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HEALTH CENTRE

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Scientific Research Monitoring on COVID-19

26 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 on nursing home to assess the transmission found more **than half of the** residents with positive tests were asymptomatic at the time of testing. The doubling time in this facility was 3.4 days.
- **Public health response:** Tracing app in South Korea and disclosure of infected cases to public health lead to privacy issue and sudden loss of some business.
- **Public health response:** article on how to transform ORs to ICU.

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. [A tale of two emergencies](#)
2. [Remdesivir in covid-19](#)
3. [Determining risk factors for mortality in liver transplant patients with COVID-19](#)



WHO daily report 25 April 2020

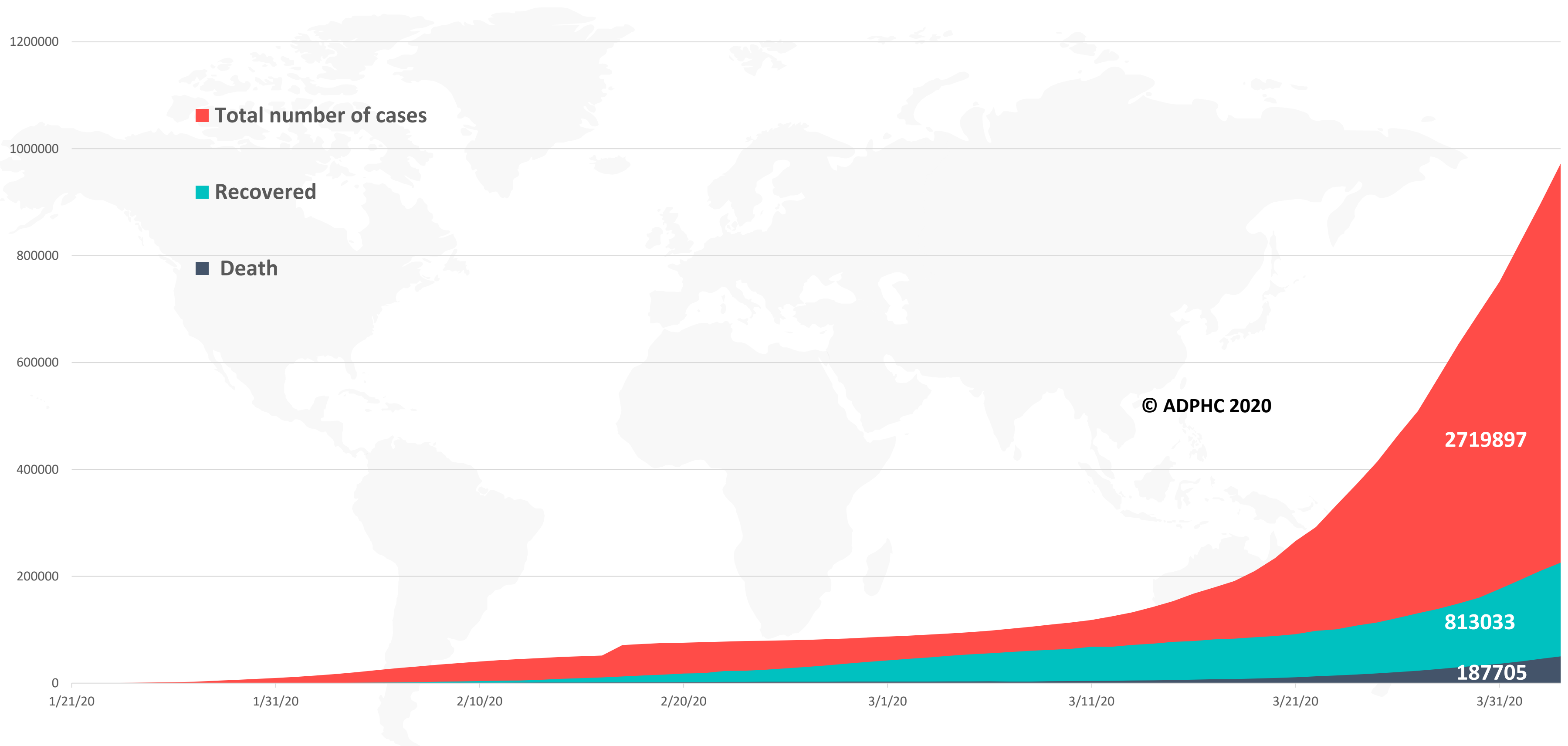
- WHO, together with heads of state, global health leaders, private sector partners and other stakeholders launched **the Access To COVID-19 Tools (ACT) Accelerator**, a global collaboration to accelerate the development, production and equitable access to new COVID-19 diagnostics, therapeutics and vaccines. [full list of participants](#),* and the group's statement, are available.
- Although some governments have suggested that the detection of antibodies to SARS-CoV-2, the virus that causes COVID-19, could serve as the basis for an “**immunity passport**” or “**risk-free certificate**”, there is currently **no evidence that people who have recovered from COVID-19 and have antibodies are protected from a second infection.**
 - Tests that detect antibodies to SARS-CoV-2 need to be validated.
 - The test might cross-react with other coronavirus , some of these coronavirus causes normal common colds. So these tests can not distinguish between different coronaviruses.
 - Many countries are now testing for SARS-CoV-2 antibodies at the population level or in specific groups, such as health workers, close contacts of known cases, or within households. WHO supports these studies. These studies will provide data on the percentage of people with detectable COVID-19 antibodies, but **most are not designed to determine whether those people are immune to secondary infections.**
- WHO has seen a dramatic increase in the number of cyber-attacks directed at its staff, and email scams targeting the public. WHO asks the public to remain vigilant against fraudulent emails and recommends using reliable sources to obtain factual information about COVID-19 and other health issues.

*Minister of Finance of the Kingdom of Saudi Arabia , G20 President is among the participant

Epidemiology



Figure 1: Total number of infected, recovered, and death cases (January 21st to April 25, 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 25, 2020).



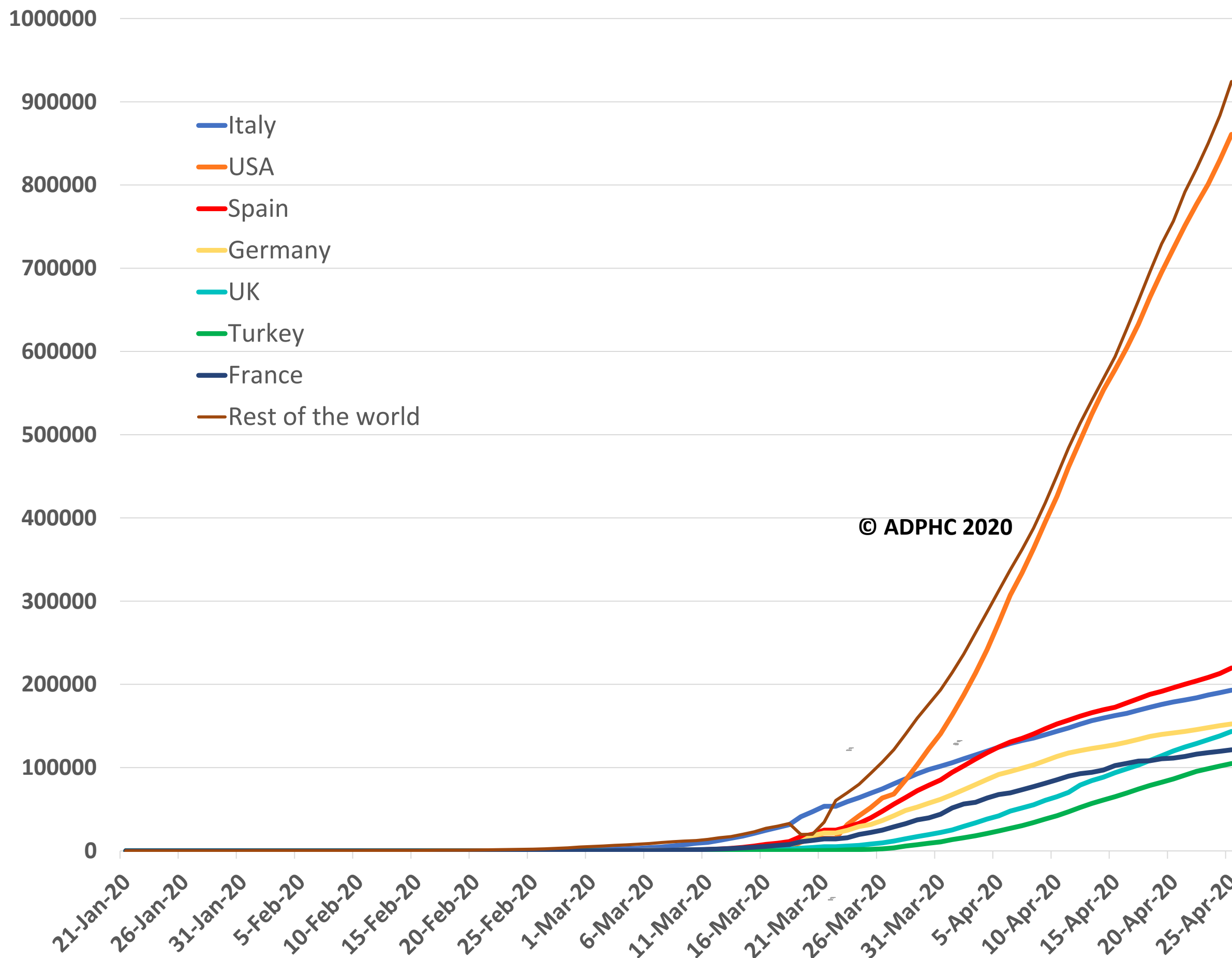
Line graph published by Abu Dhabi Public Health Center 2020.

Data resources: [WHO](#)

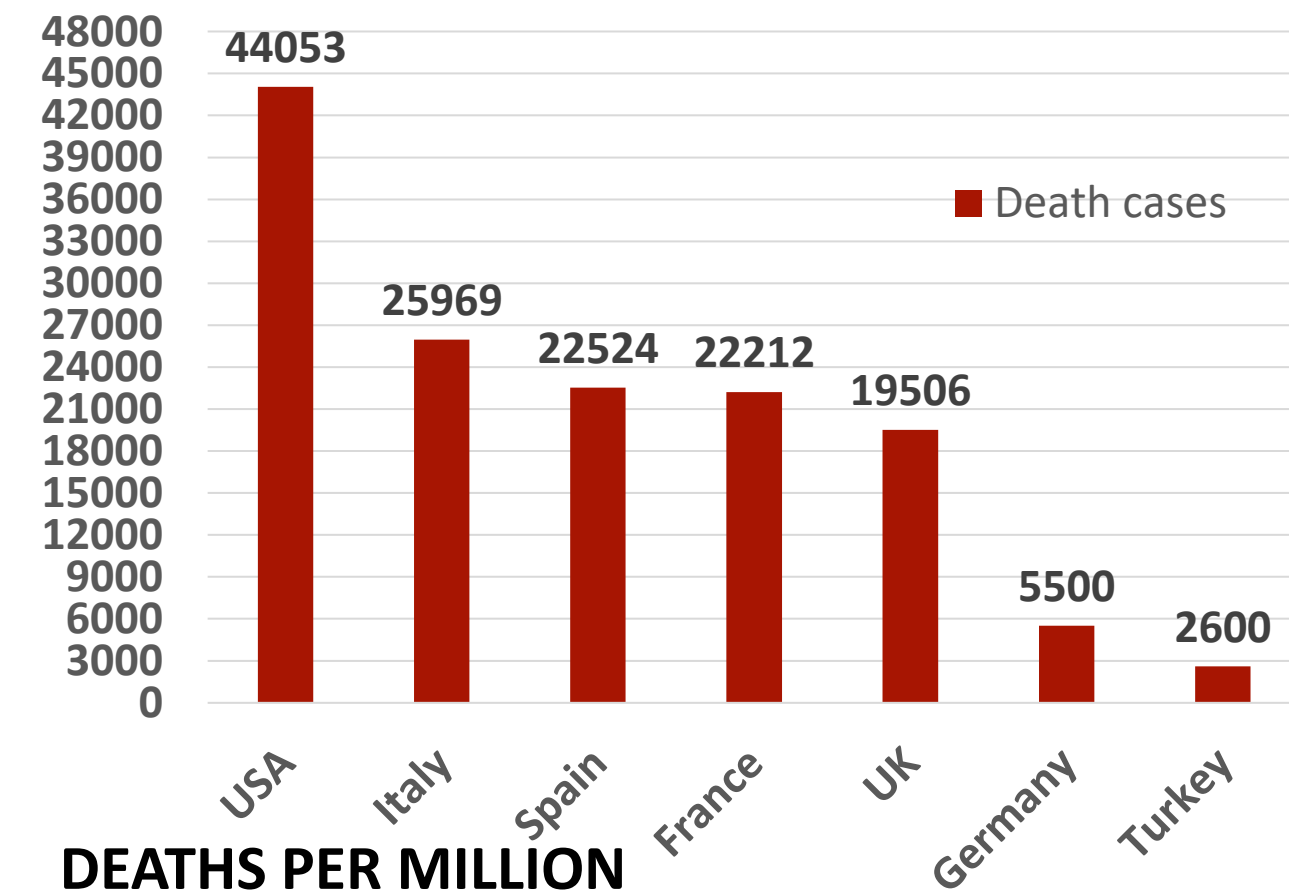
Epidemiology



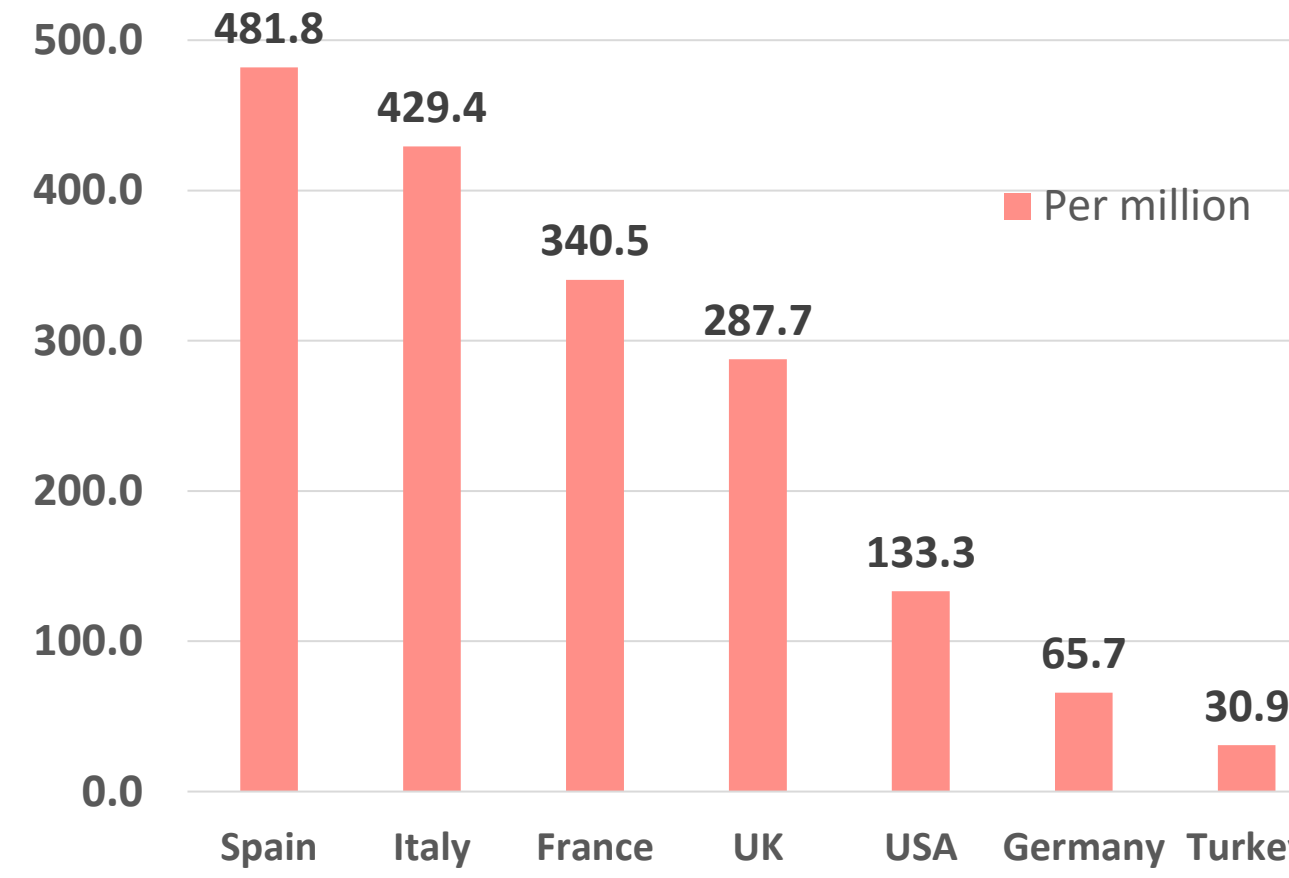
Figure 3 : Top 7 countries in the total number of cases due to COVID-19 (January 21 to April 25, 2020).



TOTAL DEATHS



DEATHS PER MILLION

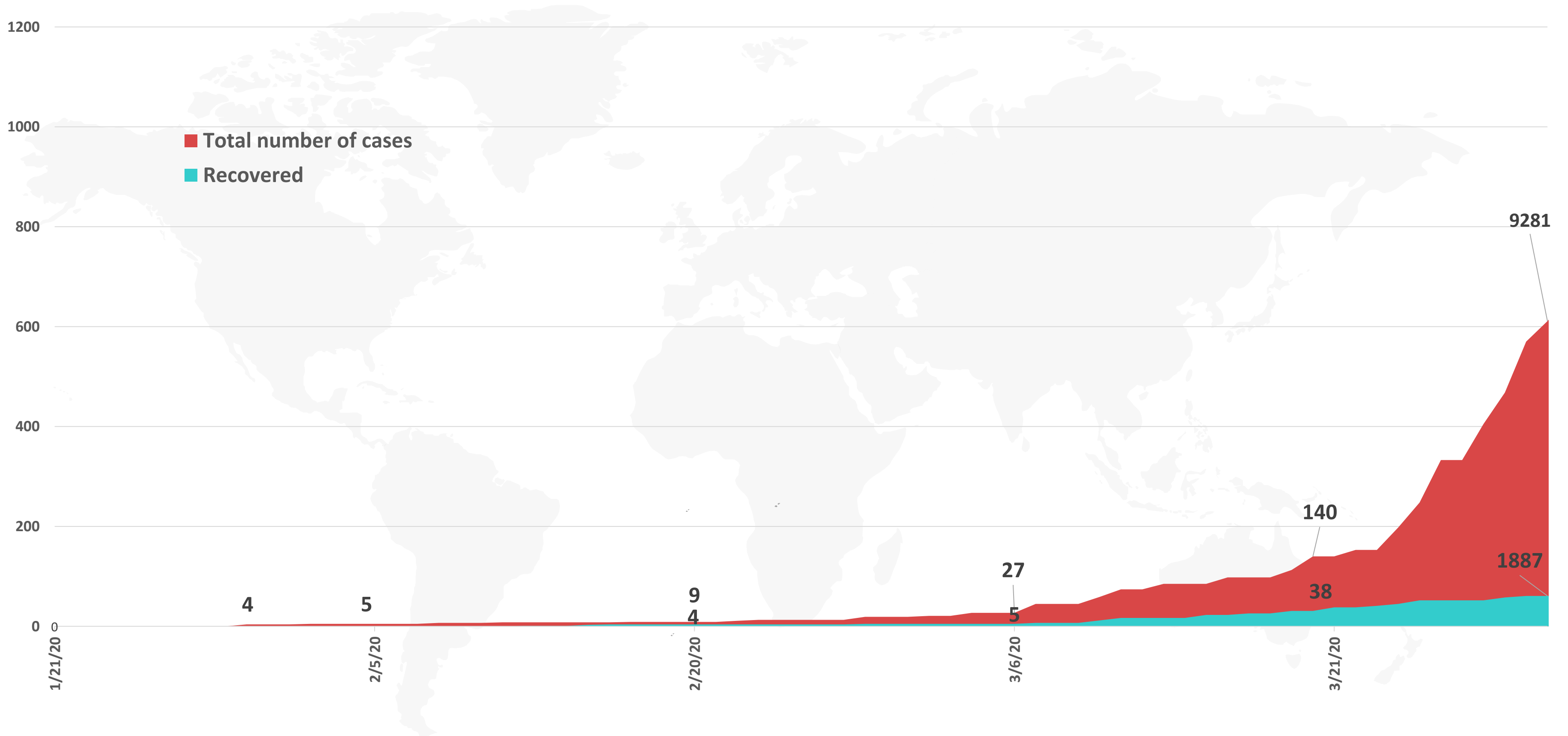


Line graph published by Abu Dhabi Public Health Center 2020.

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



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



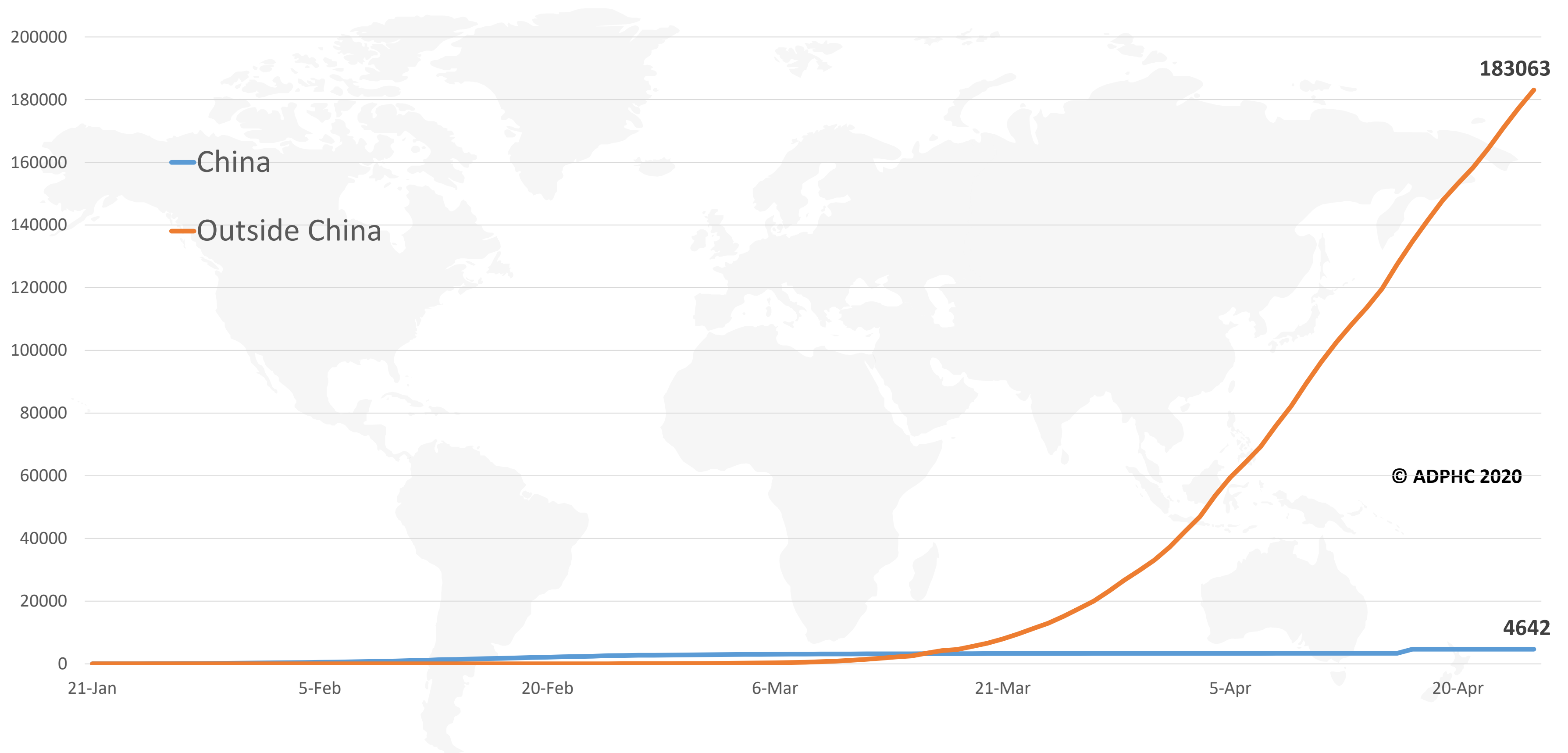
Line graph published by Abu Dhabi Public Health Center 2020.

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 April 25, 2020).

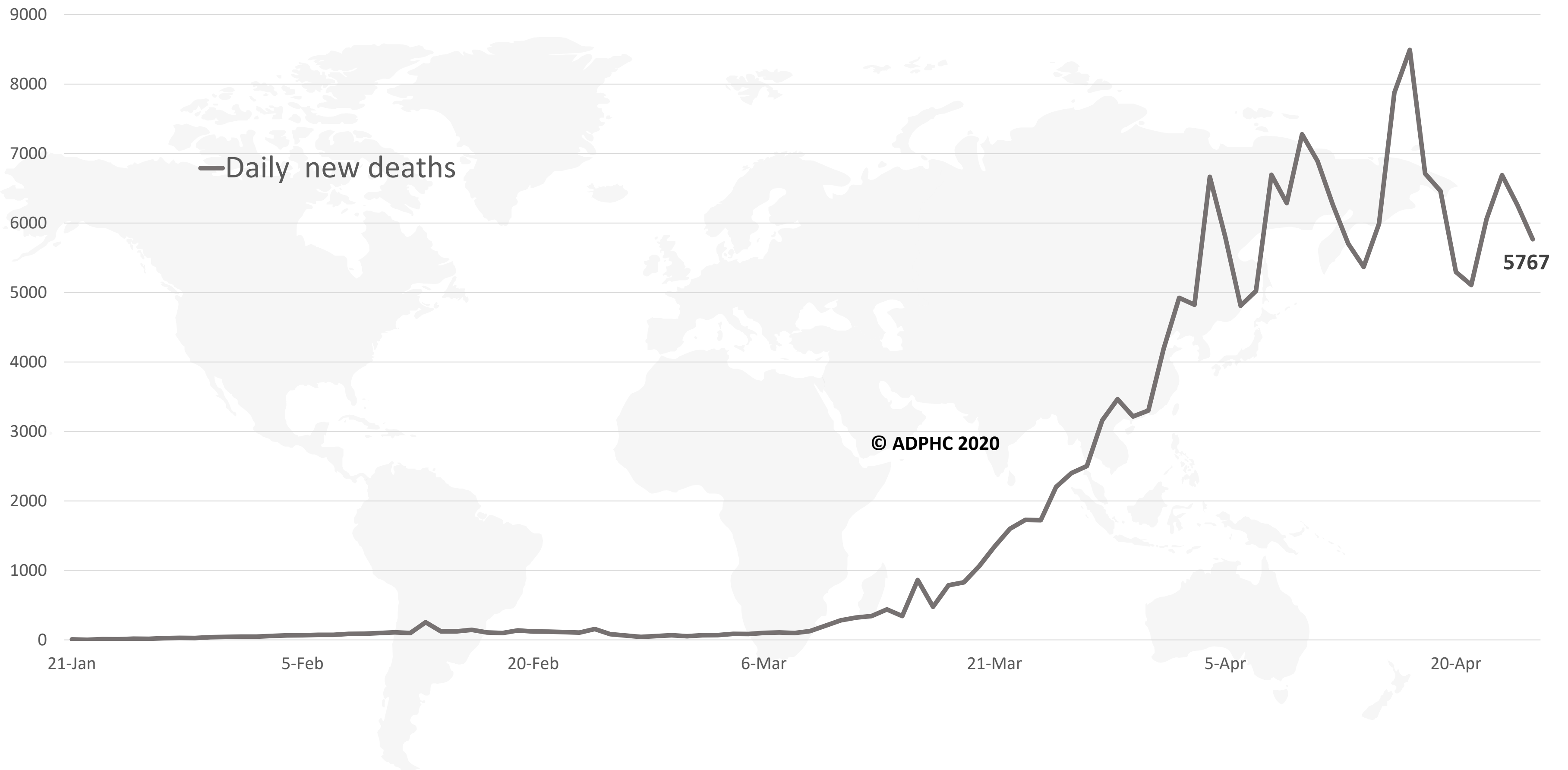


Line graph published by Abu Dhabi Public Health Center 2020.

Data resources: [WHO](#)



Figure 6: Global daily new deaths due to COVID-19 (January 22 to April 25, 2020).



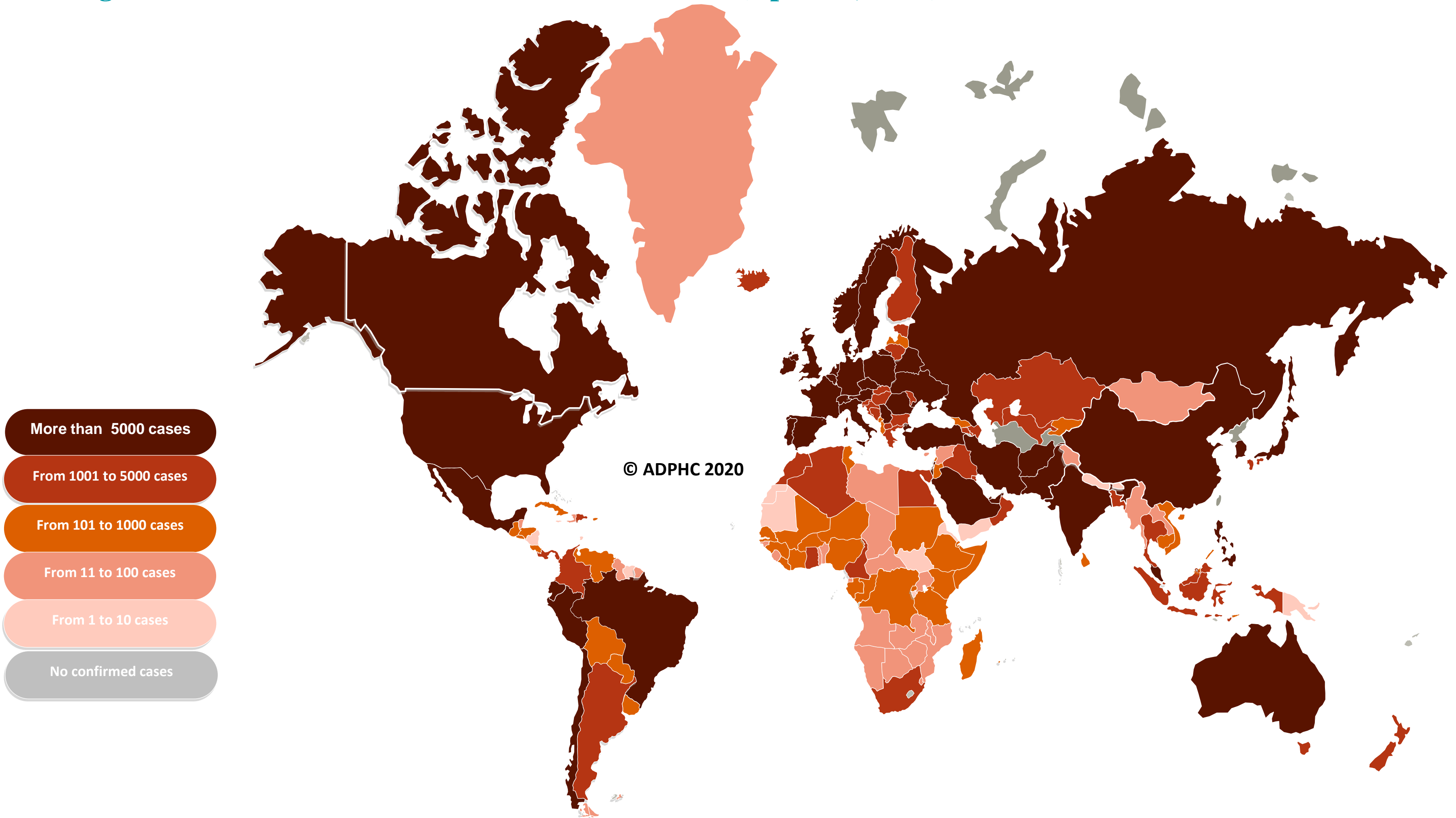
Line graph published by Abu Dhabi Public Health Center 2020.

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

Epidemiology



Figure 7a : Global distribution of COVID-19 cases (April 25, 2020).

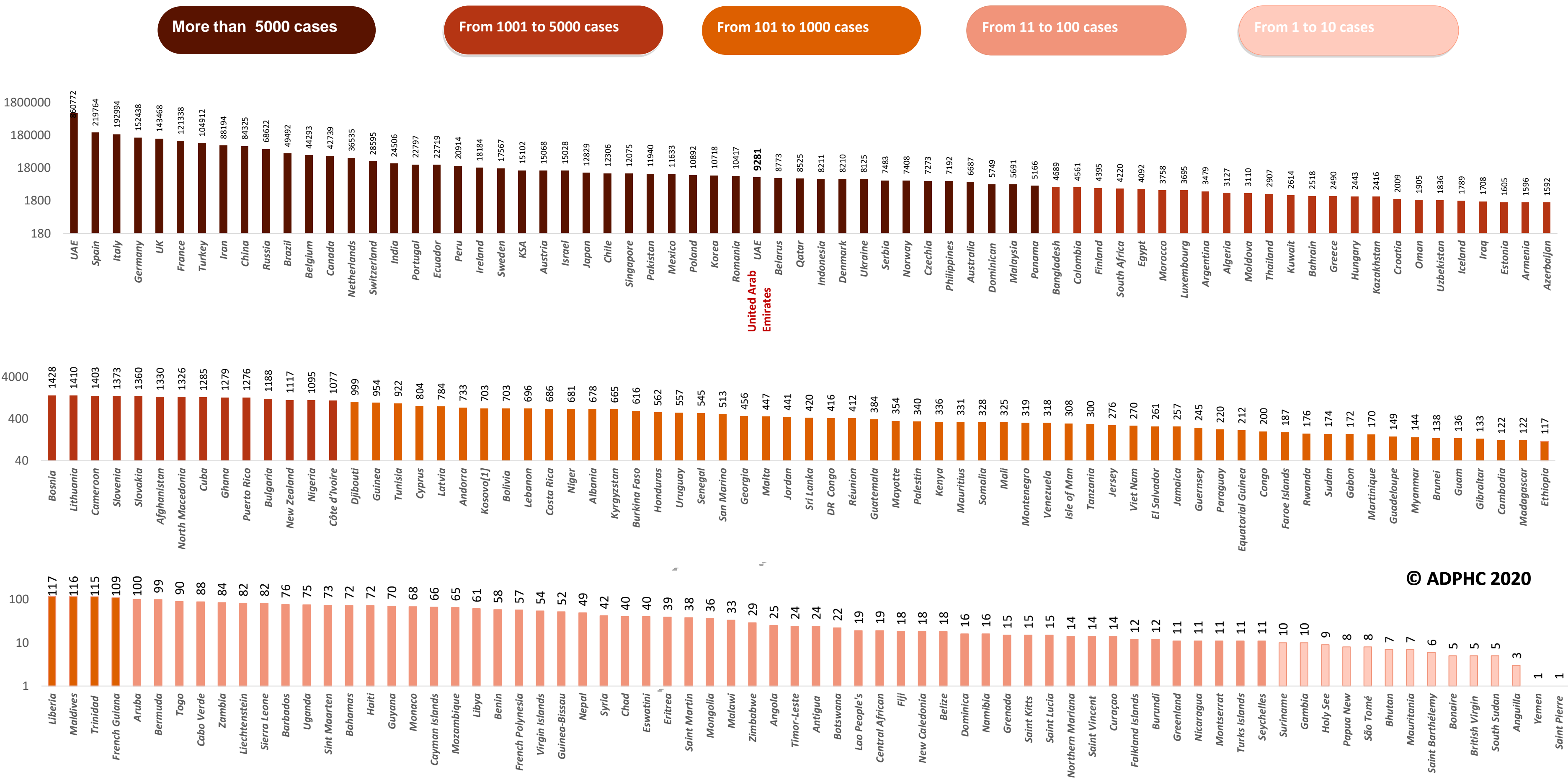


Map chart published by Abu Dhabi Public Health Center 2020.

Epidemiology



Figure 7B: Bar chart illustrate the global distribution of COVID19 cases April 25, 2020)



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Map chart published by Abu Dhabi Public Health Center 2020.

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

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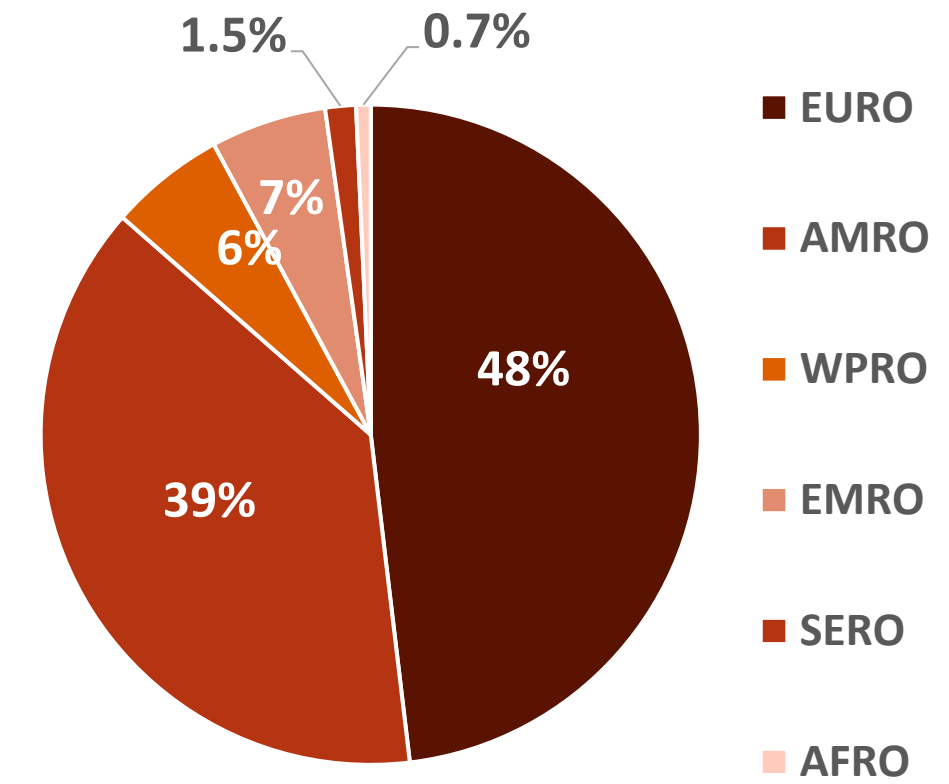
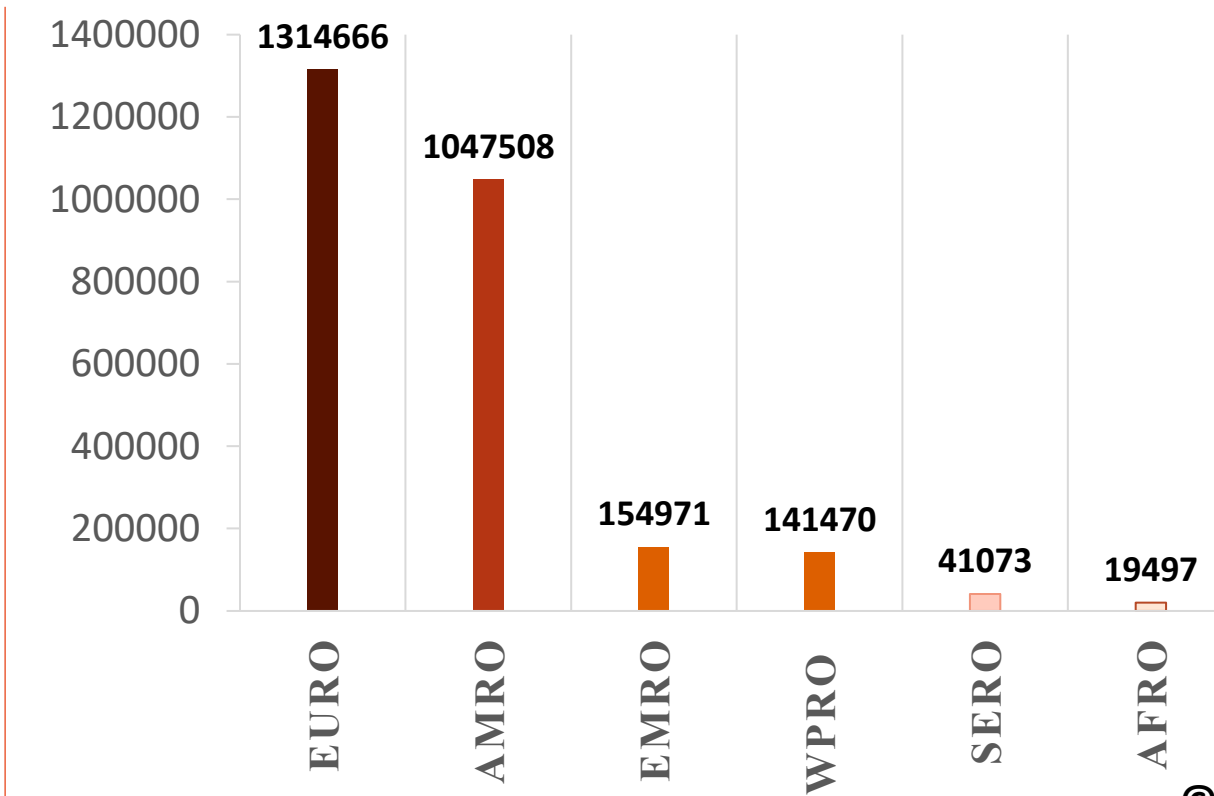
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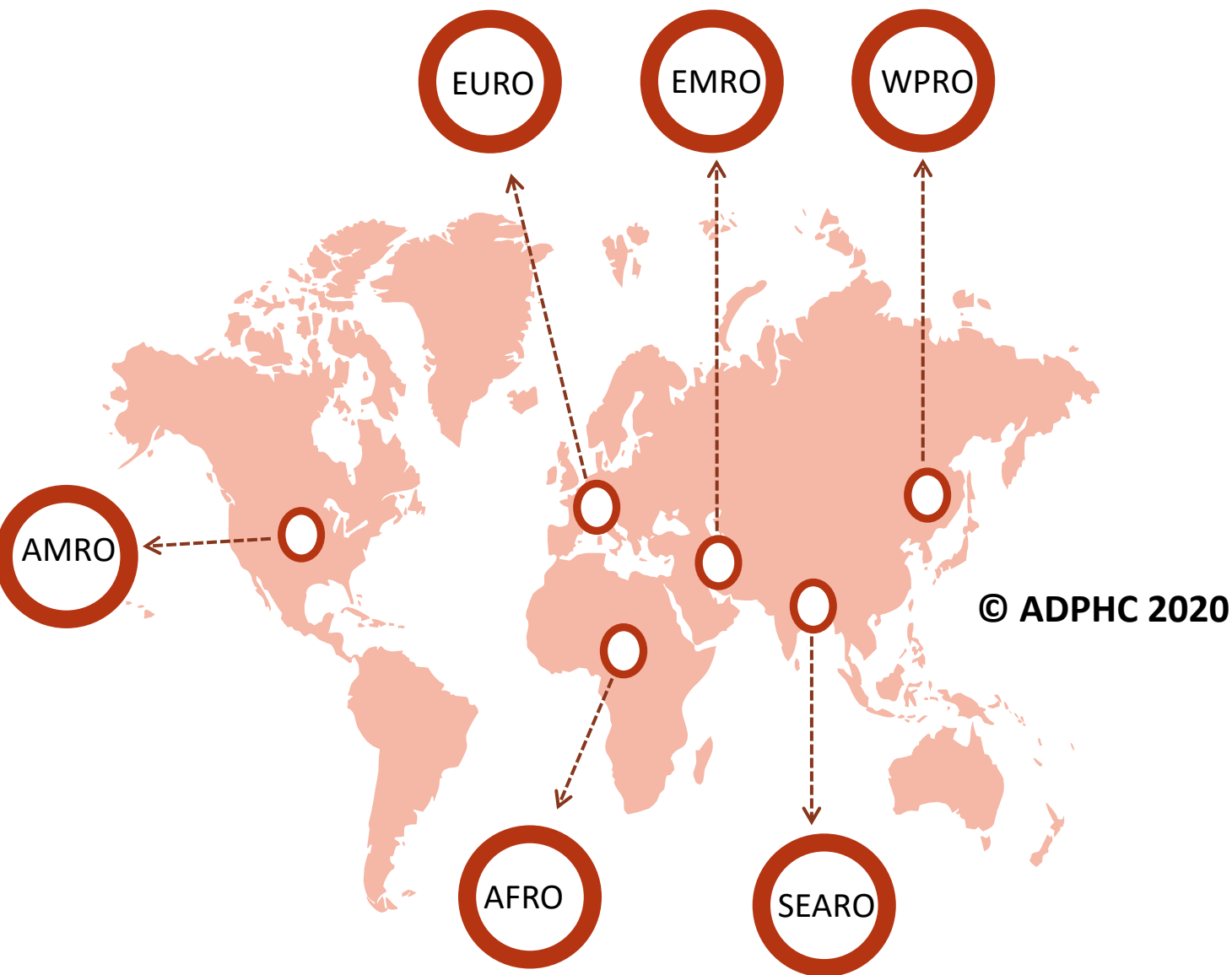
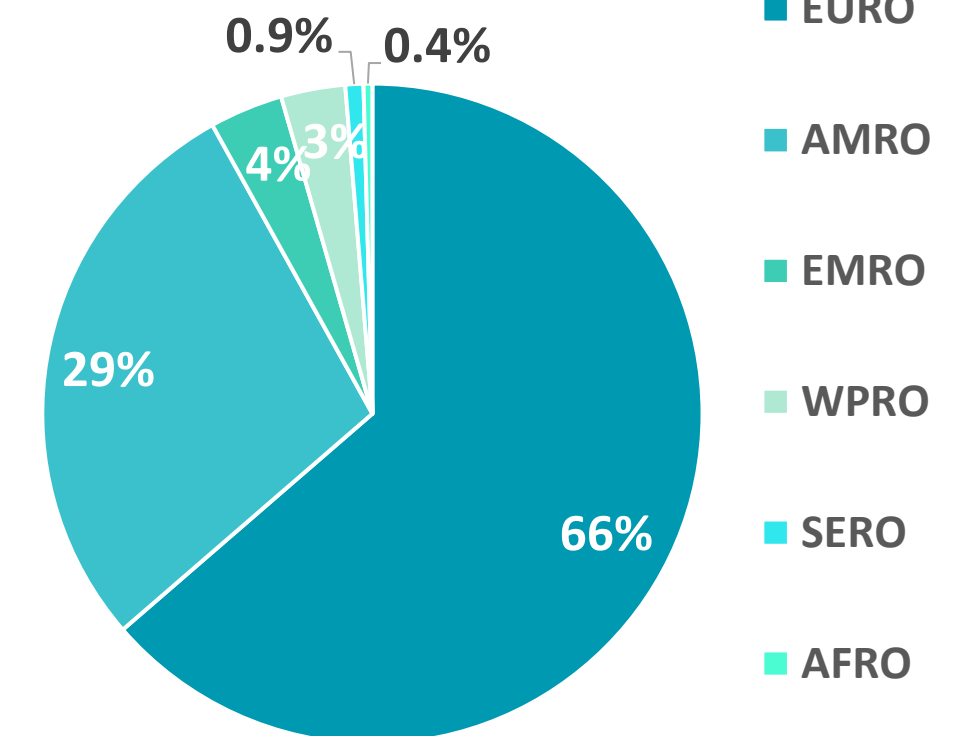
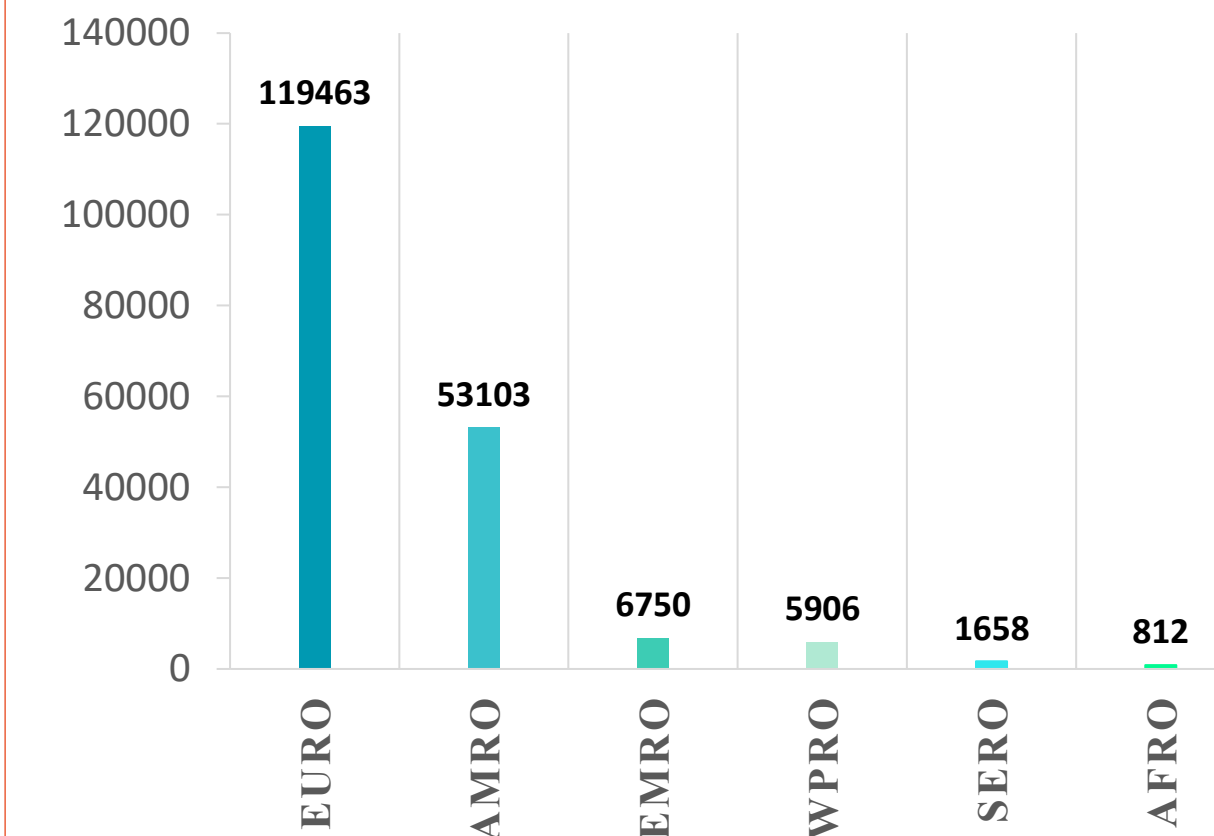
Figure 8: illustrate the Global distribution of COVID19 cases per region (April 25, 2020)

INFECTED



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DEATH



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Map chart published by Abu Dhabi Public Health Center 2020.

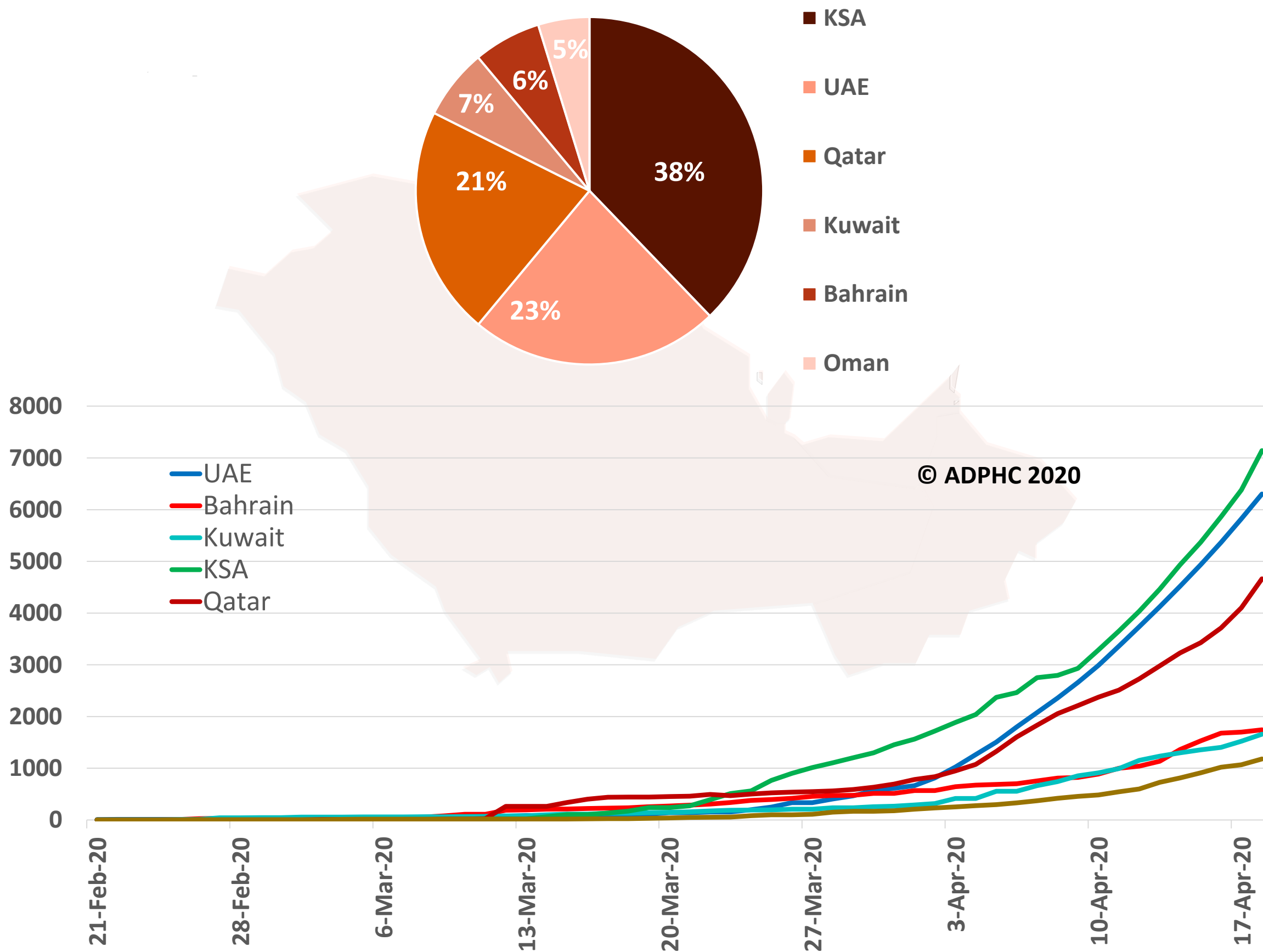
Data resources: [WHO](http://www.who.int)

Epidemiology

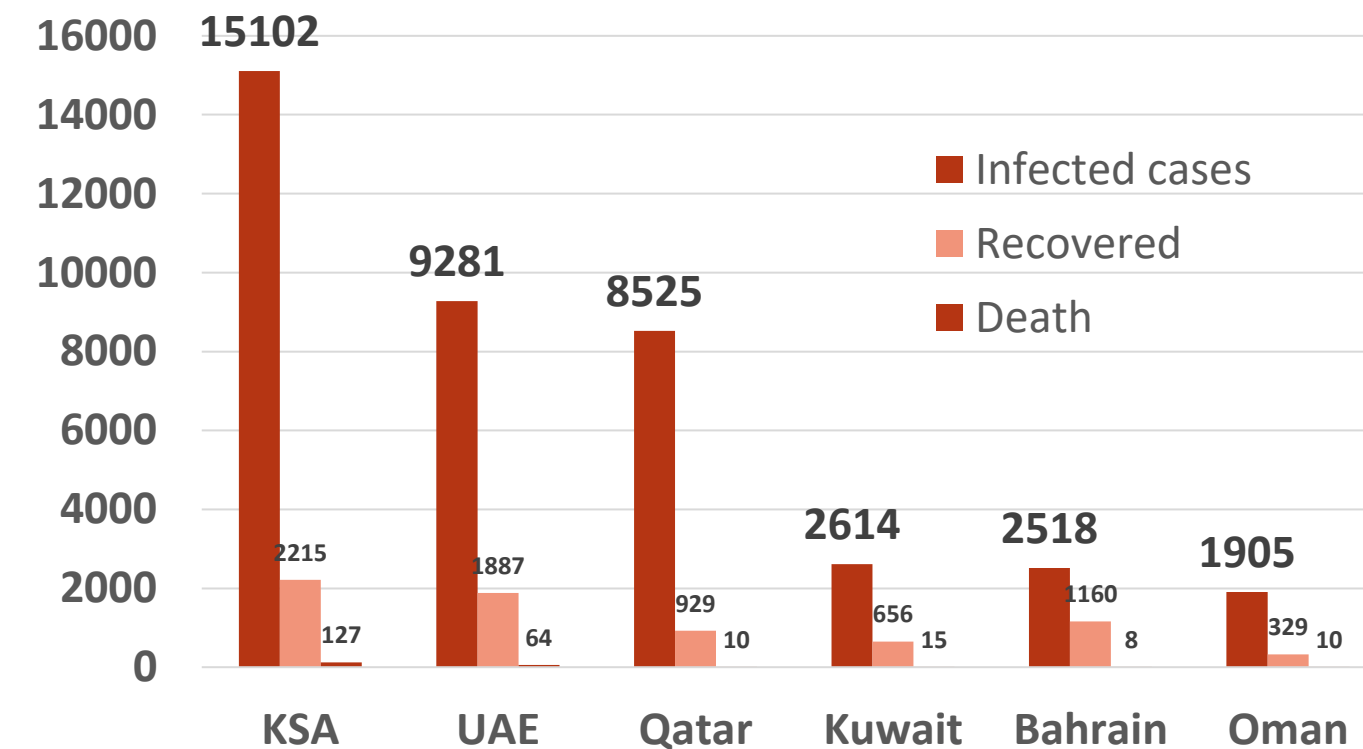


Figure 9: Comparative analysis of the distribution of COVID19 cases in GCC countries (April 25, 2020)

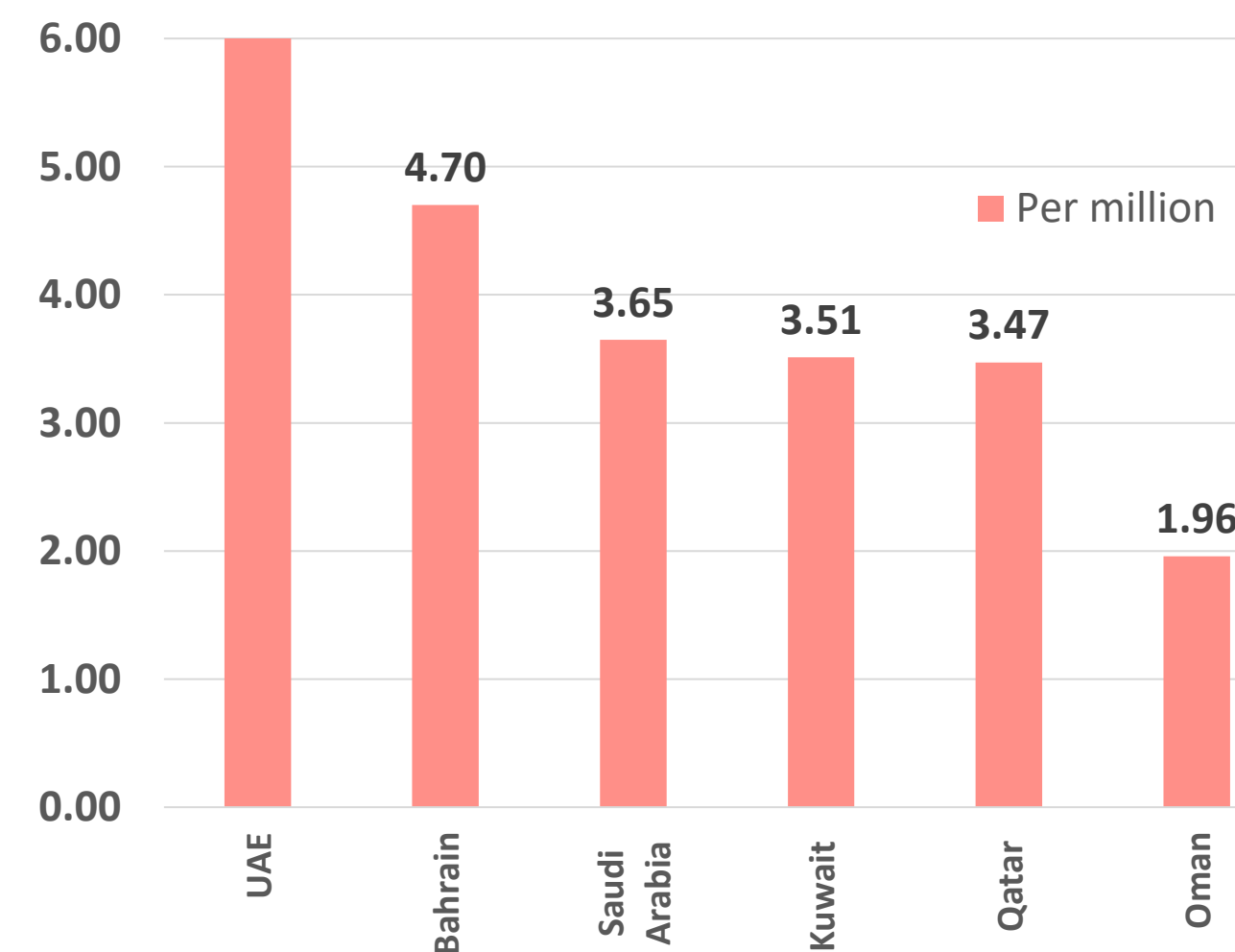
TOTAL NUMBER OF INFECTED CASES



Total number of infected, recovered and Deaths



Death per million



charts published by Abu Dhabi Public Health Center 2020.

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

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Public Health Response:



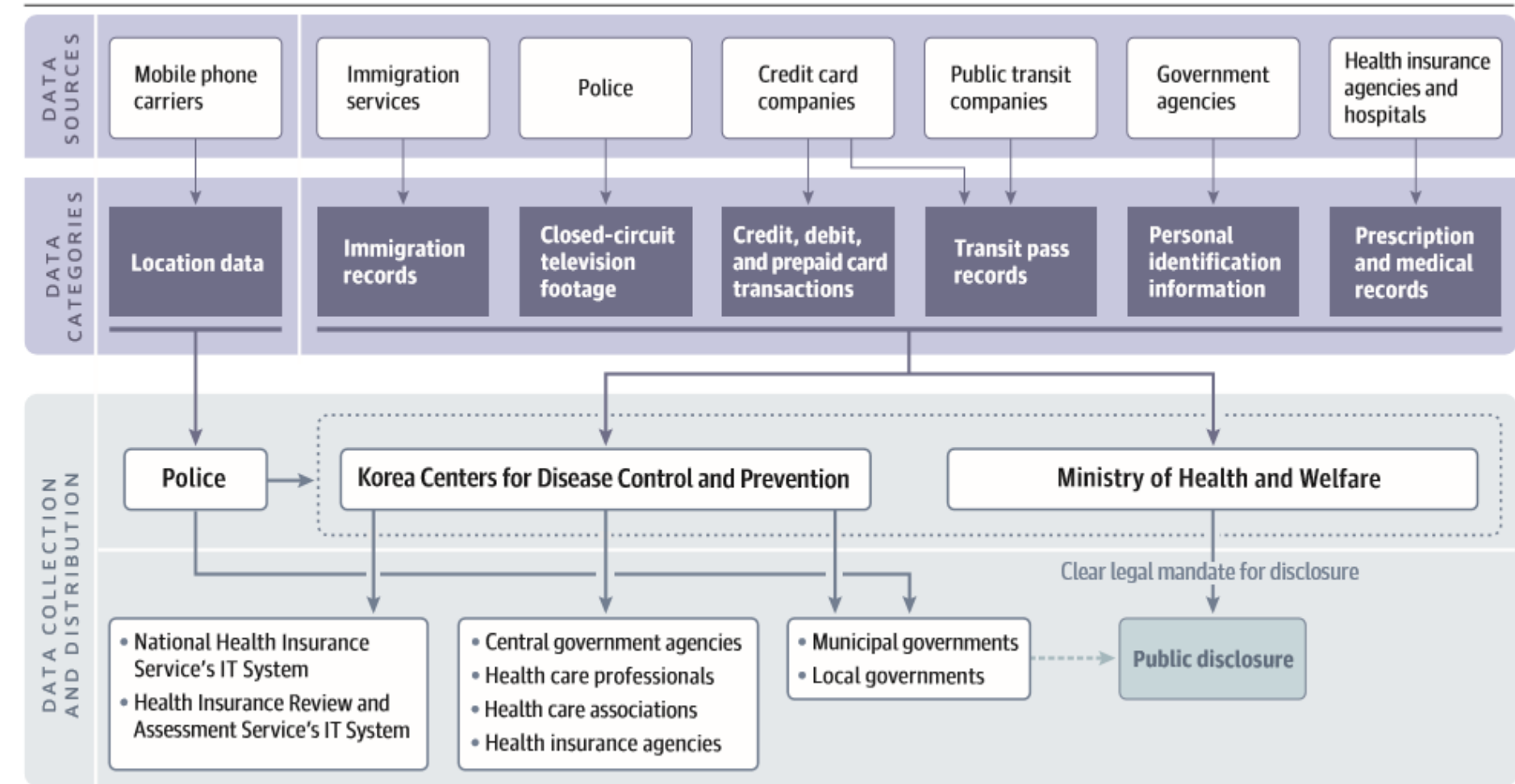
Article 1: Information Technology–Based Tracing Strategy in Response to COVID-19 in South Korea - Privacy Controversies

Published: April 23, 2020 in [JAMA](#)

Summary:

- Under current Contagious Disease Prevention and Control Act (CDPCA), public agencies such as Ministry of Health and Welfare (MOHW) and Korea Centers for Disease Control and Prevention (KCDC) can collect, profile, and share seven types of data that is related to infected individuals or those suspected to be infected. The KCDC can share the data with central, municipal/local governments, national health insurance agencies, and health care professionals and their associations.
- The locations of infected individuals attracted news coverage. General public engaged in profiling and disclosed embarrassing personal details. **Some of them were affected by unwanted privacy invasion and became subject to public disrespect.** Restaurants, shops, and other business place where infected individuals had visited experienced sudden loss of business.
- For epidemiological purpose, it is important to determine the places where an infected person has visited. However, instead to disclosing data to the public, the information could be **used to disinfect the places** and that way a loss of business could be prevented. **Furthermore, instead of sharing precise locations of an infected individual, less granular data could be disclosed.**

Figure. Coronavirus Disease 2019 Contact Tracing in Korea: Sources, Categories, Collection, and Distribution of Data



IT indicates information technology.

- After COVID-19 outbreak, legal system could be improved to facilitate the use of aggregated data rather than individual data to prevent misuse of the data.
- Concerns could be raised in the process in terms of lack of transparency from the government and such concerns could be addressed by devising a suitable privacy preserving method that ensures reliability.

Transmission:



Article 2: Pre-symptomatic SARS-CoV-2 Infections and Transmission in a Skilled Nursing Facility Published: April 23, 2020 in [NEJM](#)

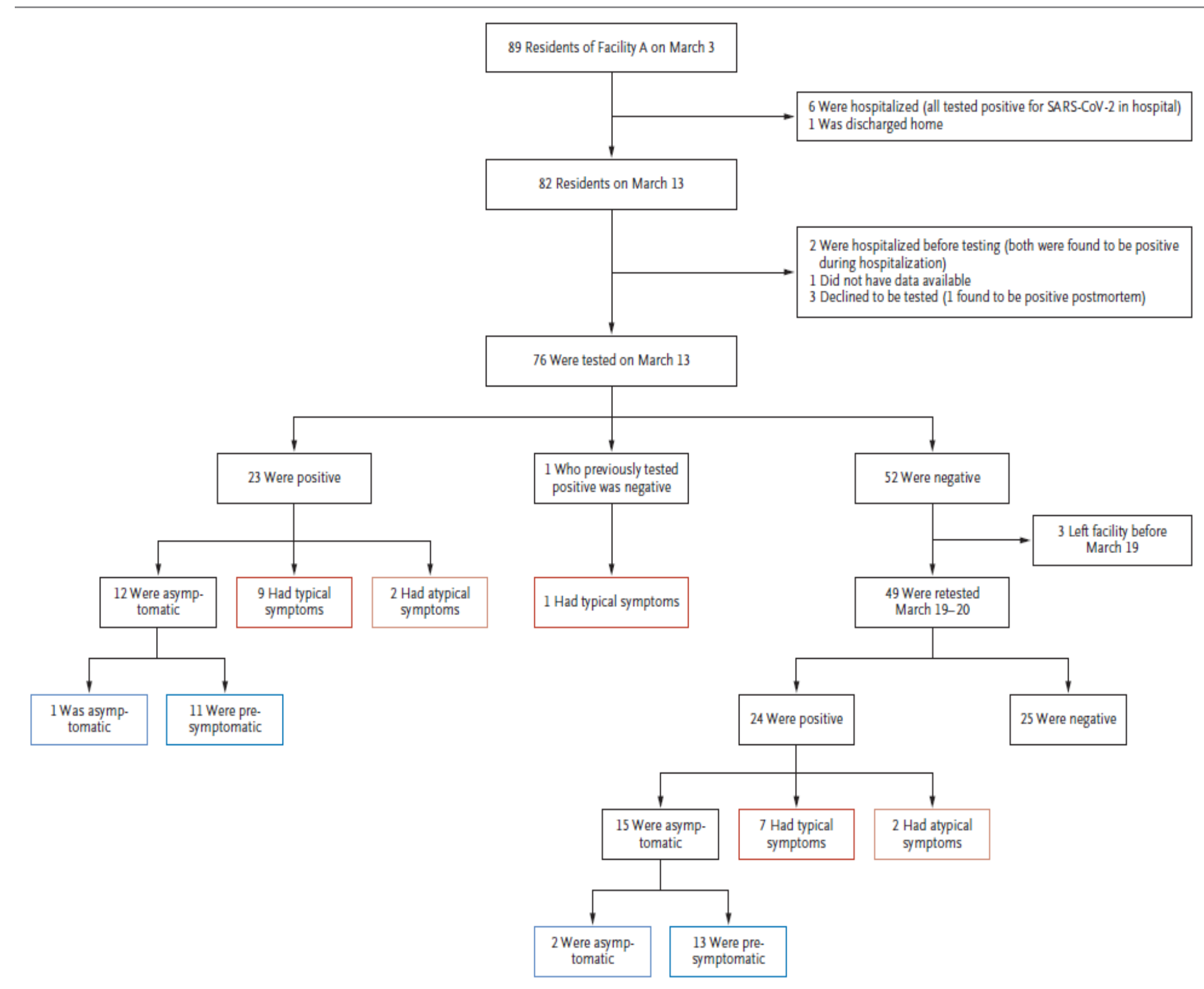
Summary:

A study assessed transmission and evaluated the adequacy of symptom-based screening to identify infections in residents of nursing facility in the US.

Method: resident were assessed by (RT-PCR), viral culture, and sequencing

Finding:

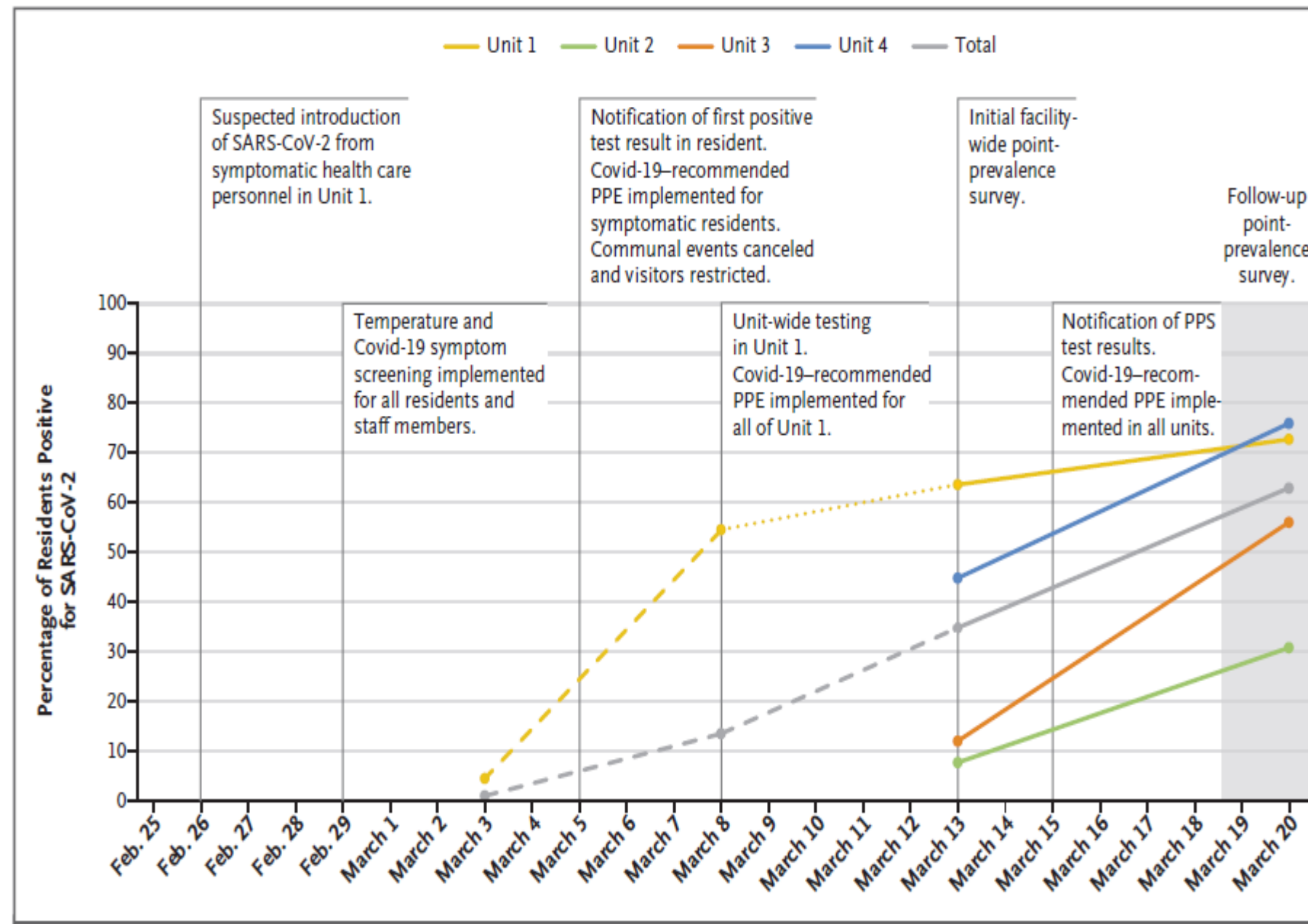
- Twenty-three days after identifying the first resident with SARS-CoV-2 infection, Facility A had a 64% prevalence of Covid-19 among residents, with a case fatality rate of 26% despite early adoption of infection-control measures
- More **than half of the** residents with positive tests were asymptomatic at the time of testing.
- Covid-19 was diagnosed in 26 members of the staff (19%).
- Transmission **from asymptomatic residents** infected with SARS-CoV-2 most likely contributed to the rapid and extensive spread of infection to other residents and staff
- **The doubling time in this facility was 3.4 days, which is faster than that of the surrounding community, 5.5 days.**



Transmission



Article 2 : Cont., Summary:



The doubling time in this facility was 3.4 days.

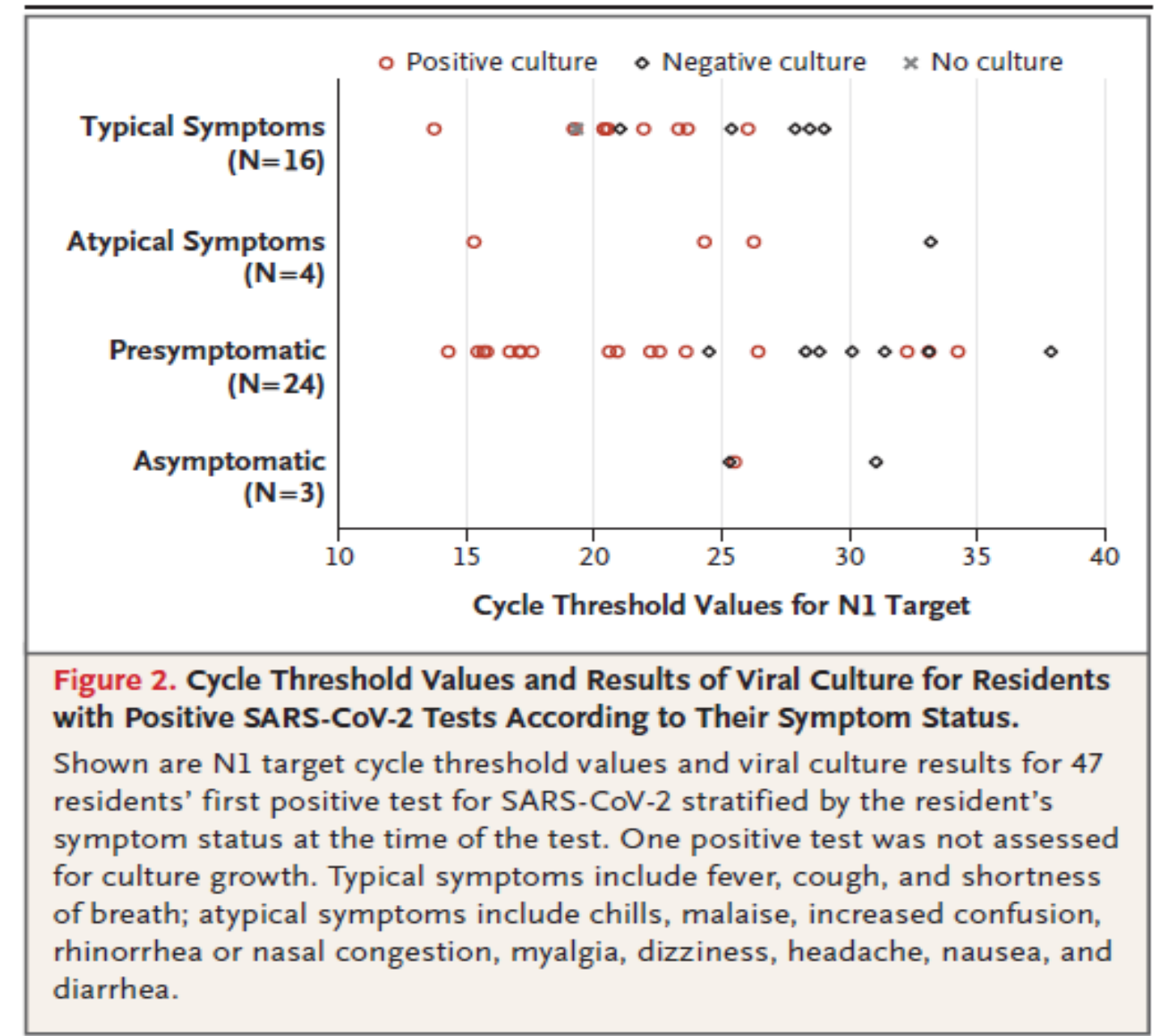


Figure 2. Cycle Threshold Values and Results of Viral Culture for Residents with Positive SARS-CoV-2 Tests According to Their Symptom Status.

Shown are N1 target cycle threshold values and viral culture results for 47 residents' first positive test for SARS-CoV-2 stratified by the resident's symptom status at the time of the test. One positive test was not assessed for culture growth. Typical symptoms include fever, cough, and shortness of breath; atypical symptoms include chills, malaise, increased confusion, rhinorrhea or nasal congestion, myalgia, dizziness, headache, nausea, and diarrhea.

The median Ct values for the four symptom status groups were similar (asymptomatic residents, 25.5; presymptomatic residents, 23.1; residents with atypical symptoms, 24.2; and residents with typical symptoms, 24.8)

Public Health Response:



Article 3: Transforming ORs into ICUs

Published: April 24, 2020 in [NEJM](#)

Summary:

- During COVID-19 outbreak, there was an increased demand for intensive care unit (ICU) beds and mechanical ventilation at New York Presbyterian Weill Cornell Medical Center, USA. In order to increase critical care capacity, many operating rooms (ORs) and post-anesthesia care units (PACUs) were selected based on their size, location, and available infrastructure and rapidly converted into ICUs. Some ORs were preserved for emergency surgeries. As a result of these efforts, an additional 60 ICU beds were created that increased critical care capacity by 52% from baseline.
- ORs was converted to negative-pressure environments in order to reduce exposure risks for staff and conserve personal protective equipment (PPE). Data ports were reconfigured to connect anesthesia machines to central monitors in the new nursing stations. Some OR equipment such as suction canisters, mayo stands, and storage carts were utilized to serve critical care needs. A clean-core area served as both a workspace and a place to store supplies.
- Perioperative staff were retrained and redeployed to the newly configured areas. Certified registered nurse anesthetists served as respiratory therapists and anesthesia intensivists supervise these units. This transformation allowed to support the needs of surrounding community and permitted surge of patients from other hospitals in New York City. Clear plans for expanding critical care capacity are essential for hospitals anticipating influx of patients with COVID-19.