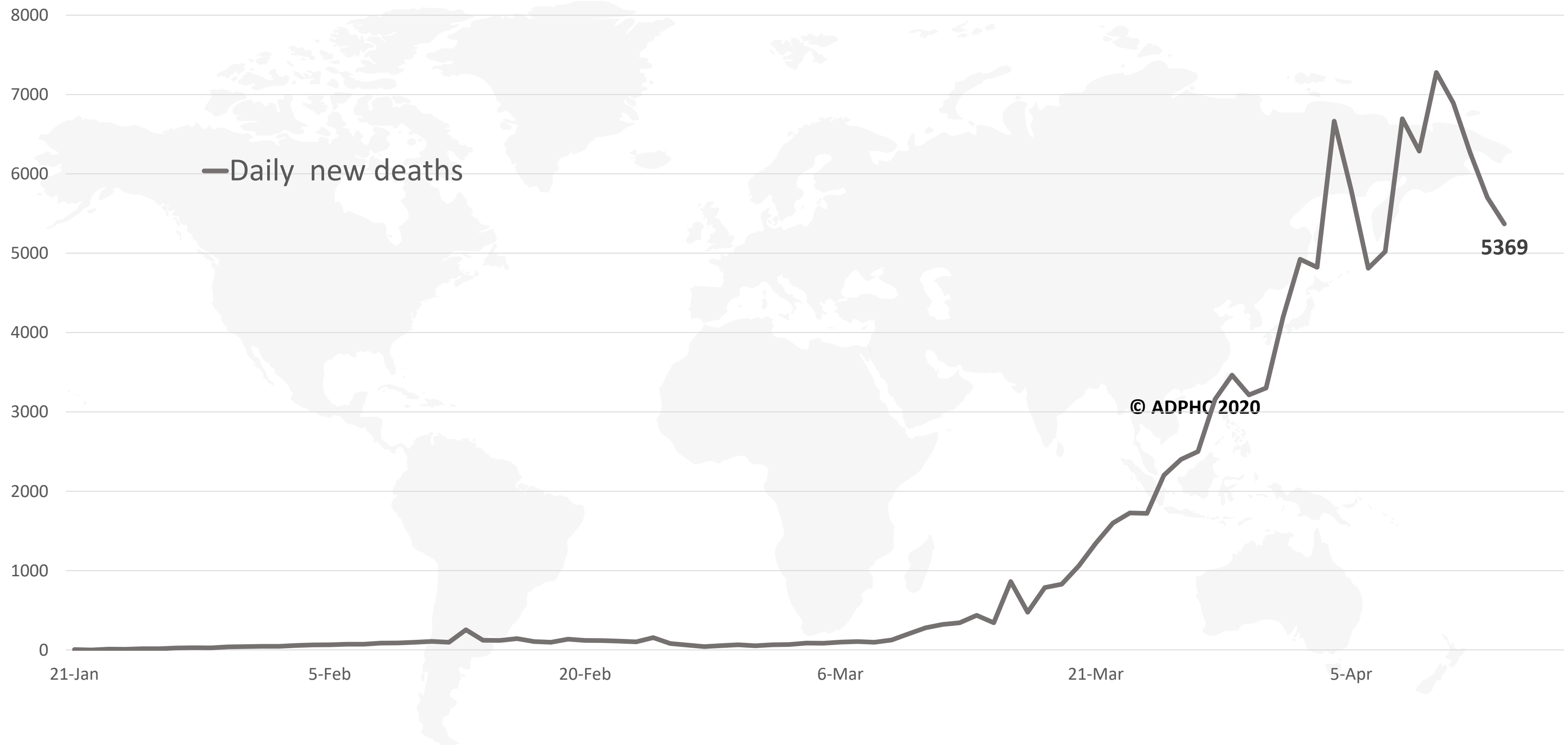
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Line graph published by Abu Dhabi Public Health Center 2020.

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



Figure 6: Global daily new deaths due to COVID-19 (January 21 to April 14th, 2020).



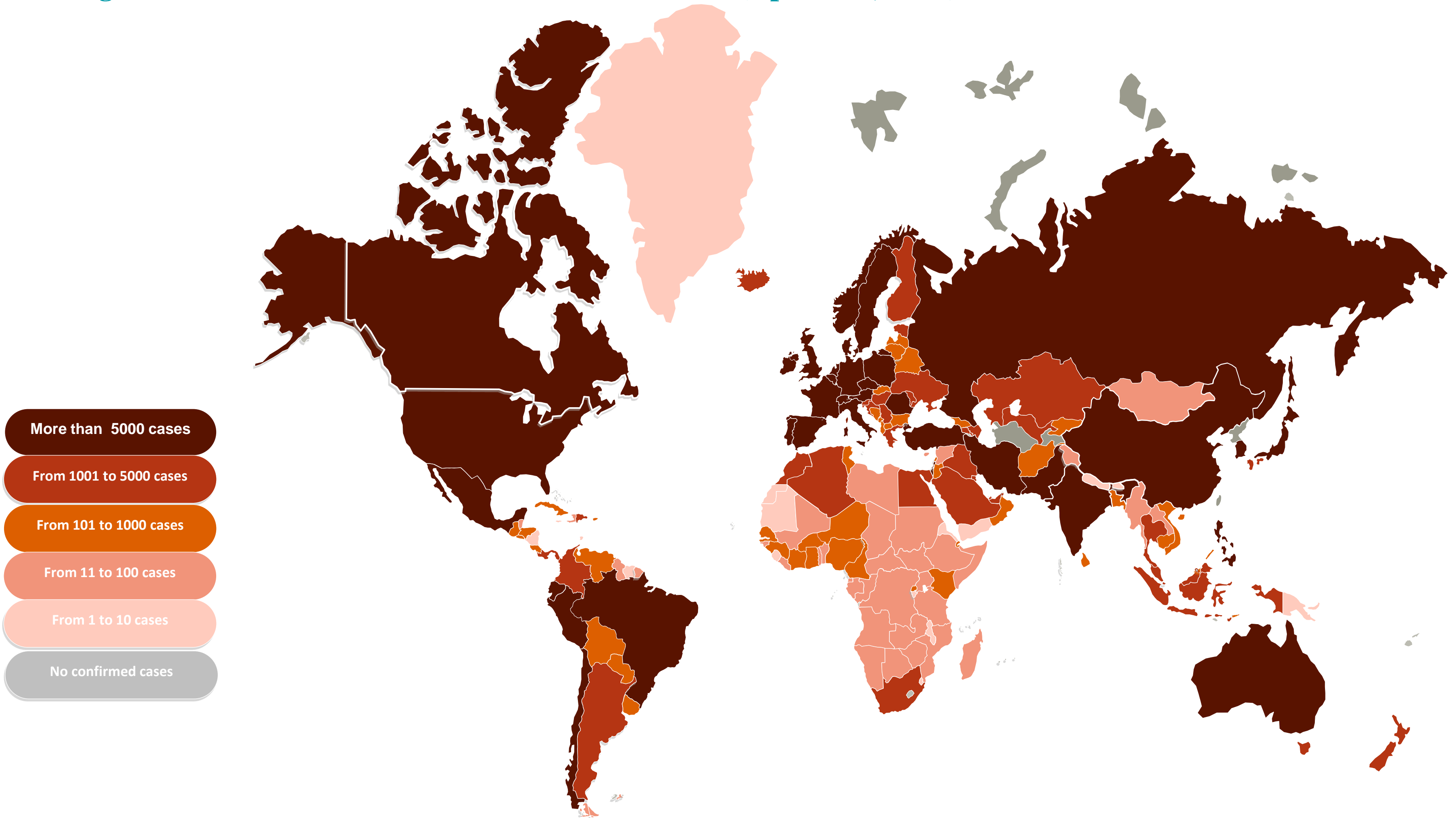
Line graph published by Abu Dhabi Public Health Center 2020.

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

Epidemiology



Figure 7a : Global distribution of COVID-19 cases (April 13th, 2020).

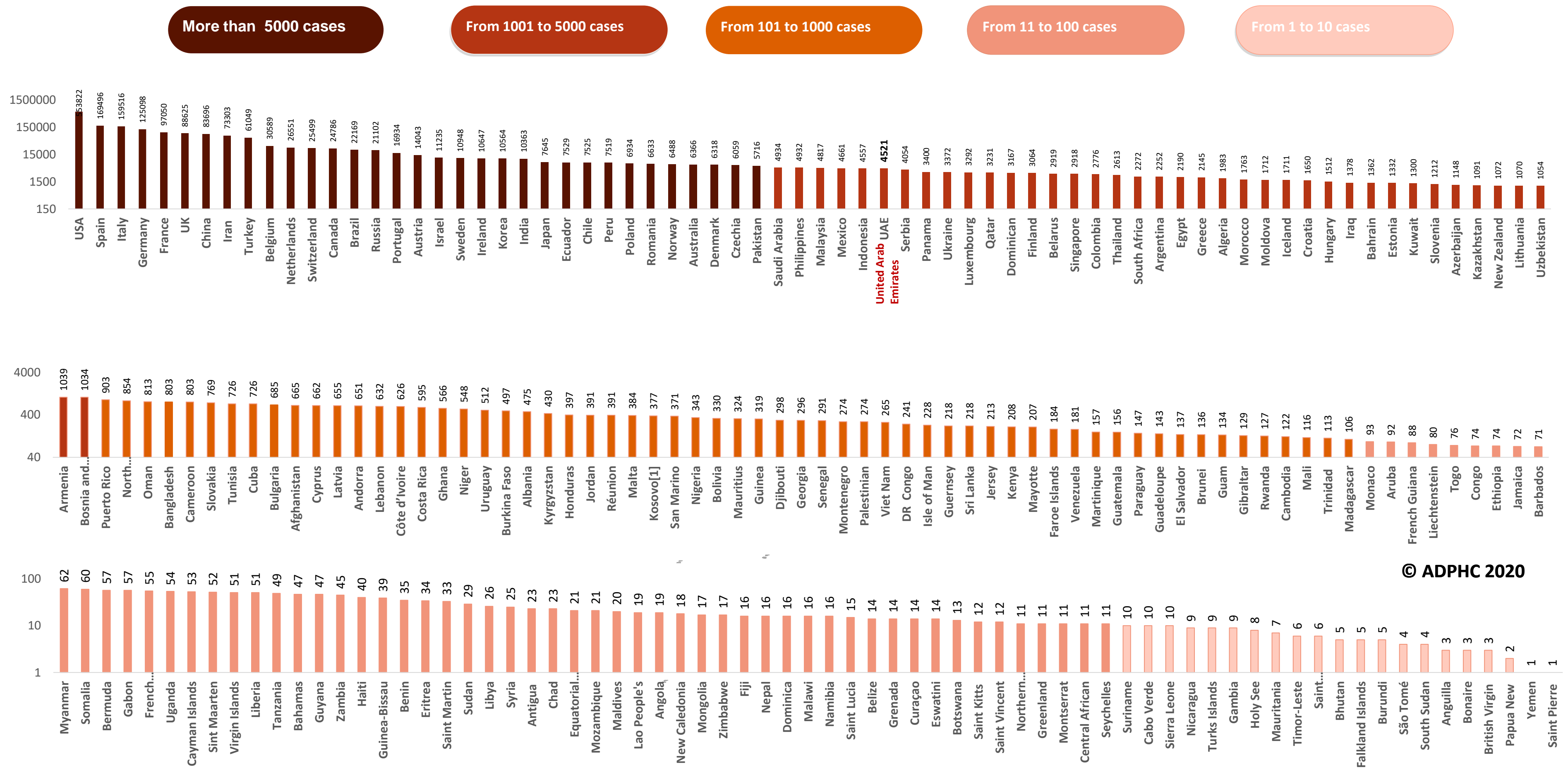


Map chart published by Abu Dhabi Public Health Center 2020.

Epidemiology



Figure 7B: Bar chart illustrate the global distribution of COVID19 cases April 13th, 2020



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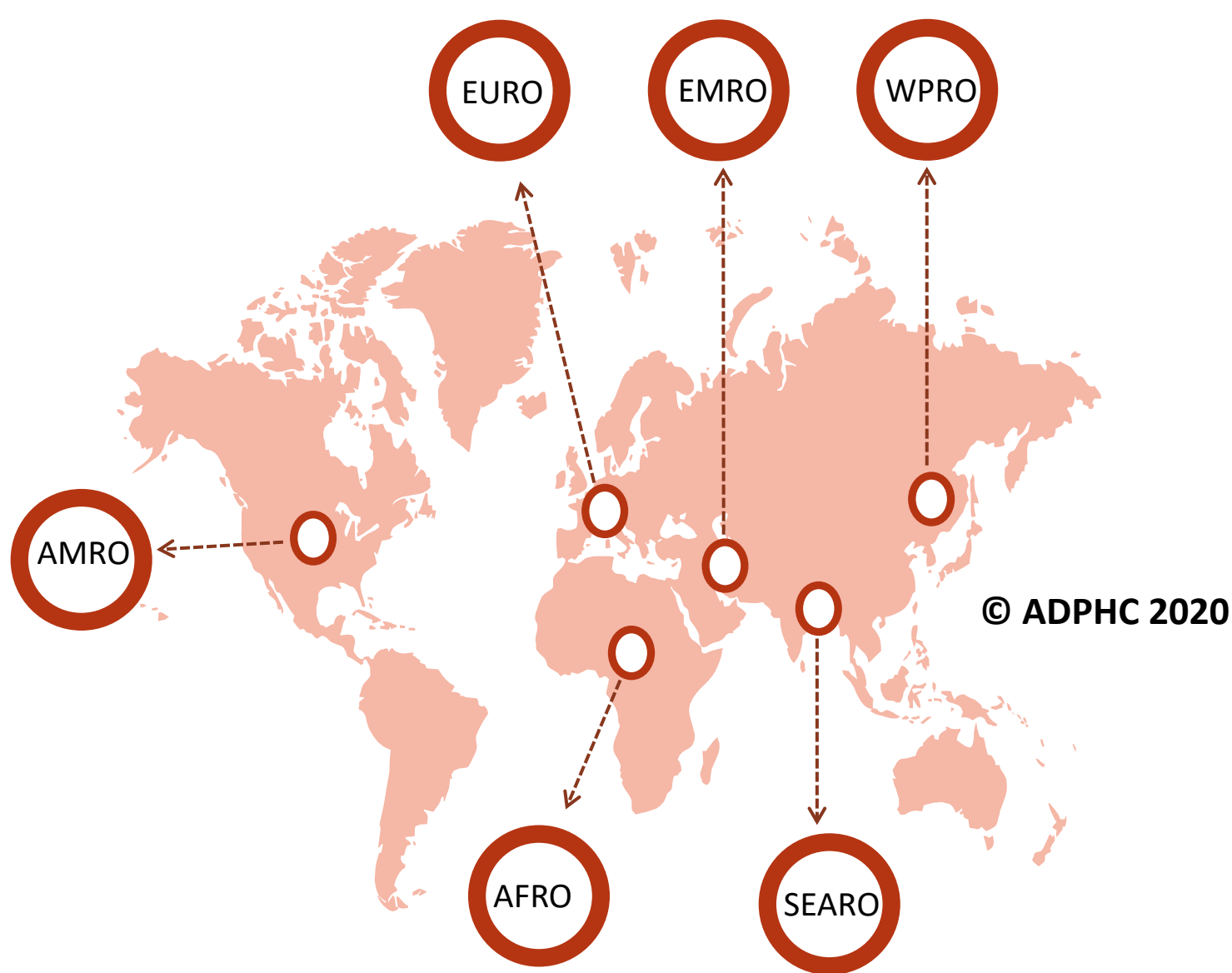
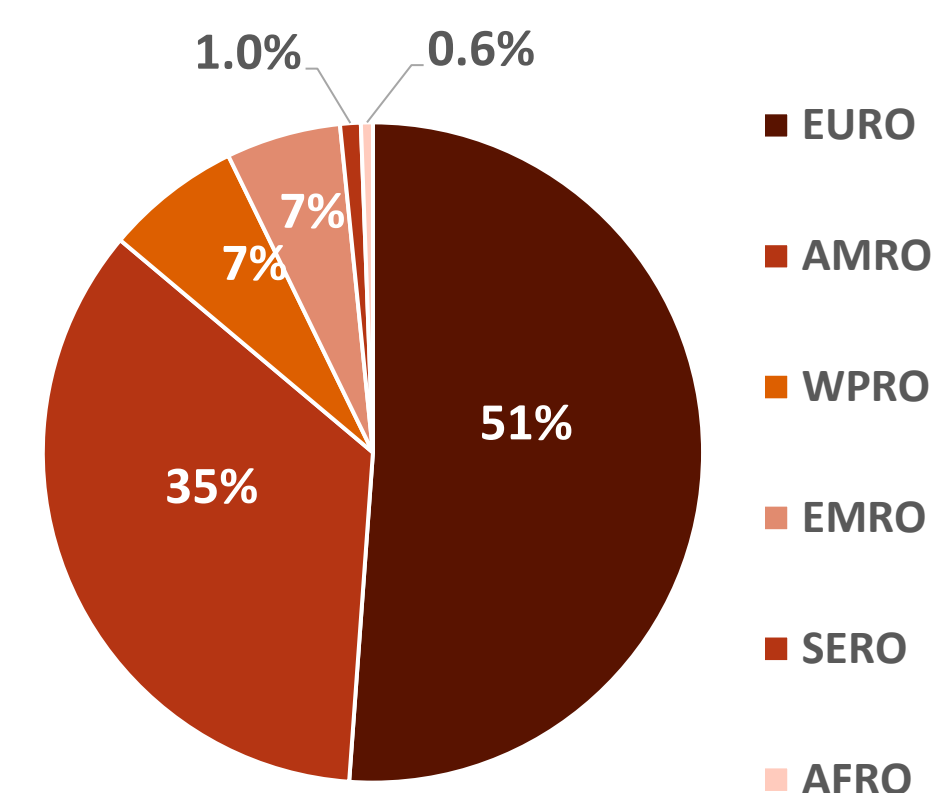
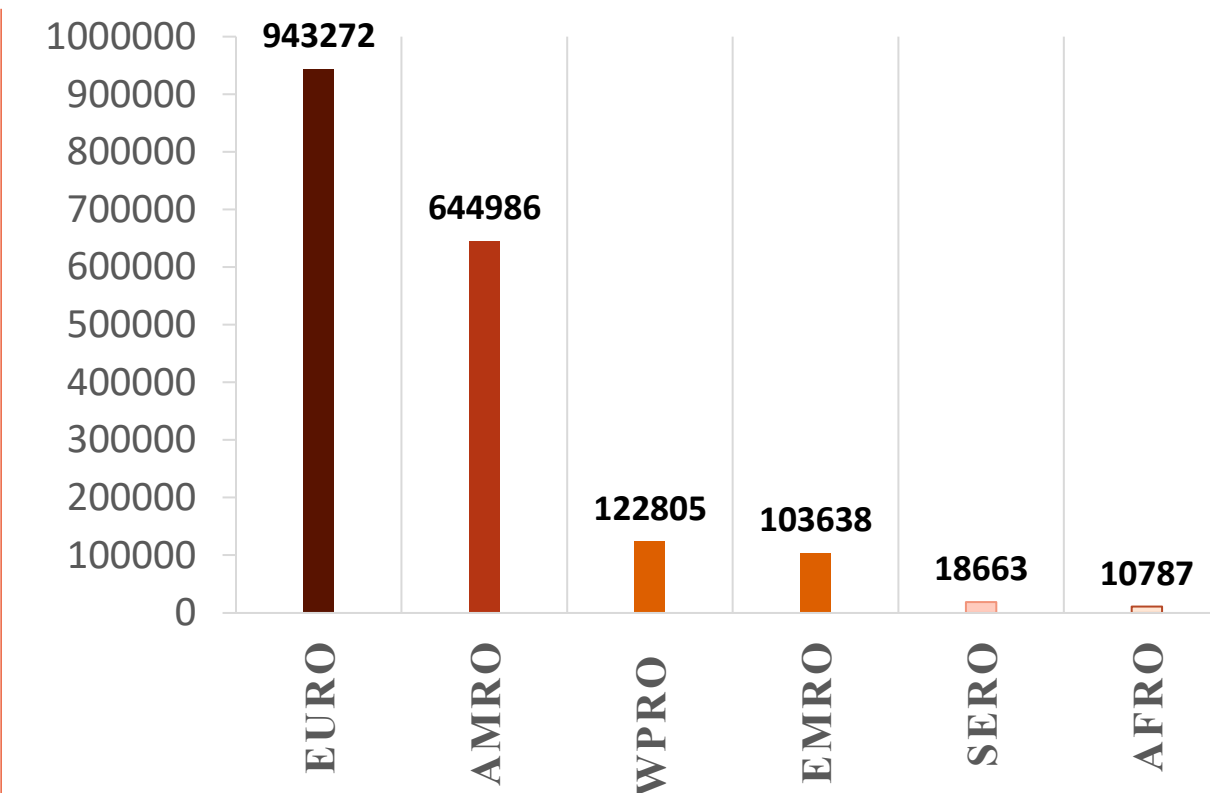
Map chart published by Abu Dhabi Public Health Center 2020.

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

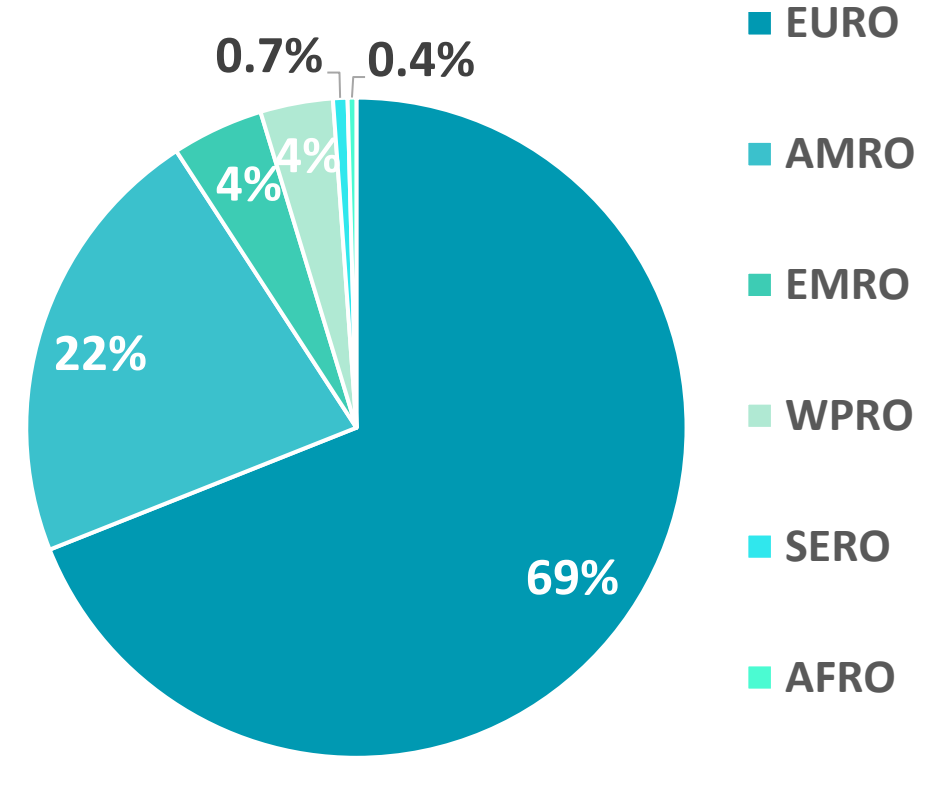
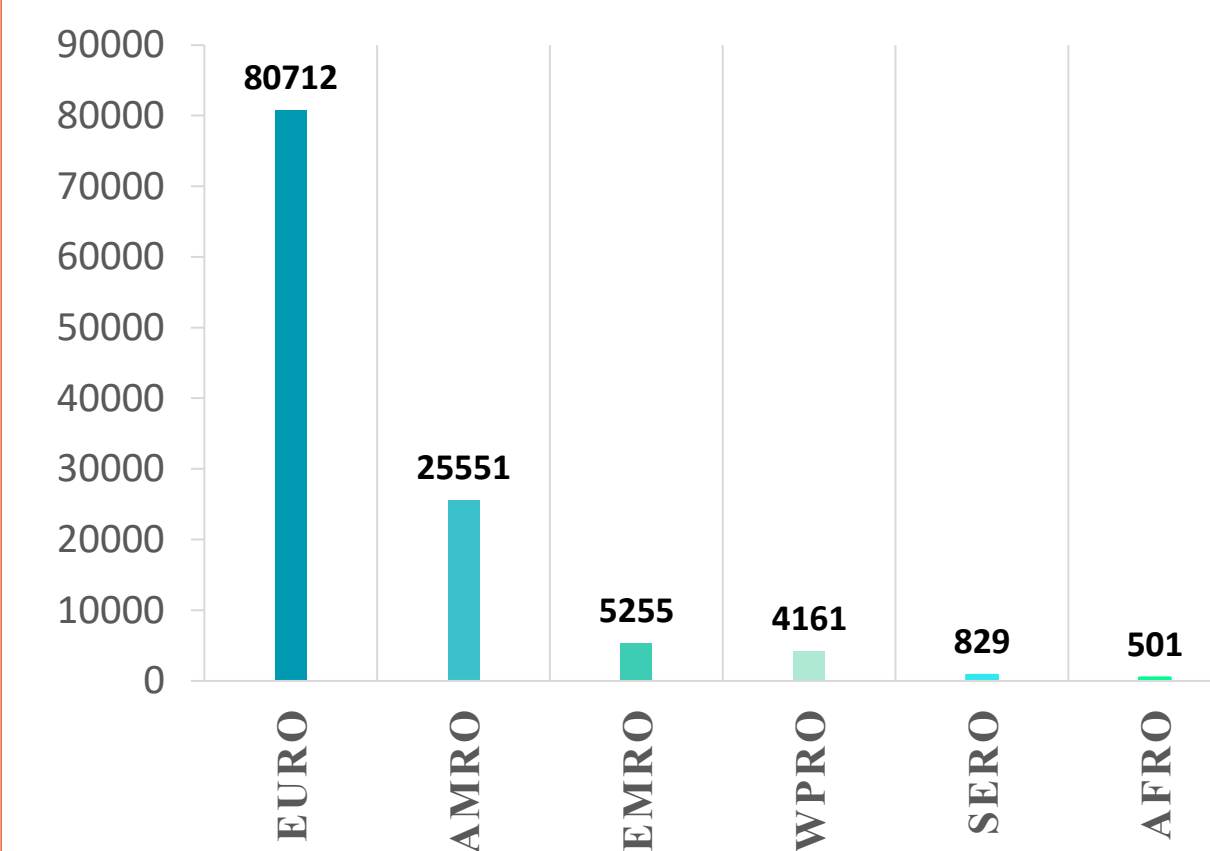


Figure 8: illustrate the Global distribution of COVID19 cases per region (April 14th, 2020)

INFECTED



DEATH



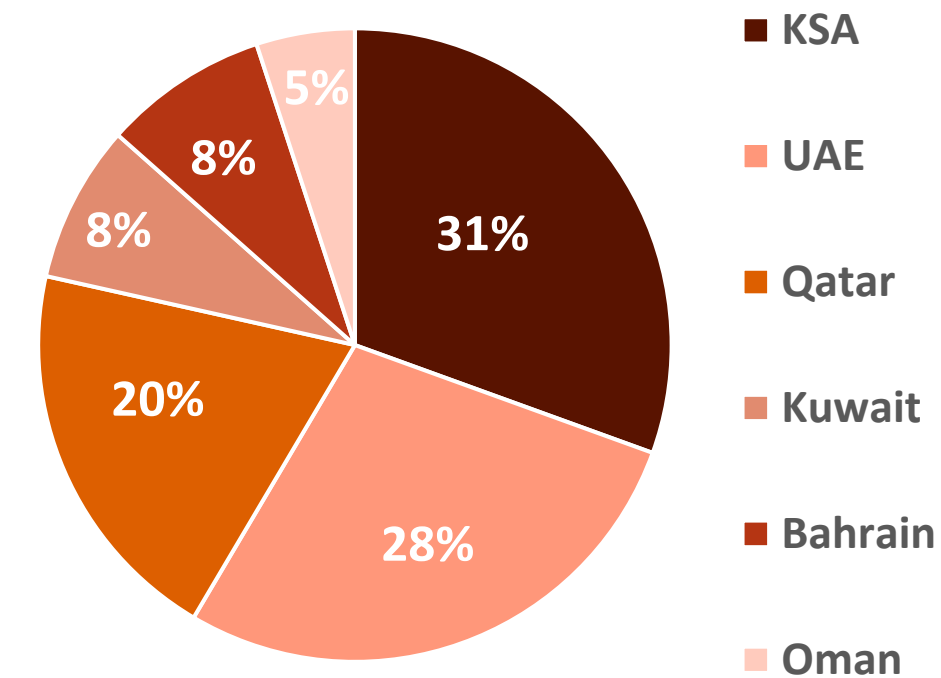
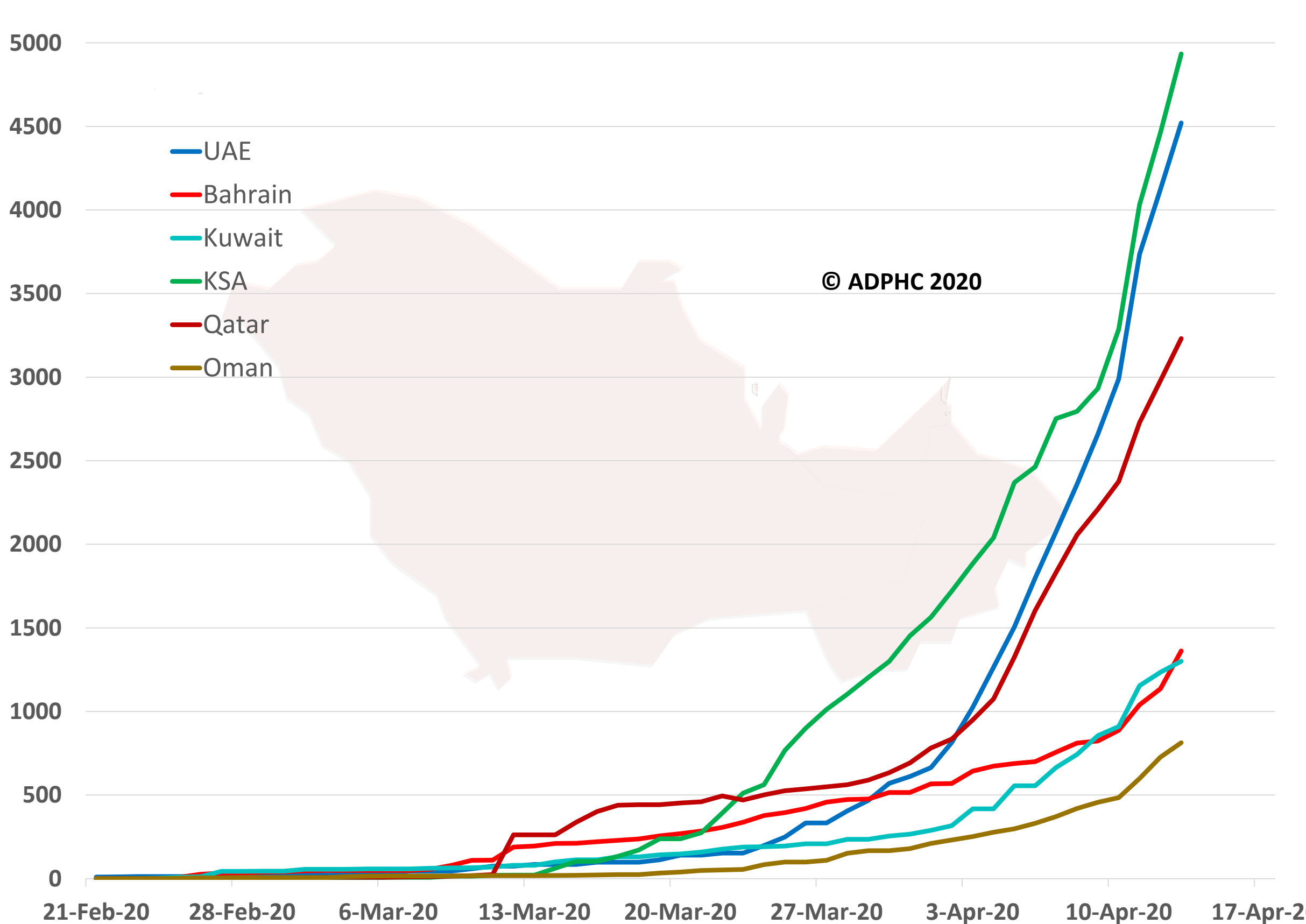
Map chart published by Abu Dhabi Public Health Center 2020.
Data resources: [WHO](http://www.who.int)

Epidemiology

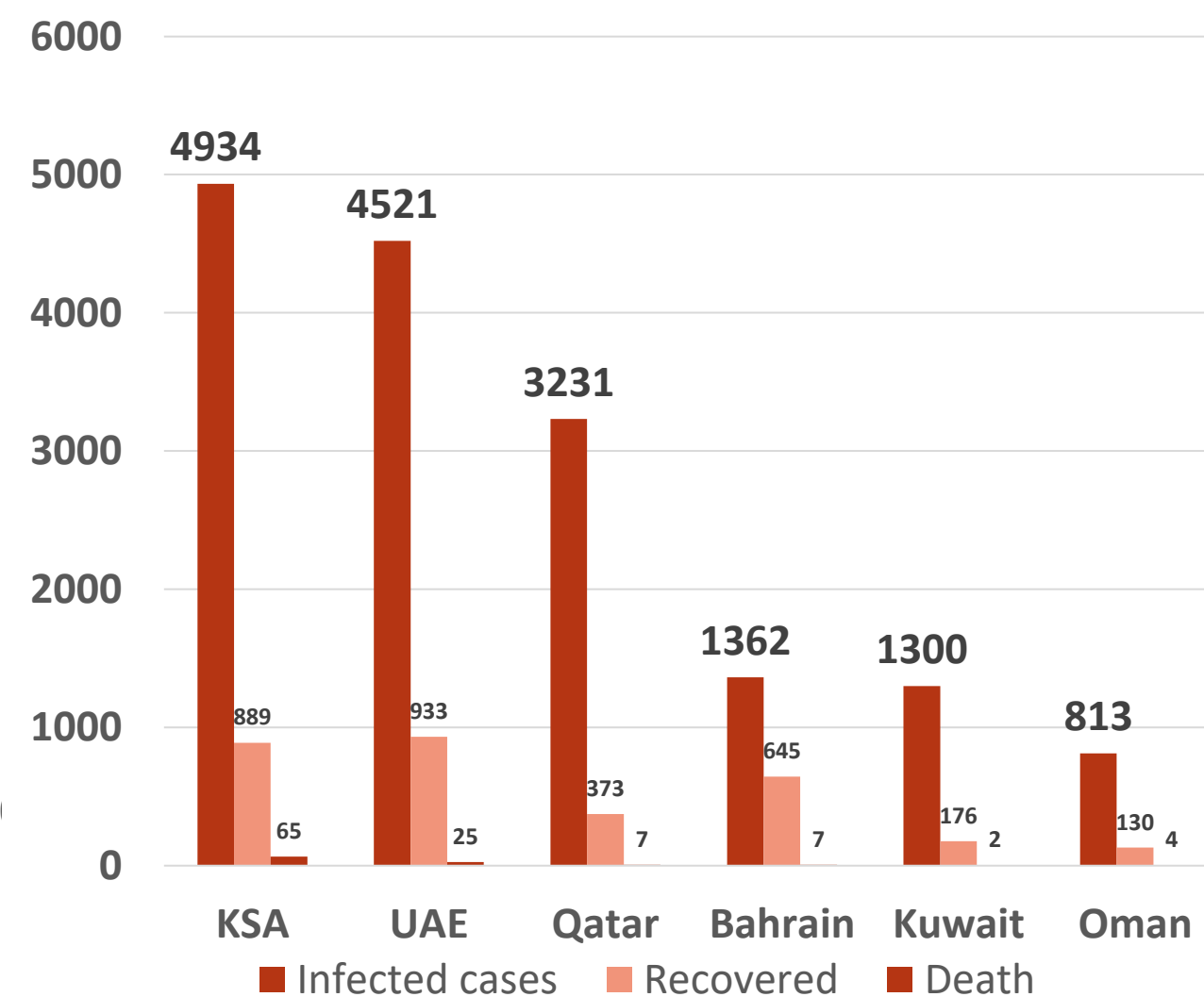


Figure 9: Comparative analysis of the distribution of COVID19 cases in GCC countries (April 14th, 2020)

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/)

Clinical Features:



Article 1 : Phylogenetic network analysis of SARS-CoV-2 genomes

Published: April 8 , 2020 in [PNAS](#)

Summary:

The article found that there are 3 central variants (A,B&C) of SARS-COV2 virus after sequencing 160 samples available online in DATA base called GISAID.

The analysis of the research is unique as method used in identifying the virus called phylogenetic network analysis (phylogenies is the evolution of a genetically related group of organisms as distinguished from the development of the individual organism.) this method was used to reconstruct the prehistoric population movements.

The author suggest this is the time for this method to be used in virological data to explore how this method can contribute to an understanding of coronavirus evolution.

Findings:

- Type A: half of the strain from east Asia while the other half are from outside Asia; mainly in the United States and Australia.
- Type B : derived from A , mainly in china and East Asia
- Type C: is derived from type B this is the major European type

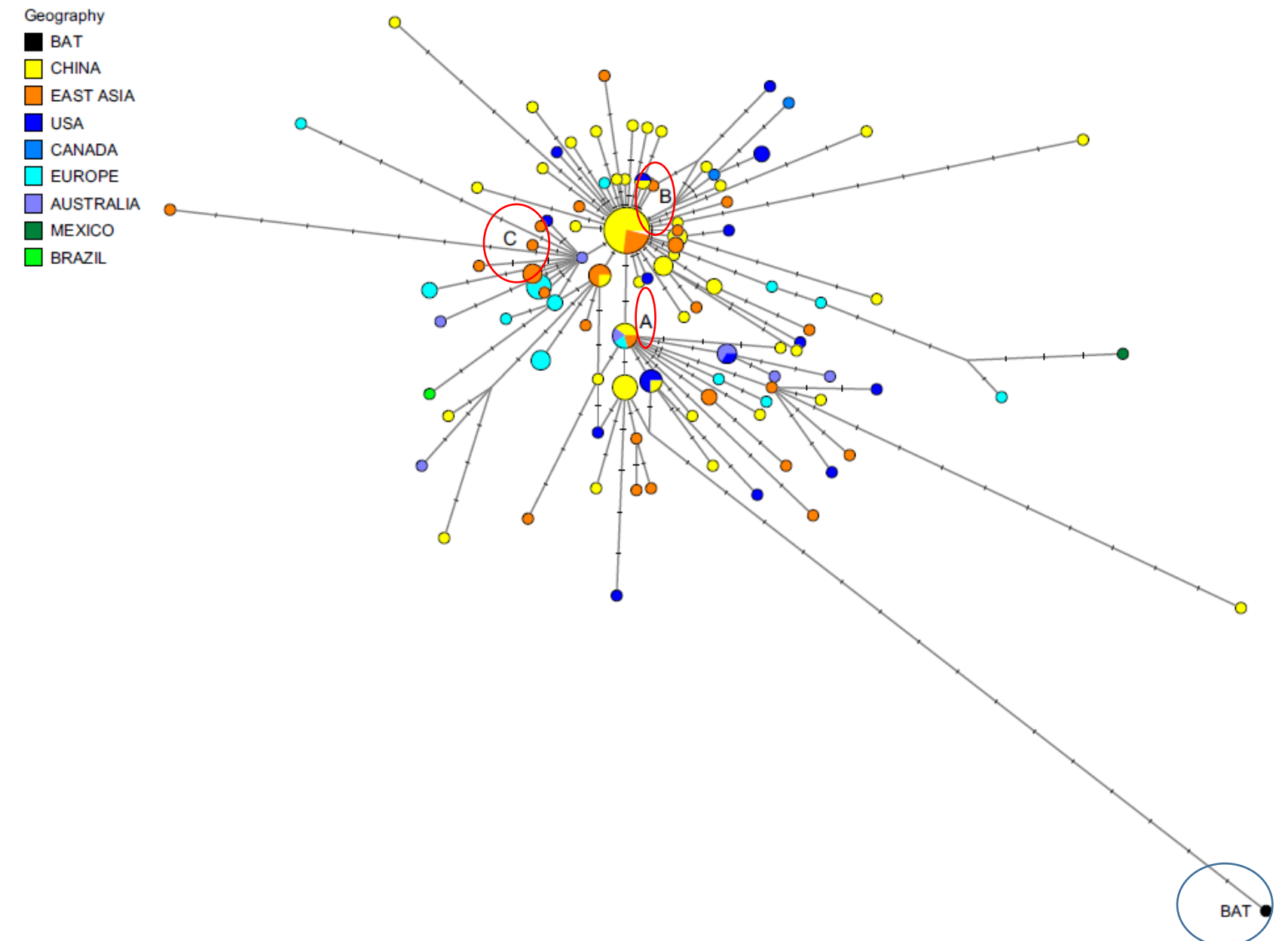


Figure1: show Phylogenetic network of 160 SARS-CoV-2 genomes

Conclusion:

The network faithfully traces routes of infections for documented coronavirus disease 2019 (COVID-19) cases, indicating that phylogenetic networks can likewise be **successfully used to help trace undocumented COVID-19 infection sources**, which can then be quarantined to prevent recurrent spread of the disease worldwide

Public Health Response:



Article 2 : Virtual health care in the era of COVID-19

Published: April 11, 2020 by [the lancet](#)

Summary: This article explain the virtual care transformation in multiple countries:

China: Patients were advised to seek physicians' help online rather than in person after the pandemic first emerged in Wuhan in December. China's virtual care transformation was unleashed when the Country's National Health Insurance agency agreed to pay for virtual care consultations because the hospitals and clinics were full.

US: The majority of patient consultations in the United States are now happening virtually. A very big moment for virtual health care but there isn't a lot of readiness. There are so many ways to monitor people's health that we aren't doing at any scale, in large part due to interstate regulatory barriers.

Canada: Racing to implement virtual health-care technologies as quickly as we can confront [COVID-19]. The scale and pace of change is unprecedented for Canadian health care.

UK: Video conferencing in Scotland over the past 6 months, and in the space of the last 2 weeks we've seen 1000% increase in use. The risk–benefit ratio for virtual health care has massively shifted and all the red tape has suddenly been cut.

Italy: 20 regions had implemented national telemedicine guidelines as of 2018. But still Many Italian hospitals lack the necessary hardware and technical resource.. About 90% on fixed landlines and 40% on mobile networks in Italy. We have to ramp up telemedicine capabilities, but for most hospitals in Italy this is an issue. Just don't have the capabilities to deliver.

Germany: the COVID-19 pandemic is highlighting a need for intensified IT collaboration between German hospitals.

India: Indian health-care providers have become similarly preoccupied with virtual health care while the country is in near-total lockdown. After years of resistance to virtual health care, our physicians keenly want. India's response to COVID-19 escalates, many private physicians are providing virtual consultations for free. Meanwhile, the national and state governments will need some time to ramp this up.

Africa: African health-care providers have yet to join the global rush. Digital health technologies are being adopted at a huge rate now here in South Africa in response to [COVID-19]", via video conference from Cape Town. They're not seeing much adoption yet elsewhere in Africa. [COVID-19] may accelerate it, but it's too soon to say.

Public Health Response:



Article: How Long Should Social Distancing Last? Predicting Time to Moderation, Control, and Containment of COVID-19

Published: March 31 2020 by [SSRN](#)

Summary:

Question:

Social distancing and lockdowns – For how long? **This article try to answer this important question through:**

Two metrics:

- 1) Daily growth rate = Percentage increase in total cases.
- 2) Time to double or doubling time, is the number of days for total cases to double at the current growth rate.

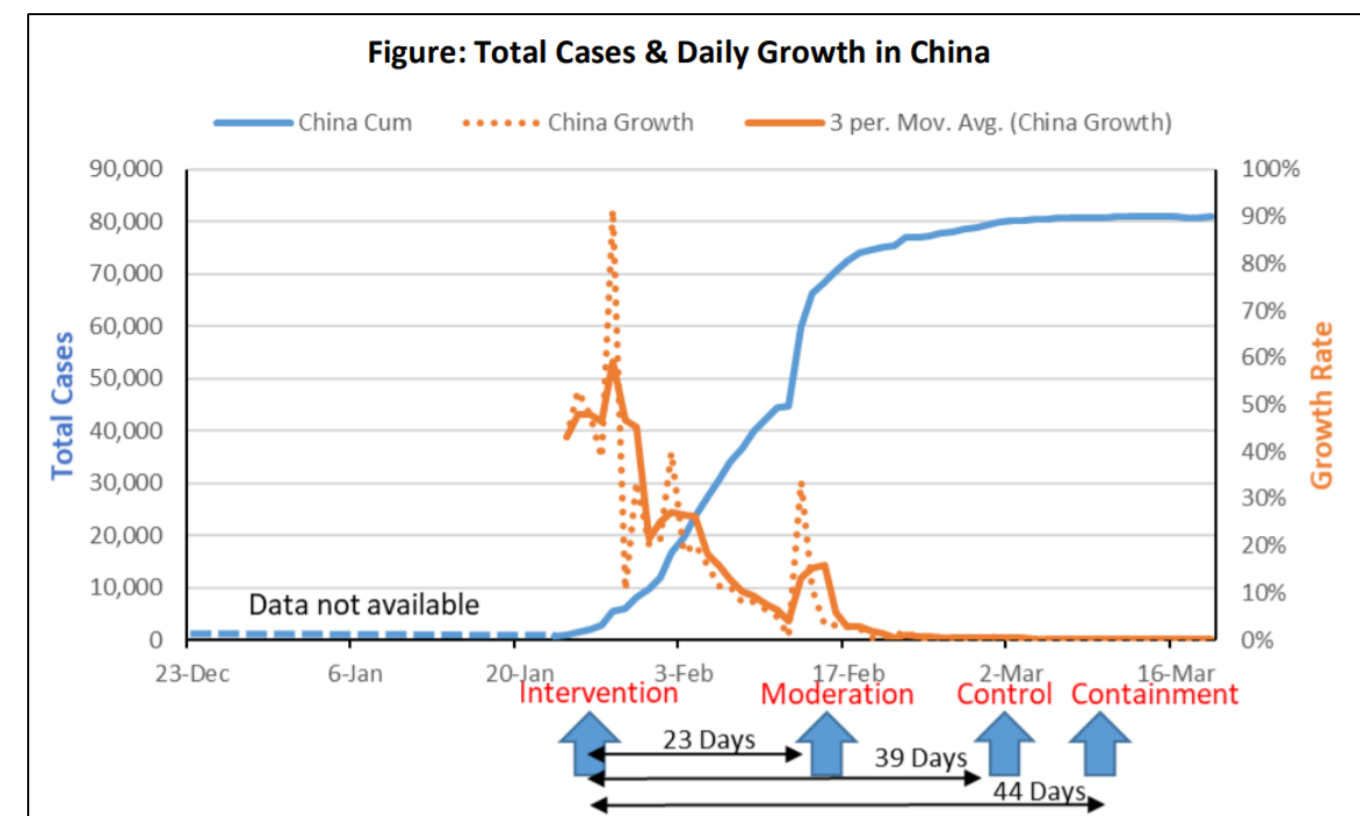
Two Actions:

- 1) Stay at home or lockdown orders (e.g., China, Italy)
- 2) Massive testing and quarantine (e.g., Japan, South Korea)

And Three Outcomes:

- 1) **Moderation:** when growth rate stays below 10% and doubling time stays above 7 days
- 2) **Control:** when growth rate stays below 1% and doubling time stays above 70 days.
- 3) **Containment:** when growth rate stays below 0.1% and doubling time stays above 700 days.

This article was summarized by expert subject matter



Conclusion:

Analyzing data from 37 countries, the results are:

- Countries take an average of about three weeks to act
- After aggressive actions (lockdowns, testing) for spread of disease, countries take an average of about:
 - **Three weeks to moderate**
 - **Four weeks to control**
 - **Over 6 weeks to contain**

This articles have not been peer-reviewed , therefore , it should not be used for clinical decision making or reporting of research to a lay audience