

ABU DHABI PUBLIC
HEALTH CENTRE

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Scientific Research Monitoring on COVID-19

21 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 : evidence that higher temperature maybe associated with lower incidence with COVID19.

Clinical feature and transmission: a population study on Iceland showed that 43% of the participants who tested positive reported having no symptoms, although symptoms almost certainly developed later in some of them.

Public health response: A new proposal from UK experts to change the lockdown exist strategy of their government to a whole population test in one of the high risk towns.

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

[Epidemiological, clinical and virological characteristics of 74 cases of coronavirus-infected disease 2019 \(COVID-19\) with gastrointestinal symptoms](#)

[An Uncomplicated Delivery in a Patient with Covid-19 in the United States](#)

[Profile of RT-PCR for SARS-CoV-2: a preliminary study from 56 COVID-19 patients](#)



WHO daily report 20 April 2020 (1/2)

- No new country/territory/area reported cases of COVID-19 in the past 24 hours.
- The urgent need for a COVID-19 vaccine underscores the pivotal role immunizations play in protecting lives and economies. In the European Immunization Week 2020, stress on **‘we must not, especially now, let down our guard on immunizations** have been emphasized.
- WHO has published a brief on the use of non-steroidal anti-inflammatory drugs (NSAIDs) in patients with COVID-19. Concerns have been raised that NSAIDs may be associated with an increased risk of adverse effects. However, **at present there is no evidence of severe adverse effects.**
- WHO has recently published an updated strategy to help guide the public health response to COVID-19 which is available [here](#), main points :
 - One important lesson is that **the faster** and the more effective we are at finding all suspected cases of COVID-19, testing, isolating and treating the confirmed cases and tracing their contacts, **then the harder we make it for the virus to spread.**
 - Without careful planning, and in the absence of scaled up public health and clinical care capacities, the premature lifting of physical distancing measures is likely to lead to an uncontrolled resurgence in COVID-19 transmission and an amplified second wave of cases.



WHO daily report 20 April 2020 (2/2)

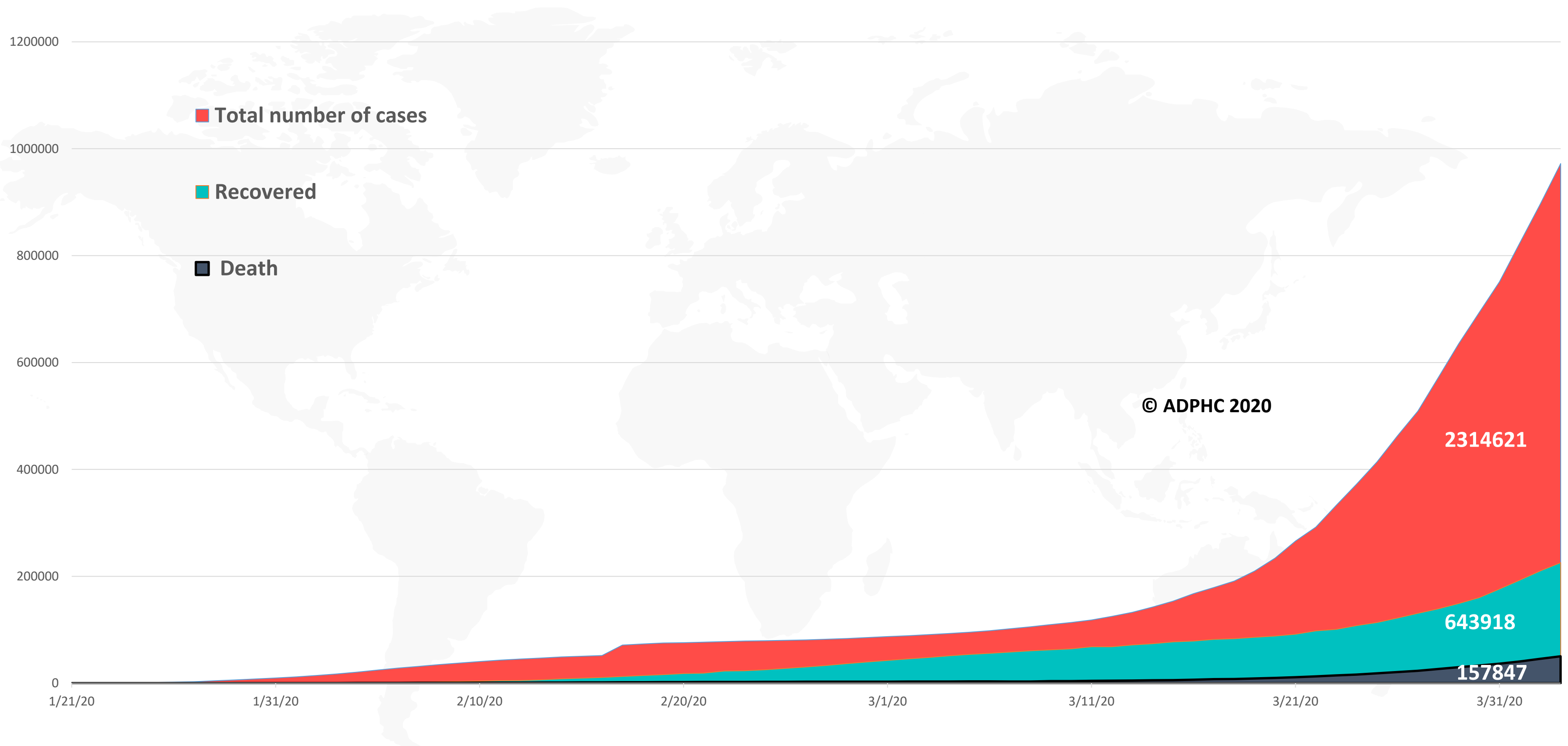
An update on following WHO team have been presented:

- **Emergency Medical Teams (EMT):**
 - technical team are deployed to countries in need , guidance in virus medical response topic have been developed by the team.
- **The Global Health Cluster GHC:**
 - 900 teams are currently available in 29 countries to support case identification of COVID19 , especially in countries with complex setting (e.g. isolation in camp-like settings with Shelter and Camp Coordination and Camp Management Clusters).
- **The Global Outbreak Alert and Response Network,(GOARN):**
 - The team mainly focuses on operation support and research , capacity support .
 - The GOARN plan to launch public information hub on GOARN Knowledge Platform for COVID-19 to share resources from partners and other stakeholders.
- **Risk Communications and Community Engagement. (RCCE)**
 - Focuses on coordination and collaboration among key stakeholders including community
 - Guidance and webinars on engagement with faith-based organizations and religious leaders are underway this week ahead of Ramadan .

Epidemiology



Figure 1: Total number of infected, recovered, and death cases (January 21st to April 20th, 2020)

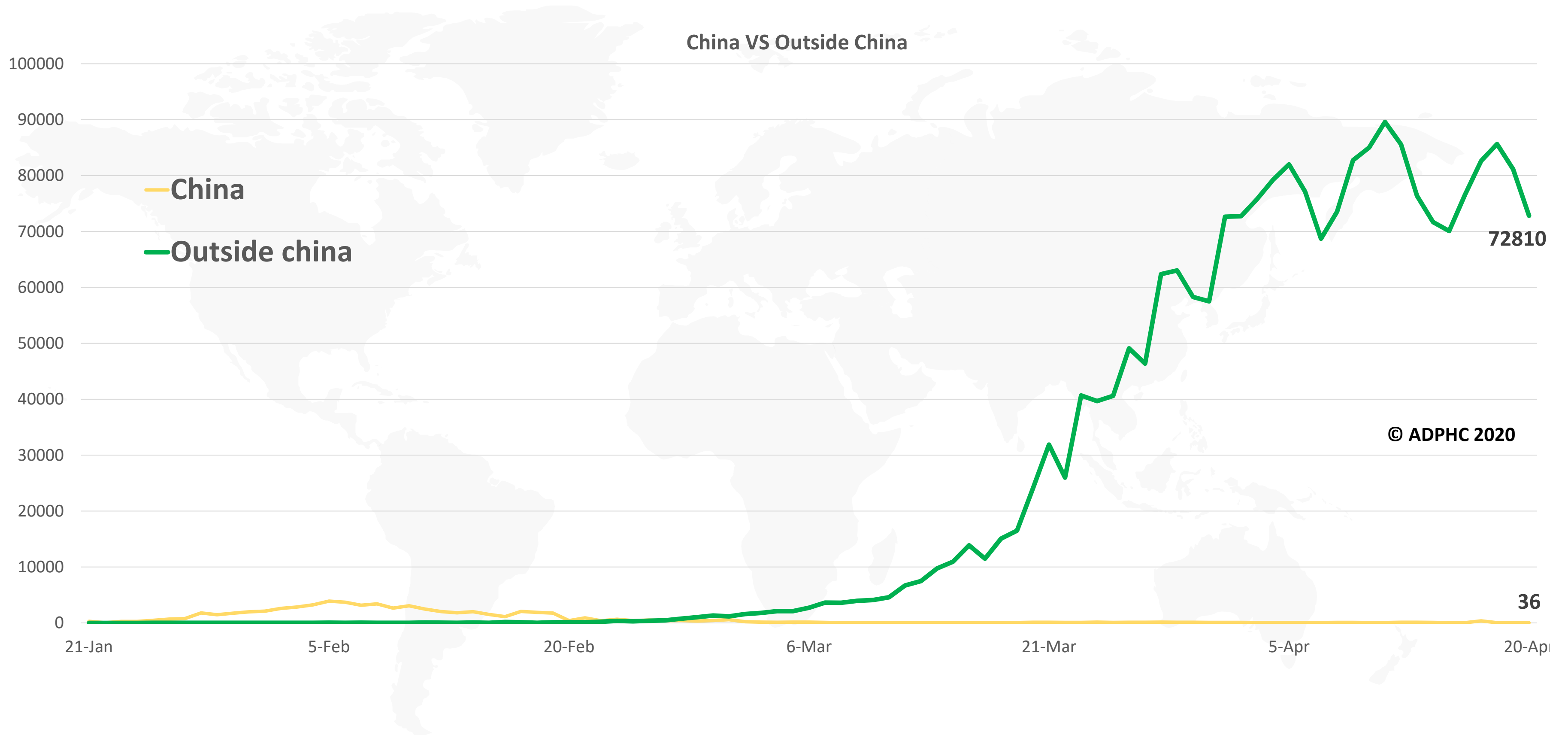


Line graph published by Abu Dhabi Public Health Center 2020.

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



Figure 2: Daily new infected COVID-19 cases reported between (January 21 to April 20^h, 2020).



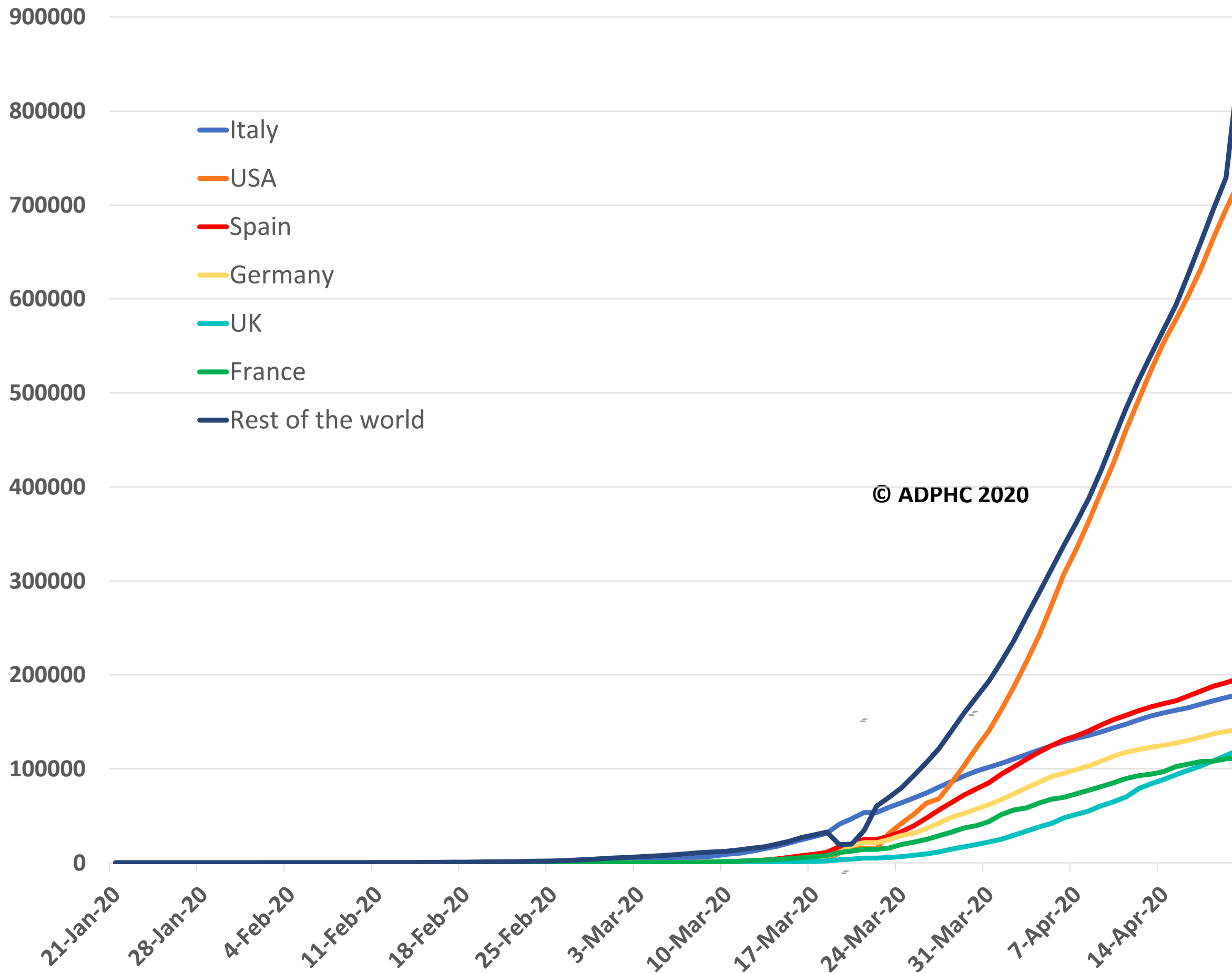
Line graph published by Abu Dhabi Public Health Center 2020.

Data resources: [WHO](#)

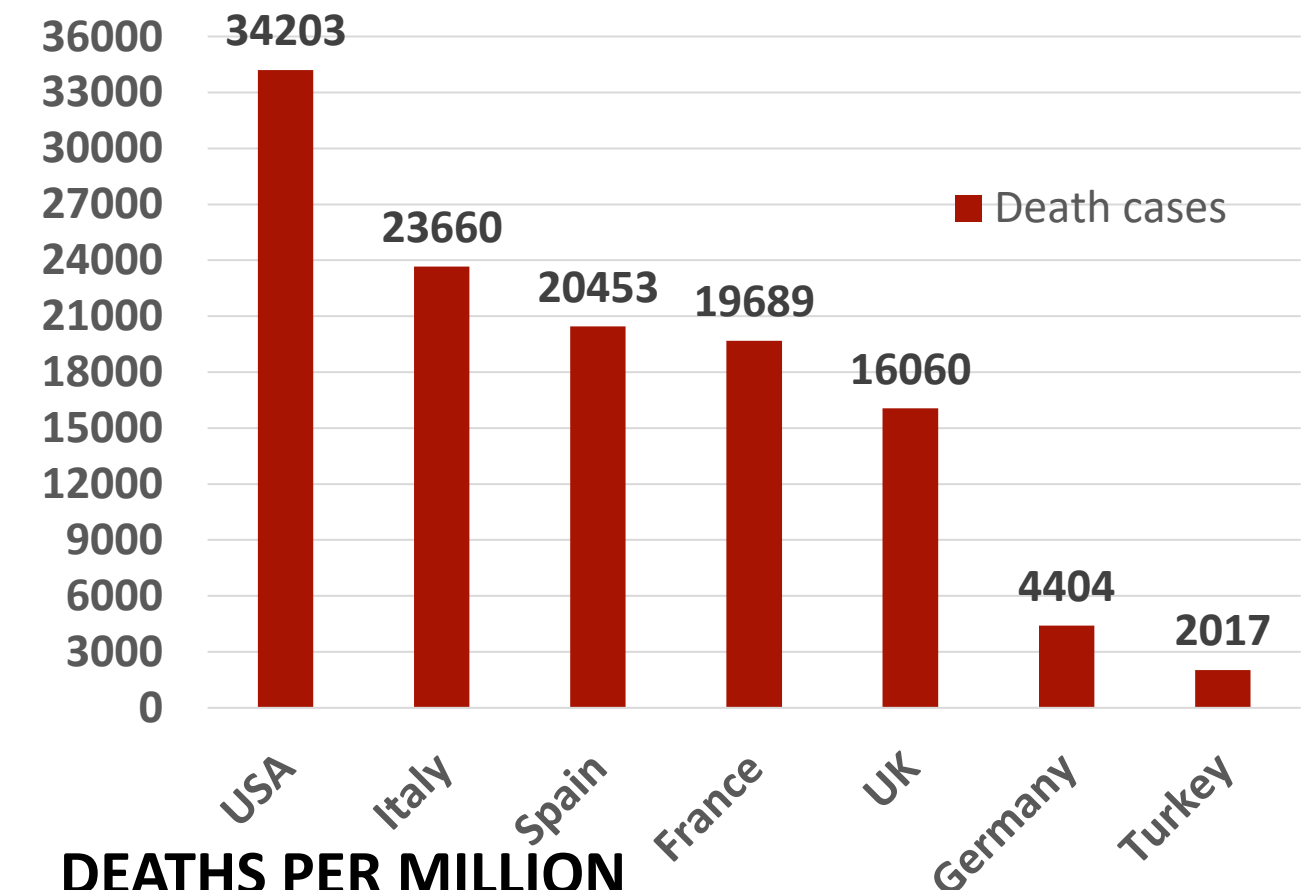
Epidemiology



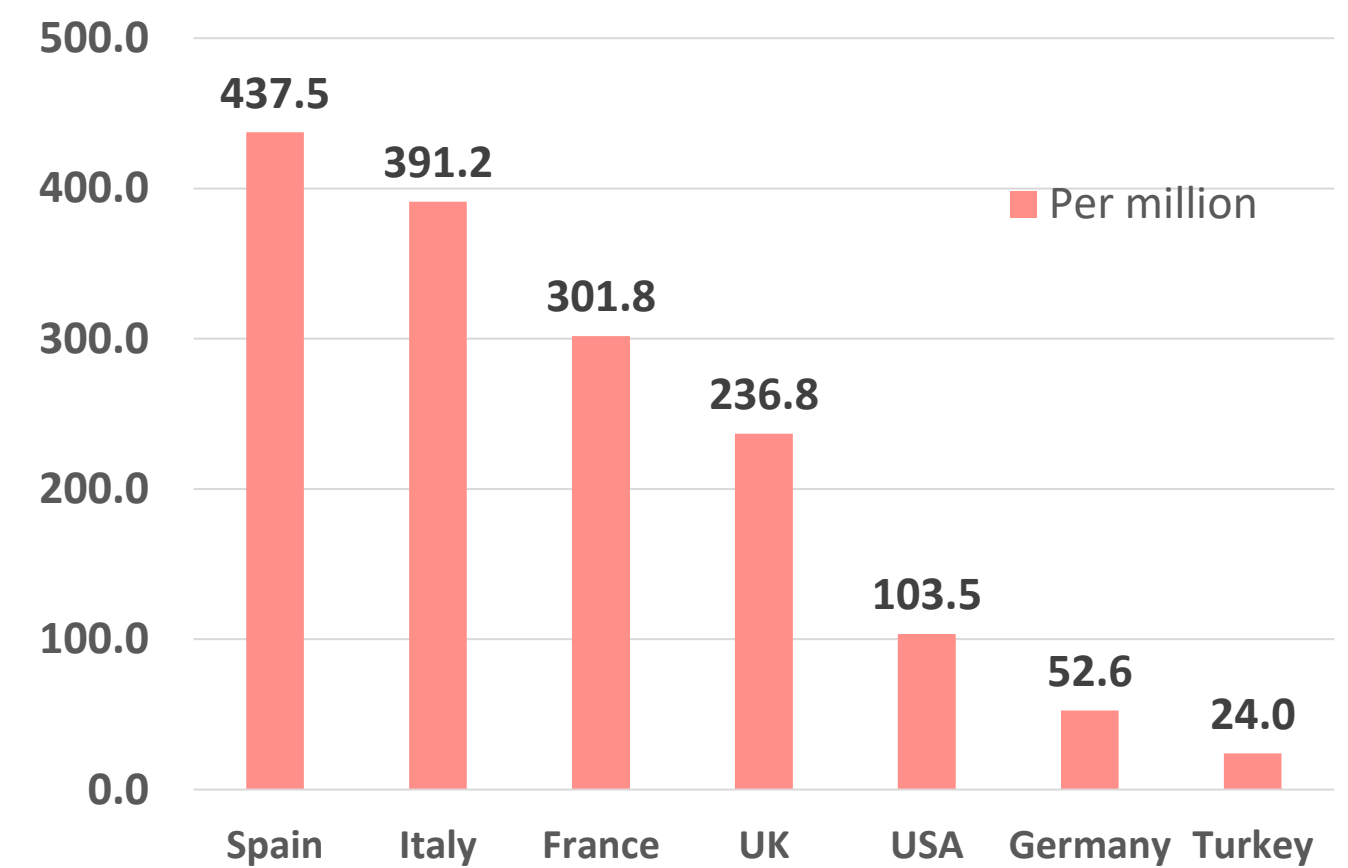
Figure 3 : Top 7 countries in the total number of cases due to COVID-19 (January 21 to April 20th, 2020).



TOTAL DEATHS



DEATHS PER MILLION

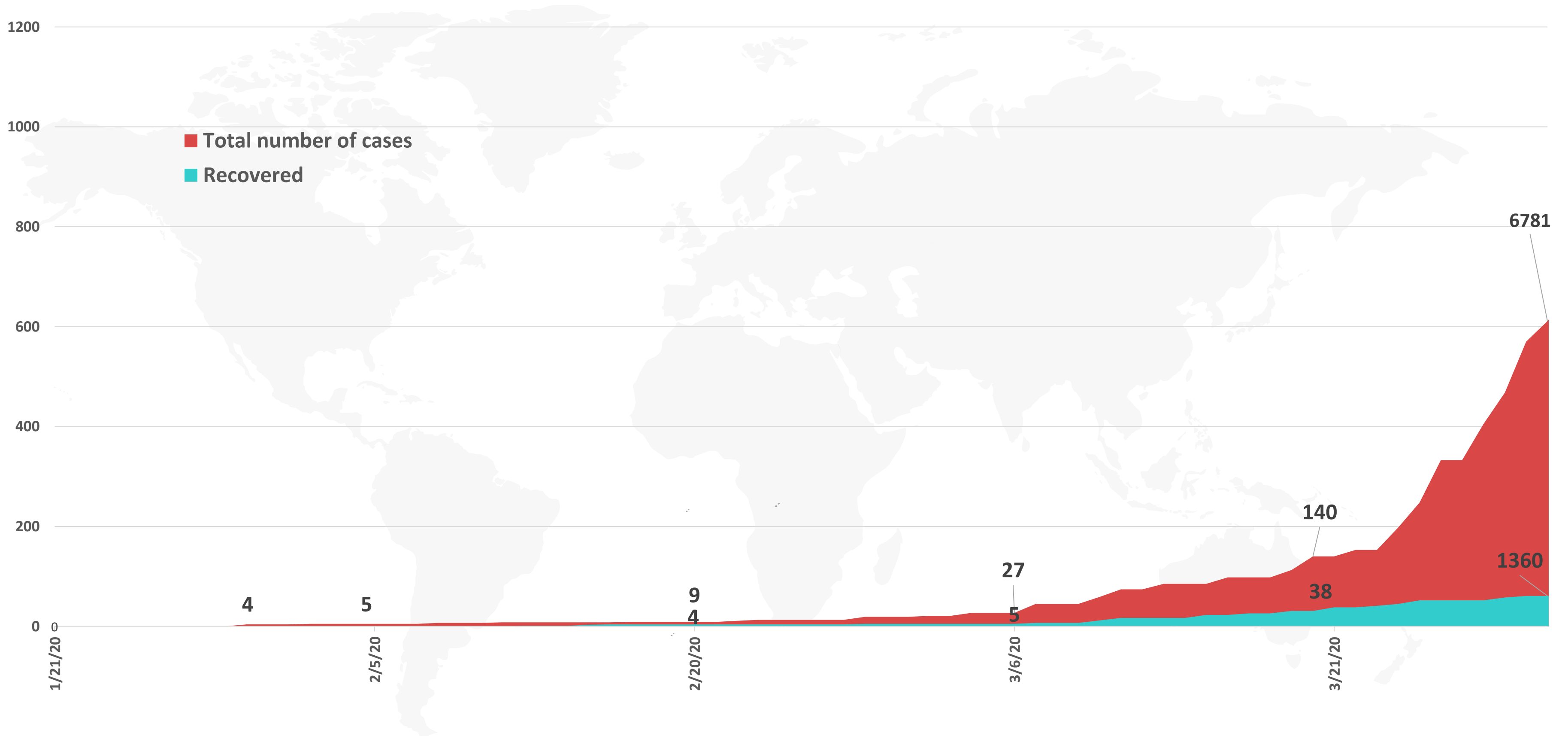


Line graph published by Abu Dhabi Public Health Center 2020.

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



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



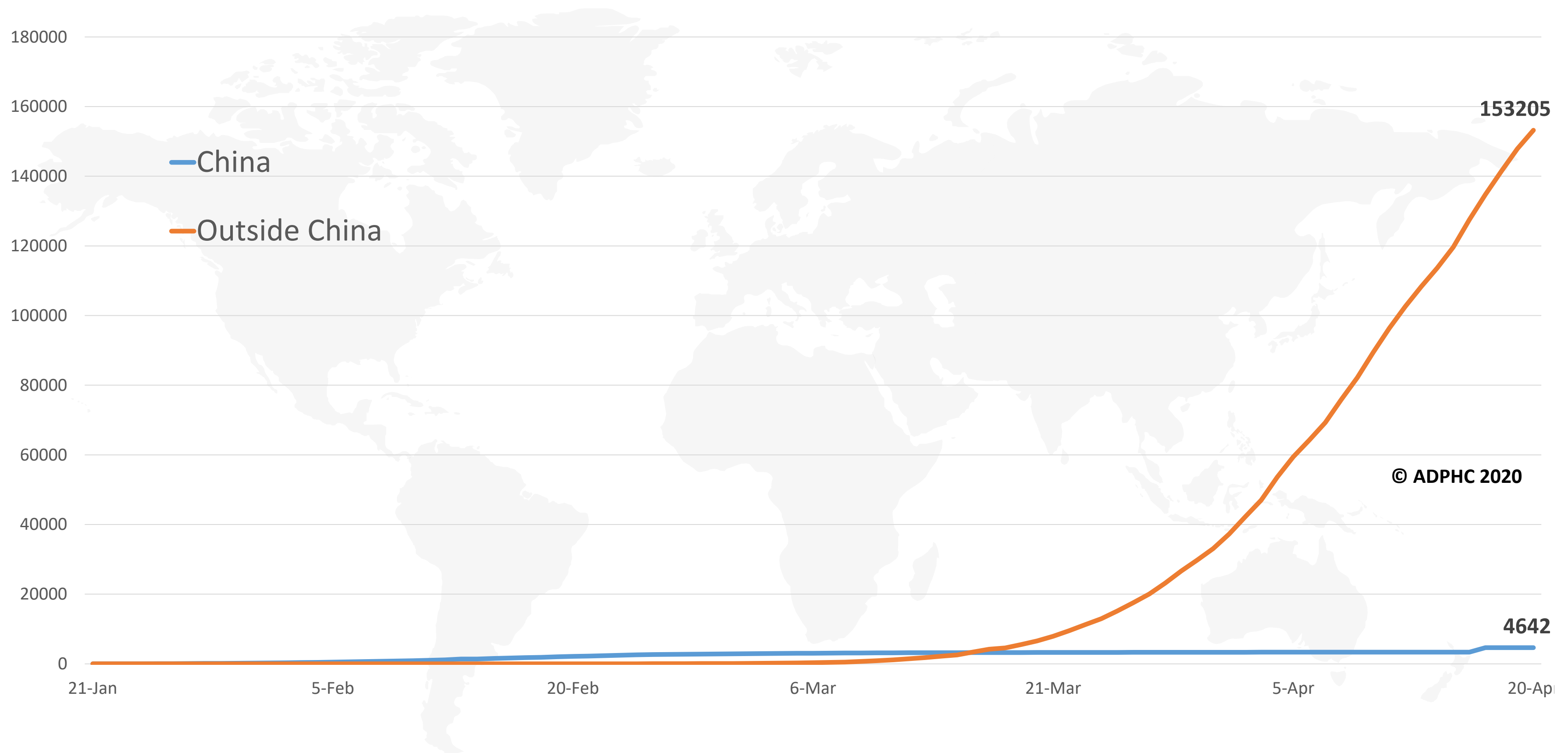
Line graph published by Abu Dhabi Public Health Center 2020.

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 20th, 2020).



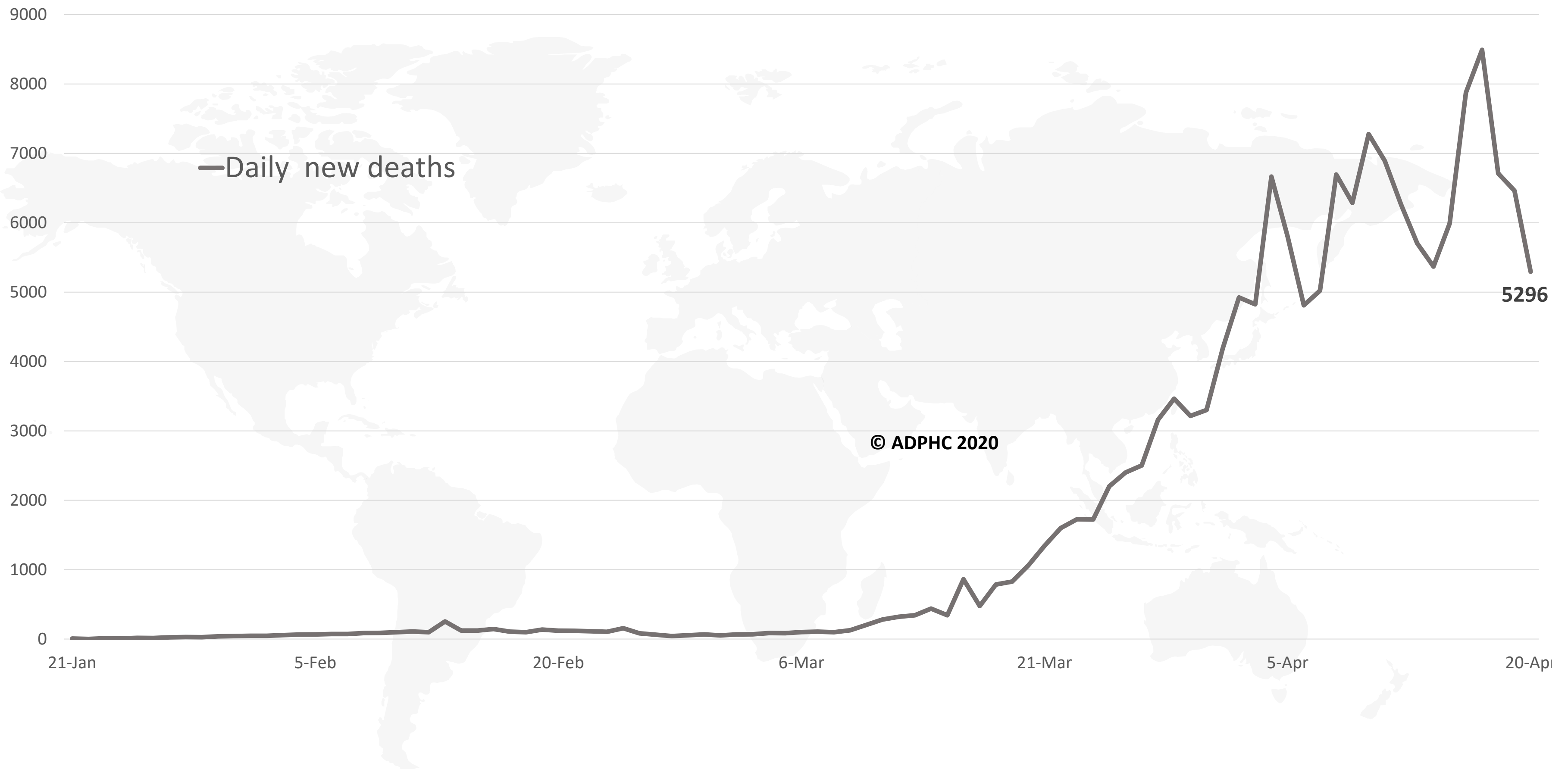
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Line graph published by Abu Dhabi Public Health Center 2020.

Data resources: [WHO](#)



Figure 6: Global daily new deaths due to COVID-19 (January 21 to April 20th, 2020).



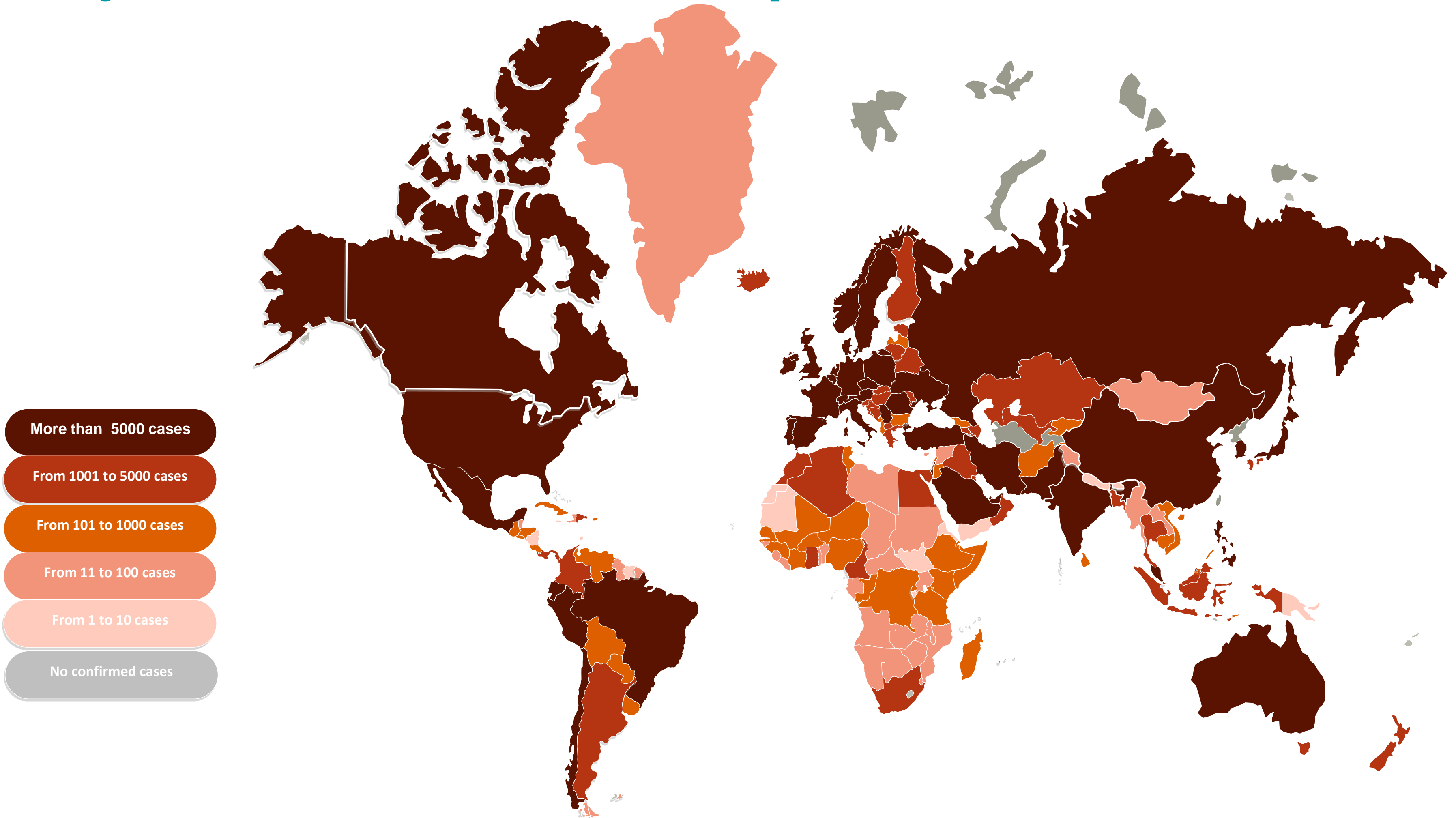
Line graph published by Abu Dhabi Public Health Center 2020.

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

Epidemiology



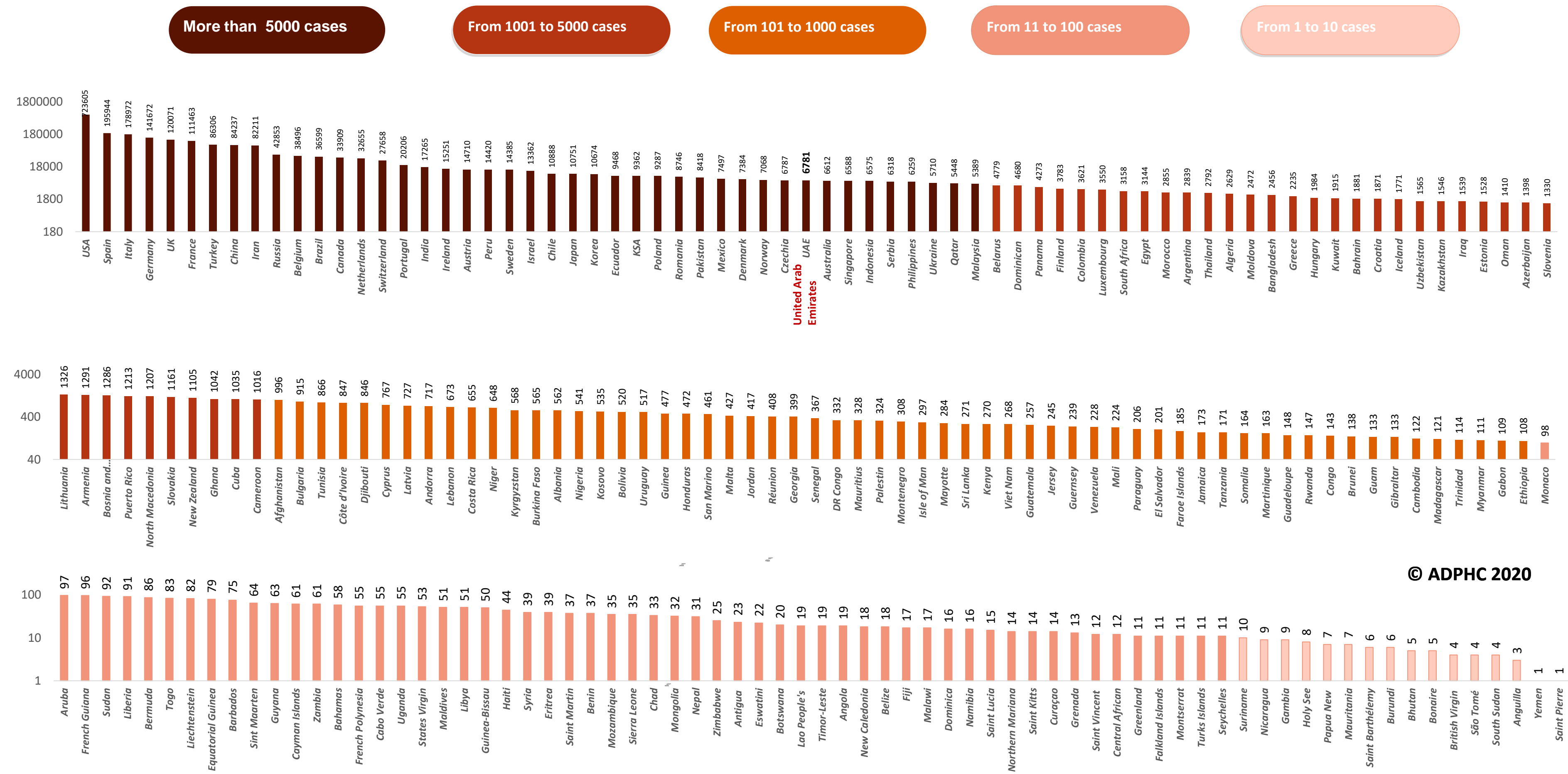
Figure 7a : Global distribution of COVID-19 cases (April 20th, 2020).



Map chart published by Abu Dhabi Public Health Center 2020.



Figure 7B: Bar chart illustrate the global distribution of COVID19 cases April 20th, 2020



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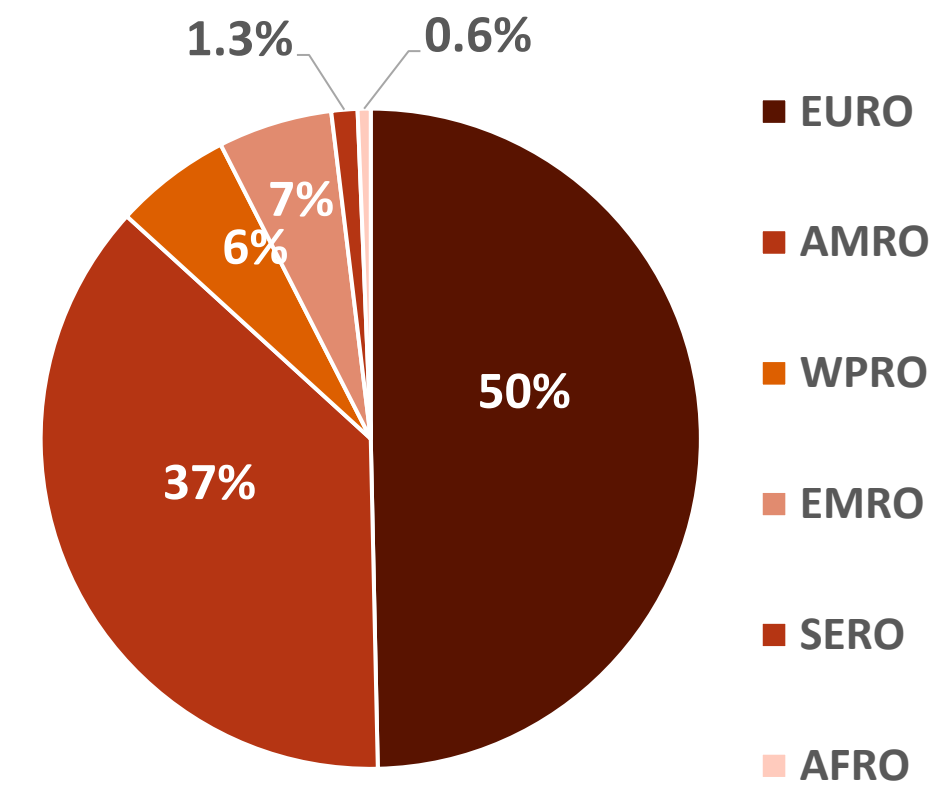
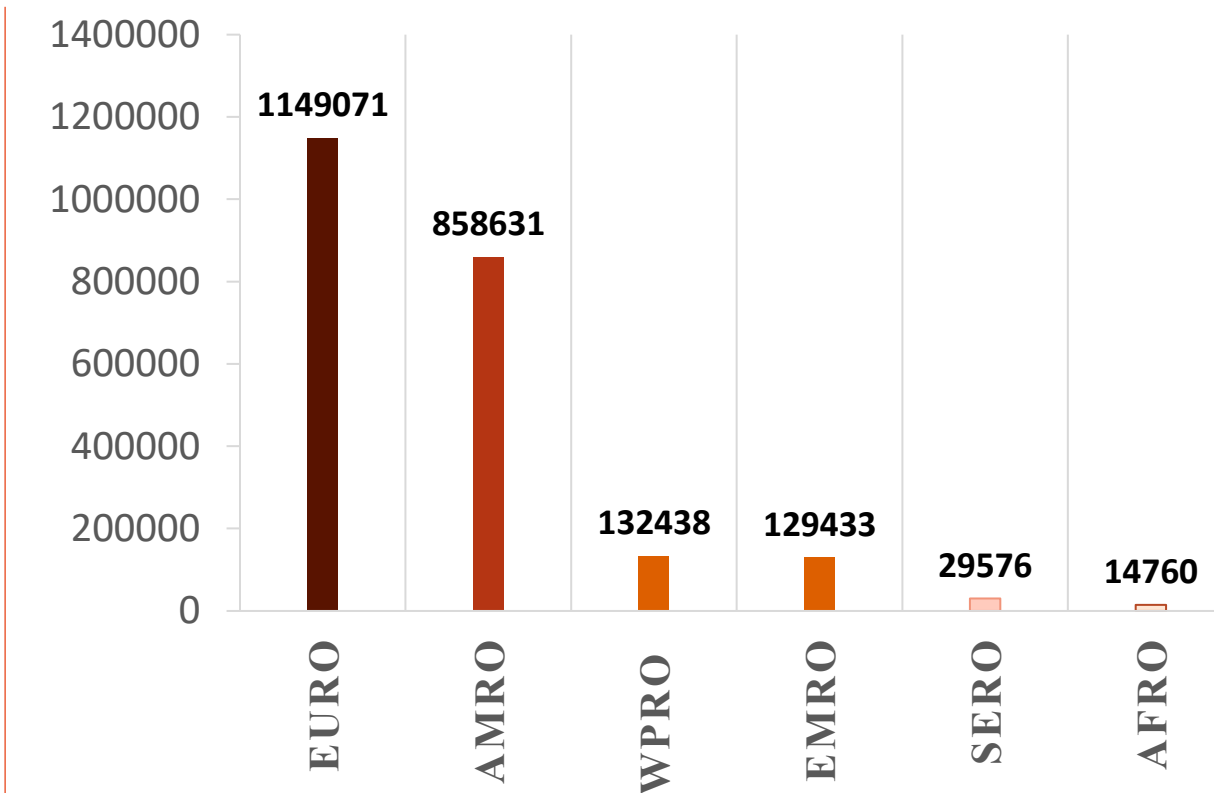
Map chart published by Abu Dhabi Public Health Center 2020.

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

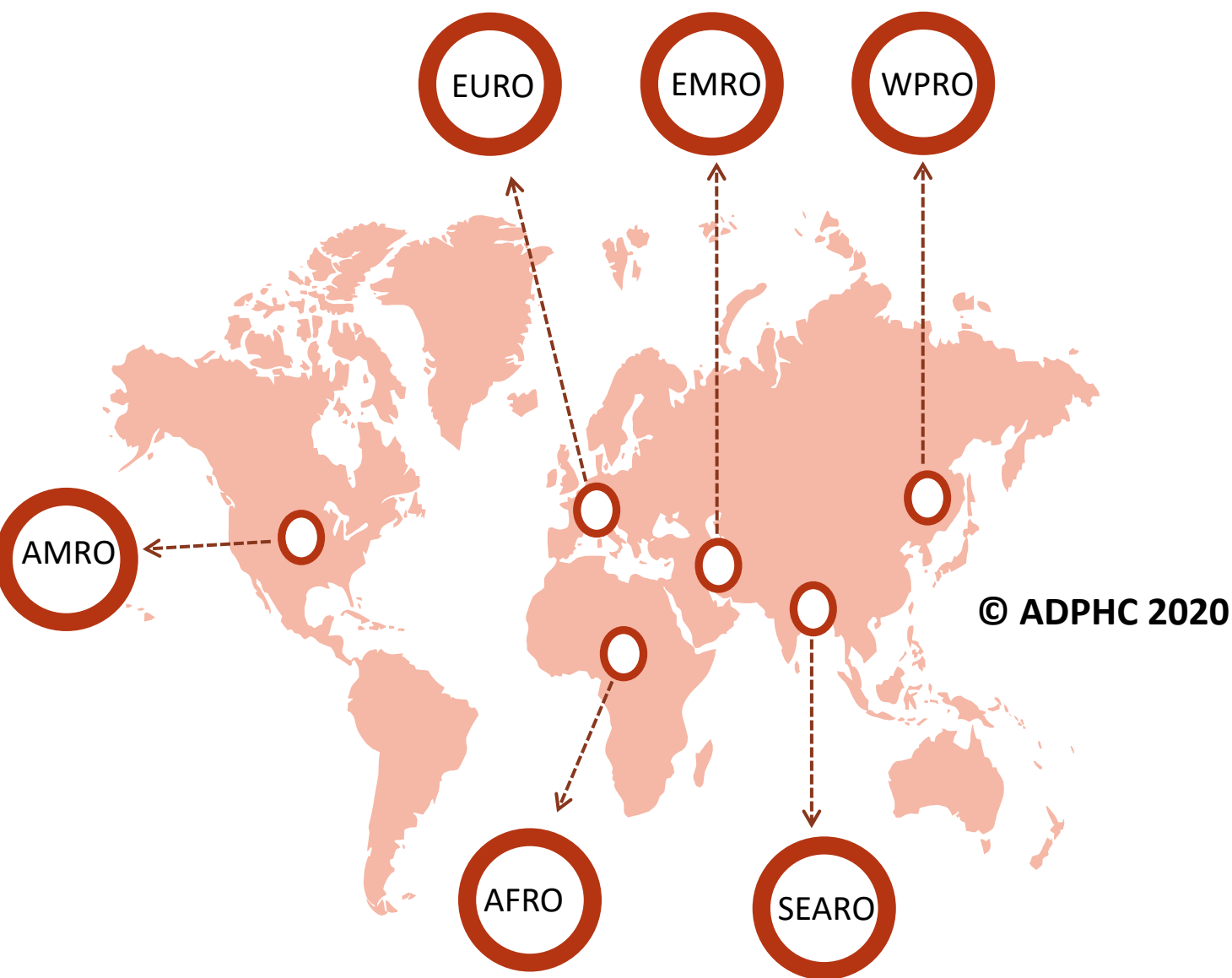
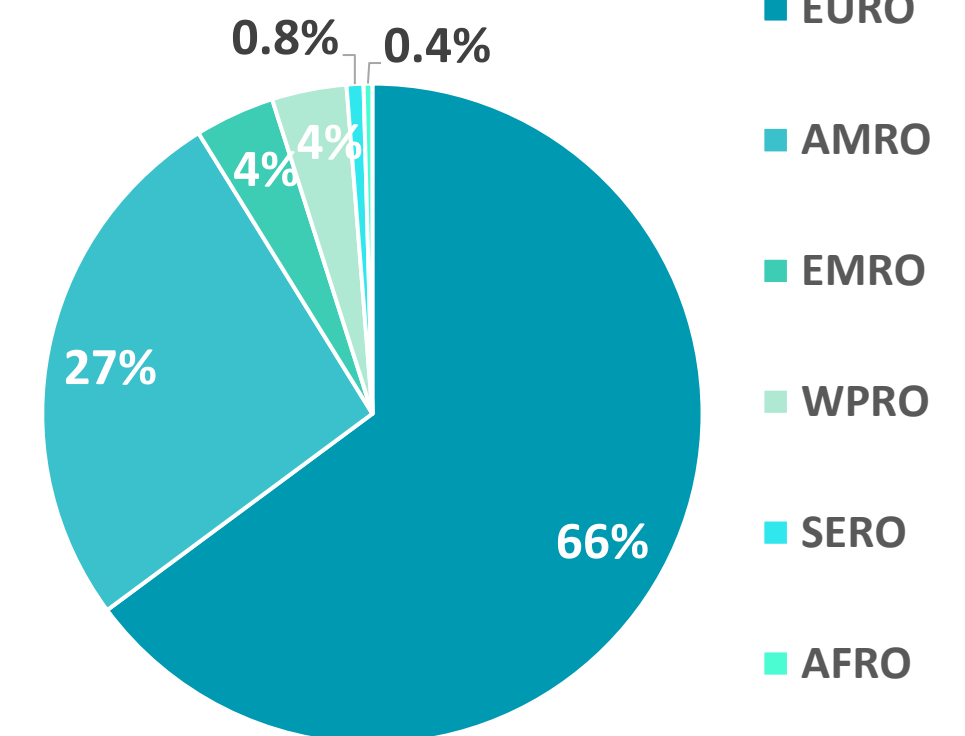
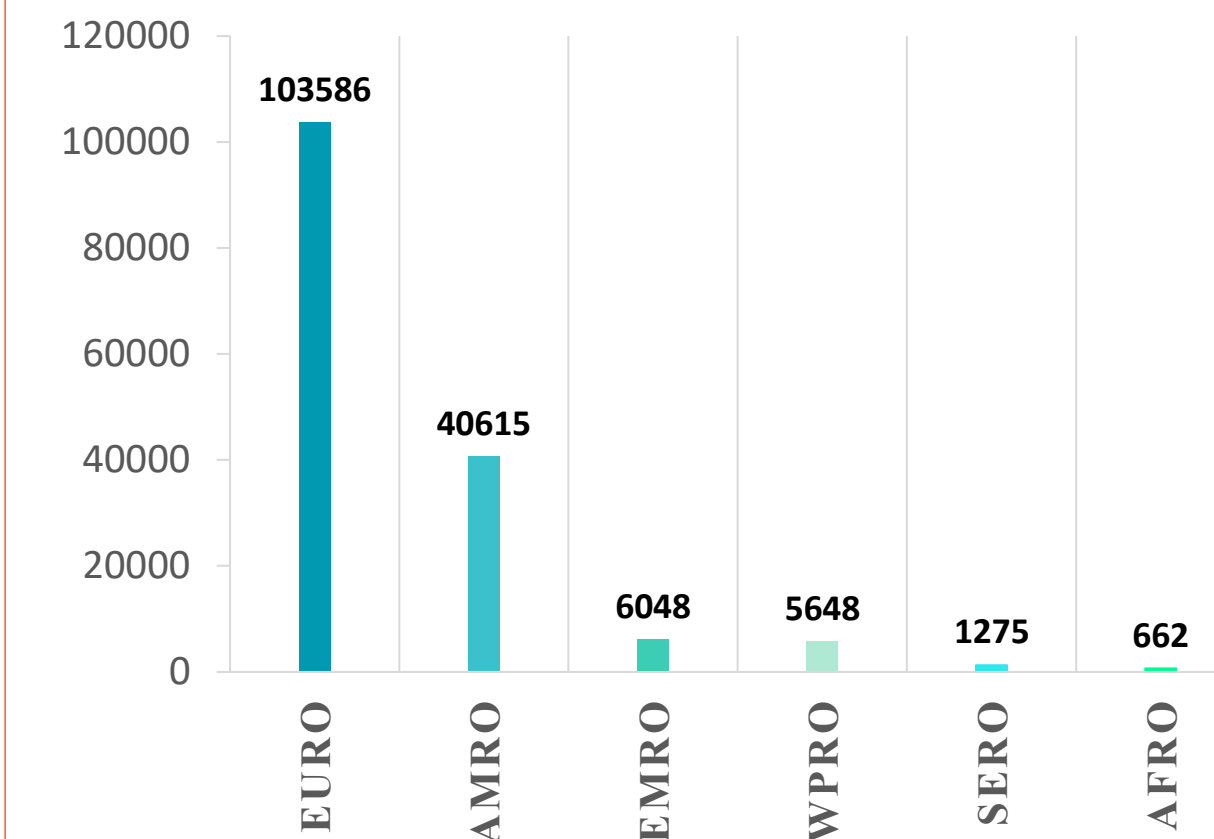


Figure 8: illustrate the Global distribution of COVID19 cases per region (April 20th, 2020)

INFECTED



DEATH



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Map chart published by Abu Dhabi Public Health Center 2020.

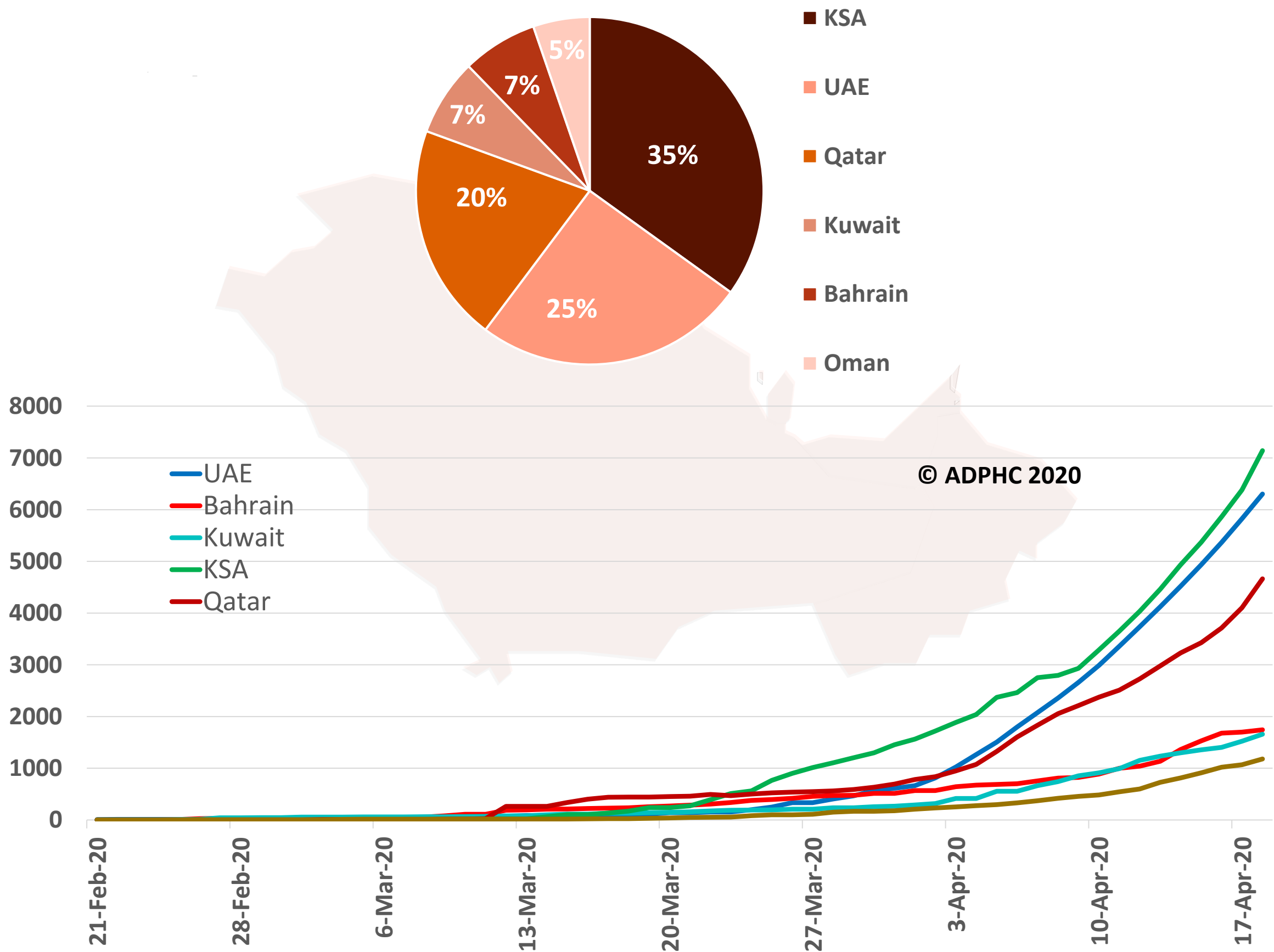
Data resources: [WHO](https://www.who.int/)

Epidemiology

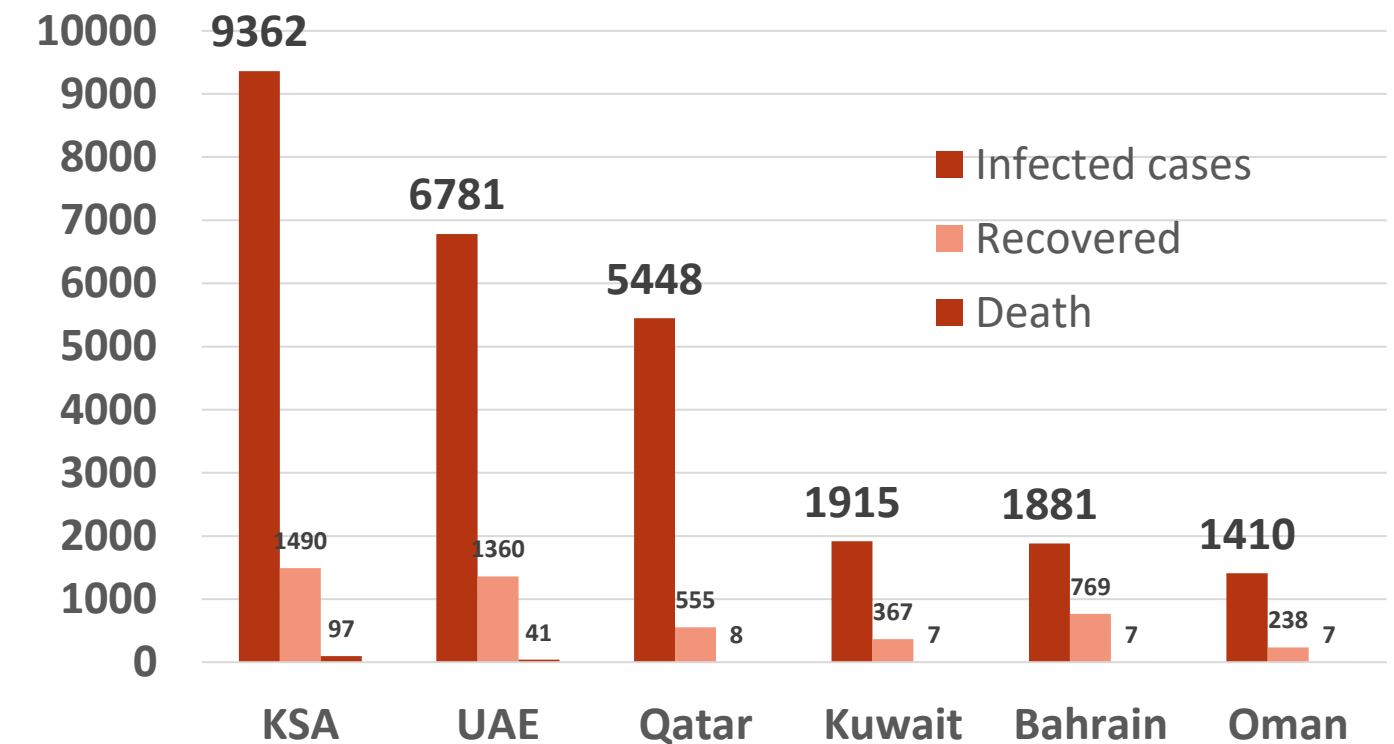


Figure 9: Comparative analysis of the distribution of COVID19 cases in GCC countries (April 20th, 2020)

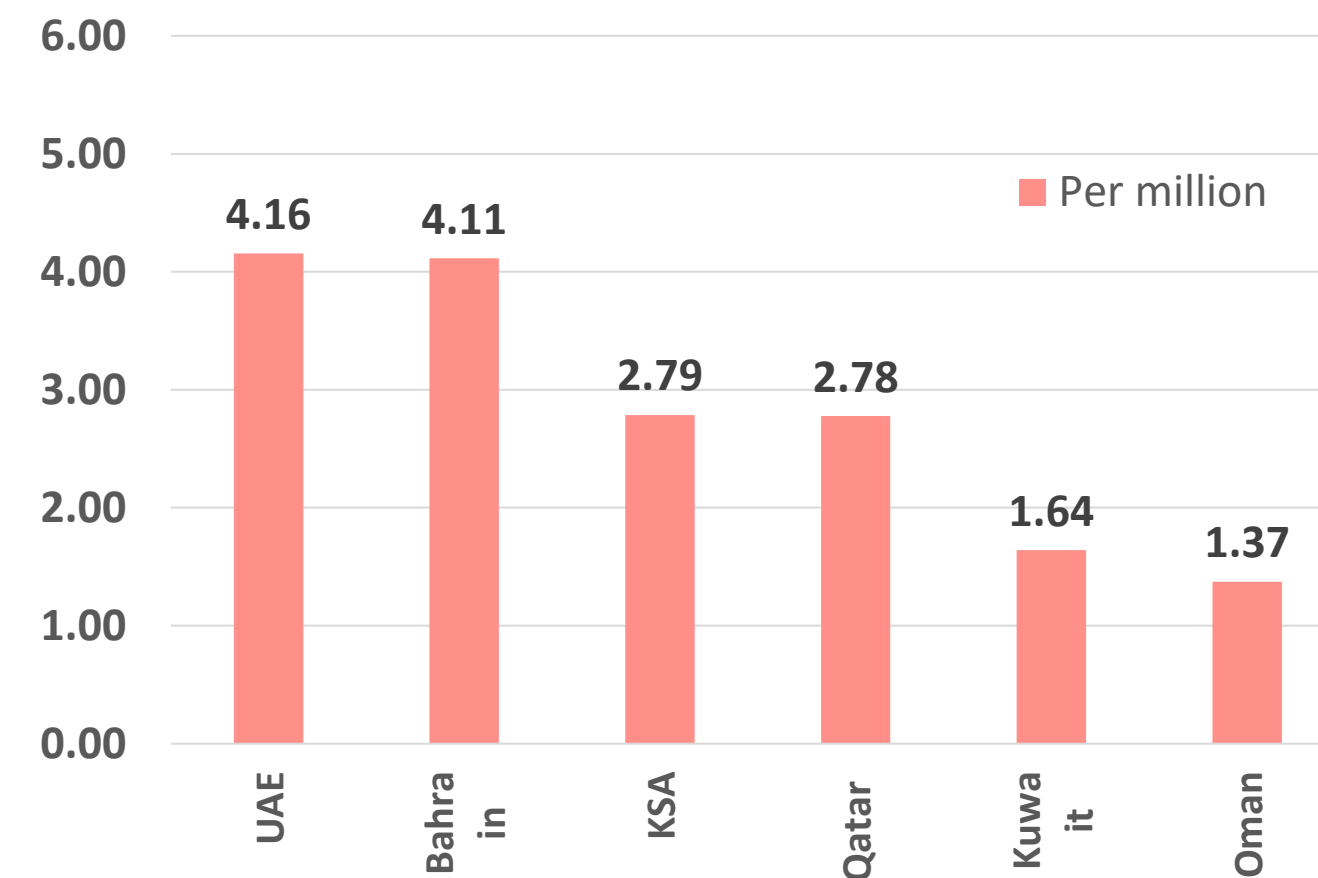
TOTAL NUMBER OF INFECTED CASES



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: Evidence that higher temperatures are associated with lower incidence of COVID-19 in pandemic state, cumulative cases reported up to March 27, 2020

Published: March 2020 by [medRxiv](#)

summarized by subject matter expert

Summary:

- Using cumulative data reported by the World Health Organization, from March 14 to 27, 2021, the article discussed the association between variation in seasonal temperature and COVID-19 incidence.
- As of March 27, case rates also appeared to be increasing south of -30 degree latitude, where temperatures fall first with transition to the fall season (Figure 1).
- **Confirmed case rates plotted by temperature** showed increased growth patterns in ranges below 22.5oC, and a downward trend could be seen in case rates as temperatures increase to the same point. Above 22.5oC, case rates remained near-zero.

Conclusion:

- Data show significant reduction of COVID-19 case rates with mean maximum temperature above approximately 22.5 degrees Celsius.
- Based on these initial findings, the study expected that the southern hemisphere might experience an increase in COVID-19 case rates as that region moves from summer into fall and winter.
- However, this conclusion do not confirm that COVID-19 cannot survive or transmit in warm and humid temperatures or establish a casual connection between temperature and transmission
- These results should be confirmed or declined by more future studies looking at the transmission rates by temperature and humidity.

Public Health Response



Article 1: Cont.,

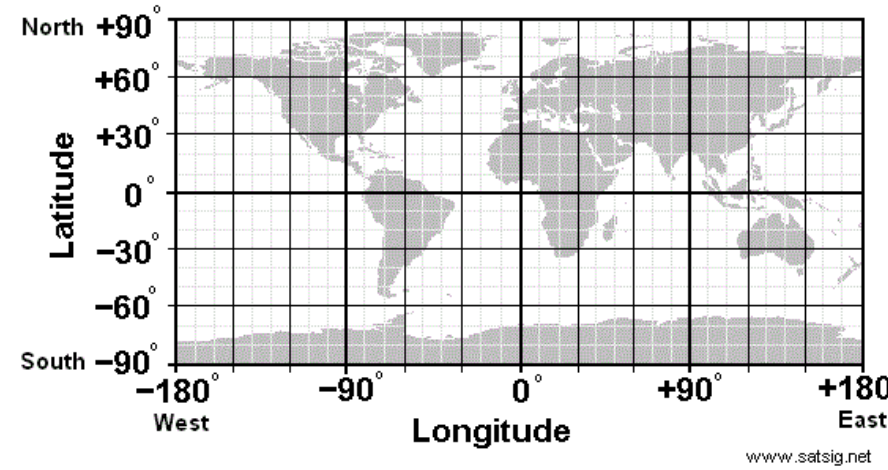
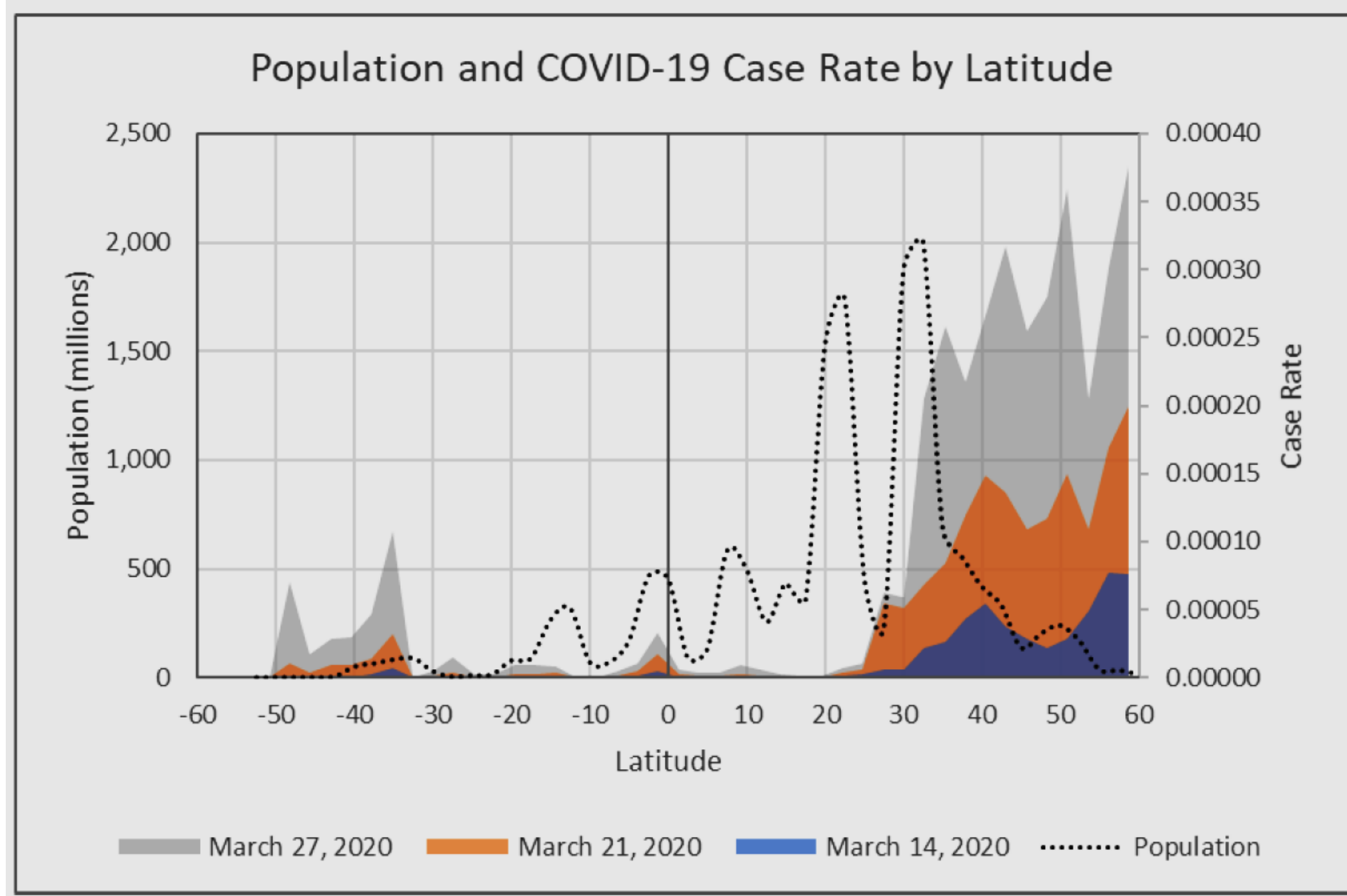
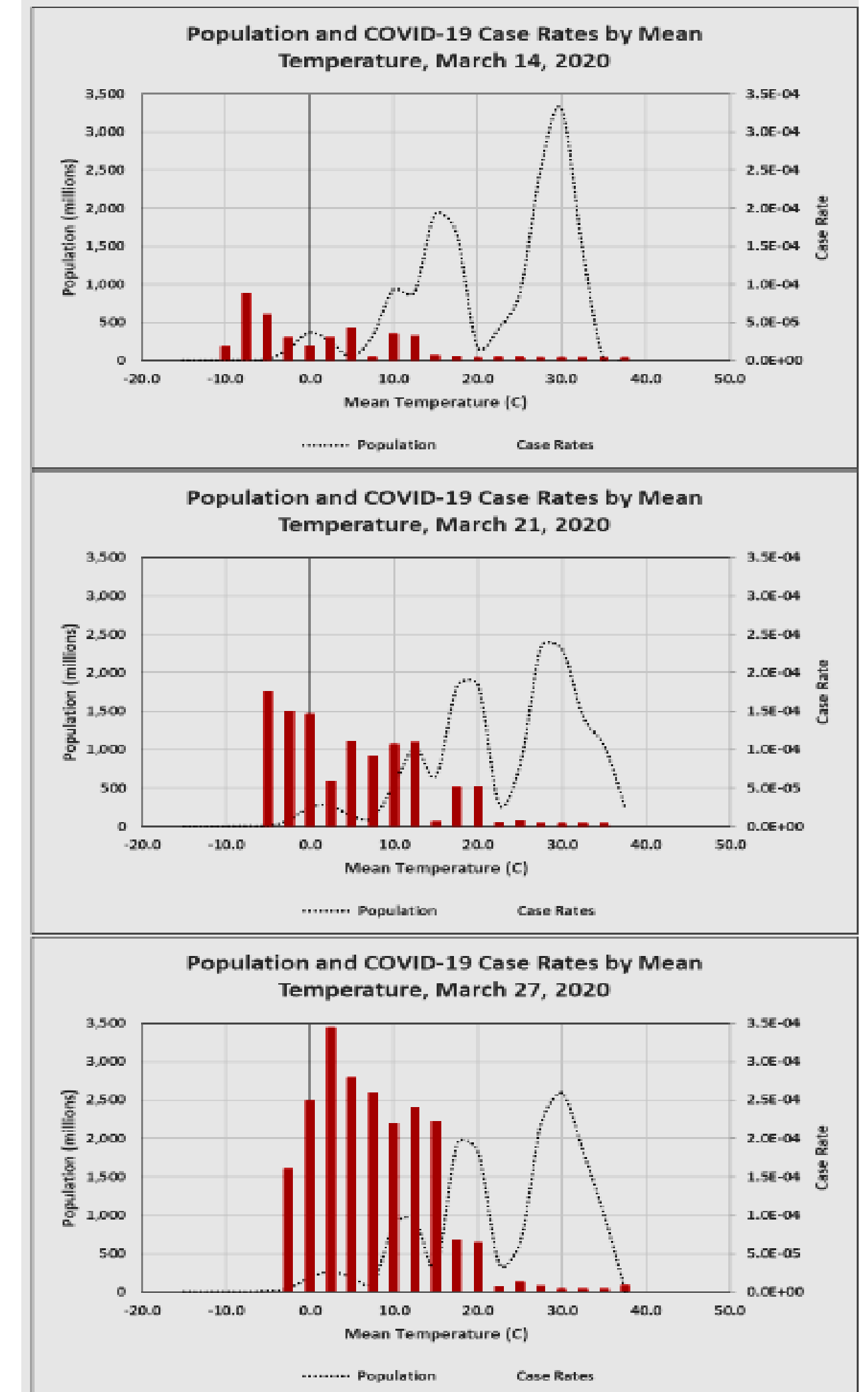


Figure 1: Confirmed case rates plotted by latitude for March 14, 21 and 27, 2020.



The separation between cases above and below 30 degree latitude is clearly visible. Case rates also appear to increase below -30 degree latitude, where temperatures are lowest in the southern hemisphere.

Figure 2: Confirmed case rates plotted by temperature for March 14, 21 and 27, 2020.



Clinical Feature and Transmission



Article 2 : Spread of SARS-CoV-2 in the Icelandic Population

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

Summary:

- On January 31, 2020, targeted testing (n=9,199) was started in Iceland that included persons who were at high risk for infection especially those who were symptomatic, returned to Iceland from high risk countries or had been in contact with infected persons. In addition, population-screening was conducted using two strategies – **open-invitation** to 10,797 persons and **random-invitation** to 2,283 persons. Participants who tested positive for SARS-CoV-2 were contacted by telephone to track their infection. **643 had RNA sequencing of viral genomes.**

Findings:

- Figure 1: Among those who tested positive, symptoms of COVID-19 were reported by **93%** of those in the overall targeted testing group and by **57% of those in the overall population-screening group.** However, 29% of participants who tested negative
- 43% of the participants who tested positive reported having no symptoms, although symptoms almost certainly developed later in some of them.
- Children who are under 10 years have less positive test compared to children over 10 year.

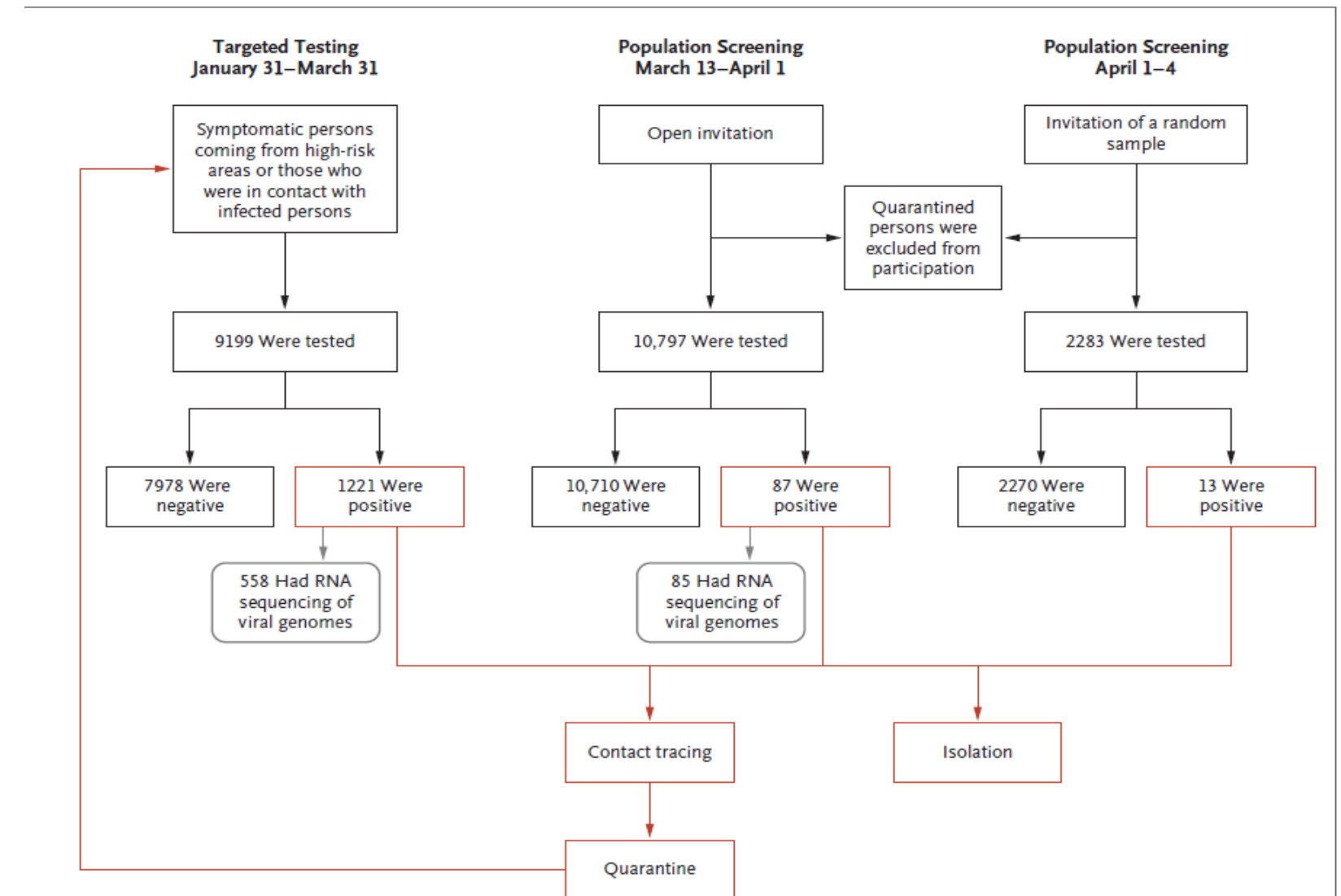


Figure 1. Study Design for Targeted Testing and Population Screening.

In Iceland, targeted testing for severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) began on January 31, 2020, and involved persons who were deemed to be at high risk for infection (i.e., those who were symptomatic, had traveled to high-risk countries, or had contact with infected persons). In the population screening, data from the open-invitation subgroup and random-sample subgroup were evaluated separately.

- Male more than females
- The haplotypes of the sequenced SARS-CoV-2 viruses were diverse and changed over time
- Through population screening, the percentage of infected persons identified did not change significantly during the screening period which was consistent with a beneficial effect of containment efforts.



Public Health Response :

Article 3: Universal weekly testing as the UK COVID-19 lockdown exit strategy

Published: April 17, 2020 in [the Lancet](#)

Summary:

- Authors from the London School of Hygiene & Tropical Medicine have managed to collect signatures from 34 colleagues. They are proposing to the UK government a plan for exist strategy as alternative from the current one which is alternating periods of lockdown and relaxation of restrictions which can lead to economic loss and loose of thousands of lives.
- Their proposal is: a high-risk town of 200,000 people will experimentally use a much stricter strategy. Everyone in the town gets tested for Covid-19 - whether they have symptoms or not on a weekly basis. This is voluntary but they assume 90% compliance.
- Anyone who tests positive must be strictly quarantined and the rest of their household also be quarantined until all the household simultaneously test negative.
- Testing 200,000 people every week with 90% compliance needs 26,000 tests a day, plus some extra tests for the NHS workers, therefore, tests could be done by permitting local laboratories (academia) to test for Covid-19 and to get the PCR reagents from manufacturers rather than clinical test companies.
- This strategy will provide Real Time data, rather than modelling assumptions, on the rate at which infection rises or falls will be apparent within a few weeks and will result in rapid response and save more lives.
- Real Time data will be compared using NHS numbers, GP data and Hospital data from the rest of the population to see which exit strategy works best, the current proposed one or the government one.