



Scientific Research Monitoring on COVID-19

11 May 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 study compare health care capacities in two Chinese city showed the lockdowns **did not lead to immediate downturns in demand** for hospitalization or the number of serious cases; rather, **the peak occurred approximately a month after the lockdown in Wuhan and 2 weeks after the lockdown in Guangzhou.**
- **Transmission:** a study in US showed higher infection ED compared to outpatient clinics and lower trends after implementing social distancing measure by the government.

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.

Others

- [Access to lifesaving medical resources for African countries: COVID-19 testing and response, ethics, and politics](#)
- [COVID-19 in a 26-week preterm neonate](#)
- [Bariatric and metabolic surgery during and after the COVID-19 pandemic: DSS recommendations for management of surgical candidates and postoperative patients and prioritisation of access to surgery](#)
- [The Disproportionate Burden of COVID-19 for Immigrants in the Bronx, New York](#)



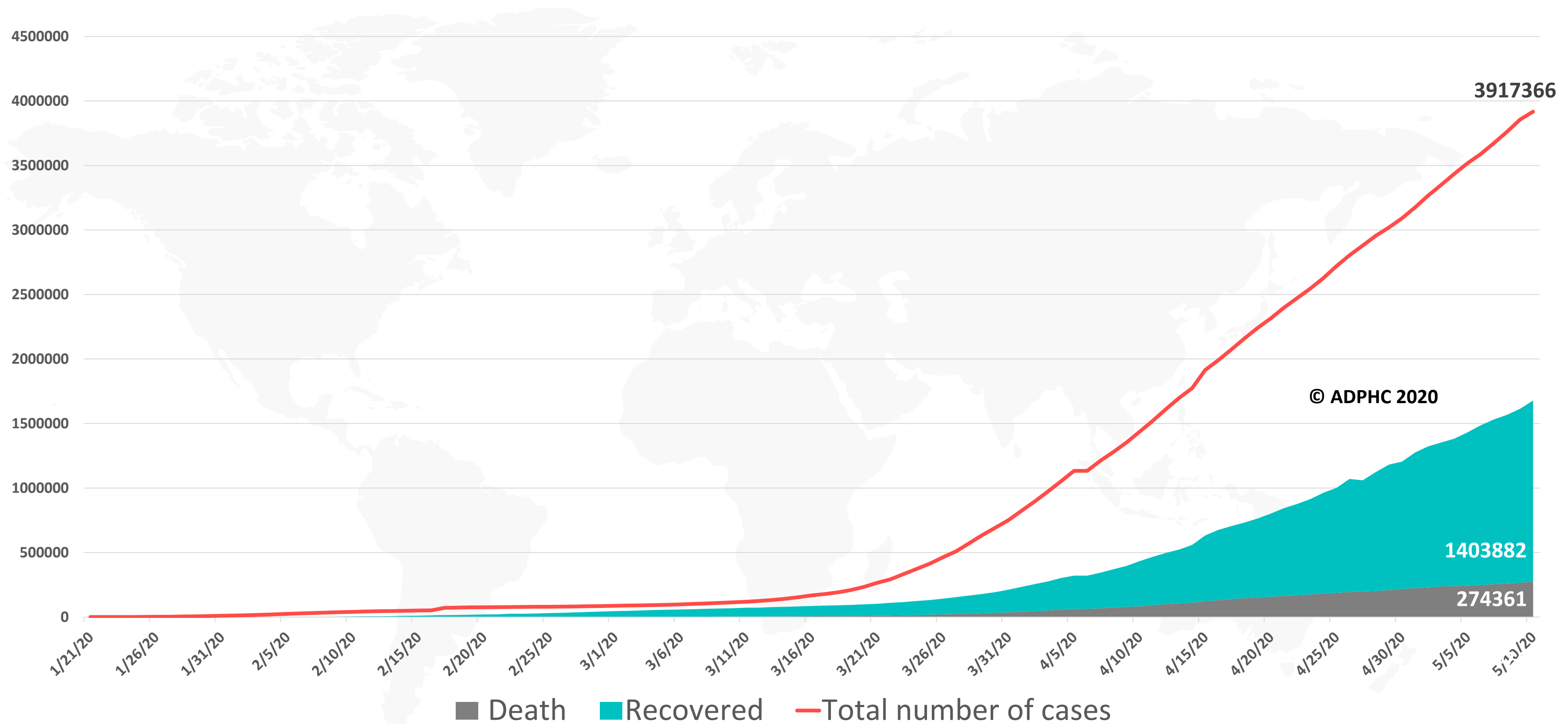
WHO daily report 10 May 2020

- A newly-released WHO scientific brief summarizes the current evidence on the impact of angiotensin converting enzyme (ACE) inhibitors and receptor blockers on severe acute respiratory illness due to COVID-19.
- The rapid review identified 11 observational studies, eight of which were conducted in China, along with single studies from Italy, the United Kingdom, and the United States. Nearly all studies included only patients with lab-confirmed COVID-19. No studies were found that were designed to **directly assess whether ACE inhibitors or ARBs increase the risk of acquiring COVID-19**. After adjustment for confounders, history of ACE inhibitor or ARB use was **not found to be associated with increased severity of COVID-19 illness**. There were no studies that address the potential benefits and harms of initiating ACE inhibitors or ARBs as treatment for patients with COVID-19.
- Pan American Health Organization and the United Nations Office for Project Services have published new guidelines on covid-19 prevention measures on construction projects, for workers to take measures to protect themselves from infection.

Epidemiology



Figure 1: Total number of infected, recovered, and death cases (January 21st to May 10, 2020)

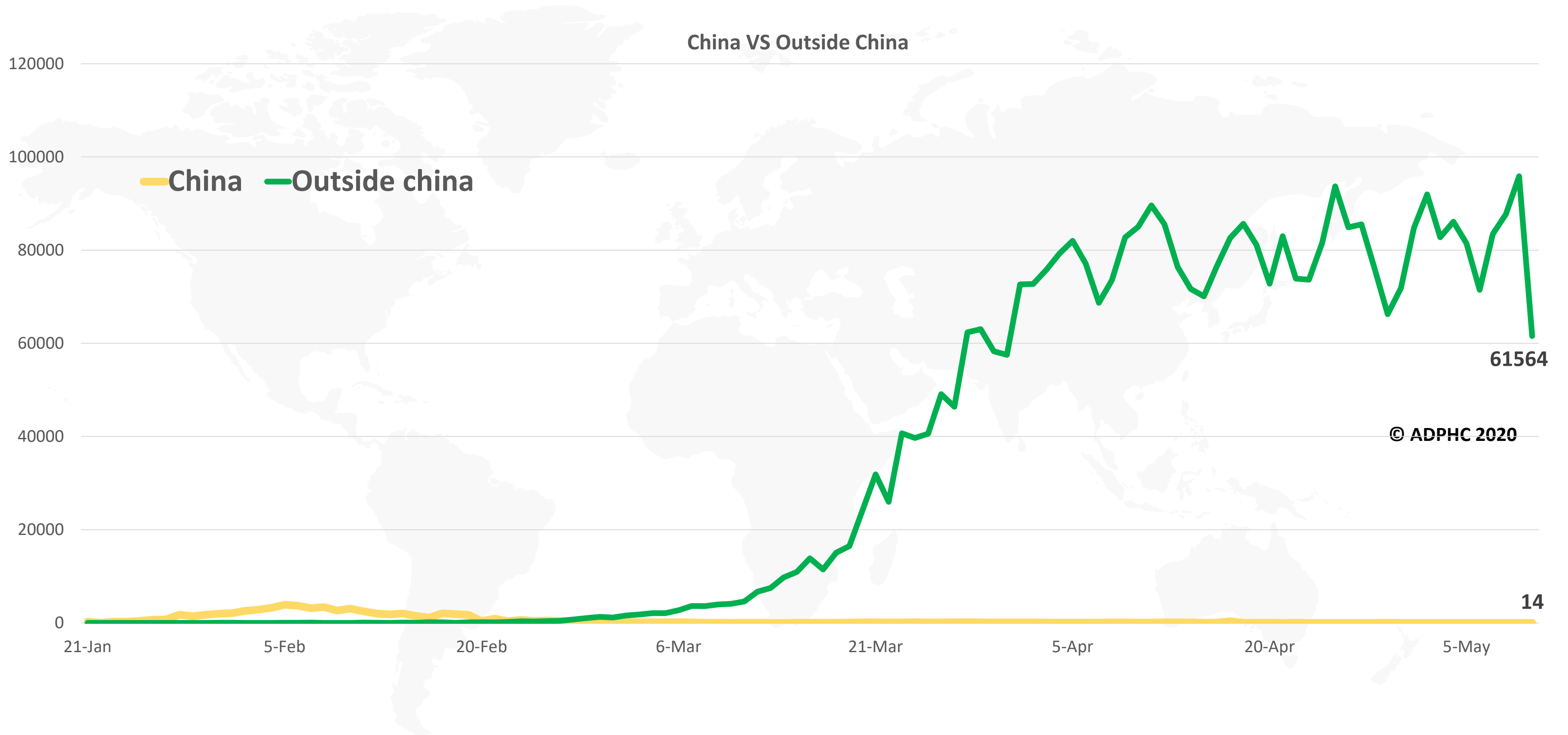


Line graph published by Abu Dhabi Public Health Center 2020.

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



Figure 2: Daily new infected COVID-19 cases reported between (January 21 to May 10, 2020).



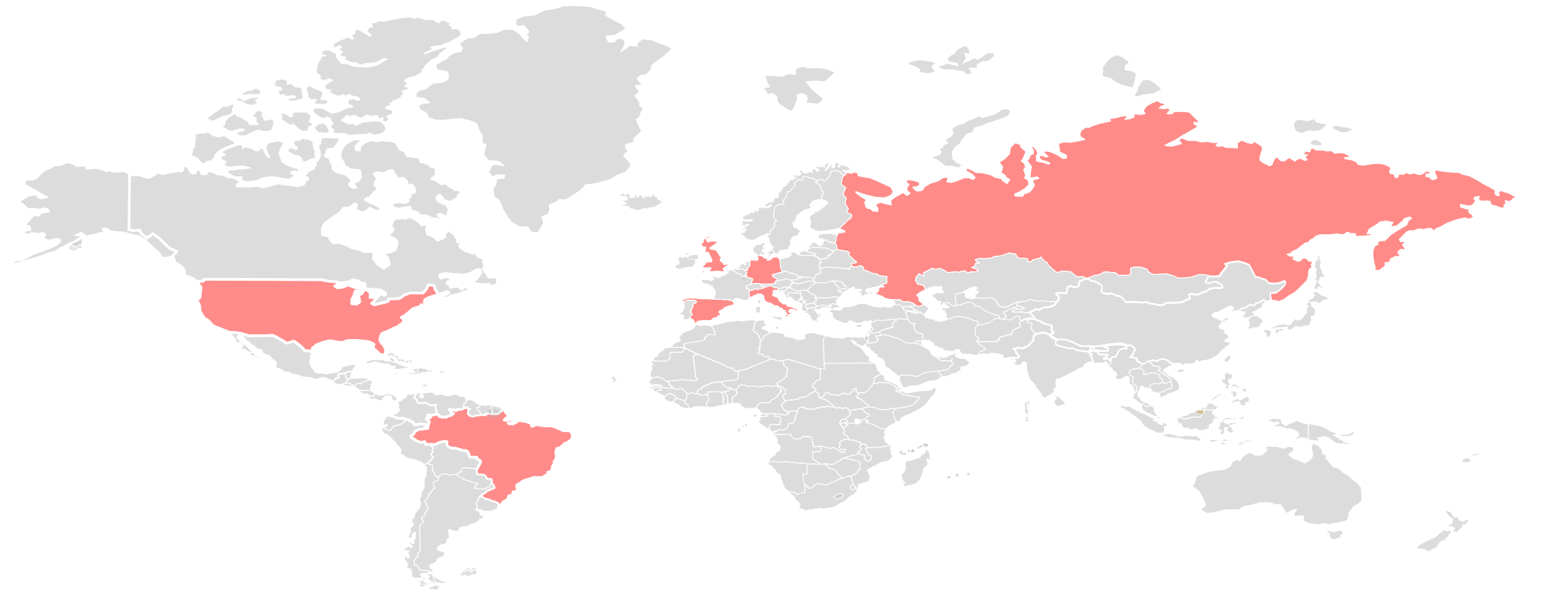
Line graph published by Abu Dhabi Public Health Center 2020.

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

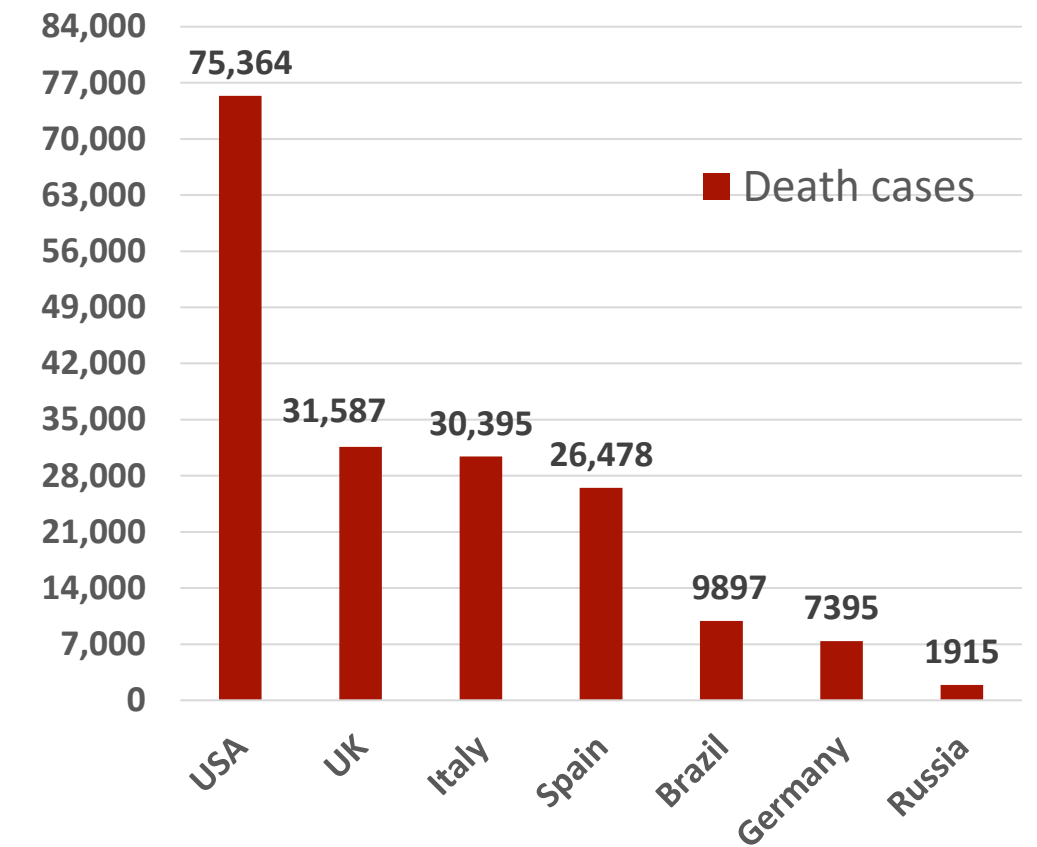
Epidemiology



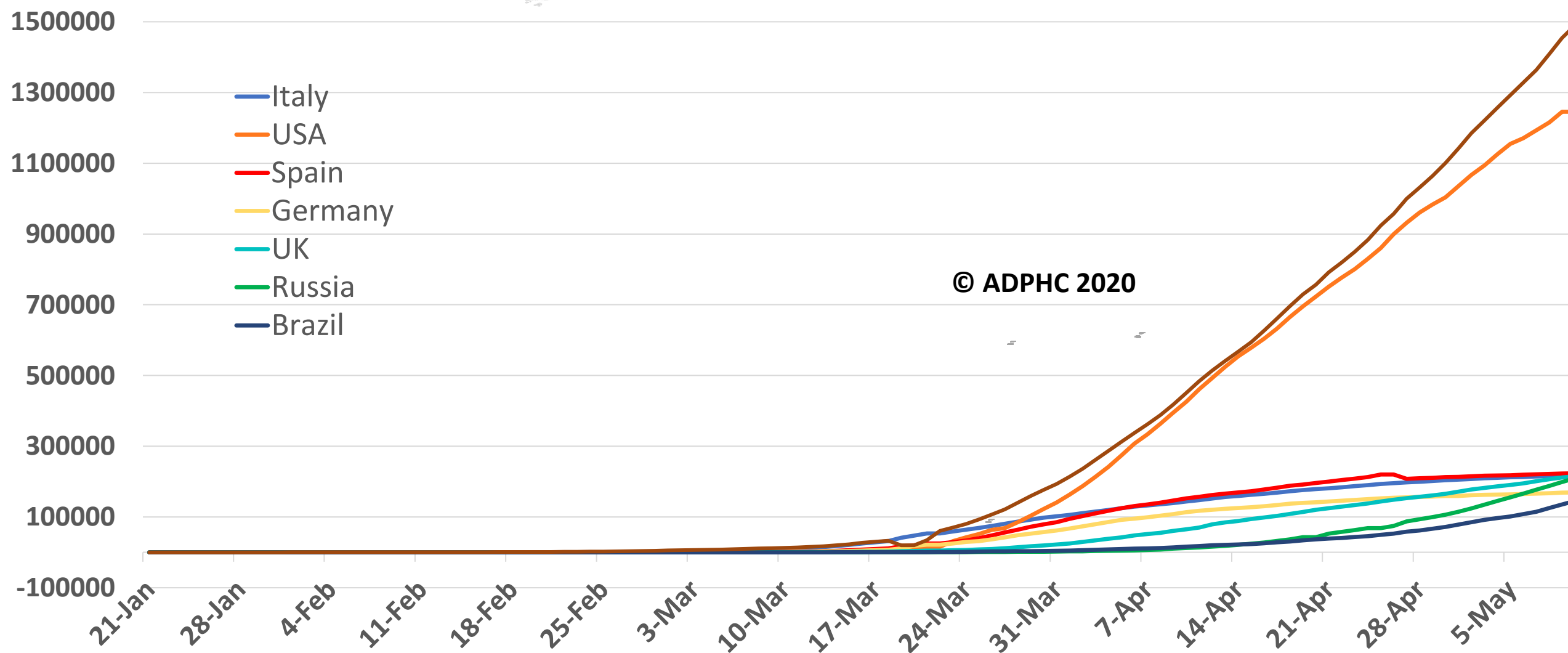
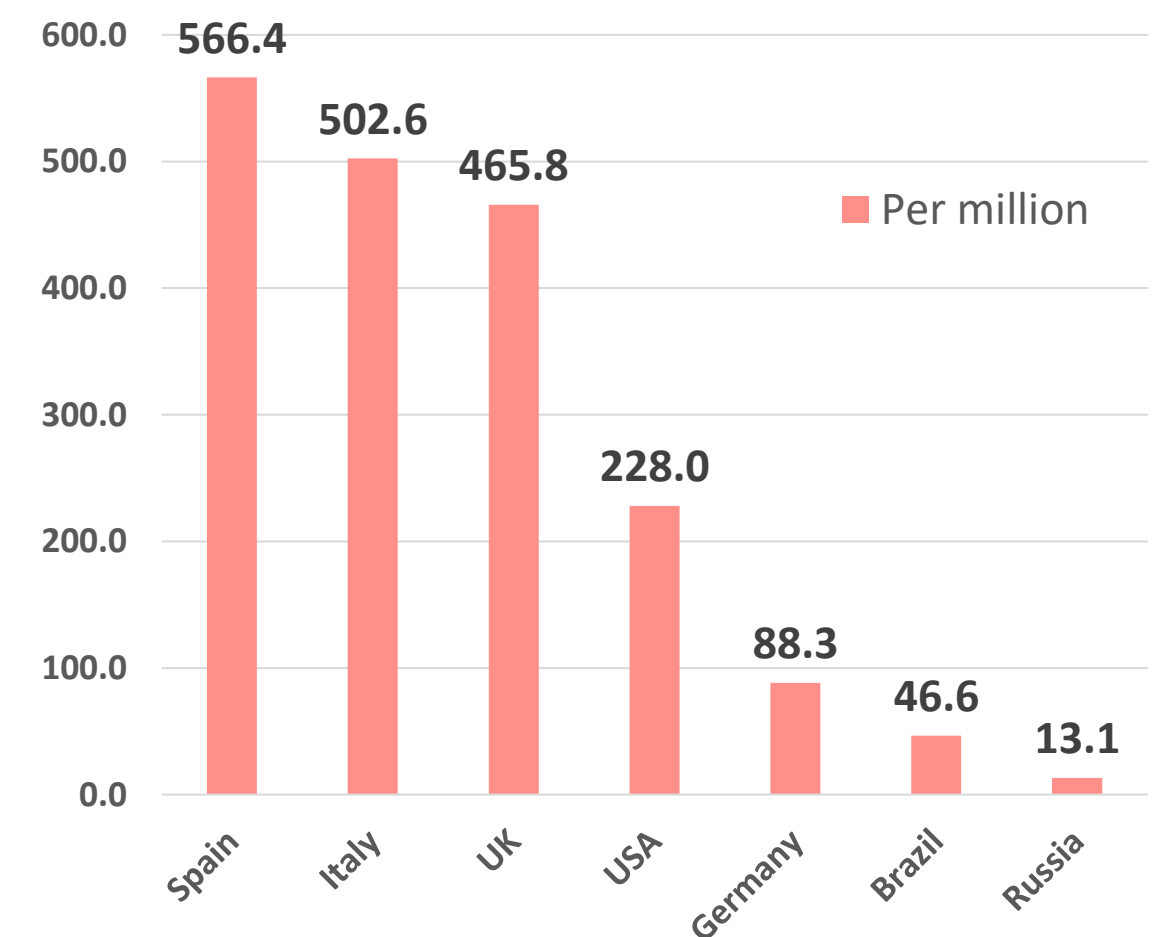
Figure 3 : Top 7 countries in the total number of cases due to COVID-19 (January 21 to May 10, 2020).



TOTAL DEATHS



DEATHS PER MILLION

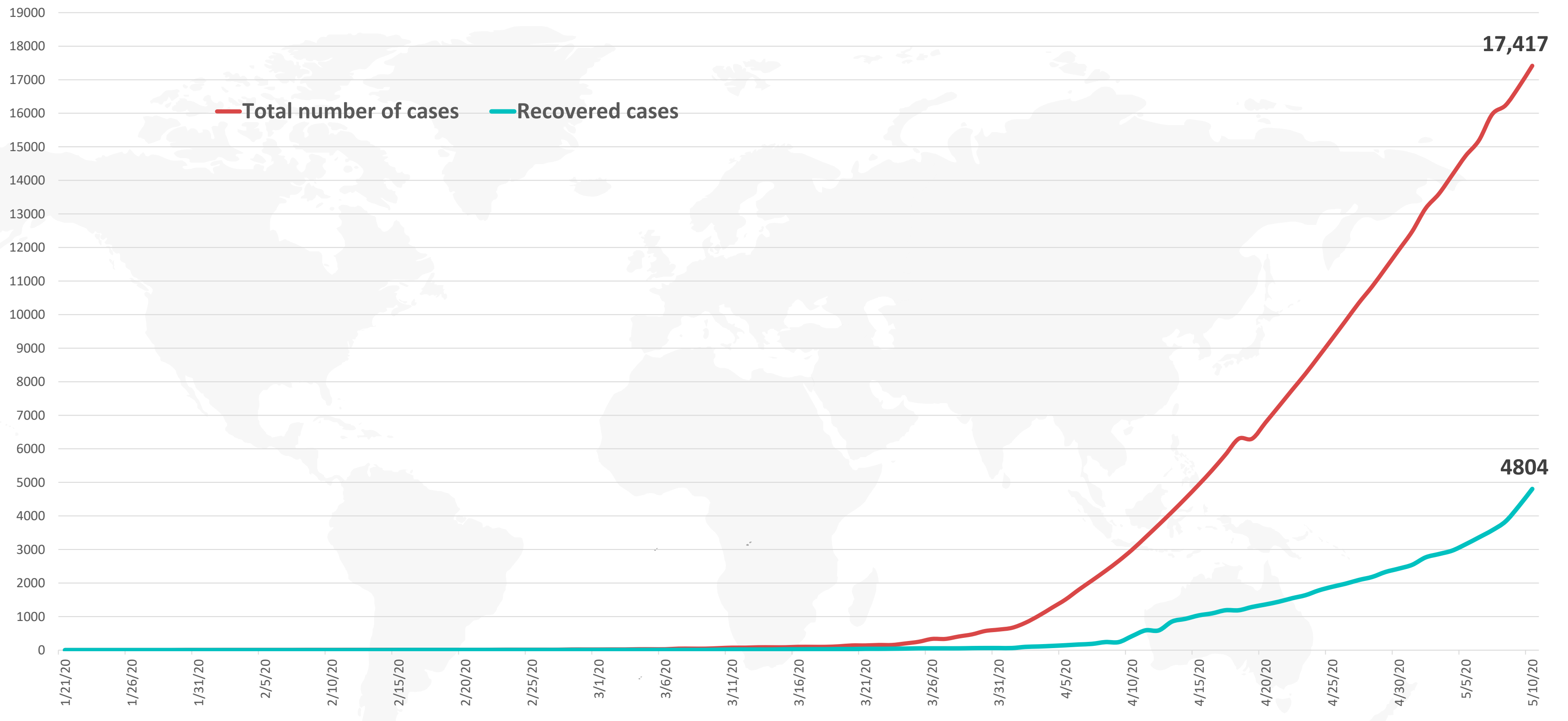


Line graph published by Abu Dhabi Public Health Center 2020.

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



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



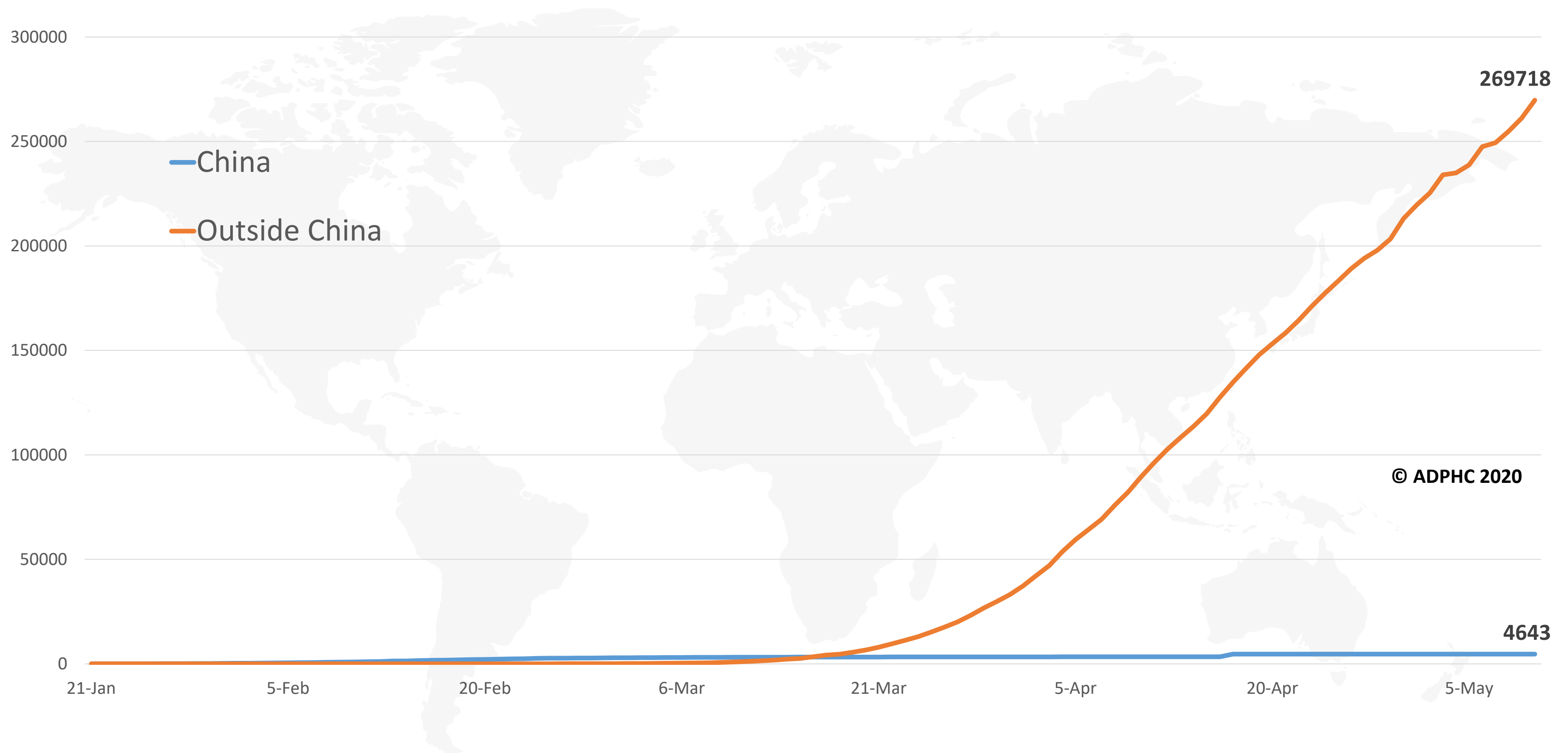
Line graph published by Abu Dhabi Public Health Center 2020.

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 22 to May 10, 2020).



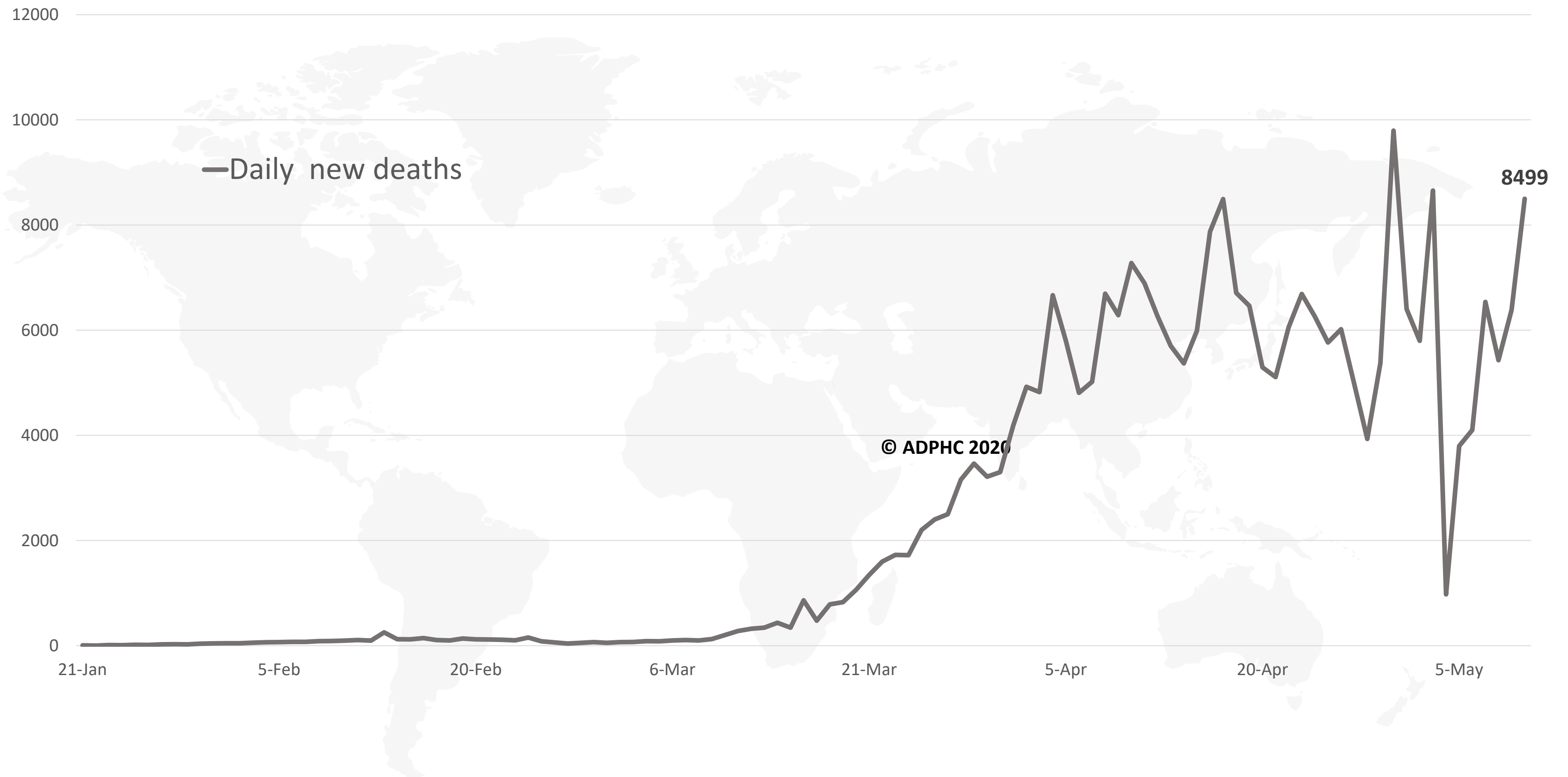
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Data resources: [WHO](https://www.who.int/)



Figure 6: Global daily new deaths due to COVID-19 (January 22 to May 10, 2020).



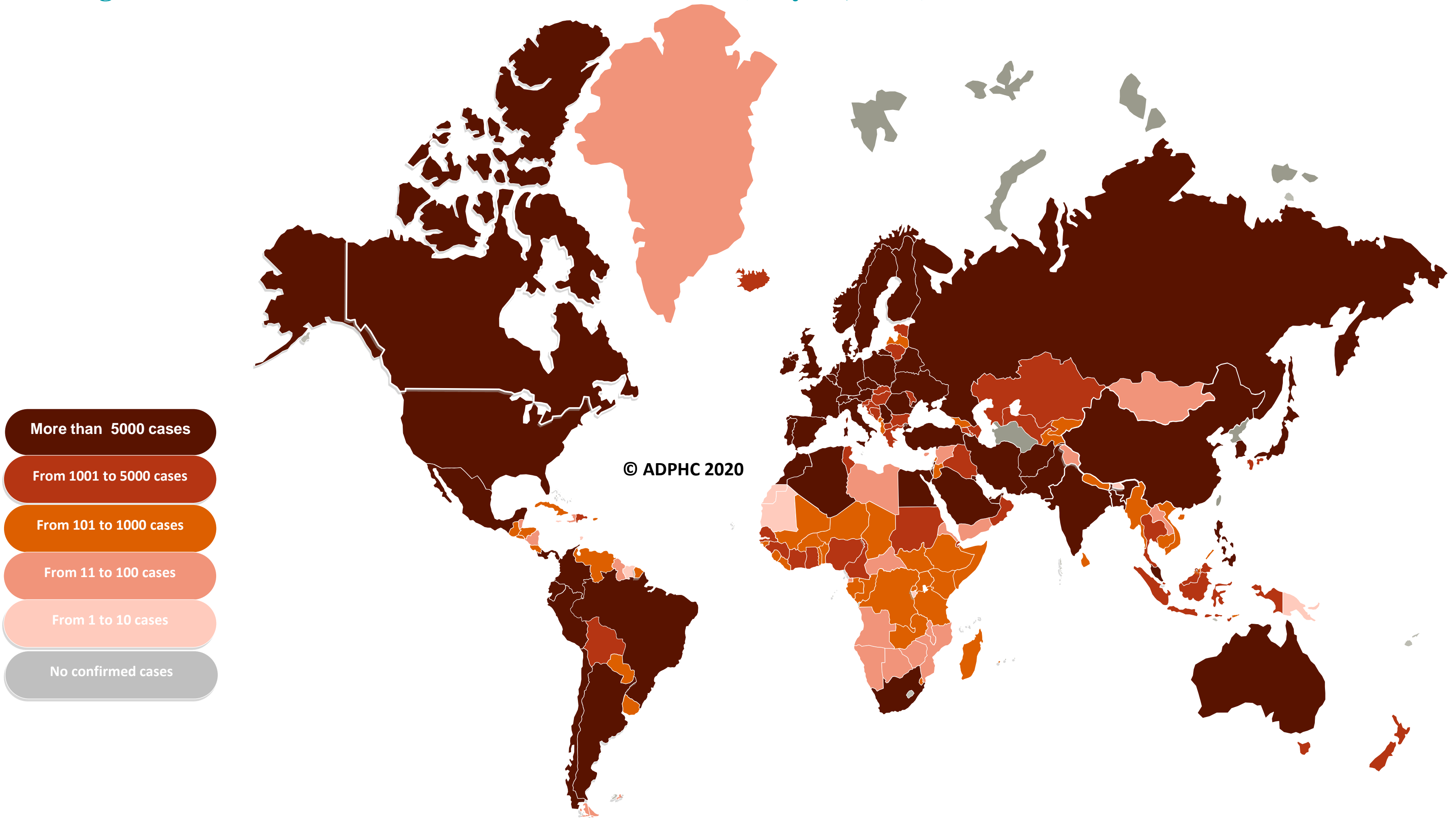
Line graph published by Abu Dhabi Public Health Center 2020.

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

Epidemiology



Figure 7a : Global distribution of COVID-19 cases (May 10, 2020).

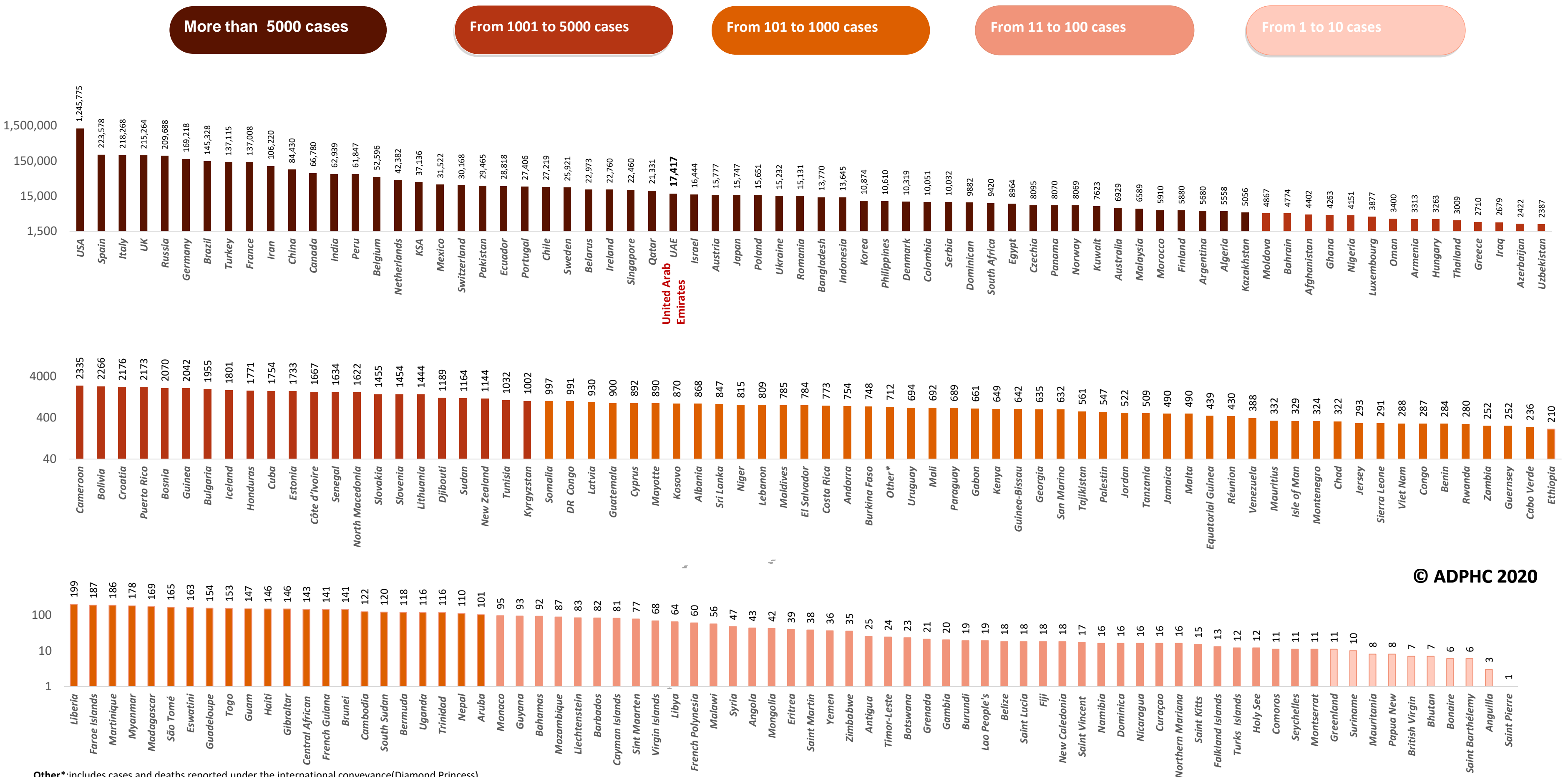


Map chart published by Abu Dhabi Public Health Center 2020.

Epidemiology



Figure 7B: Bar chart illustrate the global distribution of COVID19 cases May 10, 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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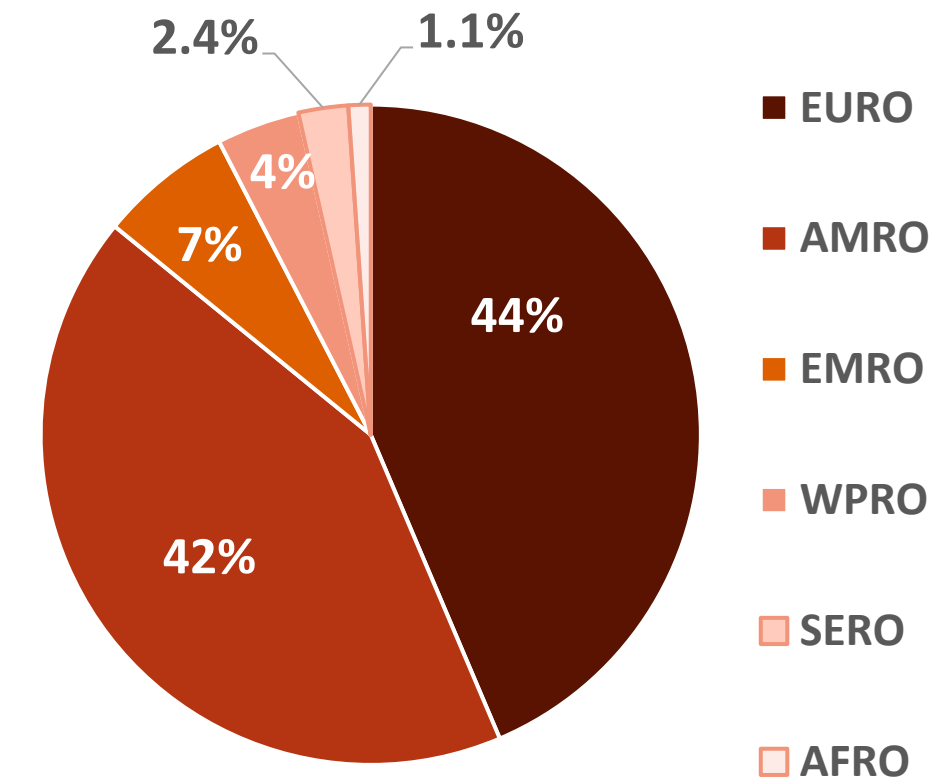
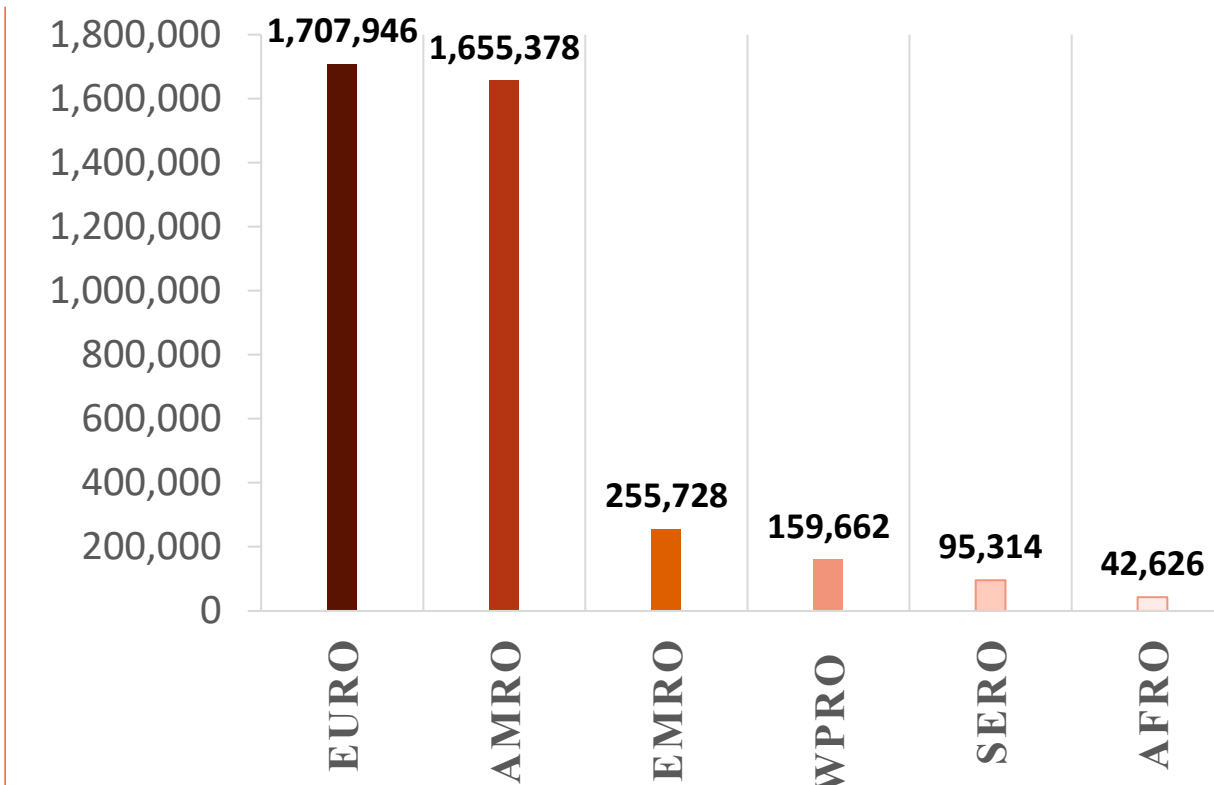
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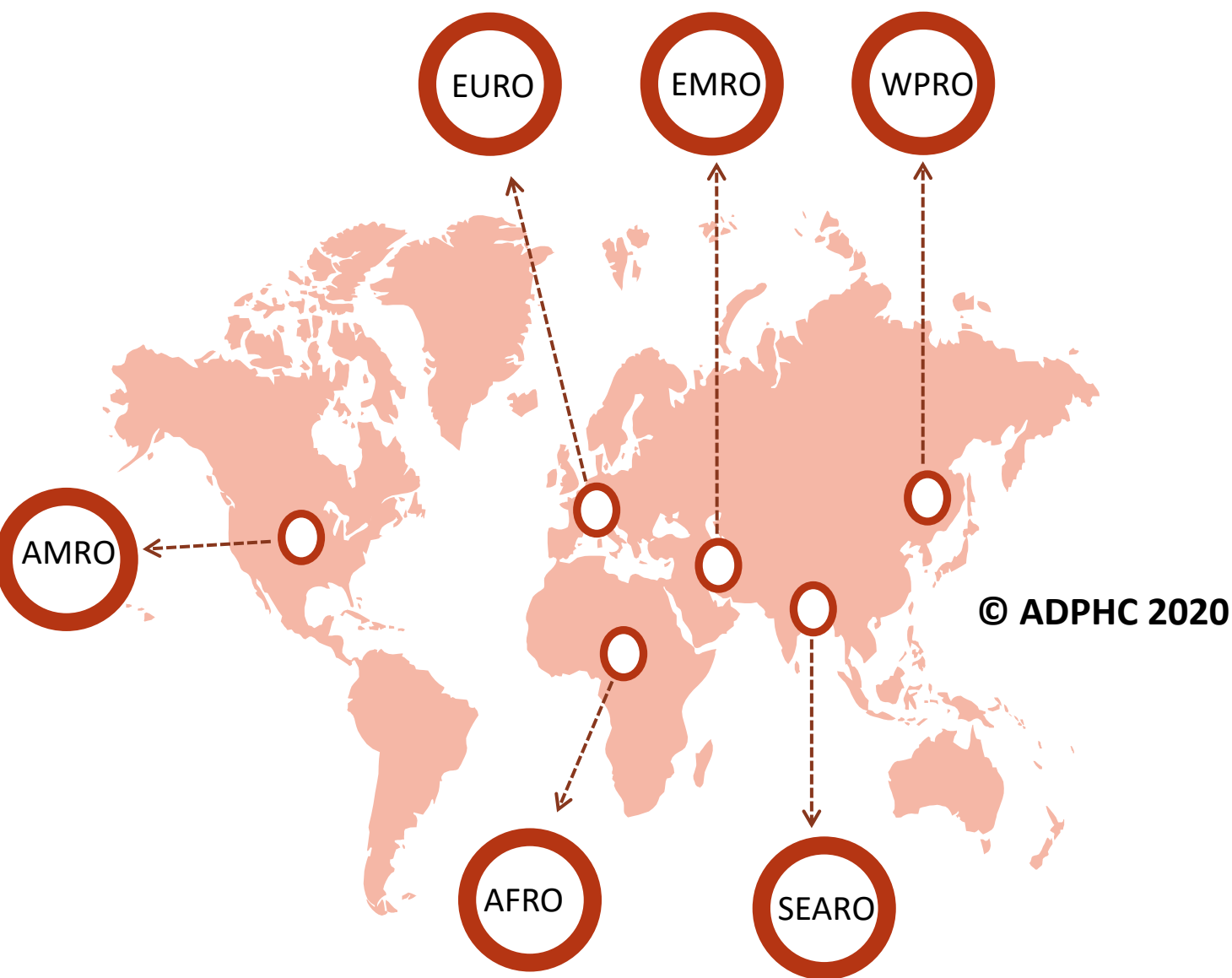
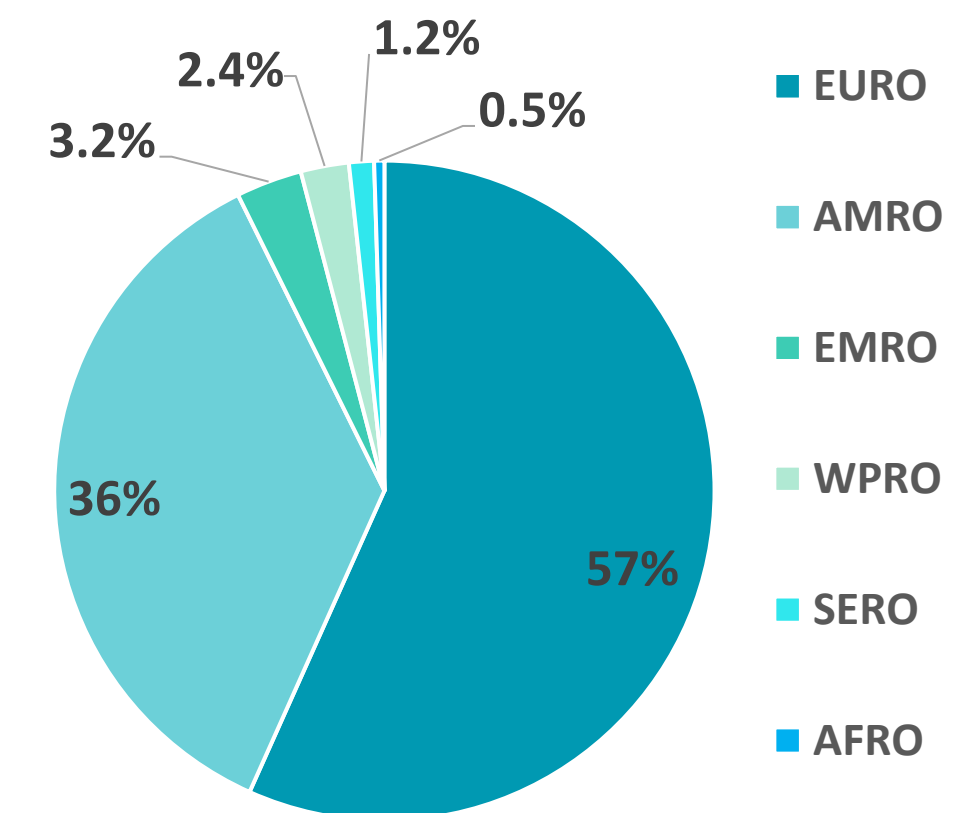
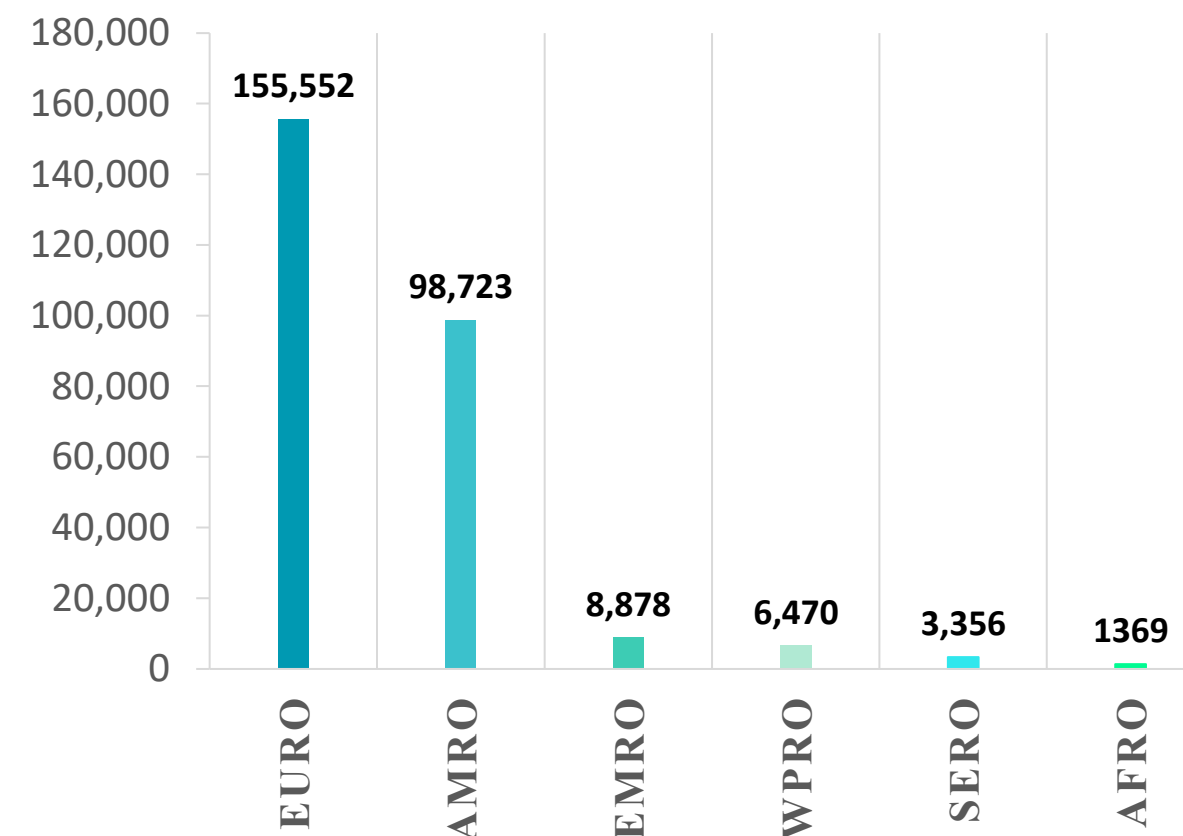
Figure 8: illustrate the Global distribution of COVID19 cases per region (May 10, 2020)

INFECTED



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DEATH



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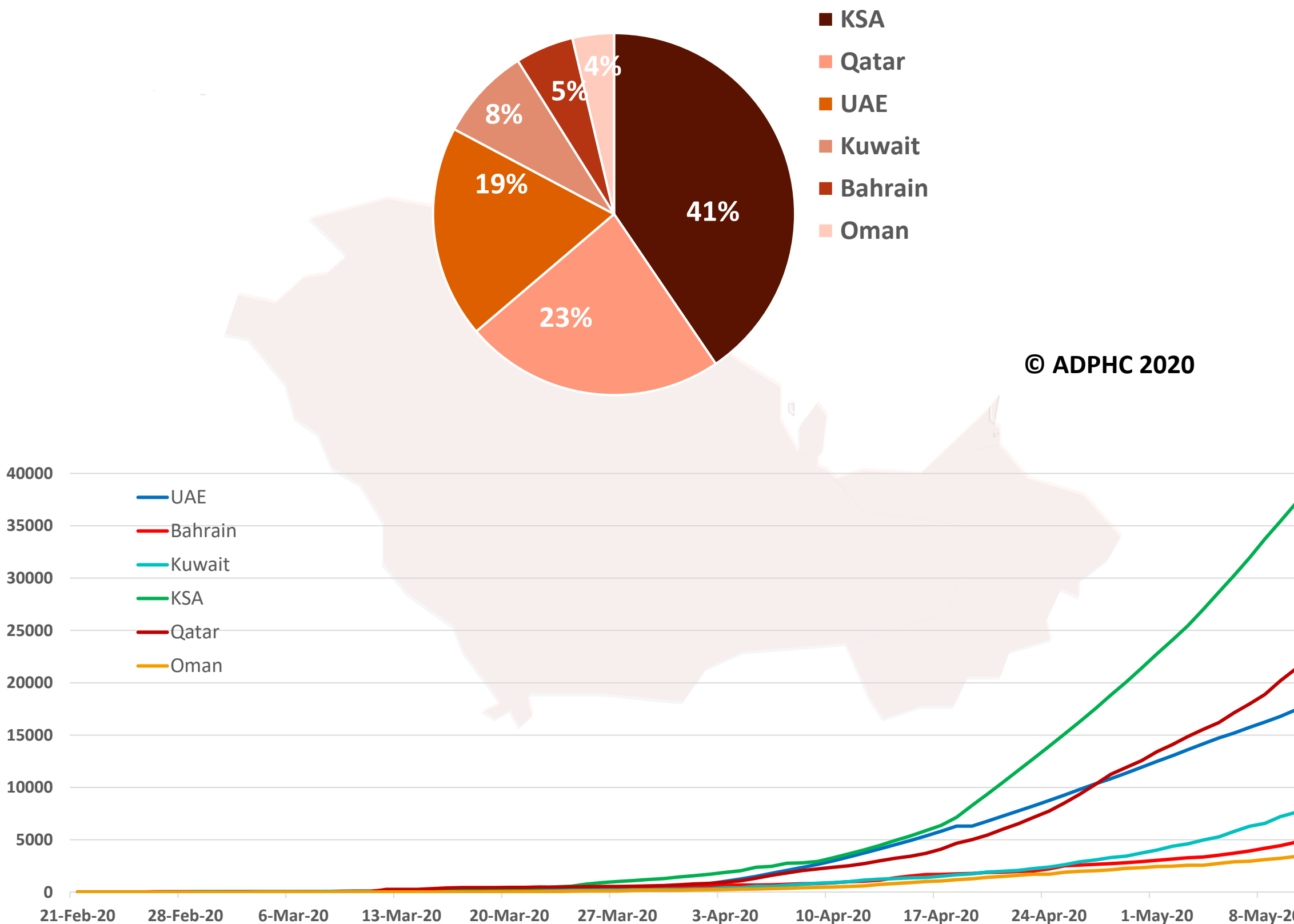
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Data resources: [WHO](http://www.who.int)

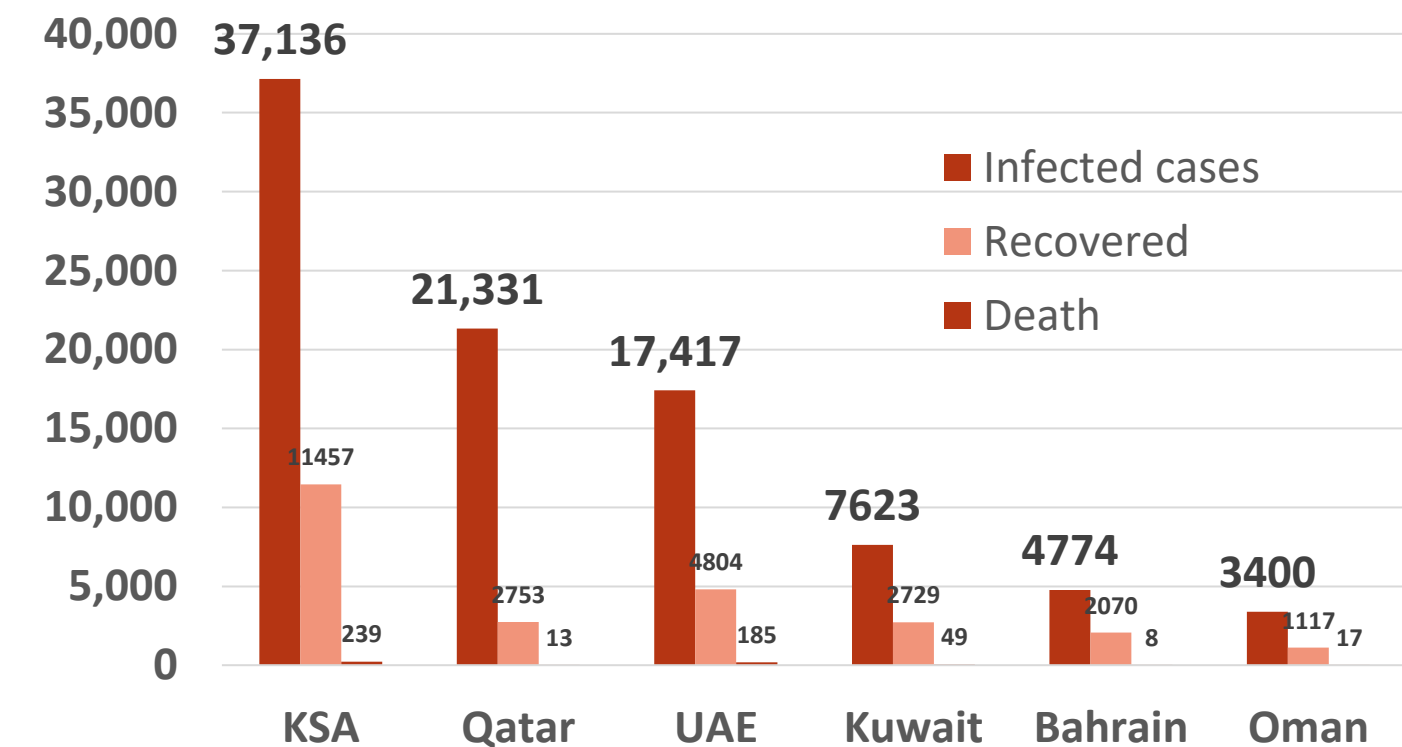


Figure 9: Comparative analysis of the distribution of COVID19 cases in GCC countries (May 10, 2020)

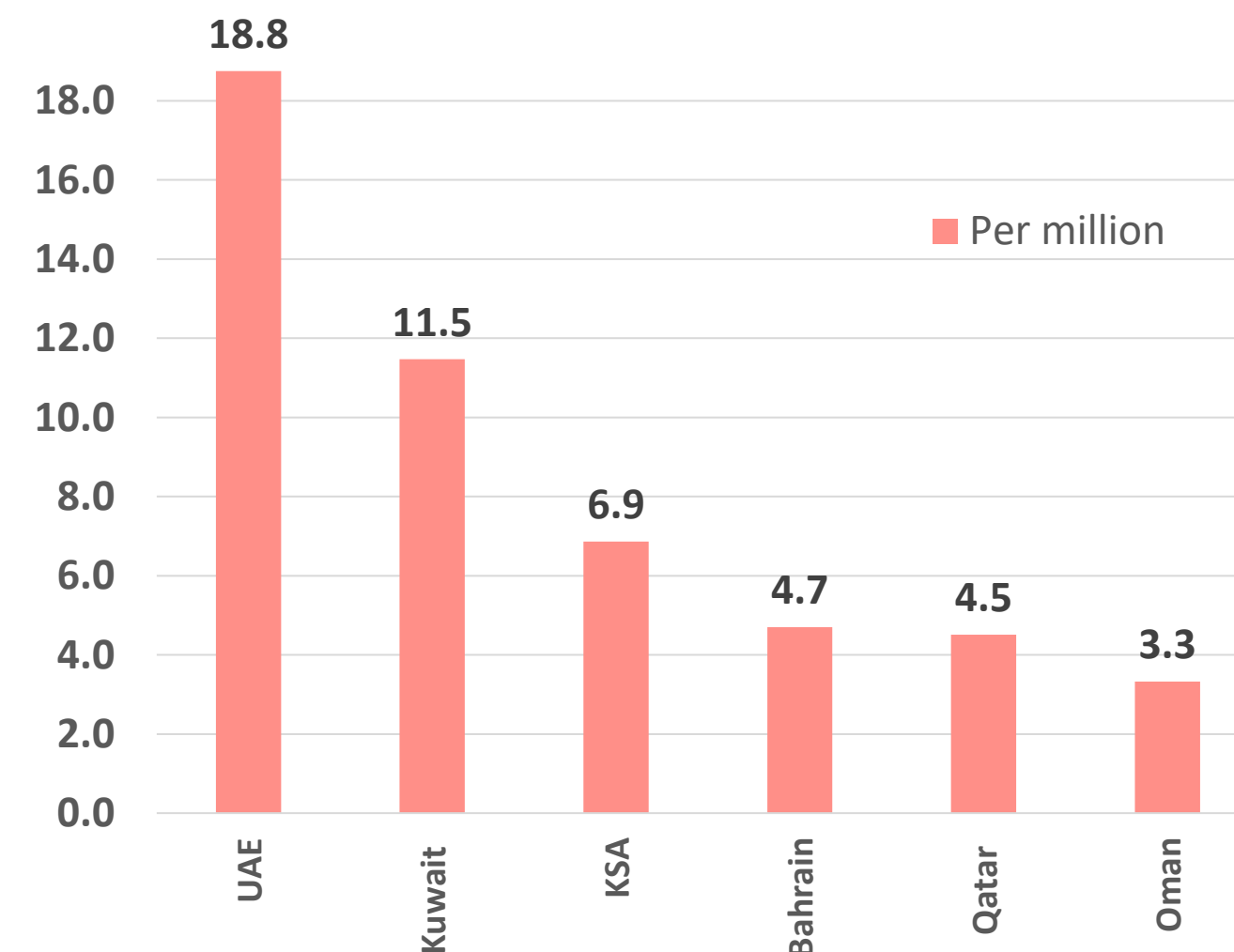
TOTAL NUMBER OF INFECTED CASES



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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Public health response

Article 1: Estimated Demand for US Hospital Inpatient and Intensive Care Unit Beds for Patients With COVID-19 Based on Comparisons With Wuhan and Guangzhou, China

Published: May 6, 2020 in [JAMA](#)

Summary:

This study describe and compare the intensive care unit (ICU) and inpatient bed needs for patients with coronavirus disease 2019 (COVID-19) in 2 cities in China to estimate the peak ICU bed needs in US cities if an outbreak equivalent to that in Wuhan occurs.

Findings:

1- In Wuhan: early epidemic (10 Jan to 29 feb 2020)

Strict measure took 6 weeks to be implemented

A-The median need in each day during that 51-day period :

- 429 ICU BEDS
- 1521 inpatients with serious illness

B-Wuhan at epidemic peak a maximum needed per day:

19 425 patients (24.5 per 10 000 adults) hospitalized

2087 (2.6 per 10 000 adults) needed critical care per day

2- In Guangzhou:

Strict measure took 1 week from first imported case (January 24 and February 29)

Median need in each day during that 37-day period:

- 9 patients in the ICU
- 17 inpatients with serious illness each day.
- 15 patients were in critical condition and 38 were classified as having serious illness.
- The maximum number of hospitalizations in Guangzhou on any day was 271 patients.



Public health response

Cont.,

Findings:

3. US estimation

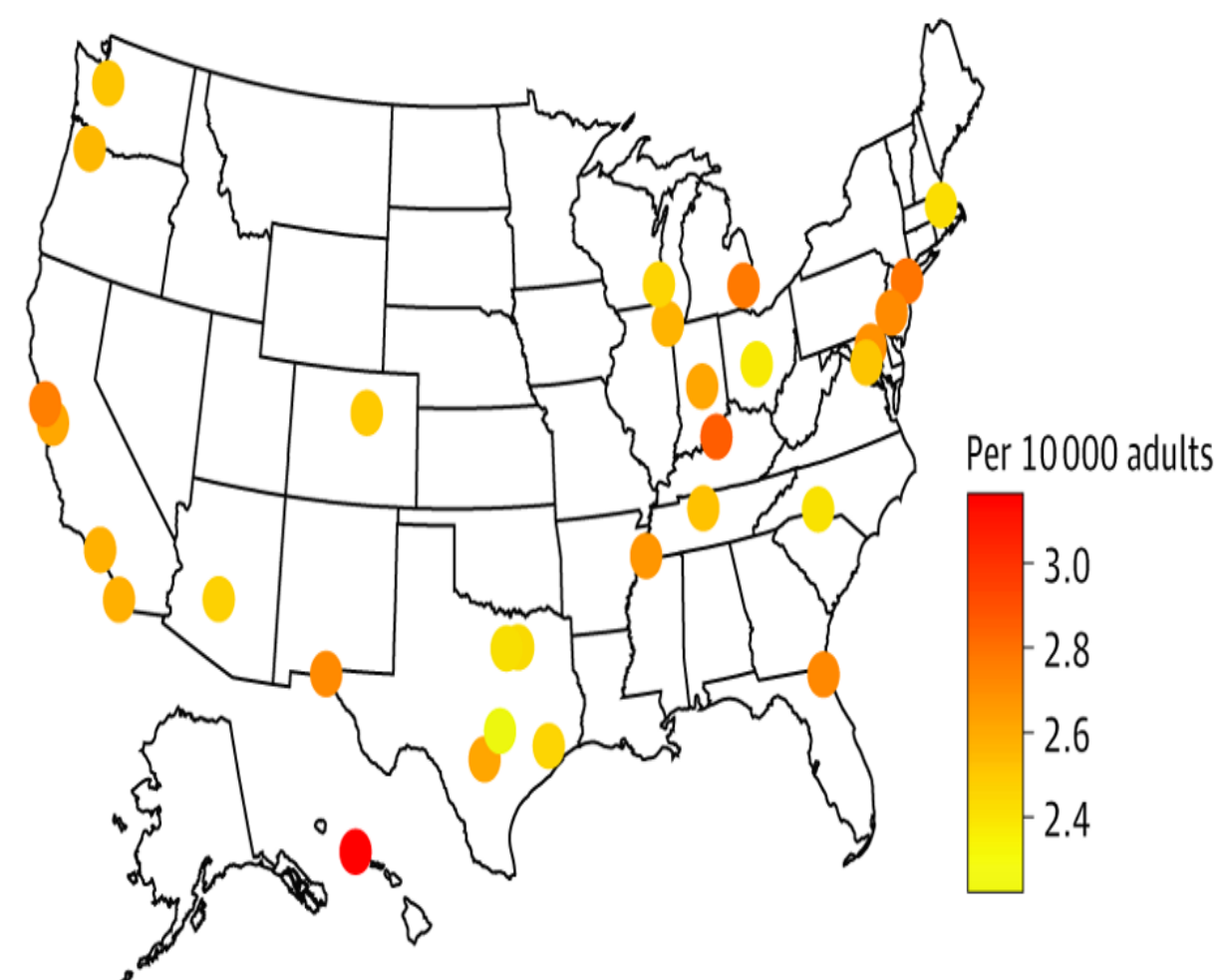
The projected number of prevalent critically ill patients at the peak of a Wuhan-like outbreak in US cities was estimated to range from 2.2 to 4.4 per 10 000 adults, depending on differences in age distribution and comorbidity (ie, hypertension) prevalence, social interaction.

Conclusion:

In both Wuhan and Guangzhou, the lockdowns **did not lead to immediate downturns in demand** for hospitalization or the number of serious cases; rather, **the peak occurred approximately a month after the lockdown in Wuhan and 2 weeks after the lockdown in Guangzhou.**

This delay reflects the potentially long time from infection to severe and critical condition, as many patients with COVID-19 who eventually require ICU care present initially

A Peak ICU beds needed in a Wuhan-like outbreak with age standardization



B Peak ICU beds needed in a Wuhan-like outbreak with hypertension standardization

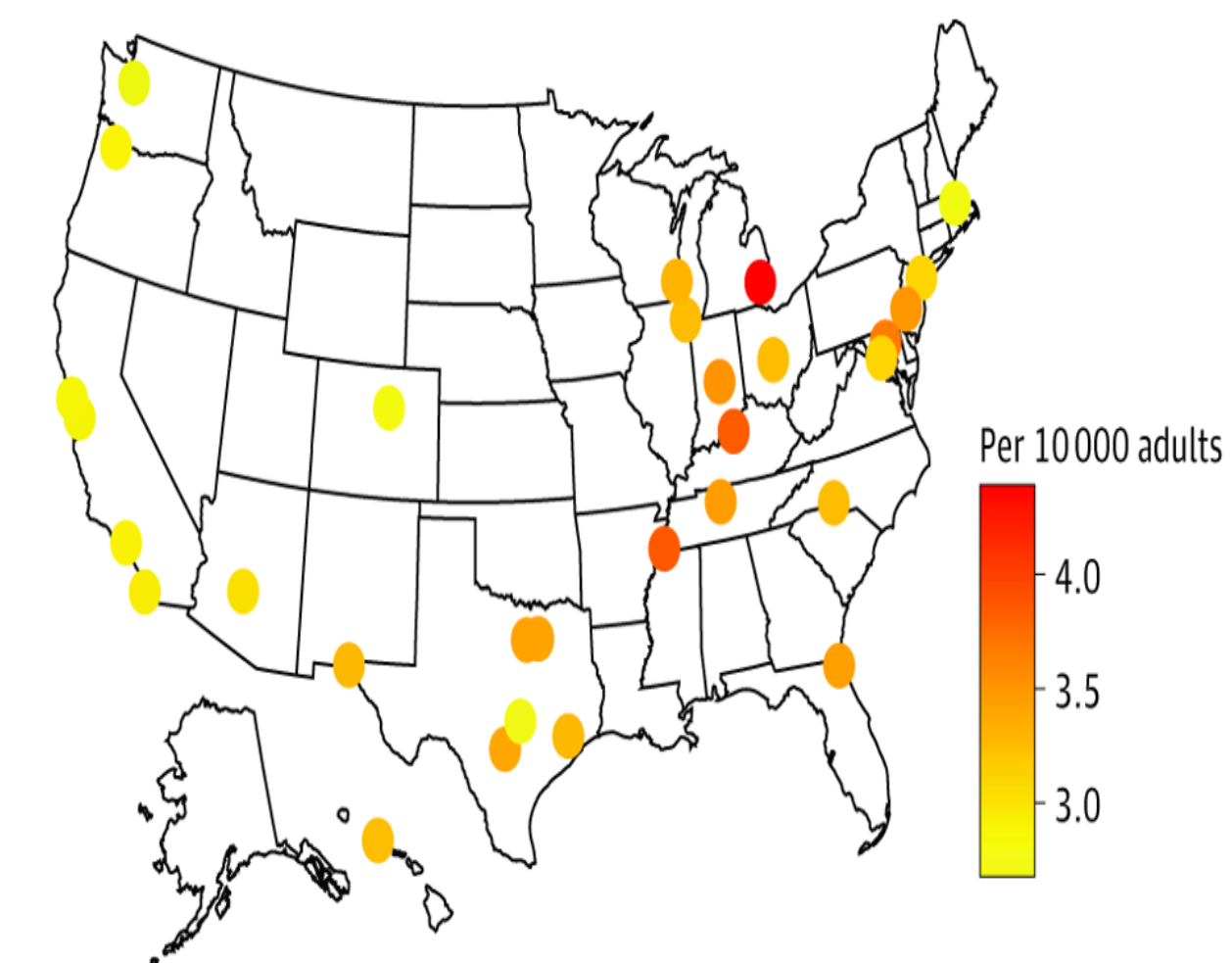


Figure 2. Estimated Number of Critically Ill Patients at the Peak of a Wuhan-Like Outbreak in US Cities per 10 000 Adults

Diagnosis:



Article 2 : Changes in SARS-CoV-2 Positivity Rate in Outpatients in Seattle and Washington State, March 1 - April 16, 2020

Published: May 8, 2020 in [the JAMA](#)

Summary:

- This paper reported temporal trends that may reflect the local dynamics of the COVID-19 pandemic and the effect of mitigation strategies in the Washington State, USA.
- Samples were collected (March 1 - April 16, 2020) from 127 outpatient clinics across 10 counties (n=17,232) and 3 emergency departments (EDs) in Seattle (n=1,932). Specimens (>95% nasopharyngeal swabs) were analyzed by a laboratory developed RT-PCR test. Only the first positive test was included if a patient had multiple results.
- The positivity rates were 8.2% in Washington State outpatient clinics, 8.4% in Seattle area outpatient clinics, and **14.4% in Seattle EDs**. For outpatients in Washington State and Seattle area, nonlinear trends were found in the estimated smooth curves with positivity rates peaking **during March 28-29, 2020**, followed by a **decline in both groups**. Regarding Seattle EDs patients, the trajectory showed a similar time to peak, and then declined gradually. **The positivity rate was 17.6% and 14.3%, respectively, in the outpatient clinics and EDs, at the peak period and 3.8% and 9.8%, respectively, at the end of the analysis period.**
- Infections among patients reported in outpatient clinics and EDs peaked during late March and then declined. This trajectory was lined up with local physical distancing guidelines (enacted on March 16, 2020) and the ‘stay home, stay healthy’ order (announced on March 23, 2020). The results of this study suggested that early and aggressive physical distancing measures enacted in Washington State have influenced the course of this pandemic.