

ABU DHABI PUBLIC
HEALTH CENTRE

مركز أبوظبي
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Scientific Research Monitoring on COVID-19

18 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

- **Transmission:** a study that show visual evidence of speech-generated droplets and to qualitatively study the effect of a damp cloth cover over the mouth to curb the emission of droplets
- **Diagnostic:** study assessing the effectiveness of PCR testing in COVID19 diagnosis found that there is 33% chance of false negative using nasal swab, and 53% chance using throat swab.
- **Treatment:** an article that discusses the drug evaluation process in COVID19 pandemic and its consequences

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

1. [Finding Ways to Reduce Coronavirus Exposure During Dialysis](#)
2. [Failing Another National Stress Test on Health Disparities](#)
3. [Death and dying during the pandemic](#)
4. [Sequential analysis of viral load in a neonate and her mother infected with SARS-CoV-2](#)
5. [COVID-19: time to plan for prompt universal access to diagnostics and treatments](#)



WHO daily report 17 April 2020

- No new country/territory/area reported cases of COVID-19 in the past 24 hours.
- Globally, the number of reported confirmed cases exceeded 2 million.
- WHO has released public health guidance for social and religious practices and gatherings during Ramadan. The guidance also offers advice to strengthen mental and physical wellbeing as the COVID-19 pandemic continues.
- WHO has released guidance on considerations in **adjusting public health and social measures in the context of COVID-19**. This document is intended for national authorities and decision makers in countries that have introduced large scale public health and social measures. It offers guidance for adjusting public health and social measures, while managing the risk of a resurgence of cases.
- The Chinese authorities have informed WHO that as cases have declined in China and the strain on the healthcare system has eased, a multisectoral team was established **in late March 2020** to perform a comprehensive review of COVID-19 data in Wuhan, Hubei Province. Information from a variety of sources was reviewed, leading to duplicate cases being removed and missed cases added. Following this review, the total number of cases in Wuhan **increased by 325 and** the total number of deaths **increased by 1290**.
- As of 11 April 2020, **167 countries**, territories and areas have implemented additional health measures that significantly interfere with international traffic.



WHO Director-General's opening remarks at the media briefing on COVID-19 - 17 April 2020

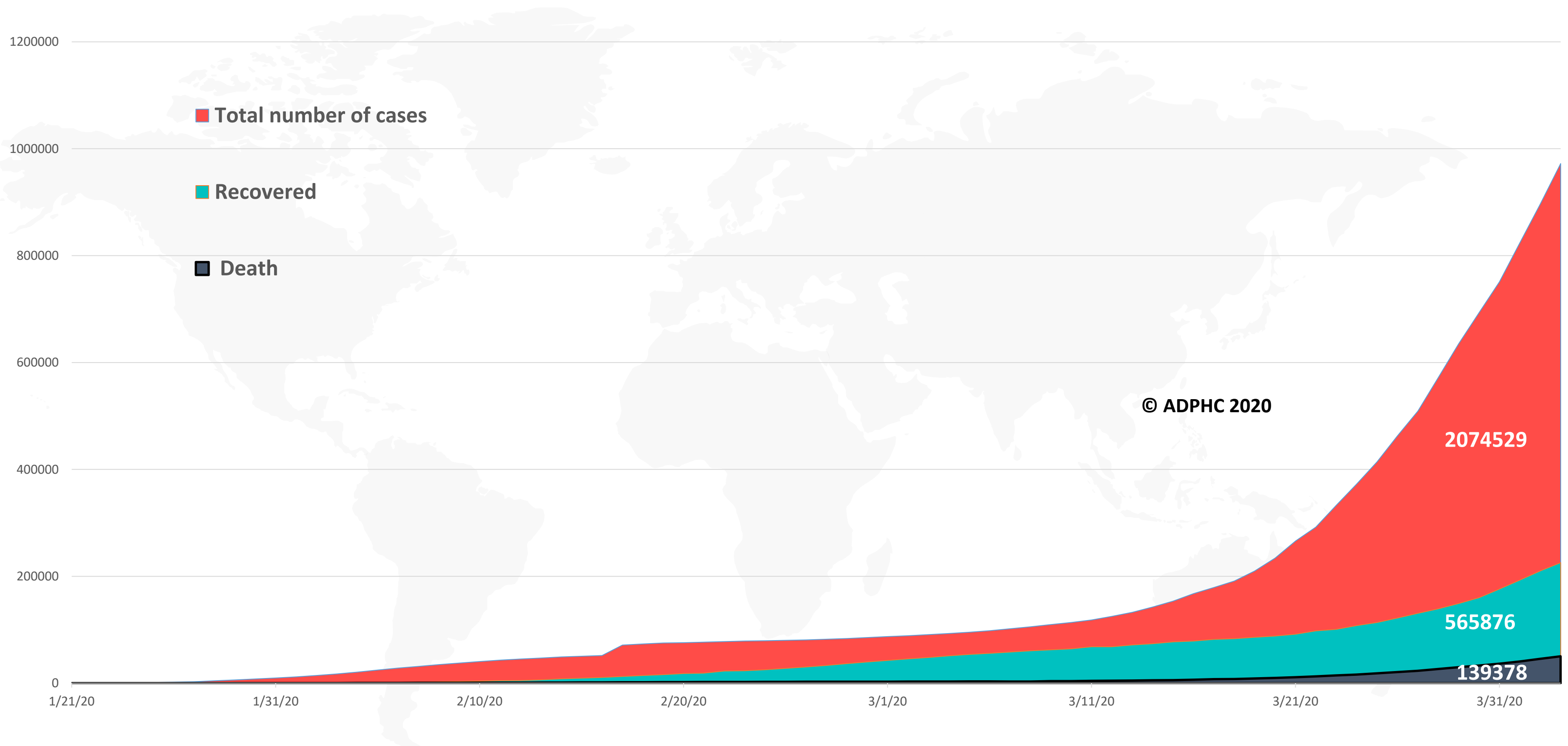
Main important points:

- Solidarity Response Fund has generated more than US\$150 million. This fund aim to buy personal protective equipment, laboratory diagnostics and other essential supplies for the countries that need it most.
- WHO is updating a guidance to include recommendations for **caring for patients during their recovery period and after hospital discharge.**
- Encouraged that several countries in Europe and North America are now starting to plan how to ease social restrictions
- In the past week there has been a **51% increase in the number of reported** cases in my own continent, Africa, **and a 60% increase in the number of reported deaths.**
- The Africa Centers for Disease Control and Prevention announced that **more than 1 million tests for COVID-19 will be rolled out across the continent starting next week.**
- DG spoke to President Emmanuel **Macron of France, Bill Gates and other partners to discuss how to prevent another pandemic by getting vaccines from labs to people as fast as possible** and as equitably as possible.
- Statement on wet market : WHO's position is that when these markets are allowed to reopen, it should only be on the condition that they conform to stringent food safety and hygiene standards.
- **Governments must rigorously enforce bans on the sale and trade of wildlife for food.**
- Because an **estimated 70% of all new viruses come from animals, we also work together closely to understand and prevent pathogens crossing from animals to humans.**

Epidemiology



Figure 1: Total number of infected, recovered, and death cases (January 21st to April 17th, 2020)

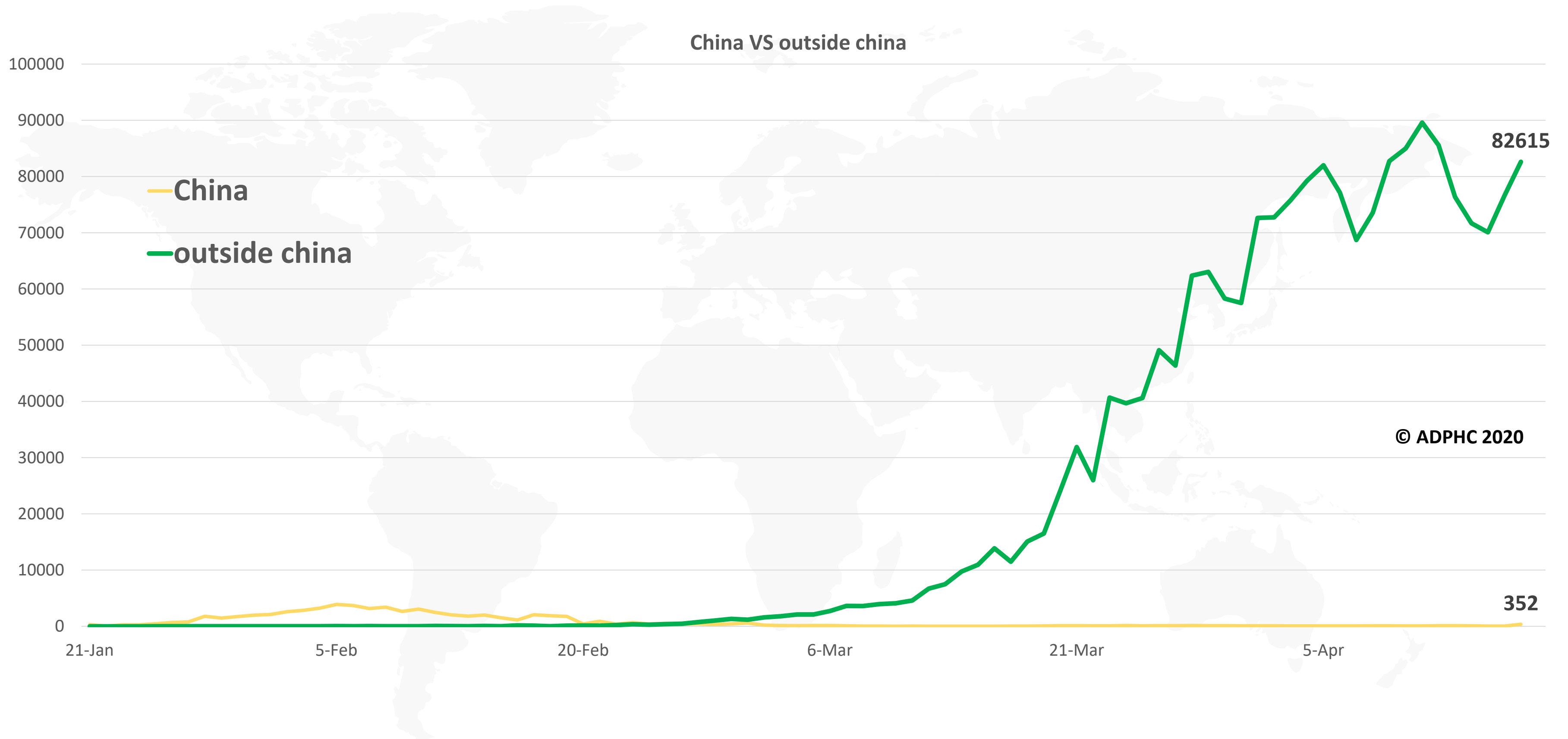


Line graph published by Abu Dhabi Public Health Center 2020.

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



Figure 2: Daily new infected COVID-19 cases reported between (January 21 to April 17^h, 2020).



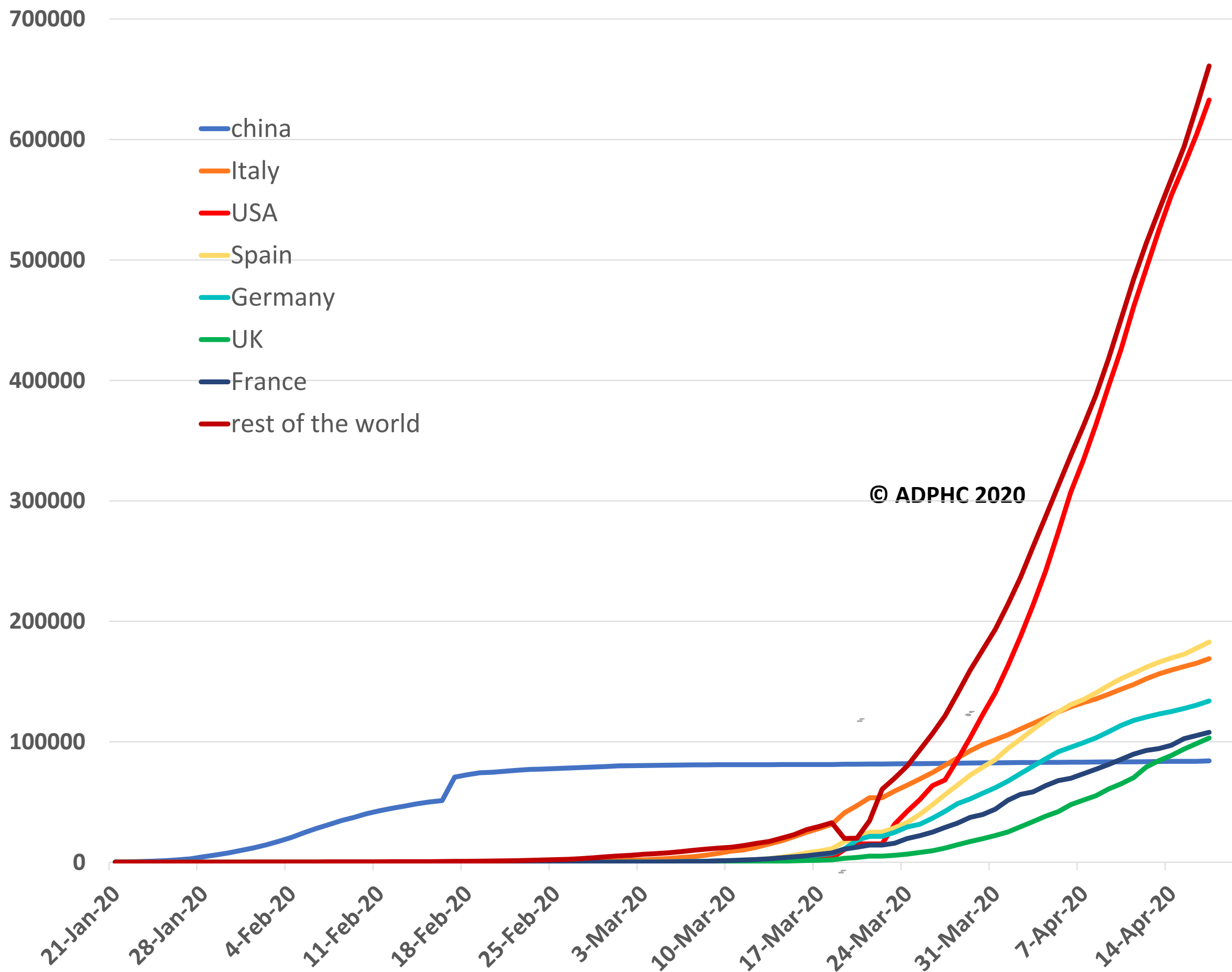
Line graph published by Abu Dhabi Public Health Center 2020.

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

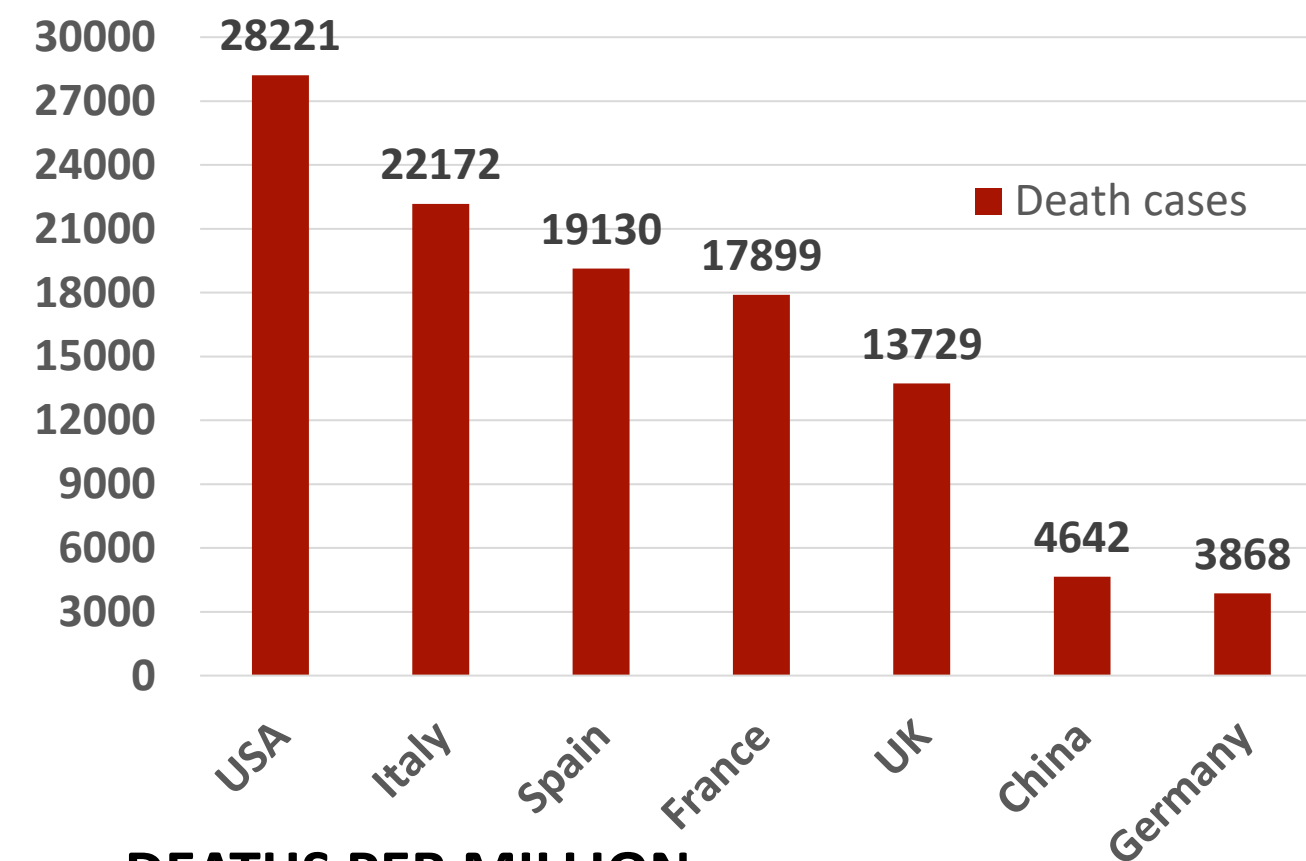
Epidemiology



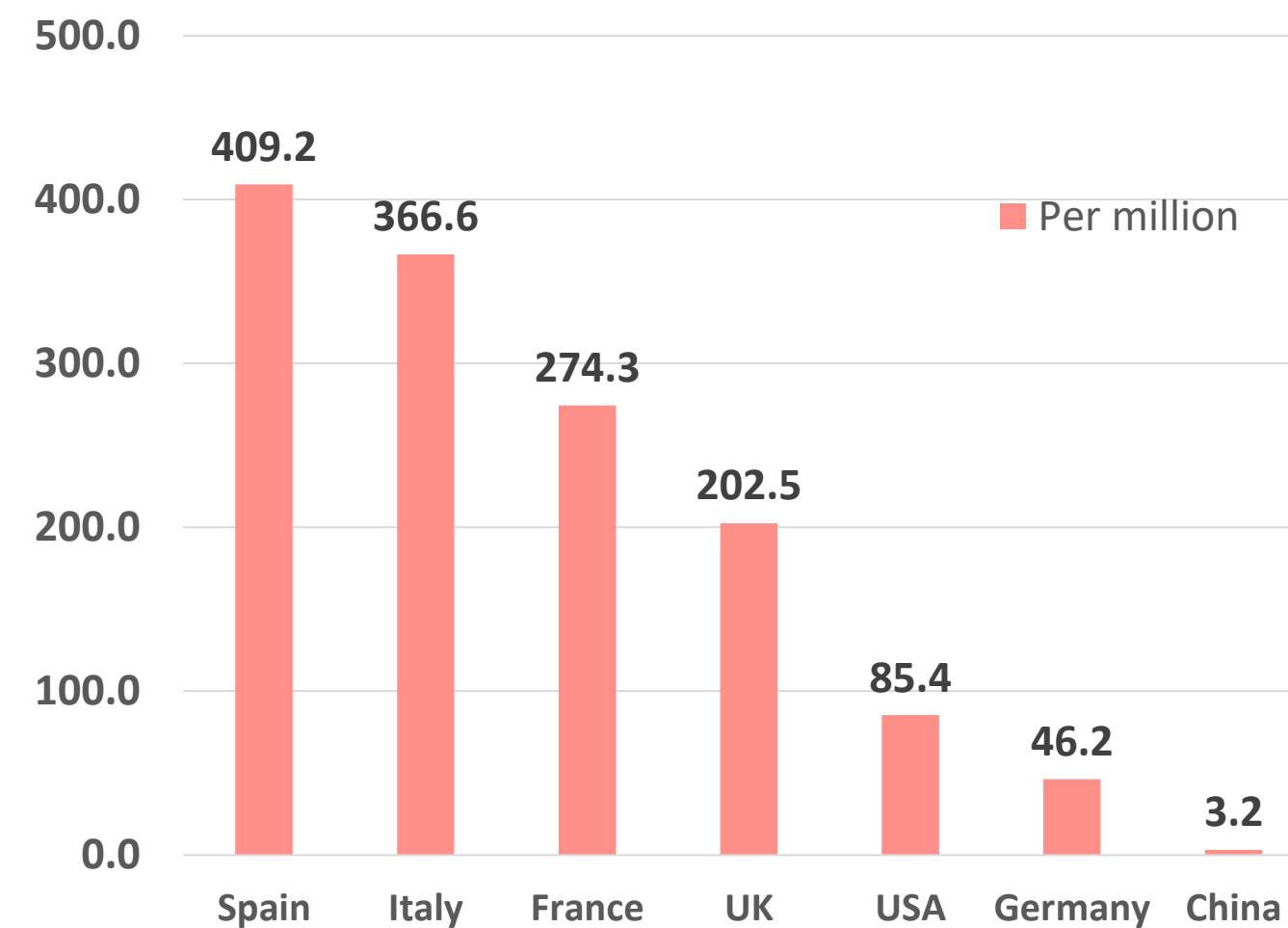
Figure 3 : Top 7 countries in the total number of cases due to COVID-19 (January 21 to April 17th, 2020).



TOTAL DEATHS



DEATHS PER MILLION

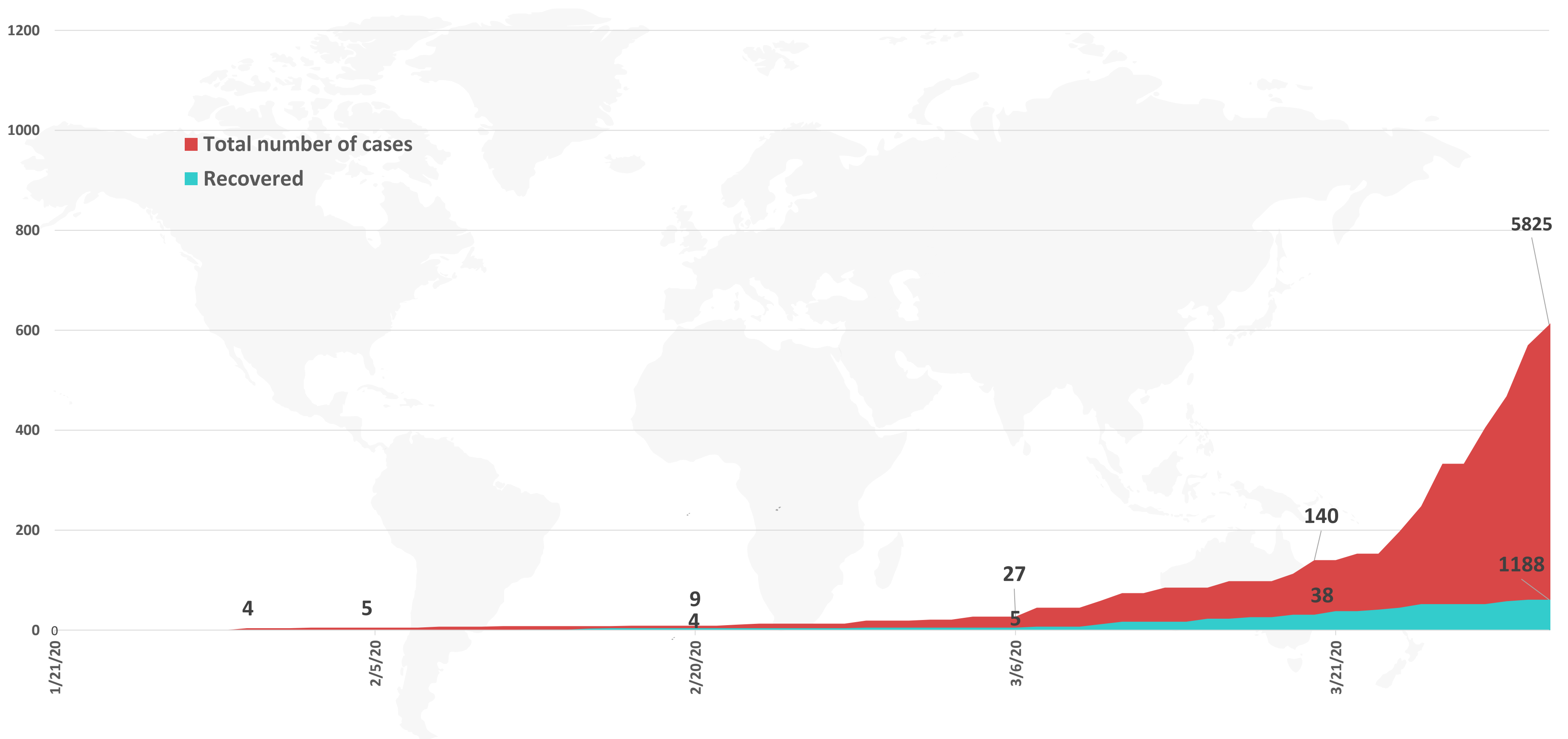


Line graph published by Abu Dhabi Public Health Center 2020.

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



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



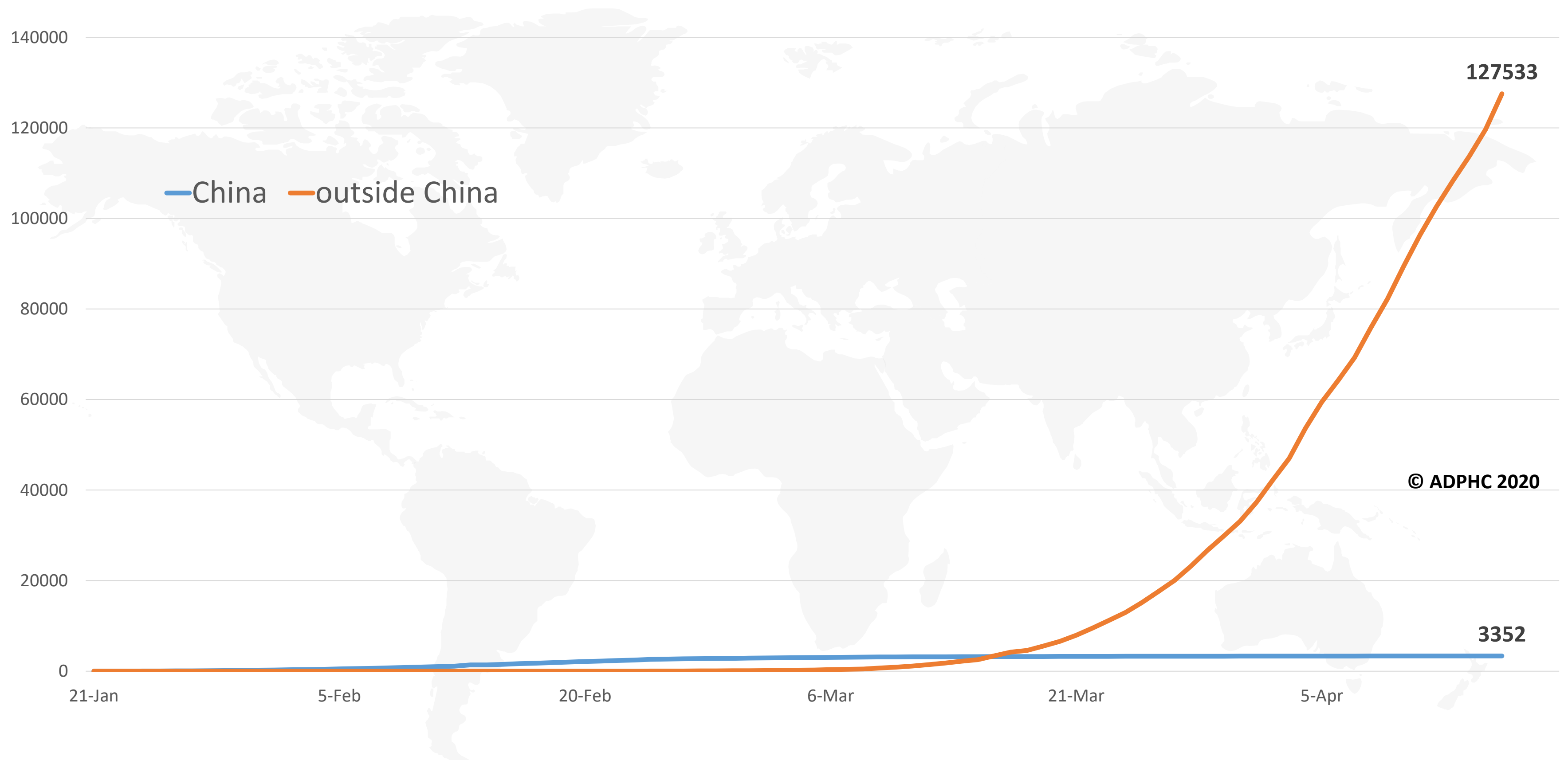
Line graph published by Abu Dhabi Public Health Center 2020.

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 21 to April 17th, 2020).



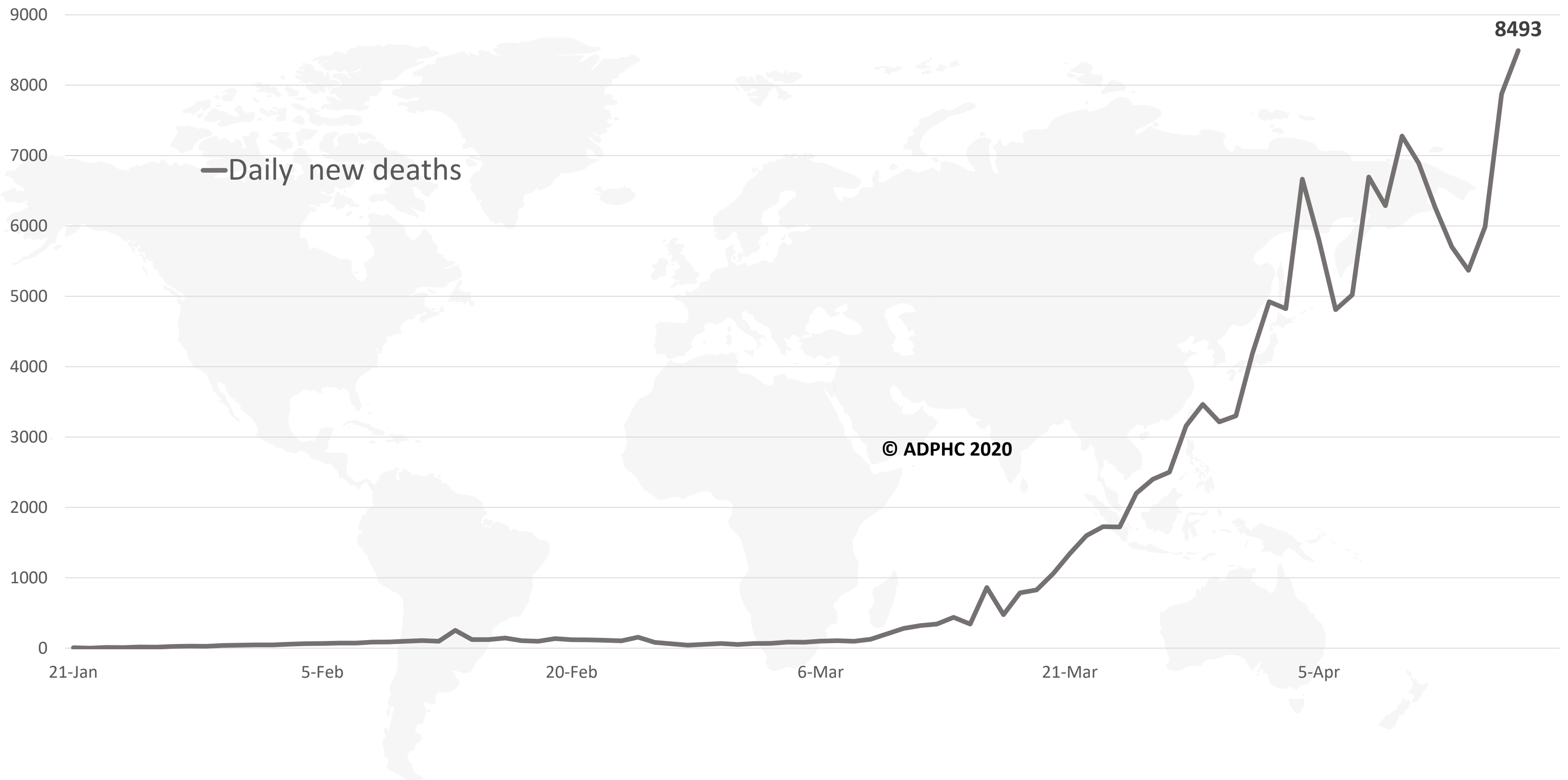
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Line graph published by Abu Dhabi Public Health Center 2020.

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



Figure 6: Global daily new deaths due to COVID-19 (January 21 to April 17th, 2020).



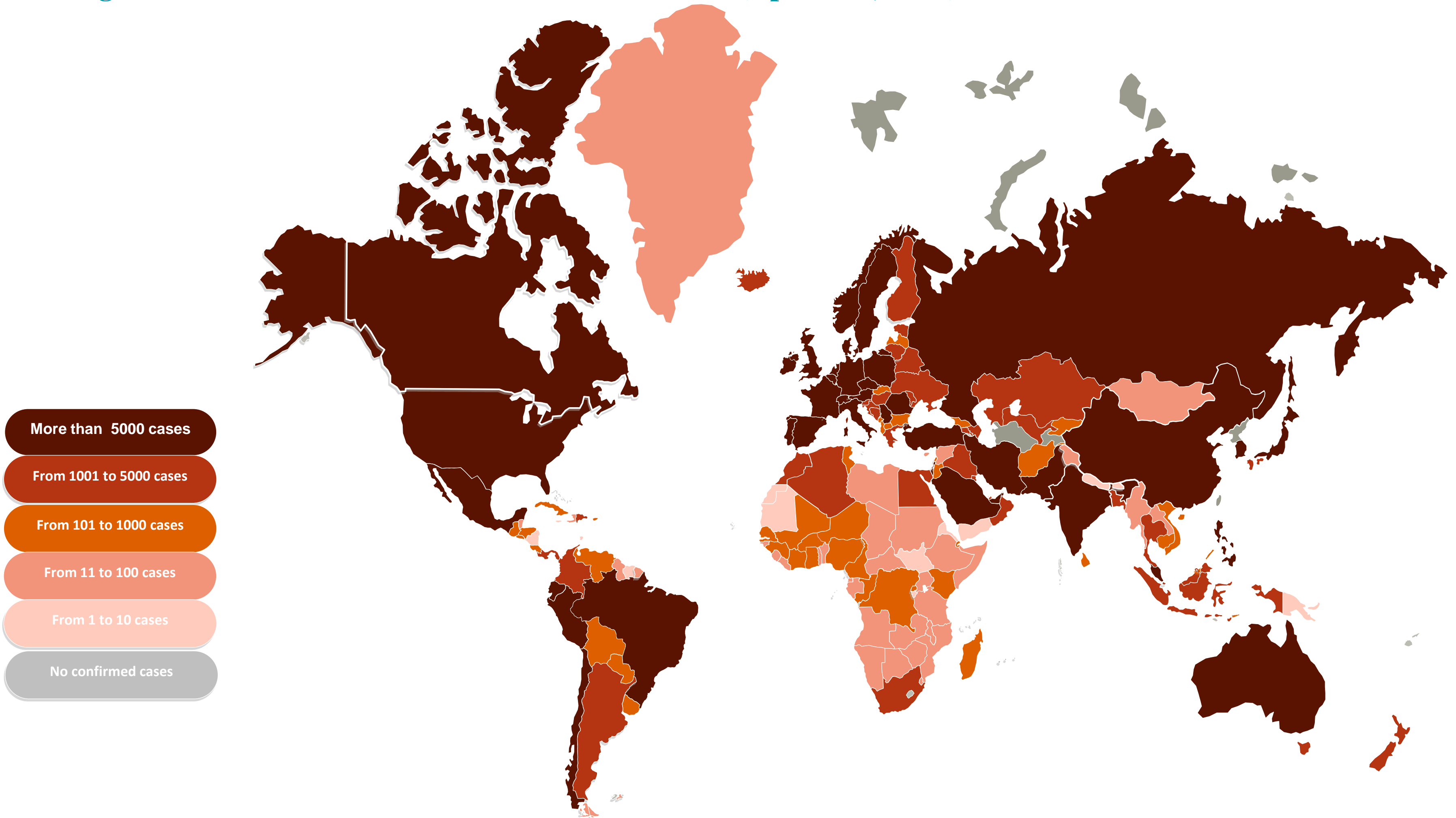
Line graph published by Abu Dhabi Public Health Center 2020.

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

Epidemiology



Figure 7a : Global distribution of COVID-19 cases (April 17th, 2020).

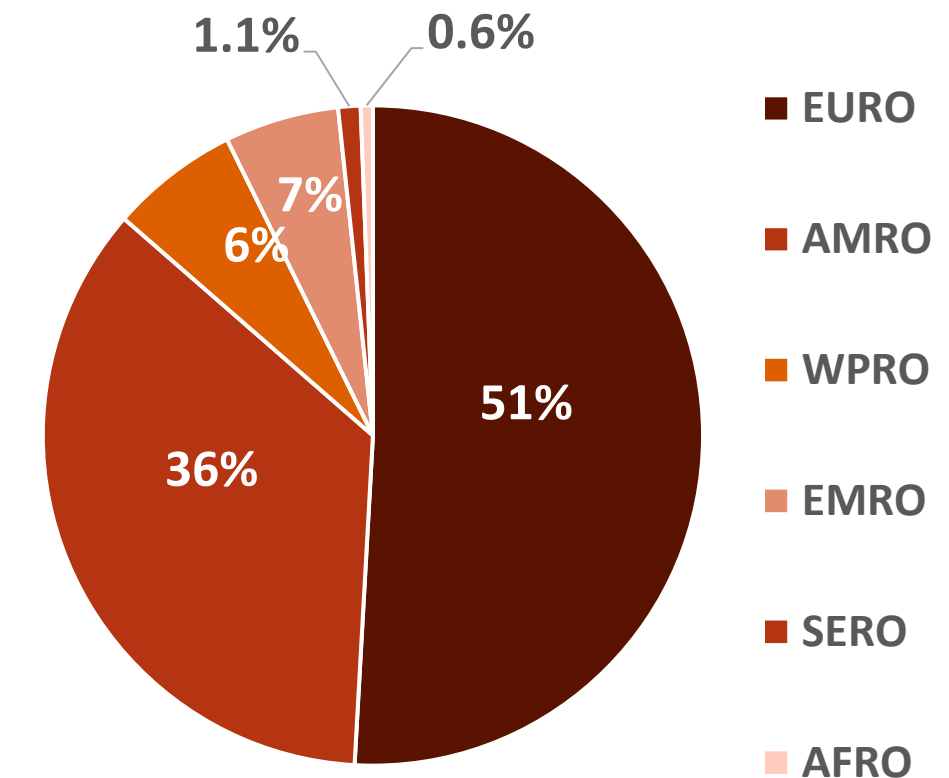
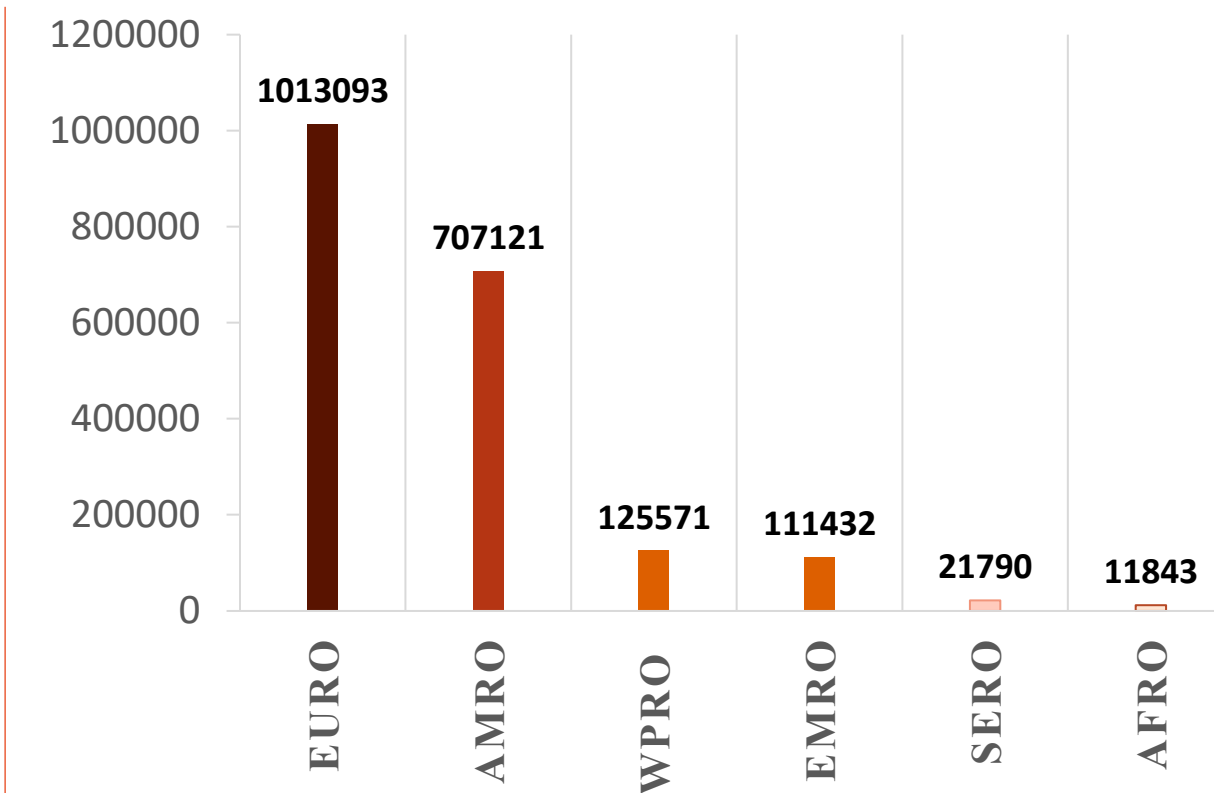


Map chart published by Abu Dhabi Public Health Center 2020.

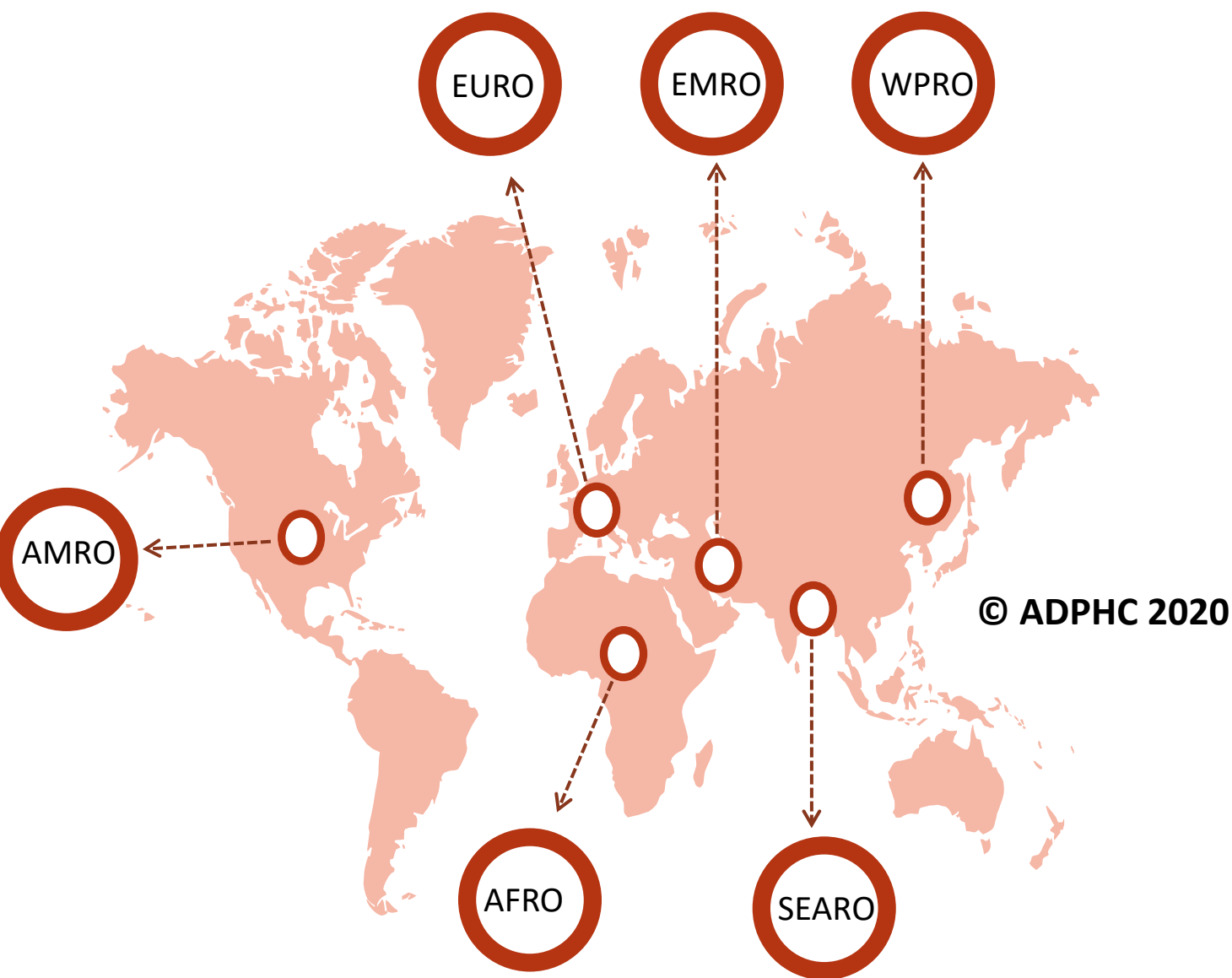
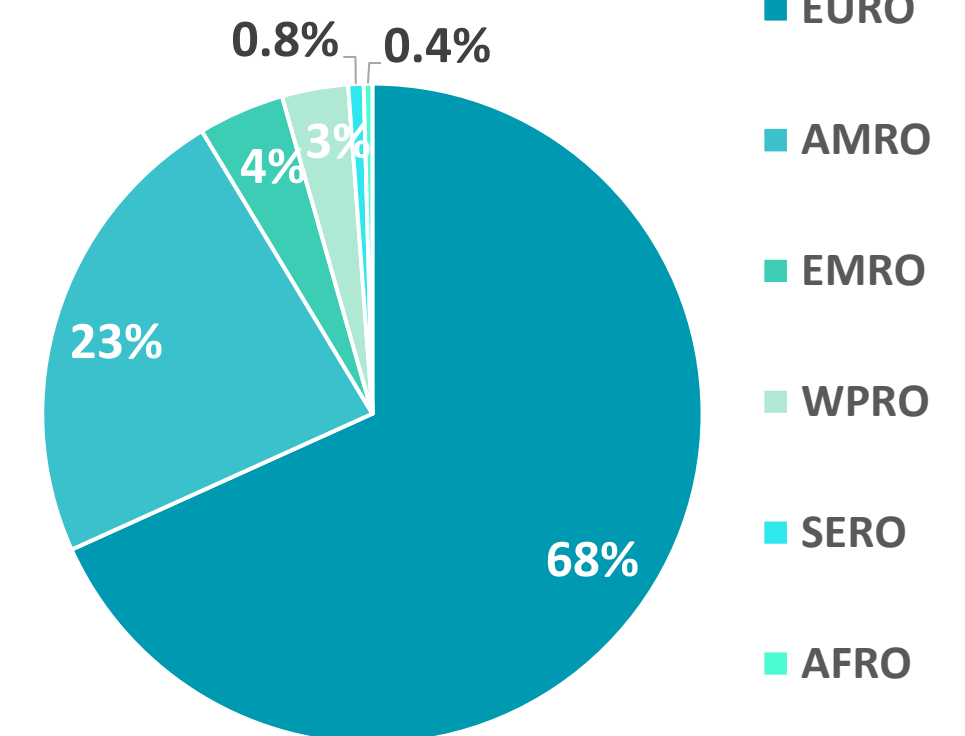
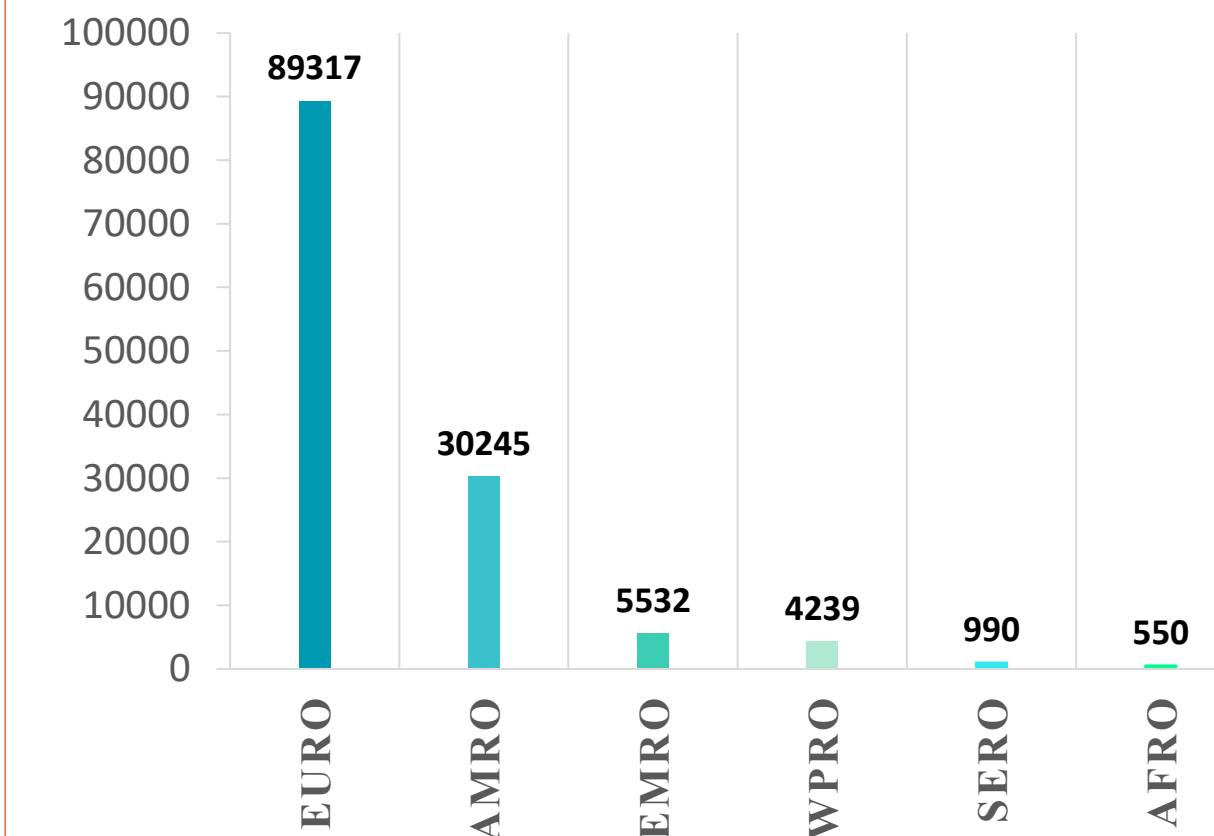


Figure 8: illustrate the Global distribution of COVID19 cases per region (April 17th, 2020)

INFECTED



DEATH



Map chart published by Abu Dhabi Public Health Center 2020.

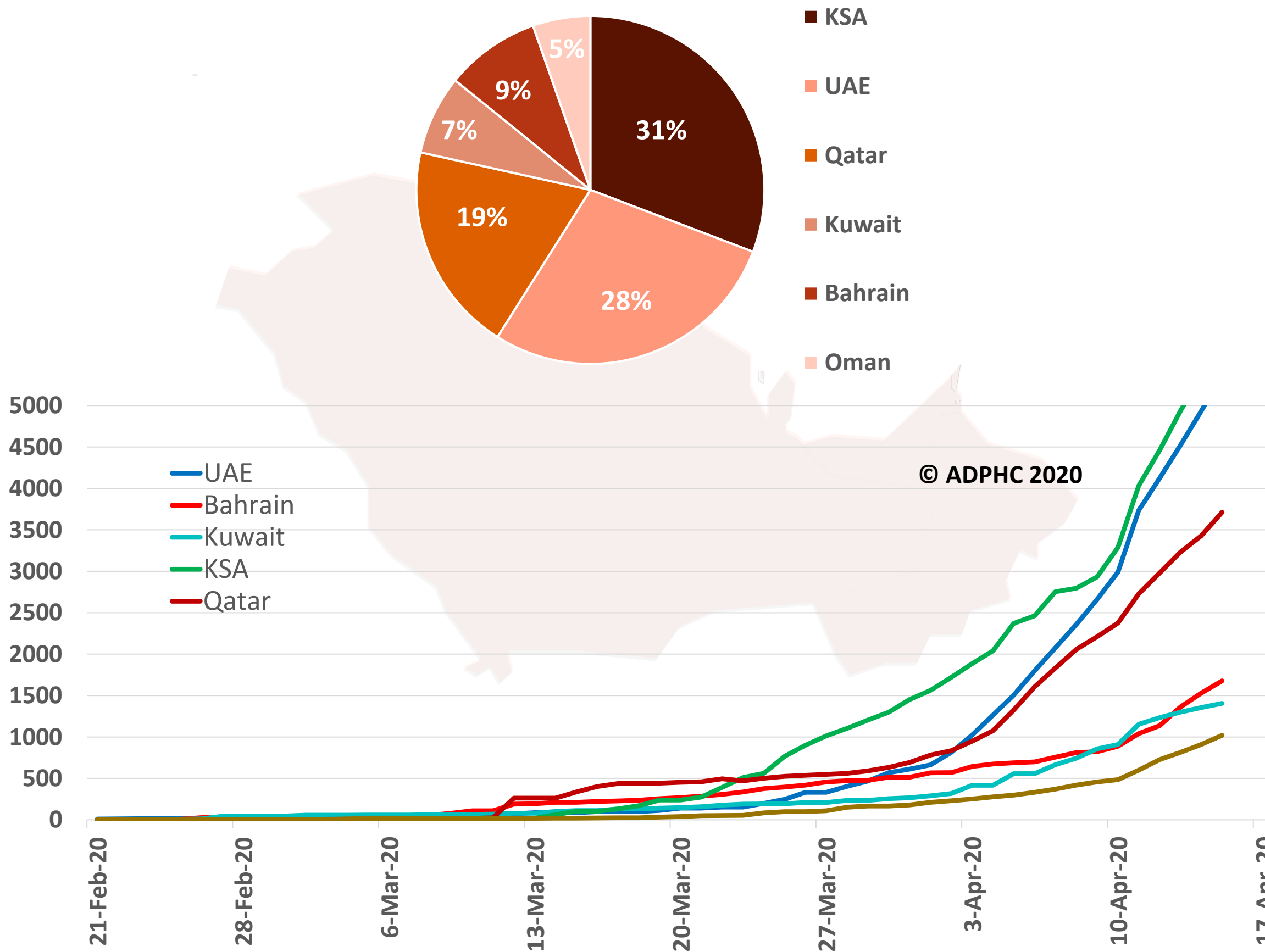
Data resources: [WHO](https://www.who.int)

Epidemiology

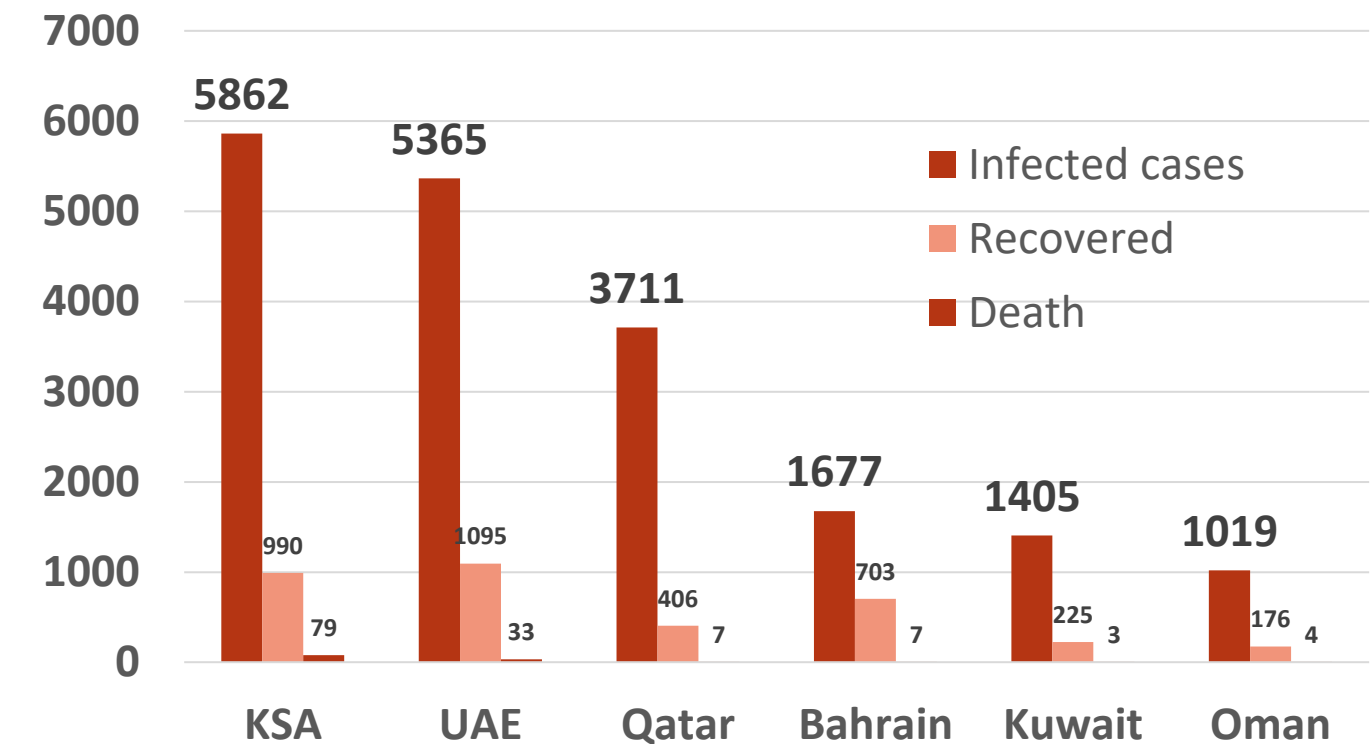


Figure 9: Comparative analysis of the distribution of COVID19 cases in GCC countries (April 17th, 2020)

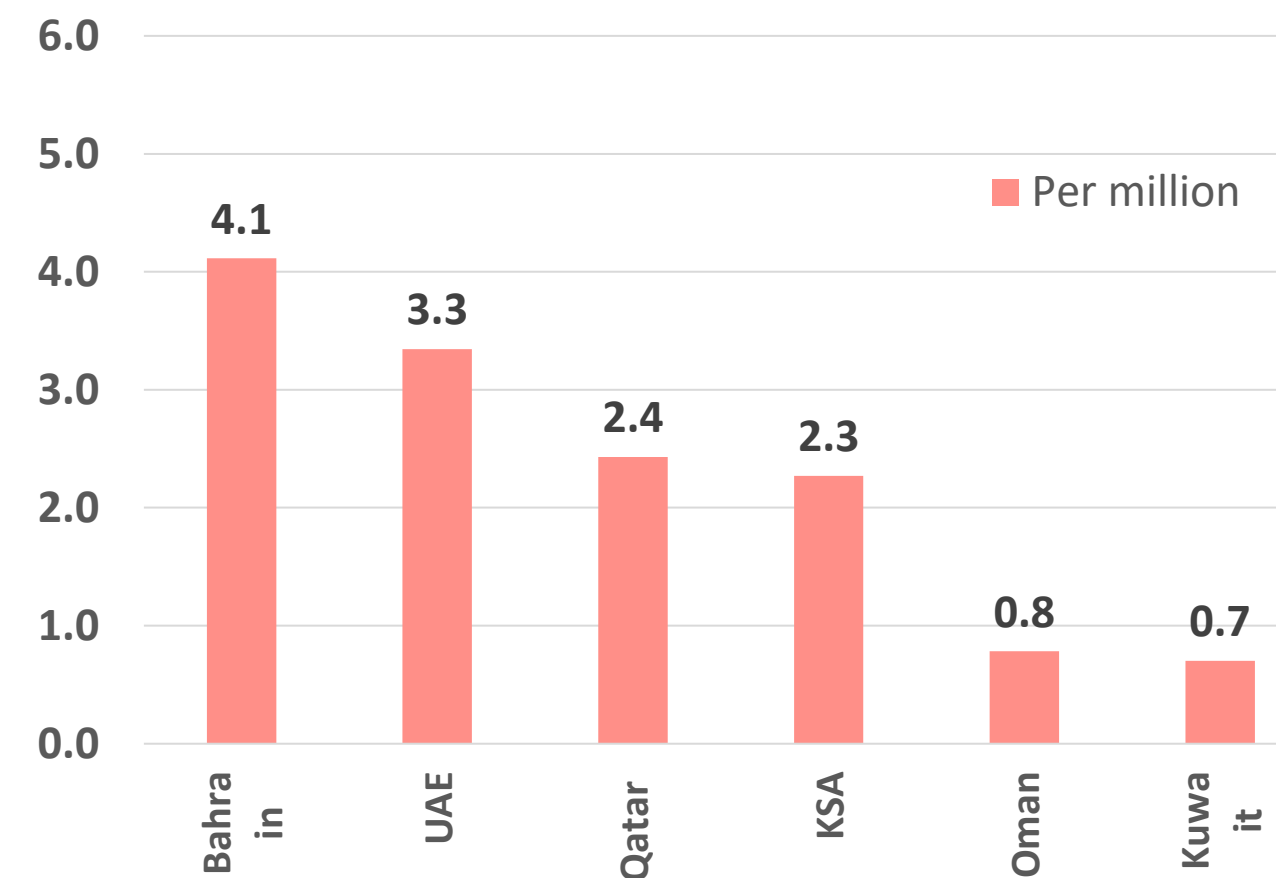
TOTAL NUMBER OF INFECTED CASES



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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Transmission



Article: Visualizing Speech-Generated Oral Fluid Droplets with Laser Light Scattering

Published: April 15, 2020 in [NEMJ](#)

Summary:

This paper described the results of a laser light-scattering experiment in which speech-generated droplets and their route were visualized.

The output from a 532-nm green laser operating at 2.5-W optical power was transformed into about 1 mm thick and 150 mm tall light sheet that was directed through slits on the sides of a box. Droplets were generated when a person spoke through the open end of the box and passed over about 50 to 75 mm before encountered the light sheet. A video camera on the opposite side of the box recorded (through a hole) sound and video of the light scattering events at a rate of 60 frames per second.

Numerous droplets ranging from 20 to 500 μm were generated when a person spoke “stay healthy”. These droplets produced flashes as they passed through the light sheet. The brightness of the flashes reflected the size of the particles and the fraction of time they were present. When same phrase was repeated three times with short interval between the phrases, particles were produced with peak flash count of 347 with the loudest speech and 227 with loudness speech. Furthermore, when same phrase was completed three times through a damp cloth placed on the speaker’s mouth, the flash count remained close to the background level.

These results provided visual evidence of speech generated droplets and qualitatively reported the effect of a damp cloth over the mouth to control the discharge of droplets

To watch the video :

<https://www.nejm.org/doi/10.1056/NEJMc2007800>



Diagnostic :

Article: Estimating false-negative detection rate of SARS-CoV-2 by RT-PCR

Published: April 14 2020 in [medrxiv](#)

Summary:

This article sought to estimate the false-negative rates of Covid-19 using RT-PCR. Using data on 426 tests across 39 patients from 3 study cohorts. However, only two studies reported the swab location (nasal or throat) for each individual test

- **False-negative** = A result that appear negative when it should not.
- **False-positive** = A result that appear positive when it should not.

For example, a person who is infected with the corona virus but his/her result is negative, will be a false-negative

What this study add?

- Test samples taken from back of the nose (nasal swab) are better than throat samples for detection of virus.
- The chance of false-negatives become higher with increase in number of days after symptoms (cough, fever, difficulty in breathing) appeared.
- If we test a patient 10 days after the symptoms have appeared, there is 33% chance of false negative using nasal swab, and 53% chance using throat swab.

This article is Summarized by subject matter expert

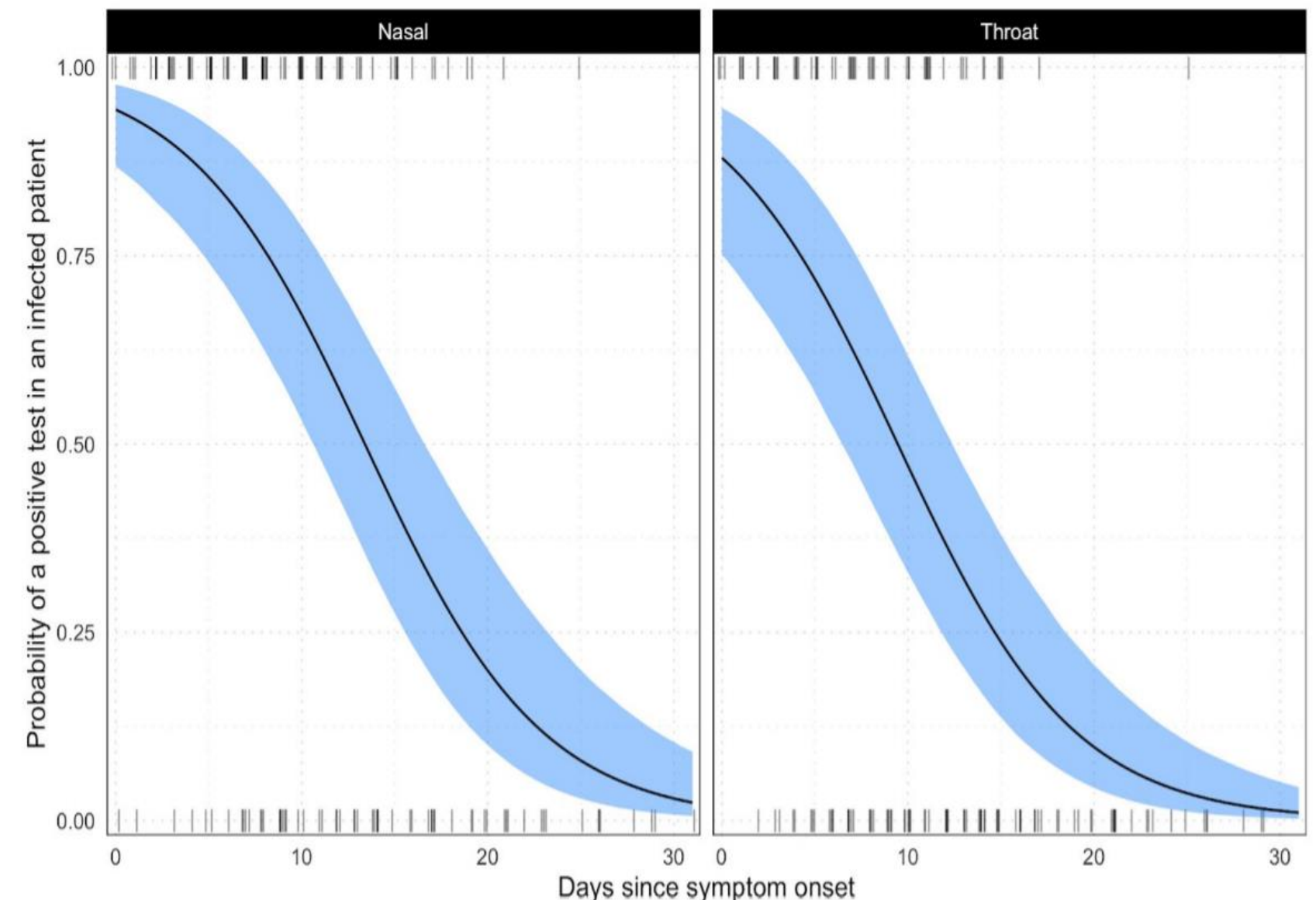


Figure 1: Small black line in top indicate positive tests while small black lines in the bottom are negative test.

Public Health Message

- People with COVID-19 symptoms and who receive a negative test, should still self-isolate.
- They should have a second test after couple of days.
- Patients should only be released from hospitals or quarantine if two repeat tests are negative

Treatment



Article: Drug Evaluation during the Covid-19 Pandemic

Published: April 14, 2020 in [NEMJ](#)

Summary:

The article is criticizing the current process in evaluating drug efficacy by regulators during the COVID19 pandemic. As many off label use and investigational drugs have been authorized for use with unapproved indications.

The author remark as the same process happened previously in the H1N1 influenza outbreak where peramivir was used without rigors tracking. Ultimately, a randomized, controlled trial failed to show any benefit of peramivir as compared with placebo

Widening access to experimental therapies that have not been fully evaluated is likely to have several unintended consequences:

- Benefits to patients are unknown and may be negligible (as in the case of peramivir), in which case expanded access undermines physicians' attempts to practice evidence-based medicine.
- Medications such as hydroxychloroquine have well-documented risks; subjecting patients to these risks would **be unjustifiable in the absence of meaningful clinical benefit.**
- Distributing unproven drugs under expanded access or **EUAs may detract from the resources needed to carry out clinical trials**, including the patient base and necessary funds.

Conclusion

- With drugs that are already marketed for other conditions, **widespread off-label use can limit access for patients who need them** for their established use. (e.g., HCQ in rheumatoid arthritis or lupus).
- well-conducted randomized, controlled trials in these acutely ill patients can actually be carried out quite rapidly. (especially in this rapidly growing pandemic) as Thousands of new patients with Covid-19 present for care each day, and many can be (and are) quickly enrolled in pragmatic clinical trials. **The most relevant clinical outcomes for evaluating these drugs** — including death, hospitalization, number of days spent in intensive care, and need for a ventilator — are readily assessed and available within days or weeks.
- **Rigorous premarketing evaluation of drugs' safety and effectiveness** in randomized, controlled trials remains **our primary tool for protecting the public** from drugs that are ineffective, unsafe, or both.
- It is a false dichotomy to suggest that we must choose between rapid deployment of treatments and adequate scientific scrutiny.
- Damage to the country's medication-assessment process — and the public's respect for it — should not be part of its legacy.