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Scientific Research Monitoring on COVID-19

15 June 2020

For accessing the full series of published scientific reports please visit the following link:

<https://www.doh.gov.ae/ar/covid-19/Healthcare-Professionals/Scientific-Publication>

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.
- Two strain have been identified for SARS-COV2 (L type (more aggressive) and S type .and 3 cluster groups.

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).

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.

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.
- Also more therapies are currently under investigation including immunomodulatory, antimalarial and others.
- Vaccination are under clinical trial stage in many countries around the world.

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) data from china

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

- **WHO Report:** A new cluster of COVID19 in Beijing related again to local market!
- **Epidemiology :** A sero-prevalence study suggest that most of the population of Geneva remained uninfected during this wave of the pandemic, despite the high prevalence of COVID-19 in the region.
- **Clinical feature:** a study on asymptomatic patient shows that elderly are more likely to have persistent positive samples.
- **Public Health response:** article recommend mandating influenza vaccination during COVID19 pandemic in order to reduce risk of hospitalization and ICU admission.



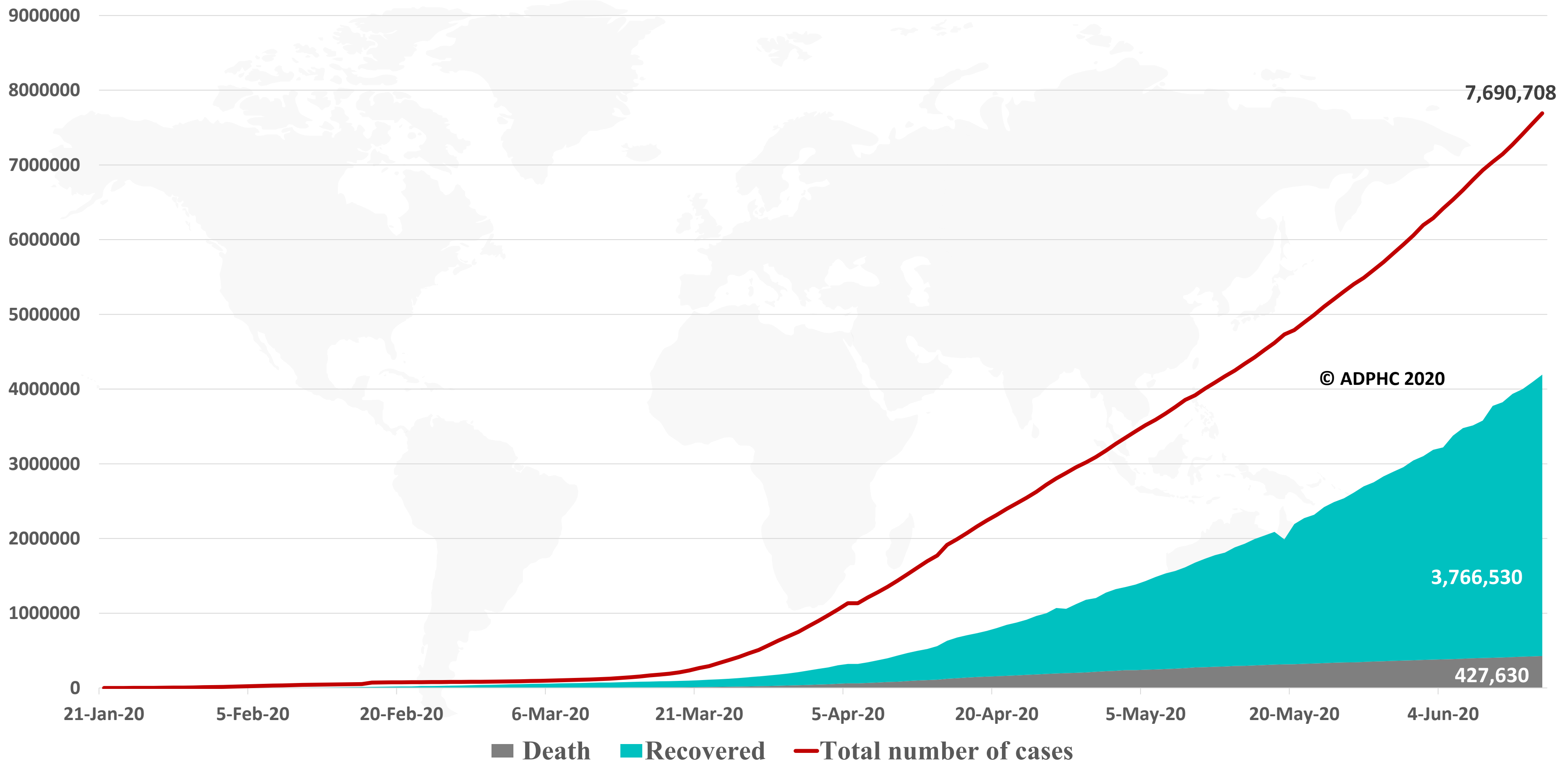
WHO Daily Report 14 June 2020

- World Elder Abuse Awareness Day takes place every year on 15 June as designated by the United Nations General Assembly. It is believed that abuse towards older people has risen significantly during the COVID-19 pandemic. This makes a compelling case for World Elder Abuse Awareness Day's call for decision-makers to develop universally applicable normative standards for the protection of older people.
- The investigation of a cluster of COVID-19 in Beijing associated **with a wholesale market continues**. As of 14 June, 16:00 (CEST+6), Chinese authorities reported a total of 77 cases since 11 June. The WHO is investigating the cases and genetic sequencing is ongoing.
 - The public health response by Chinese officials includes:
 - Tracing and monitoring of close contacts of all laboratory conformed cases (regardless of the development of symptoms).
 - Six wholesale food markets in Beijing have fully or partially closed operations.
 - Those working in Xinfadi Market, those living in the surrounding residential compounds, and those who have visited the Xinfadi Market in the preceding weeks are being traced and will undergo testing.
 - Under the Emergency Response framework, some of the local measures that were relaxed had been re-implemented in Beijing.
 - Enhanced screening measures implemented at points of entry.
 - WHO is closely monitoring the situation and is in close contact with national authorities in China.

Epidemiology



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

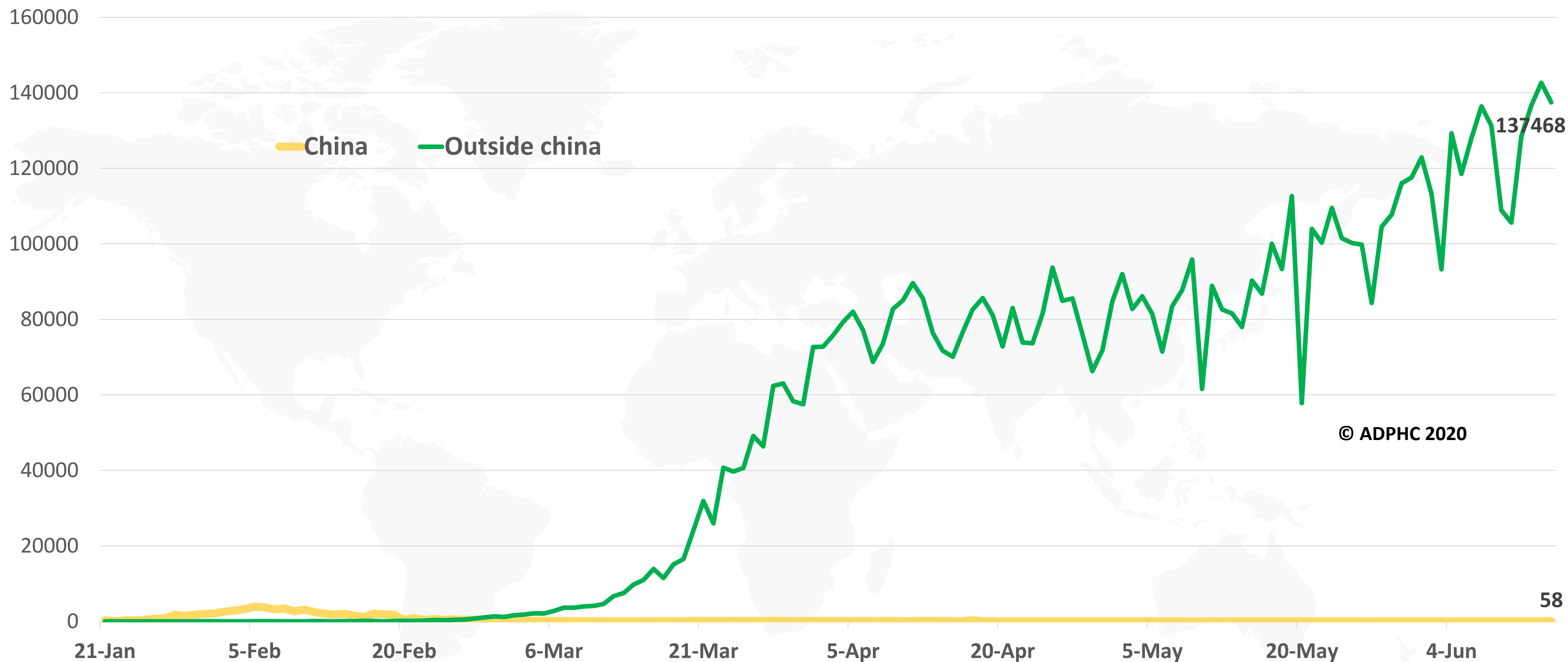


Line graph published by Abu Dhabi Public Health Center 2020.

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



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



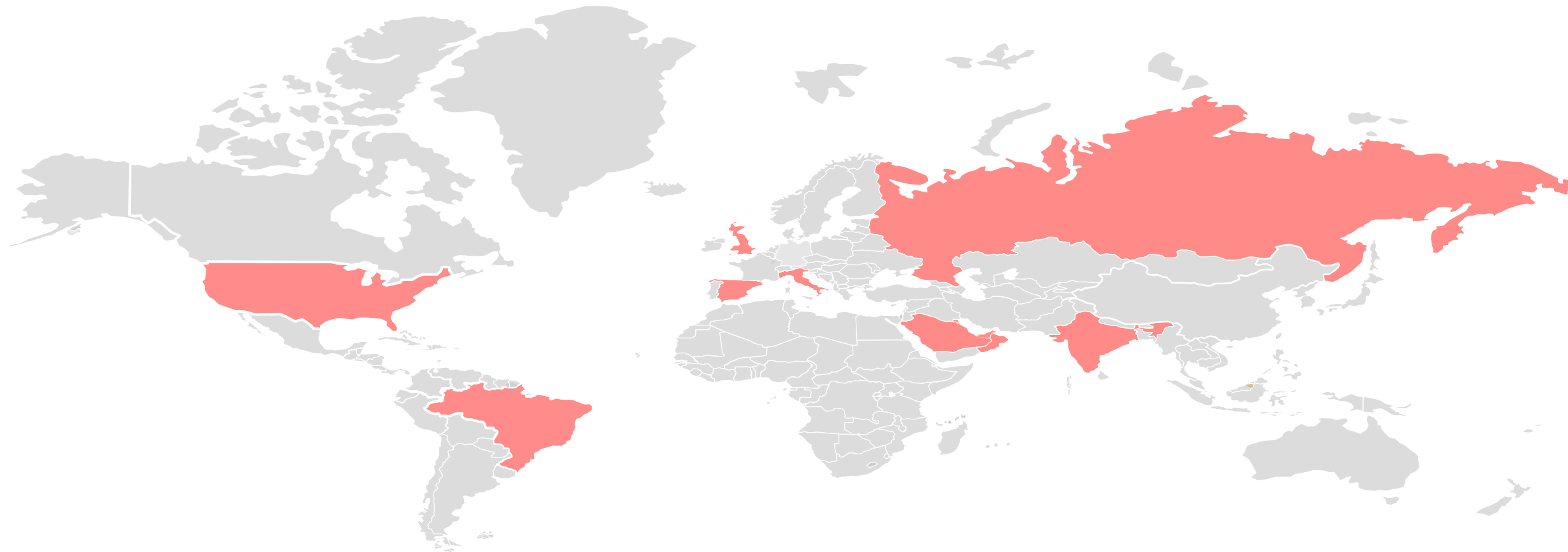
Line graph published by Abu Dhabi Public Health Center 2020.

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

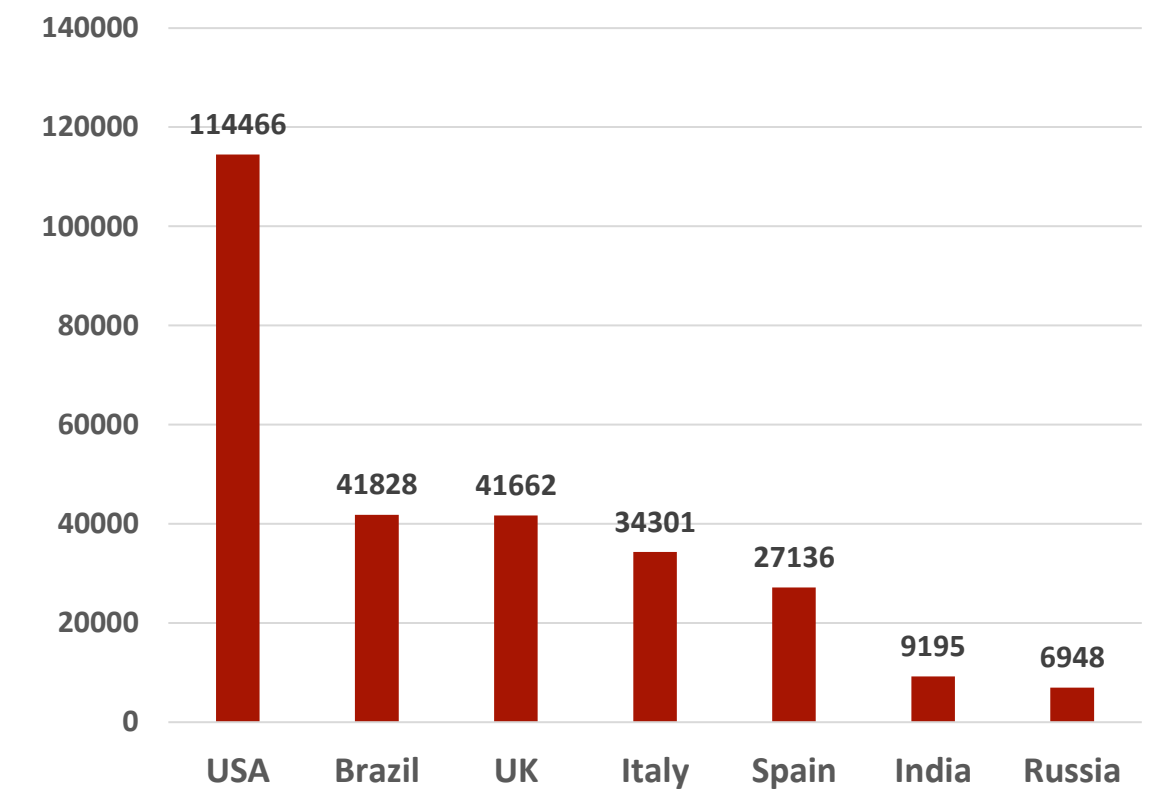
Epidemiology



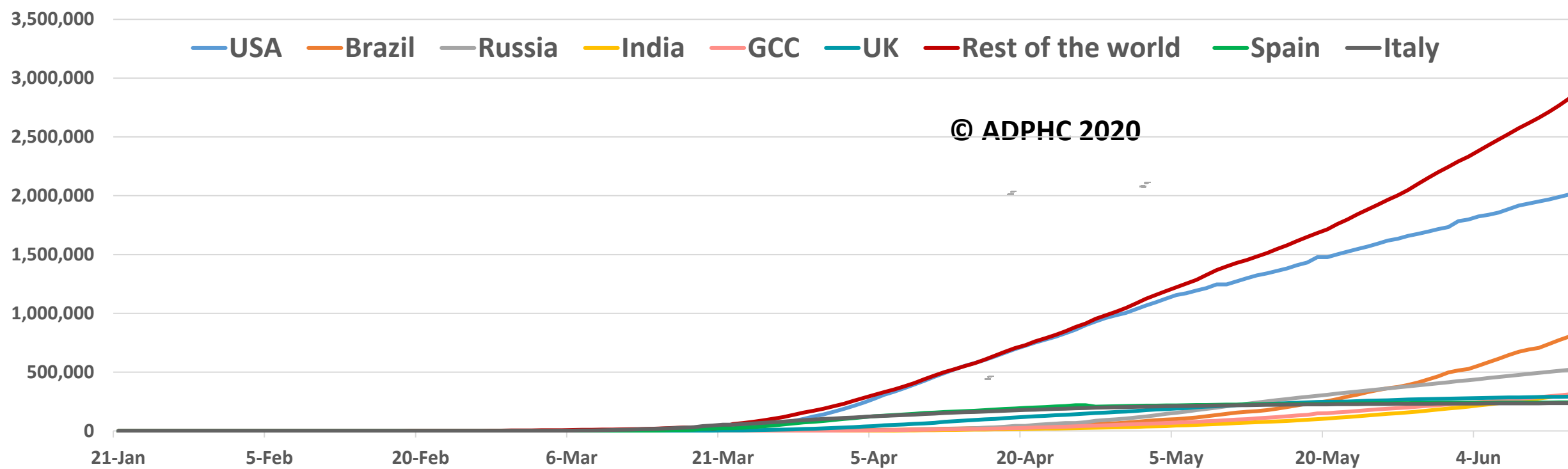
Figure 3 : Top 7 countries in the total number of cases due to COVID-19 (January 21 to Jun 14, 2020).



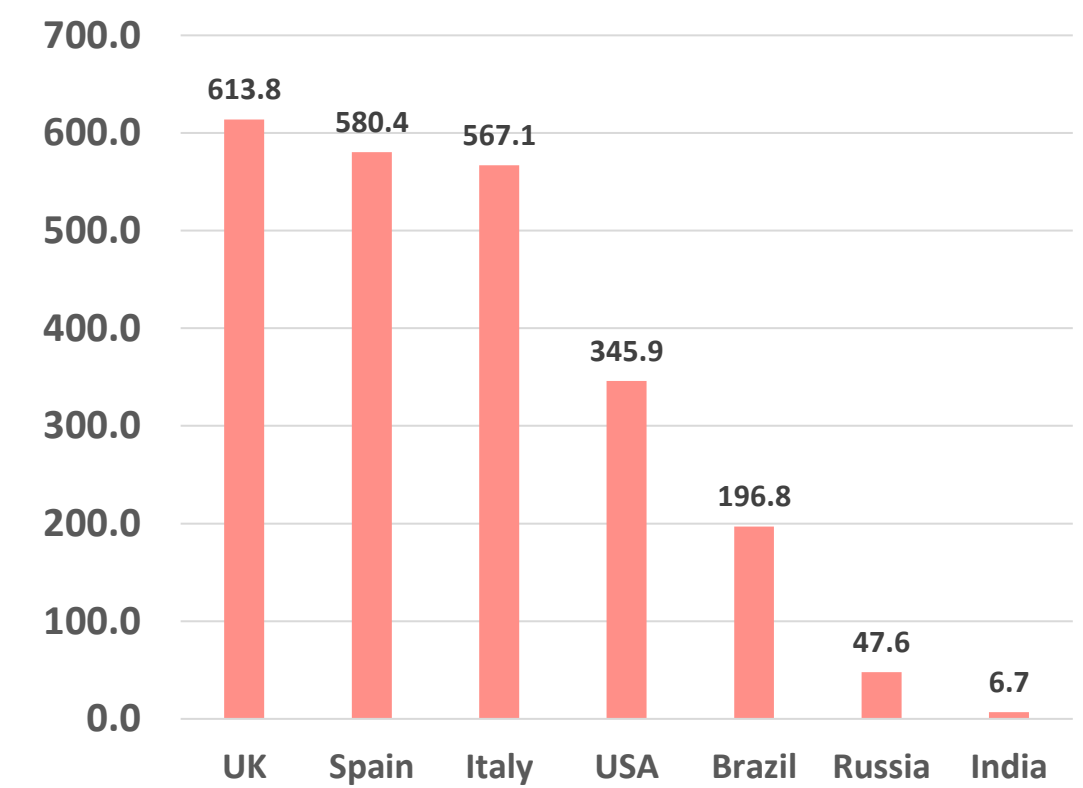
TOTAL DEATHS



TOTAL INFECTED CASES



DEATHS PER MILLION



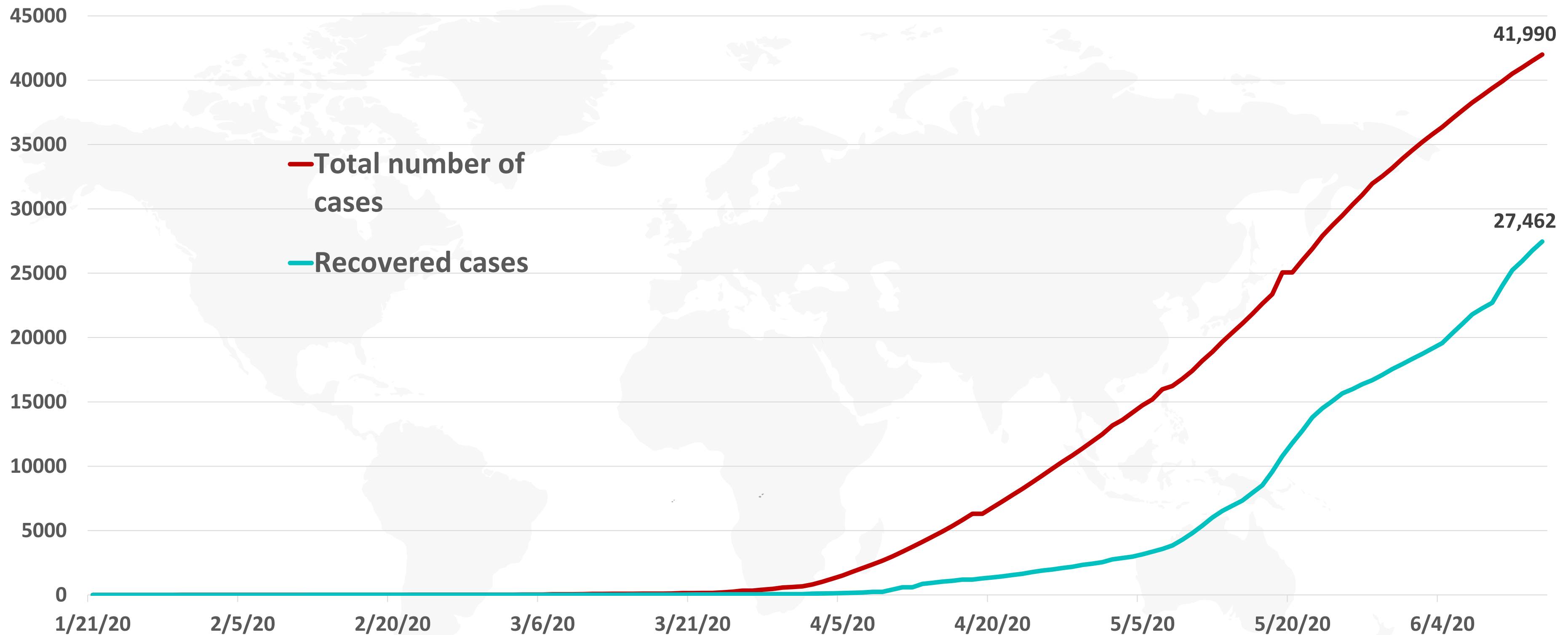
Line graph published by Abu Dhabi Public Health Center 2020.

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

Epidemiology



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



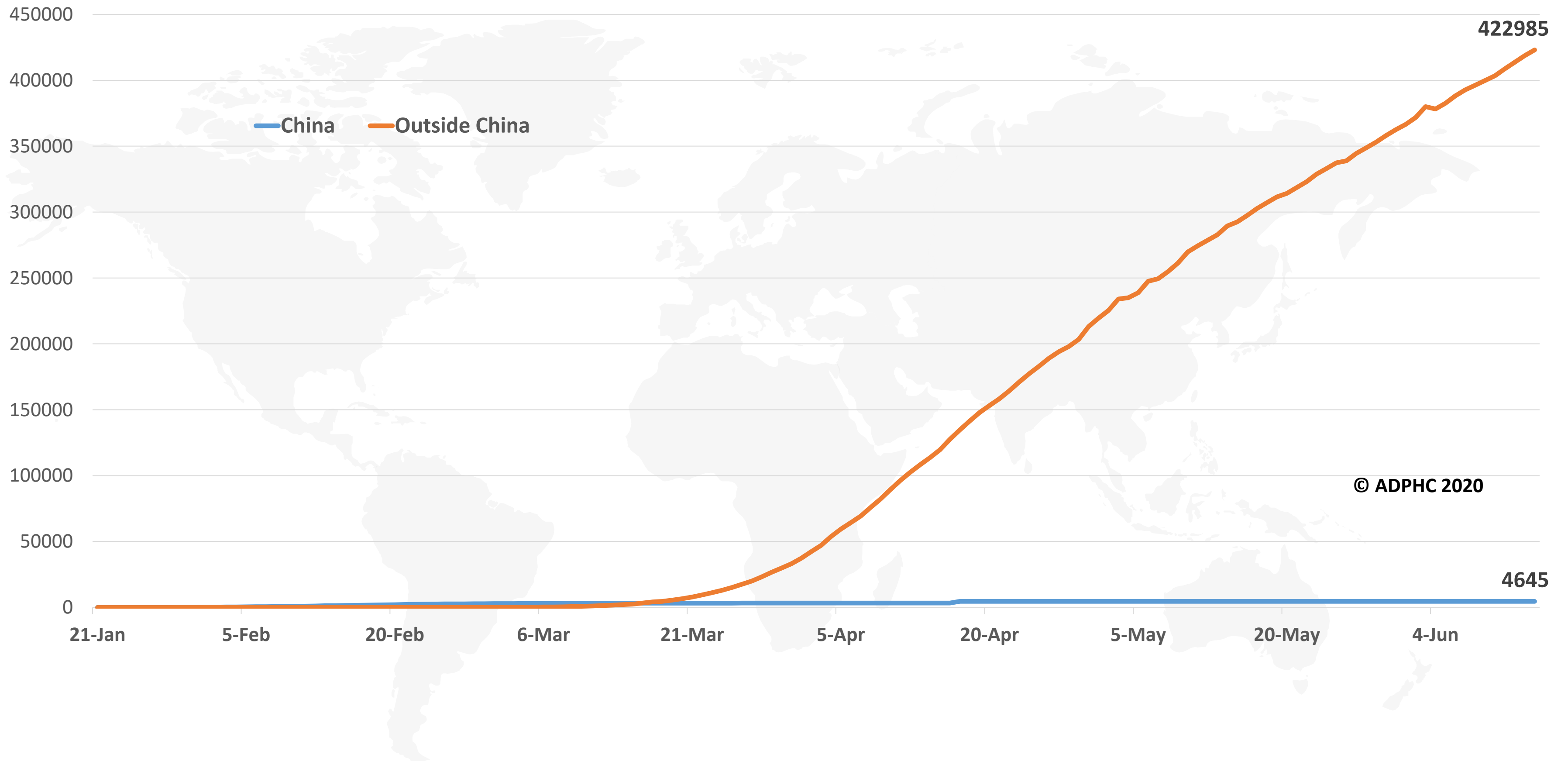
Line graph published by Abu Dhabi Public Health Center 2020.

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 Jun 14, 2020).



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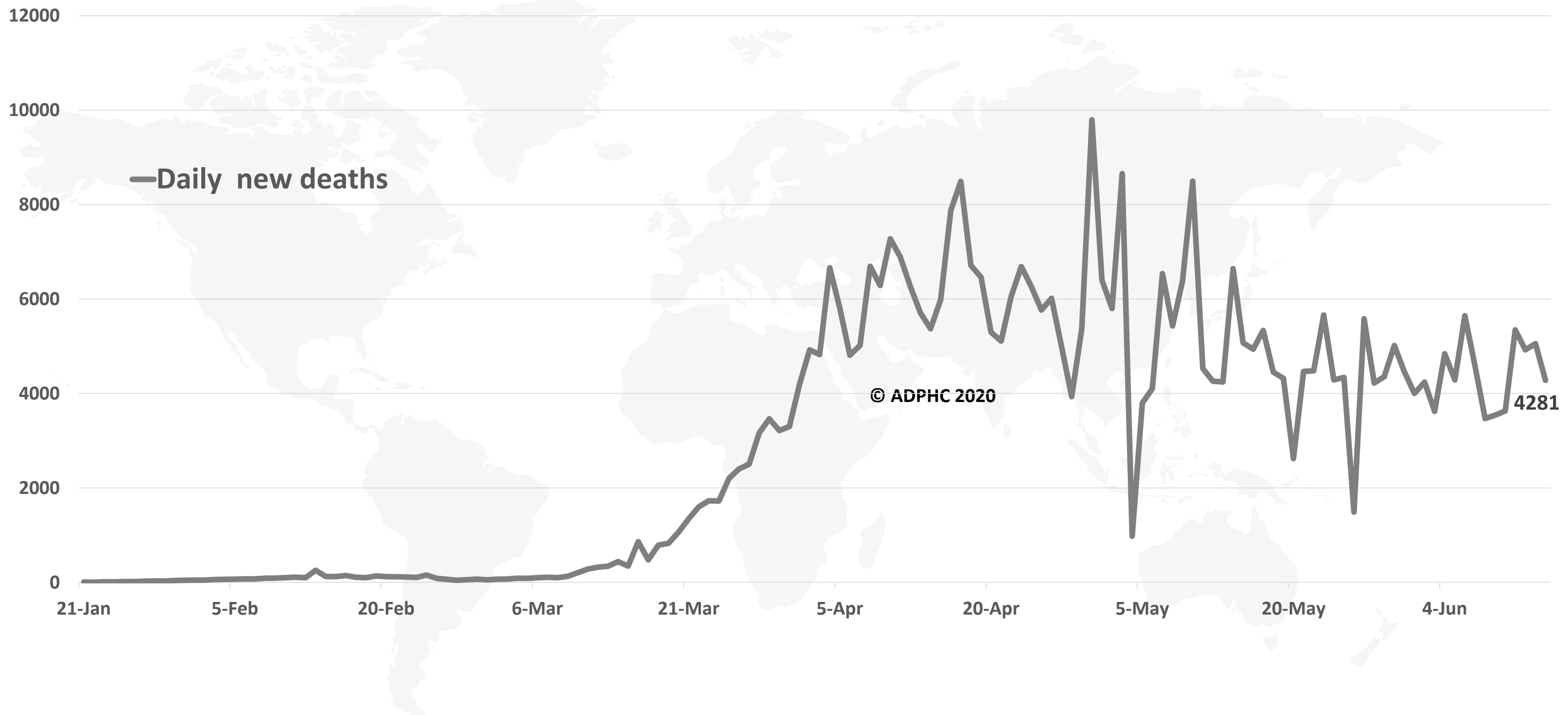
Line graph published by Abu Dhabi Public Health Center 2020.

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

Epidemiology



Figure 6: Global daily new deaths due to COVID-19 (January 22 to Jun 14, 2020).



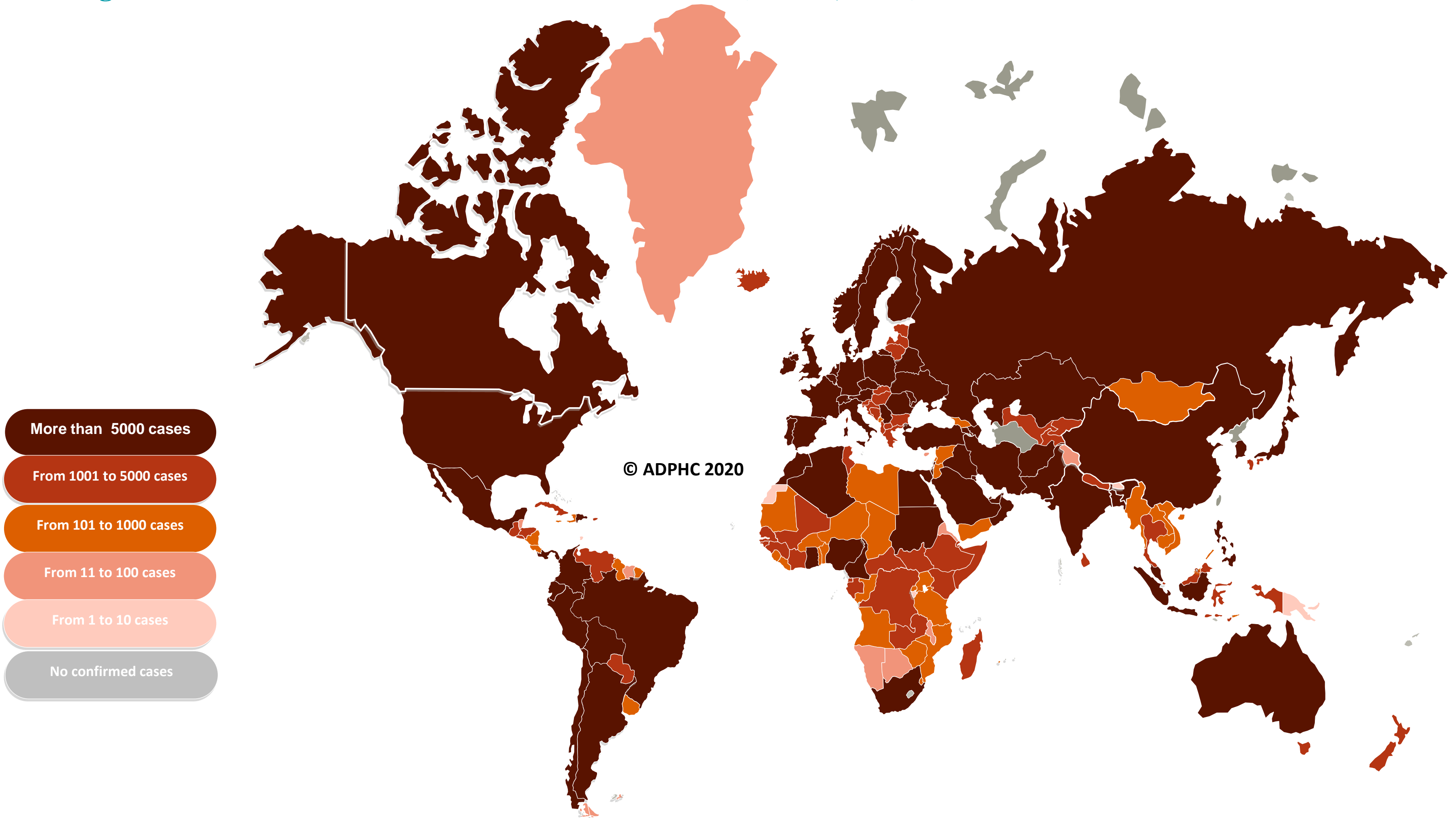
Line graph published by Abu Dhabi Public Health Center 2020.

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

Epidemiology



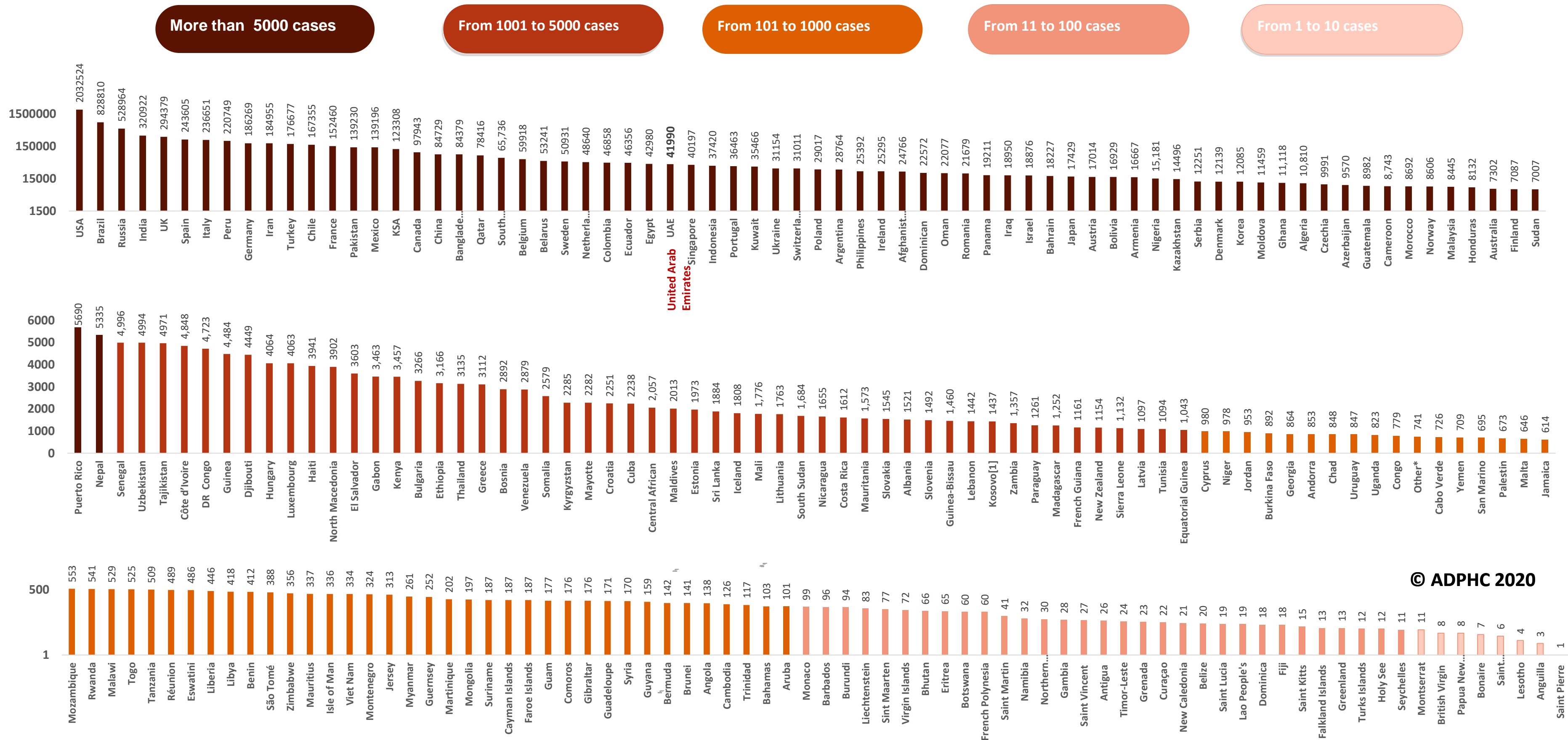
Figure 7a : Global distribution of COVID-19 cases (Jun 14, 2020).



Map chart published by Abu Dhabi Public Health Center 2020.



Figure 7B: Bar chart illustrate the global distribution of COVID19 cases Jun 14, 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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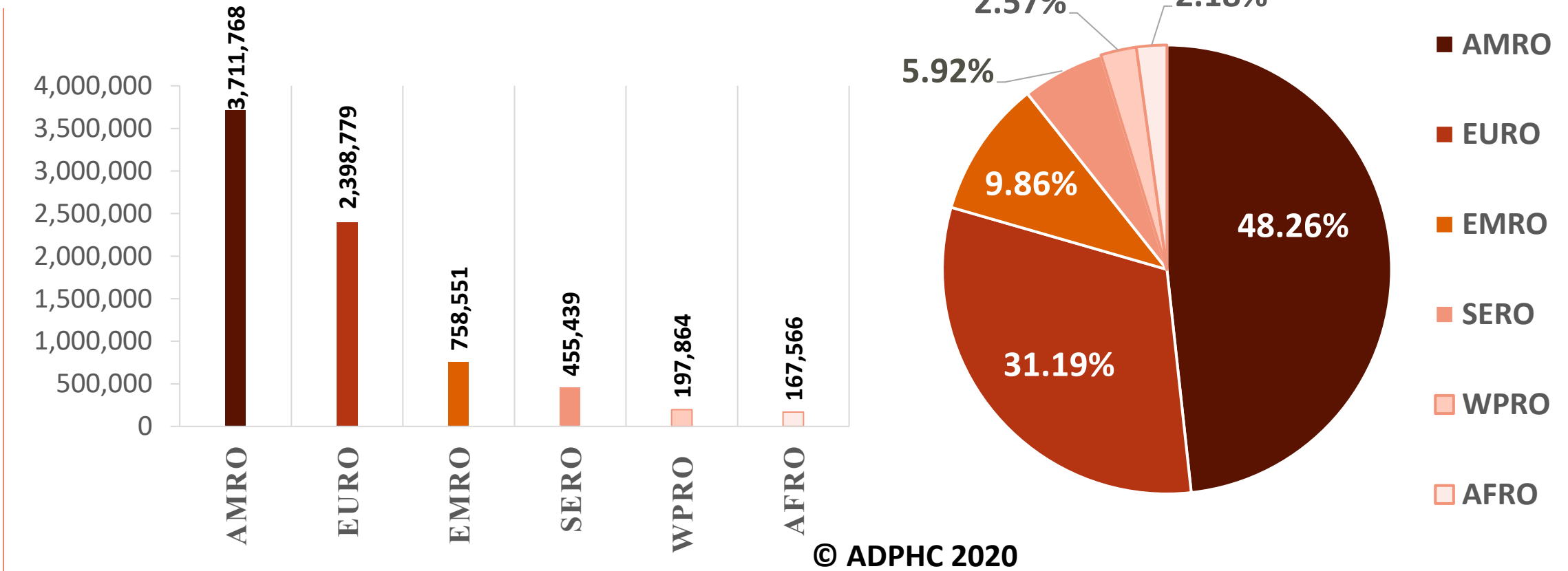
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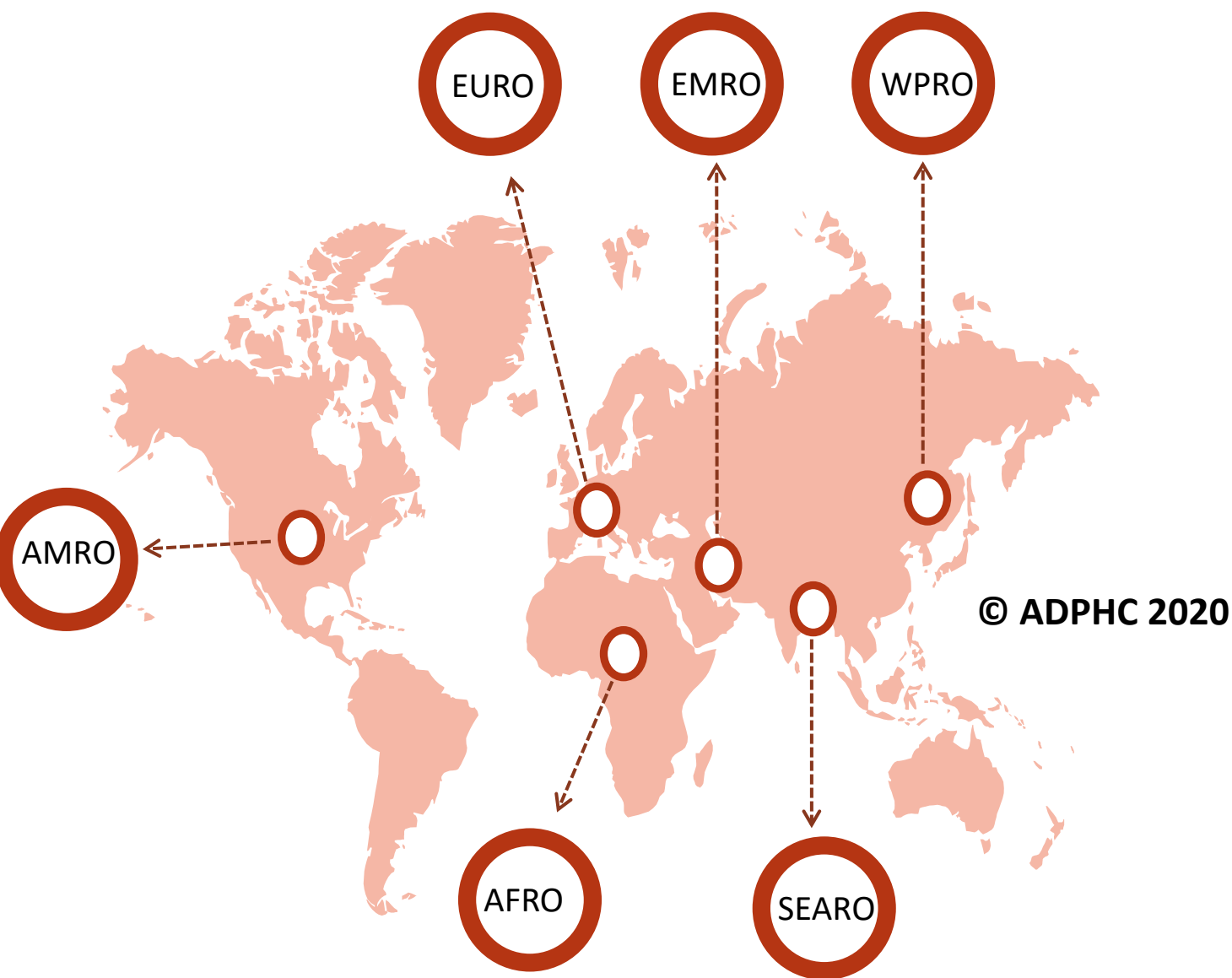
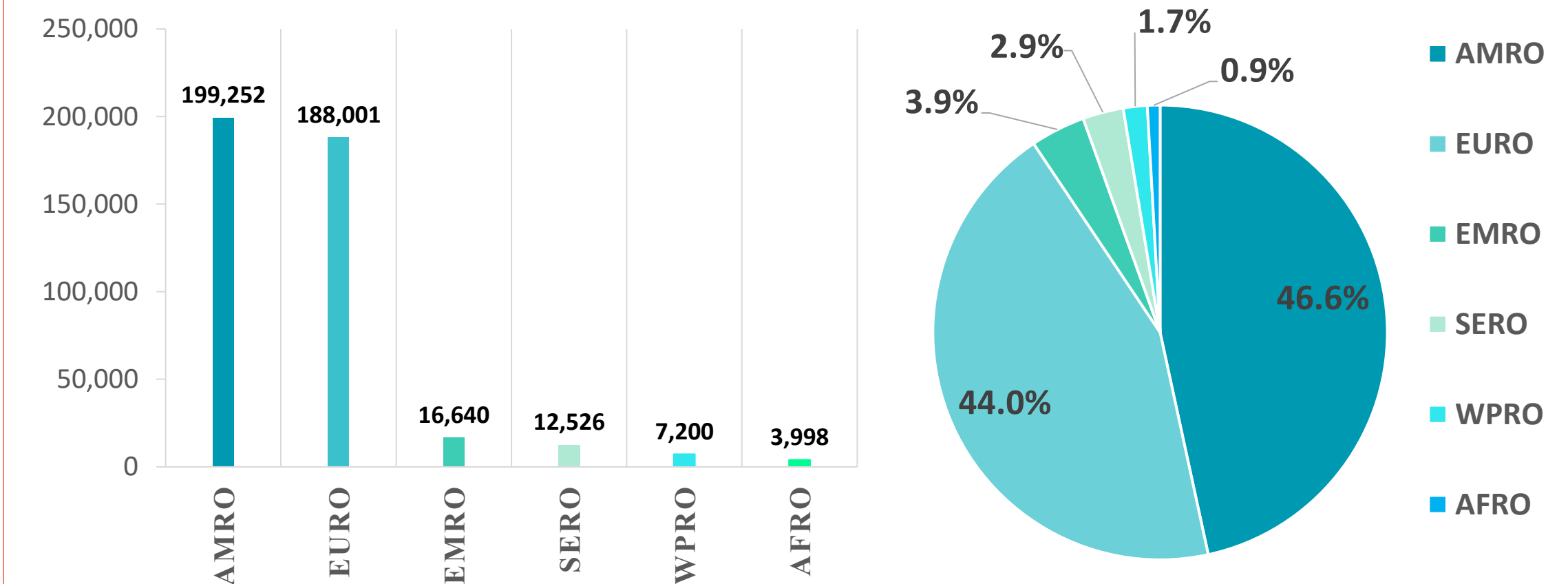


Figure 8: illustrate the Global distribution of COVID19 cases per region (Jun 14, 2020)

INFECTED



DEATH



Map chart published by Abu Dhabi Public Health Center 2020.

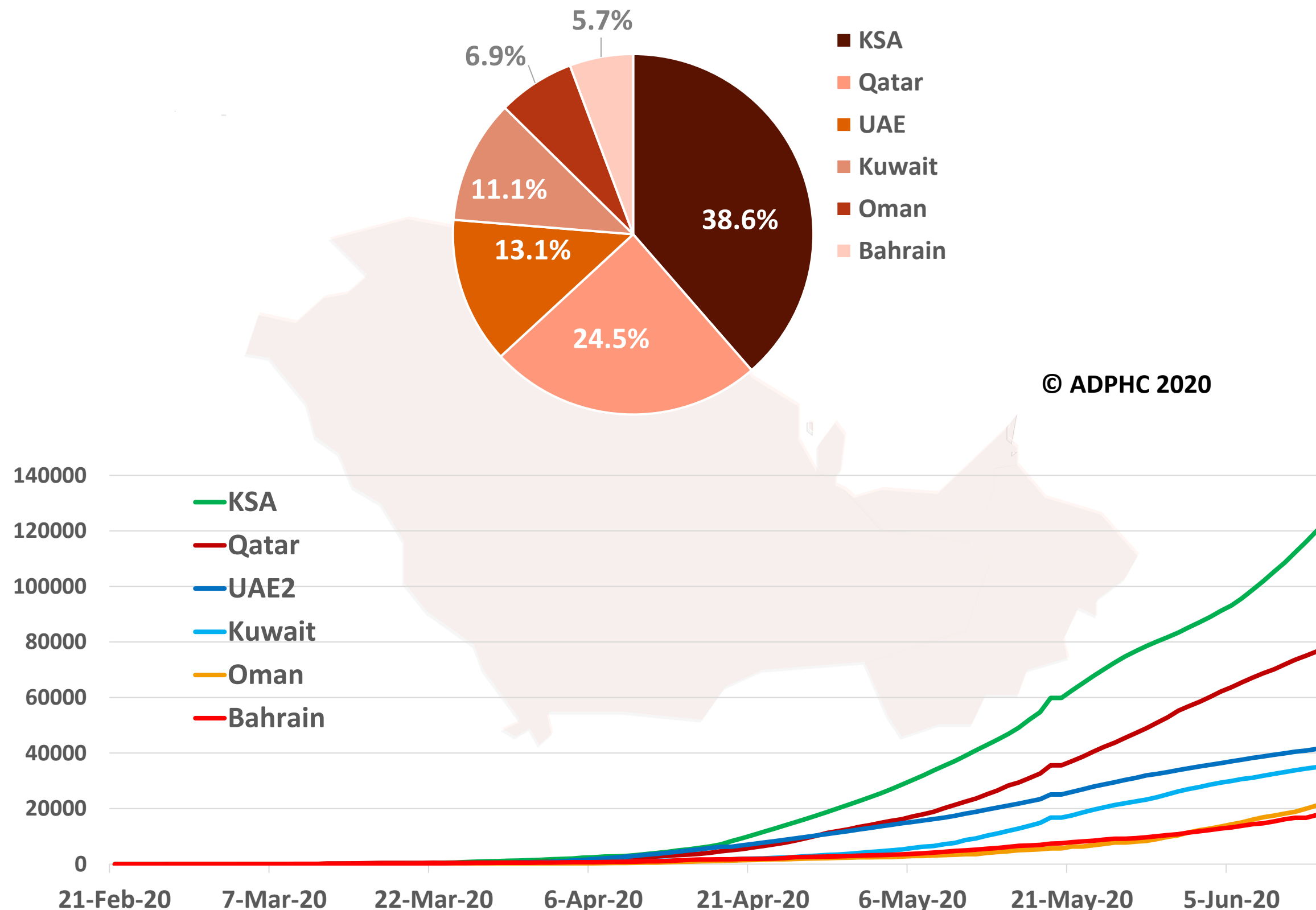
Data resources: [WHO](https://www.who.int/)

Epidemiology

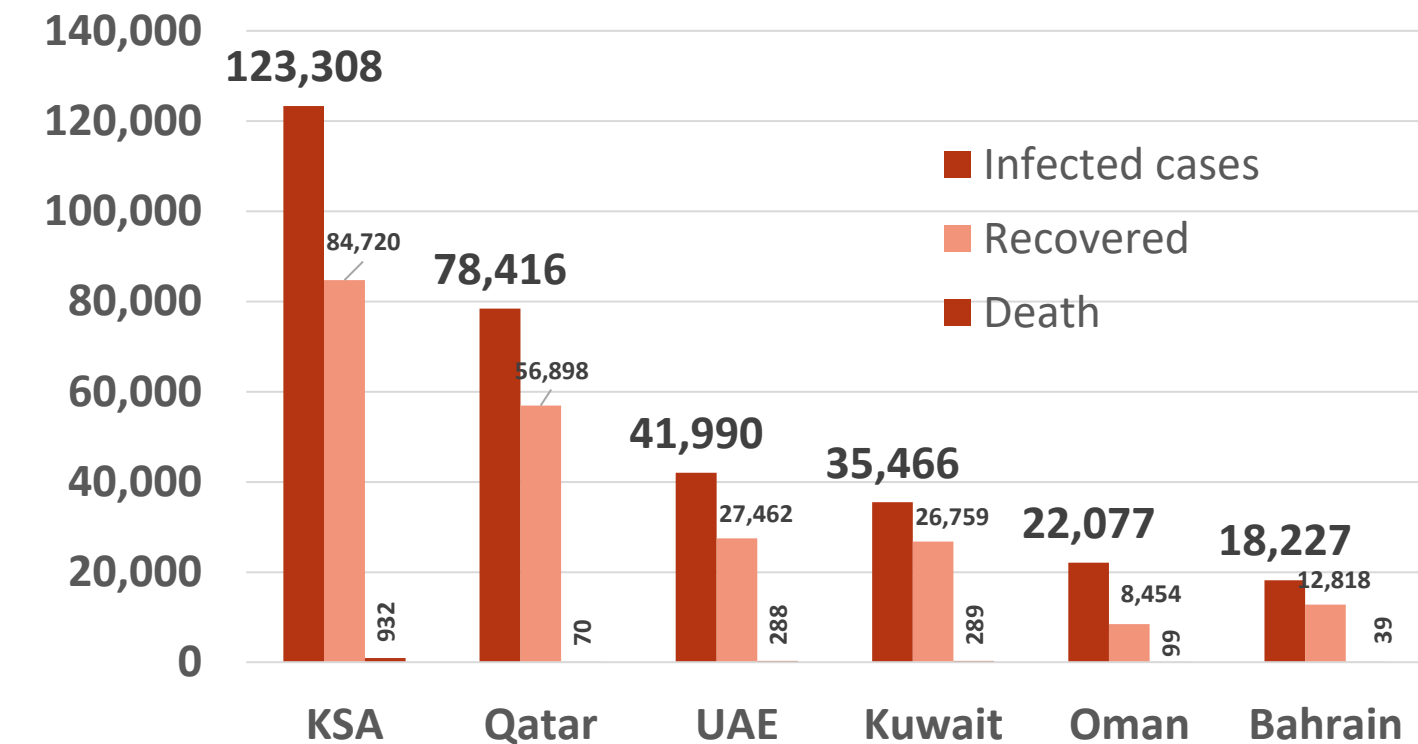


Figure 9: Comparative analysis of the distribution of COVID19 cases in GCC countries (Jun 14, 2020)

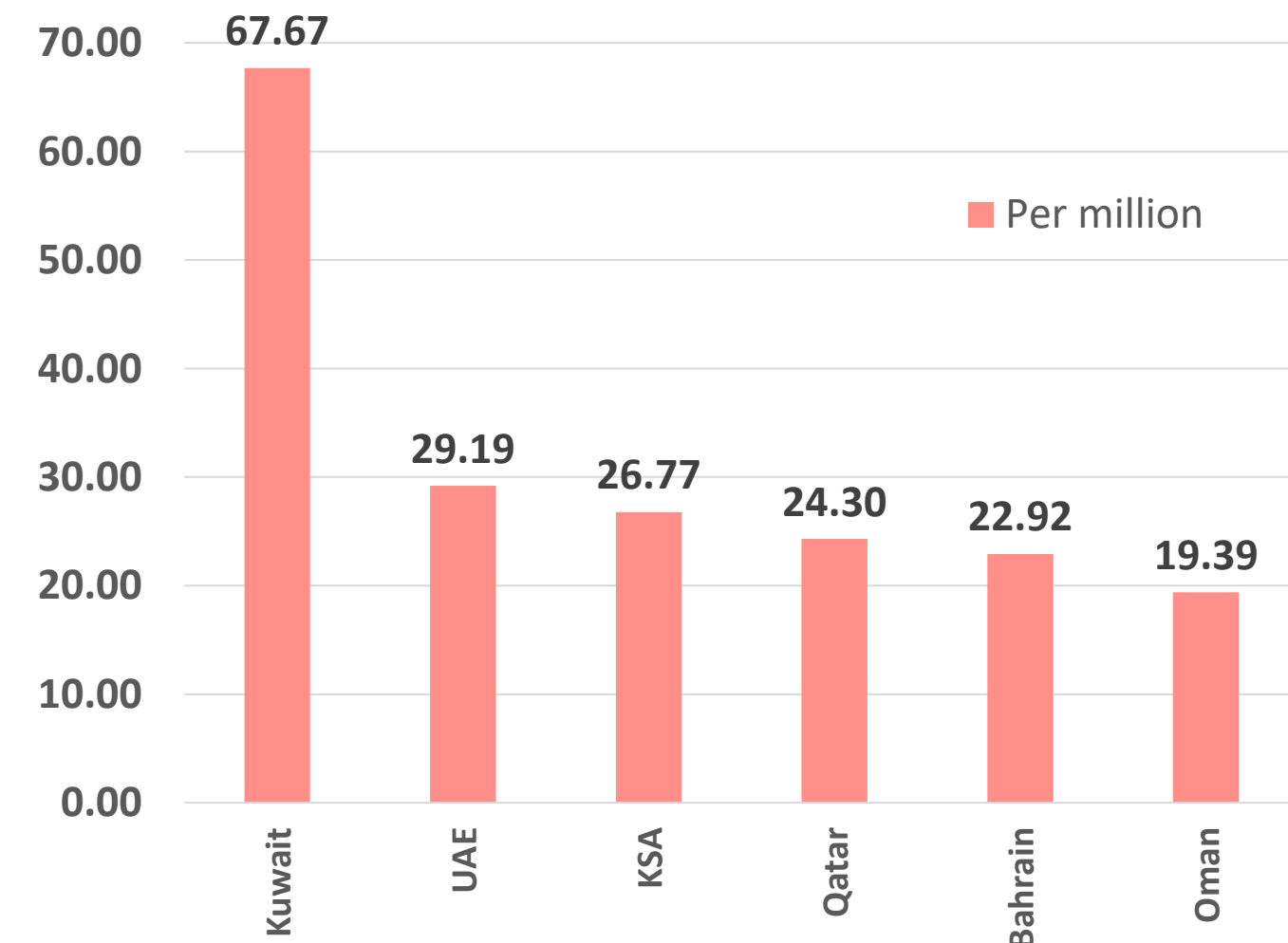
TOTAL NUMBER OF INFECTED CASES



Total number of infected, recovered and Deaths



Death per million



charts published by Abu Dhabi Public Health Center 2020.

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

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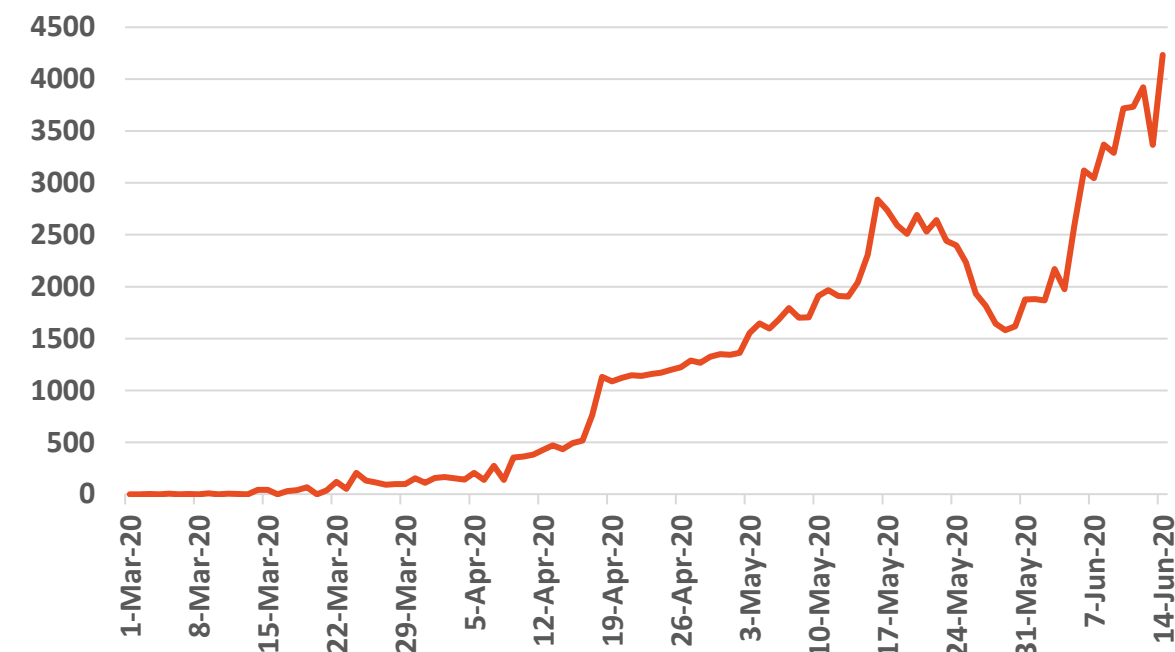
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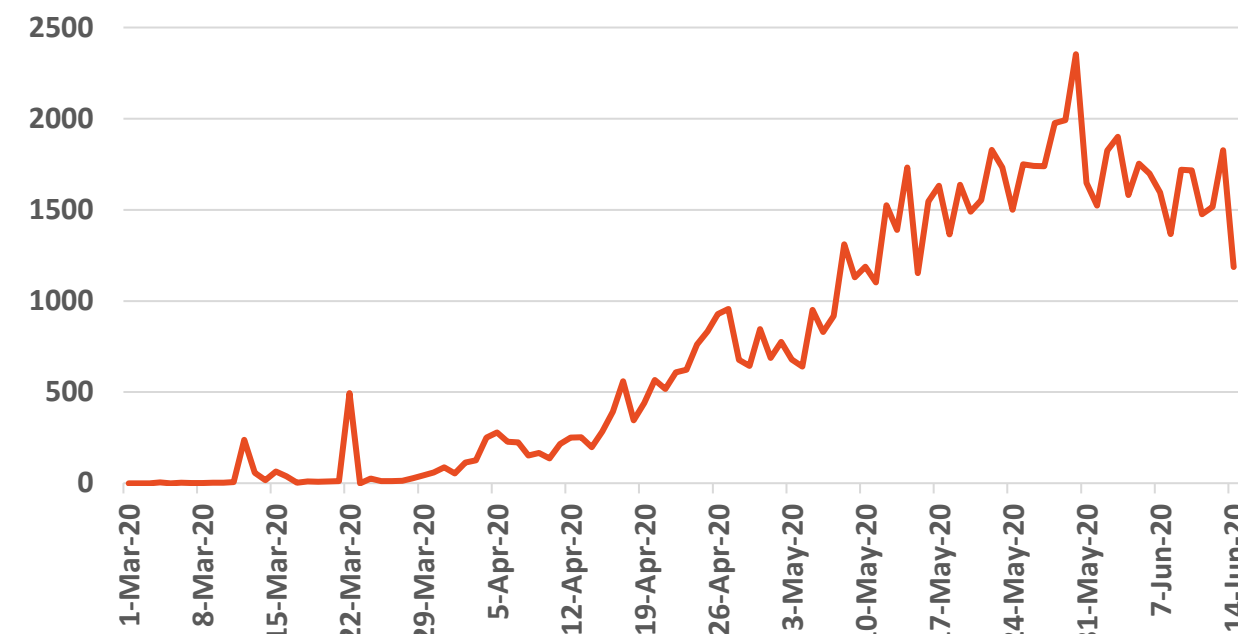
Figure 10: Comparative analysis of the distribution of COVID19 new cases in GCC countries (June 14, 2020)

KSA



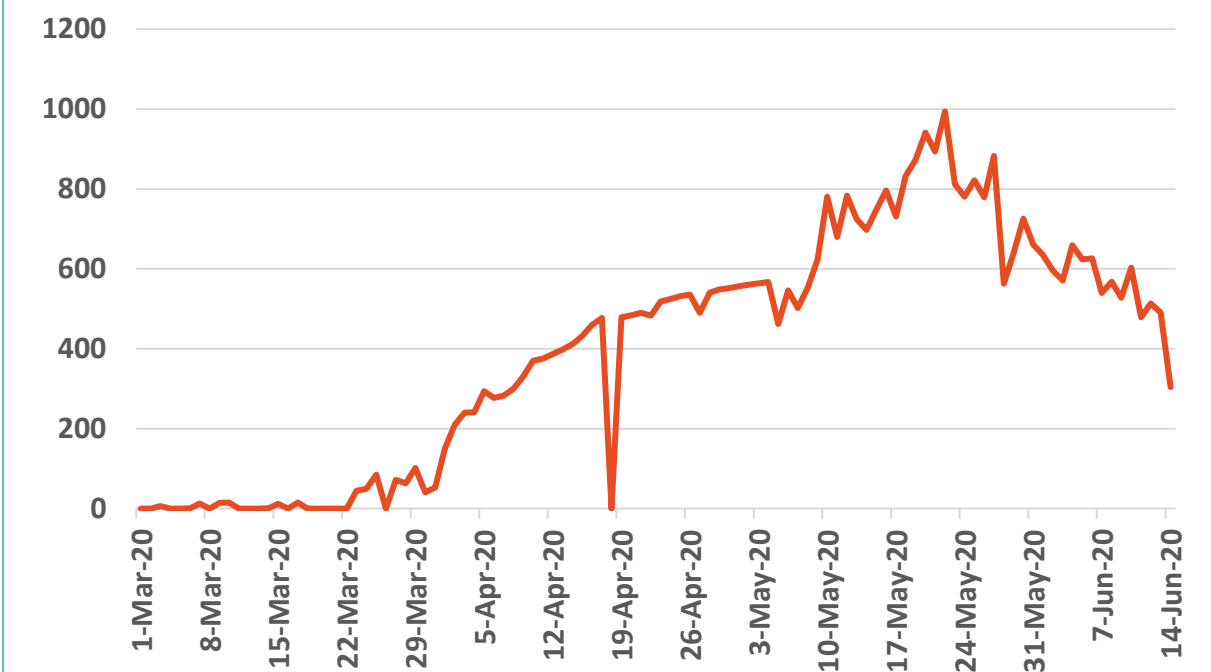
Source : KSA ministry of health

Qatar



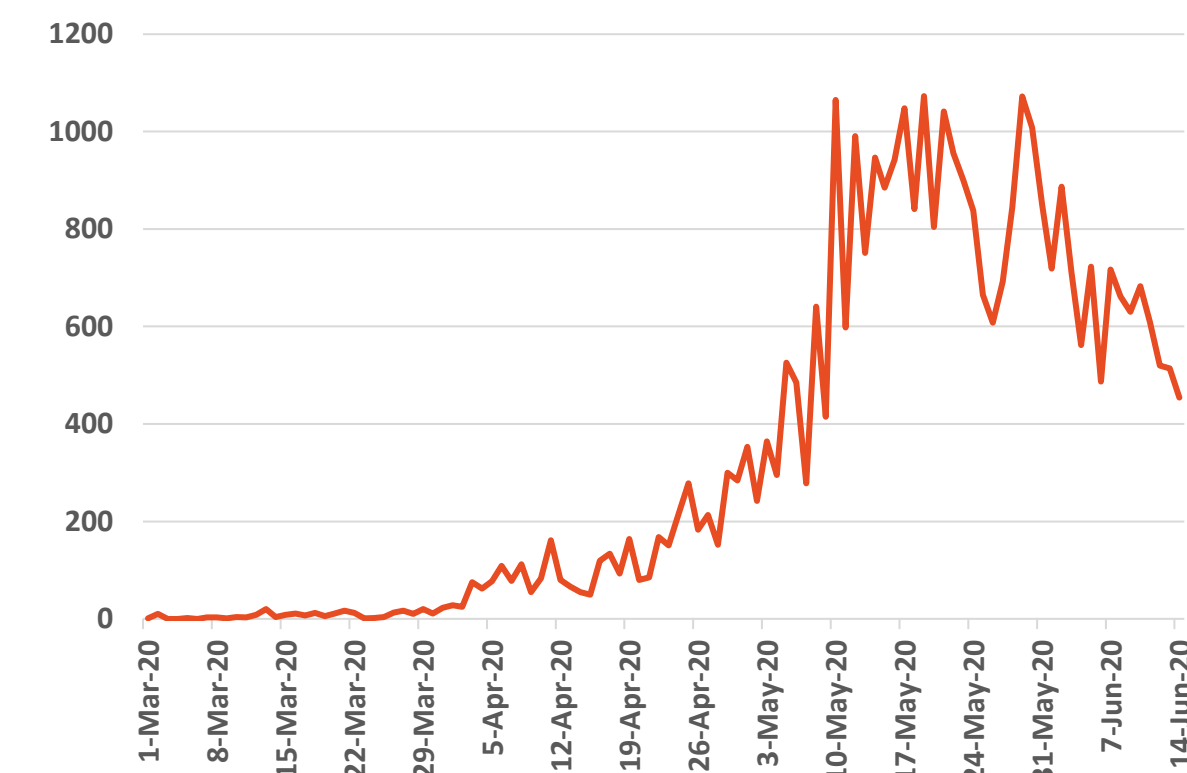
Source : Qatar ministry of health

UAE



Source : National Emergency Crisis and Disaster Management Authority

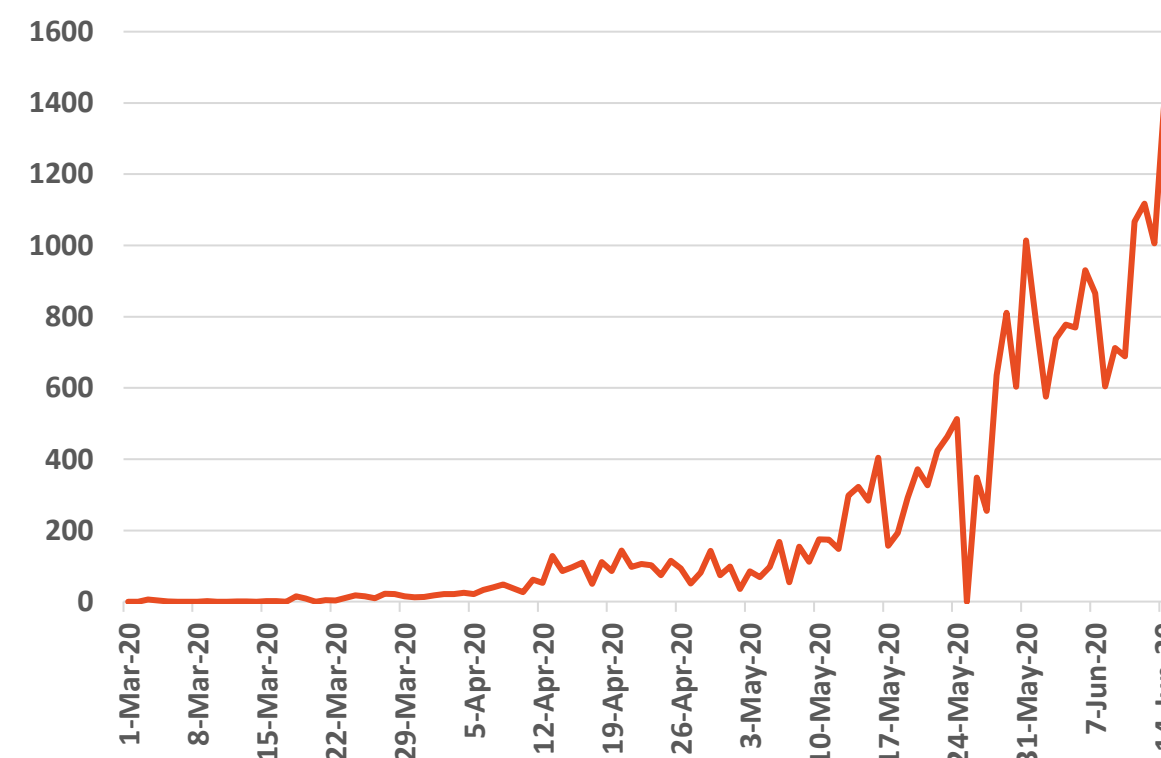
Kuwait



Source : Kuwait ministry of health

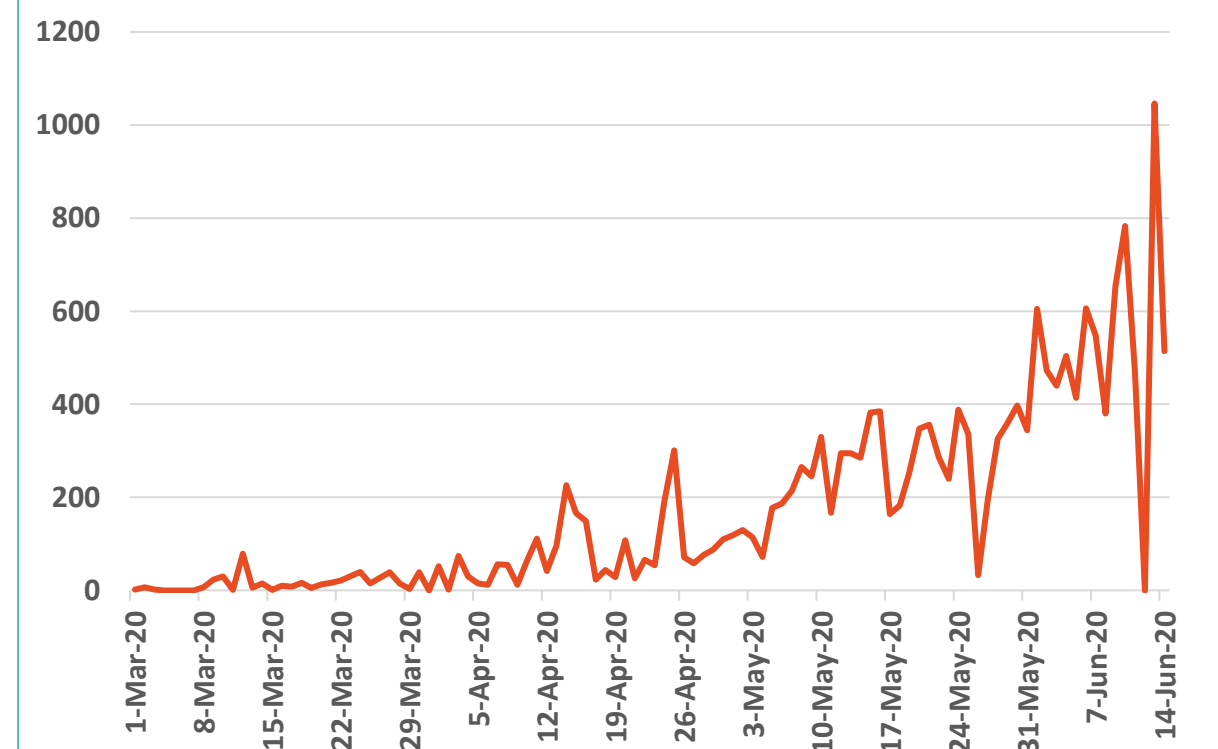
Oman

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Source :Oman ministry of health

Bahrain



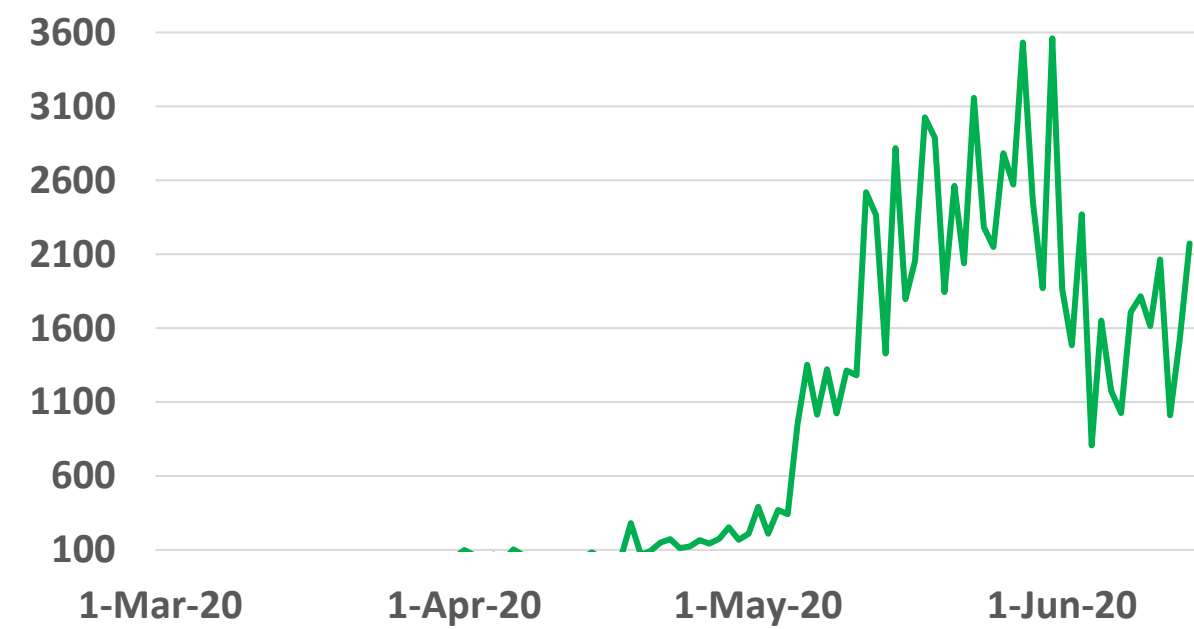
Source :WHO

Epidemiology



Figure 11 : Comparative analysis of the distribution of COVID19 newly recovered cases in GCC countries (June 14, 2020)

KSA



Source : KSA ministry of health

Qatar



Source : Qatar ministry of health

UAE



Source : National Emergency Crisis and Disaster Management Authority

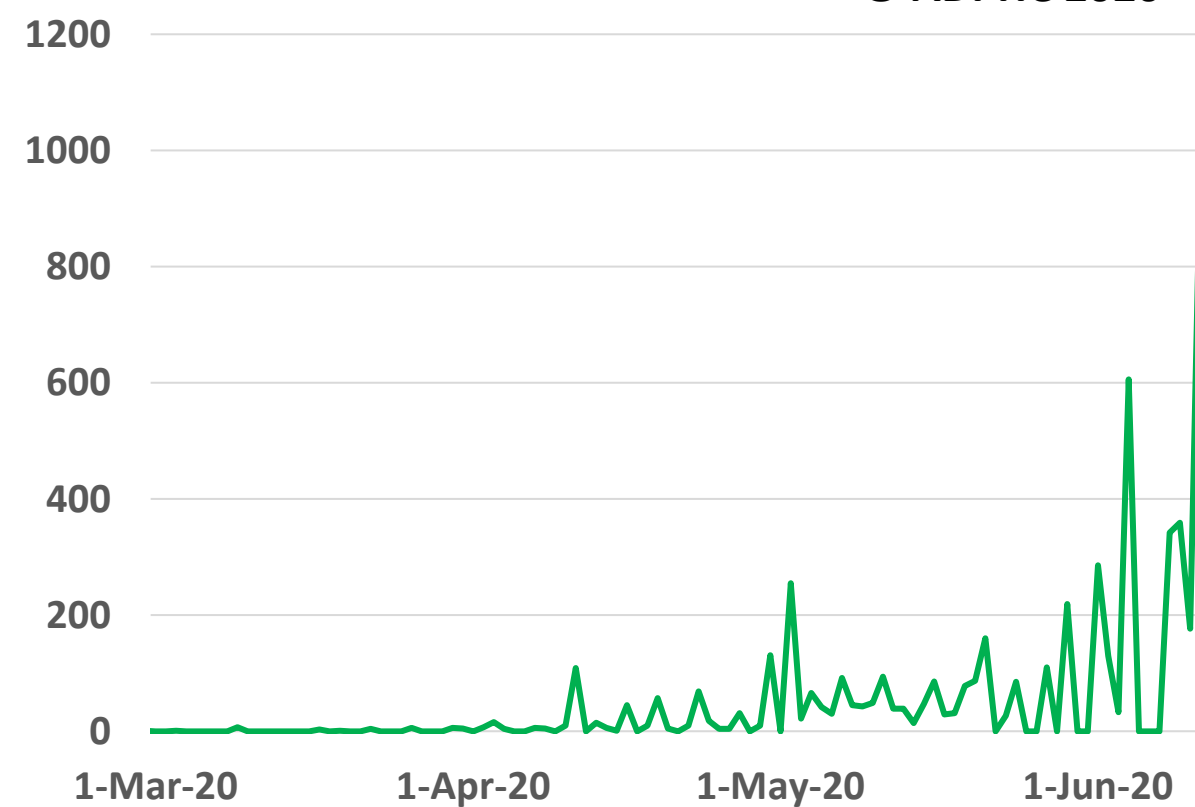
Kuwait



Source : Kuwait ministry of health

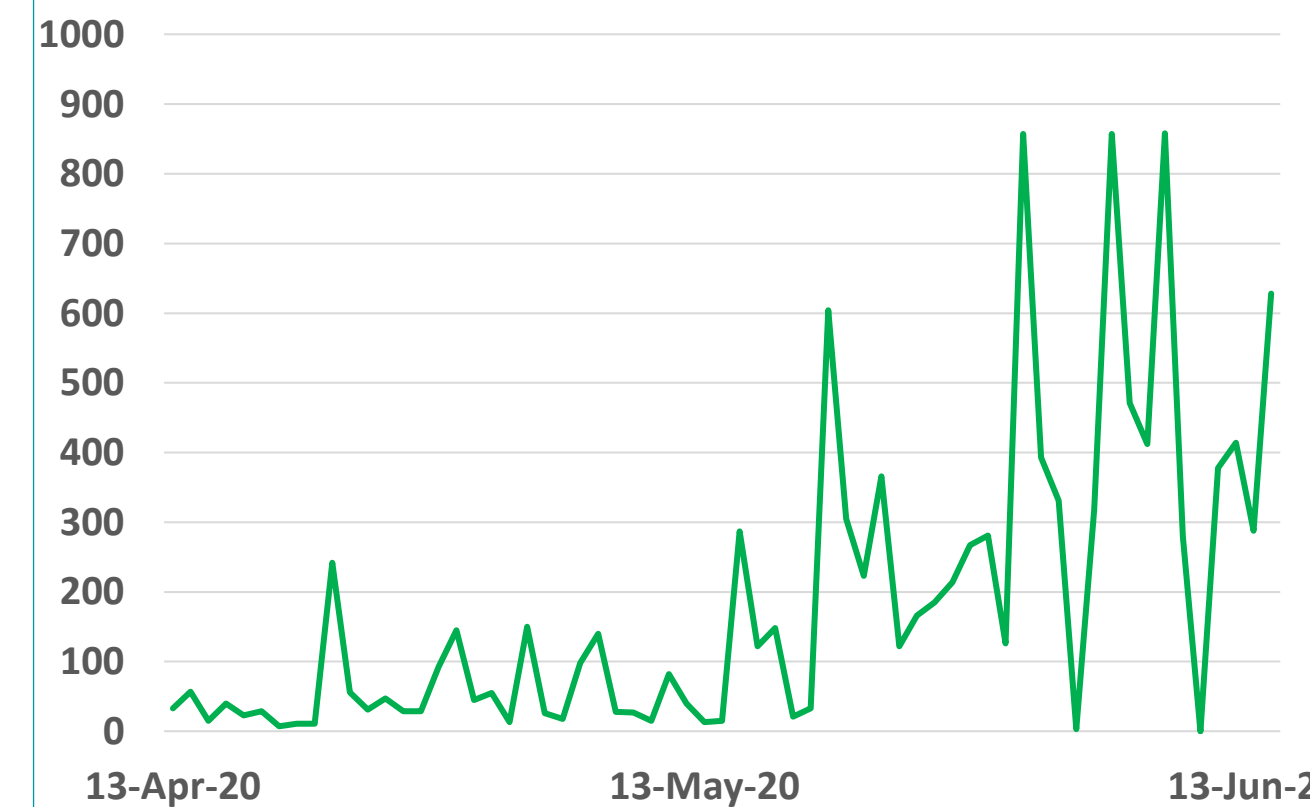
Oman

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Source : Oman ministry of health

Bahrain



Source : GCCStat

Epidemiology



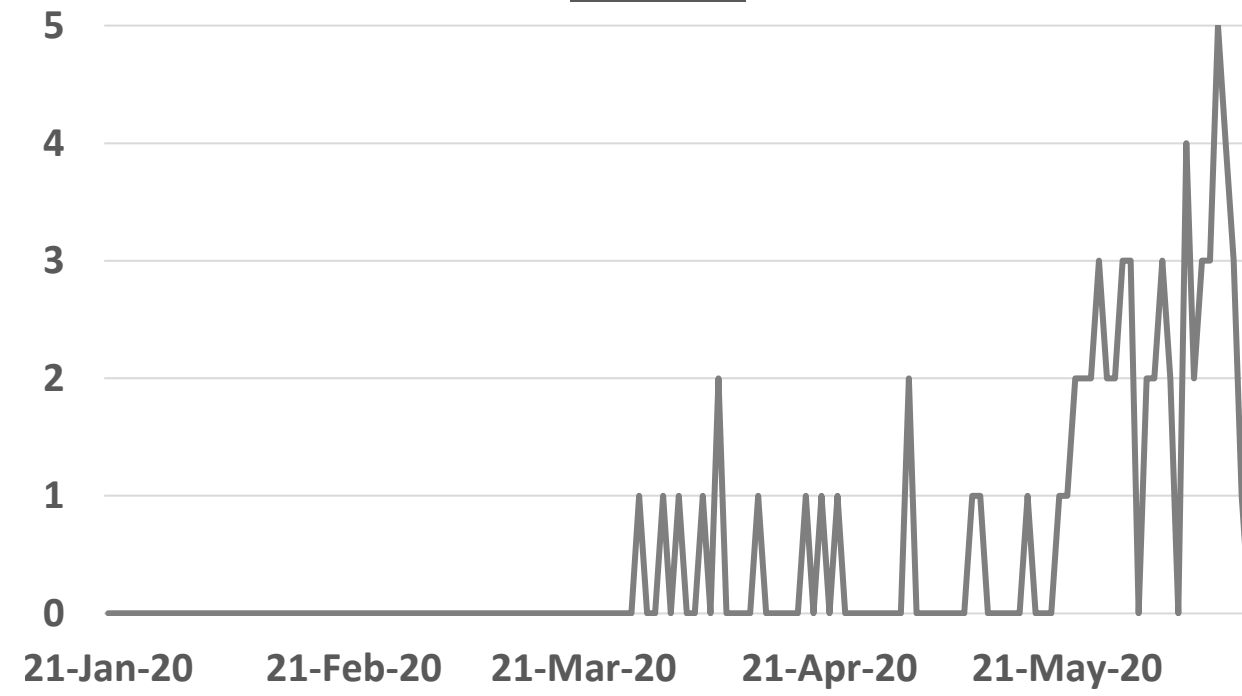
Figure 12: Comparative analysis of the distribution of COVID19 newly death cases in GCC countries (June 14, 2020)

KSA



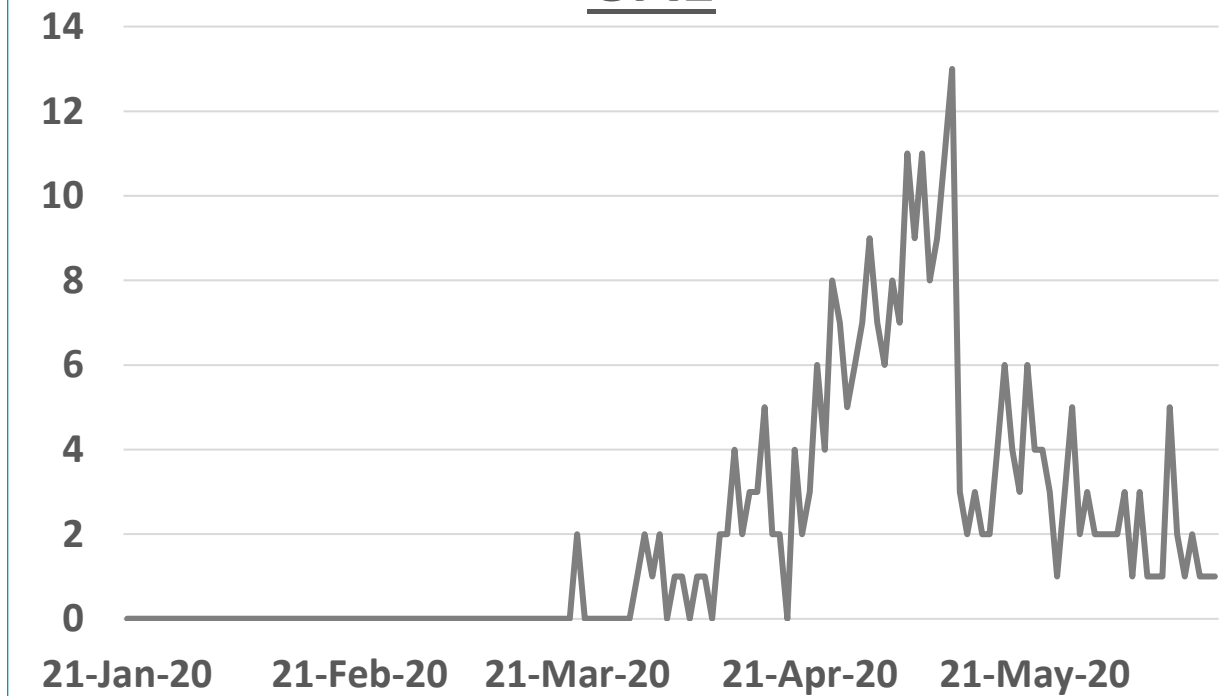
Source : KSA ministry of health

Qatar



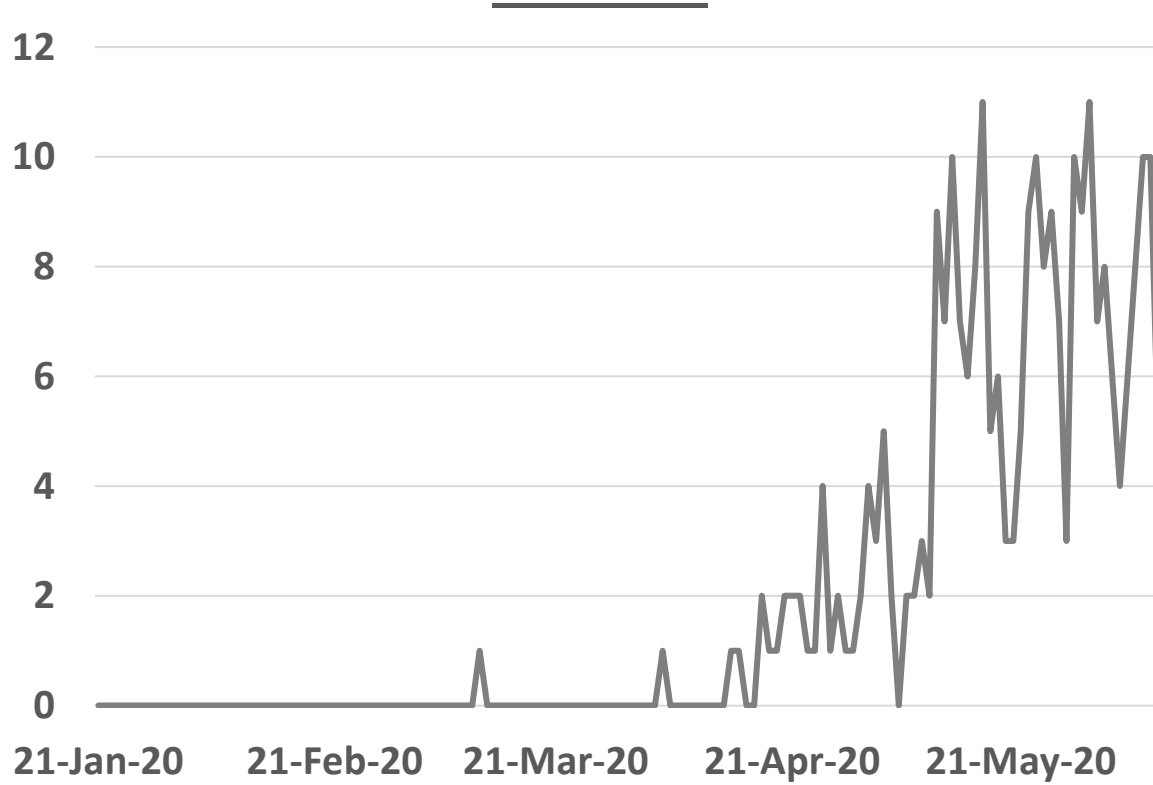
Source : Qatar ministry of health

UAE



Source : National Emergency Crisis and Disaster Management Authority

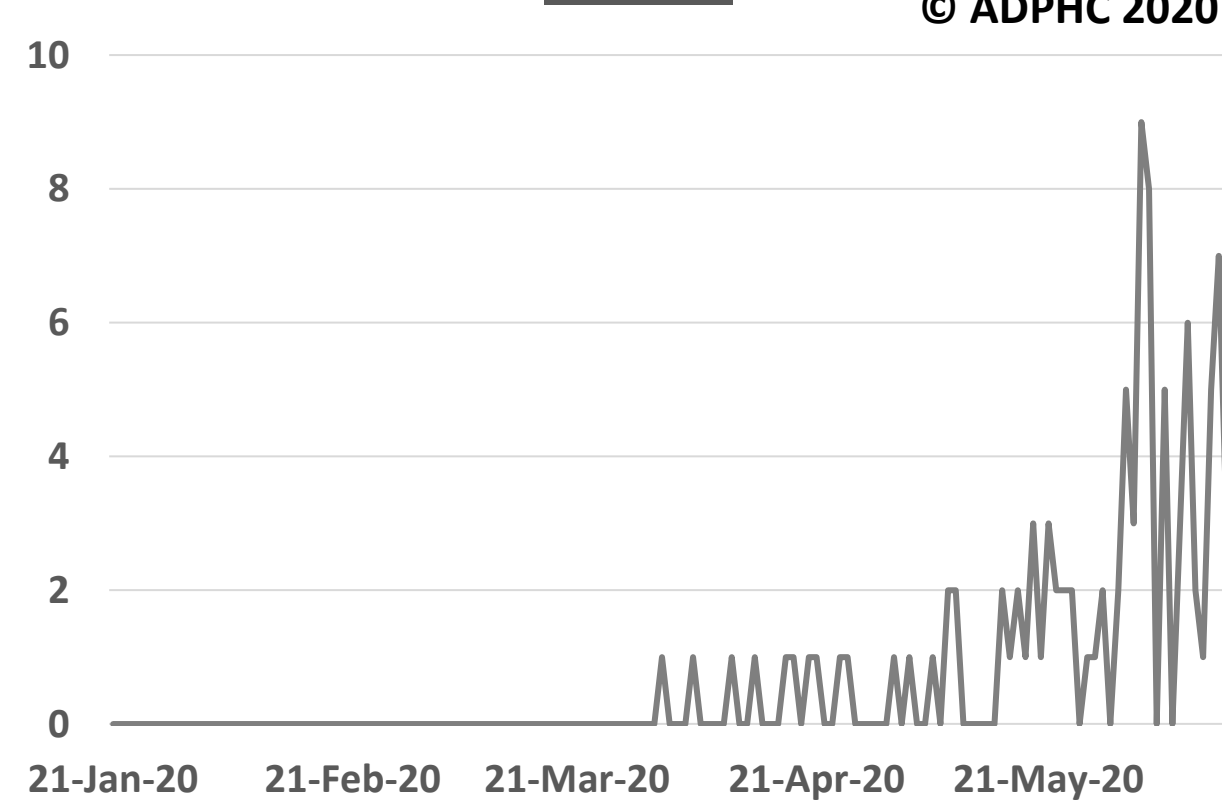
Kuwait



Source : Kuwait ministry of health

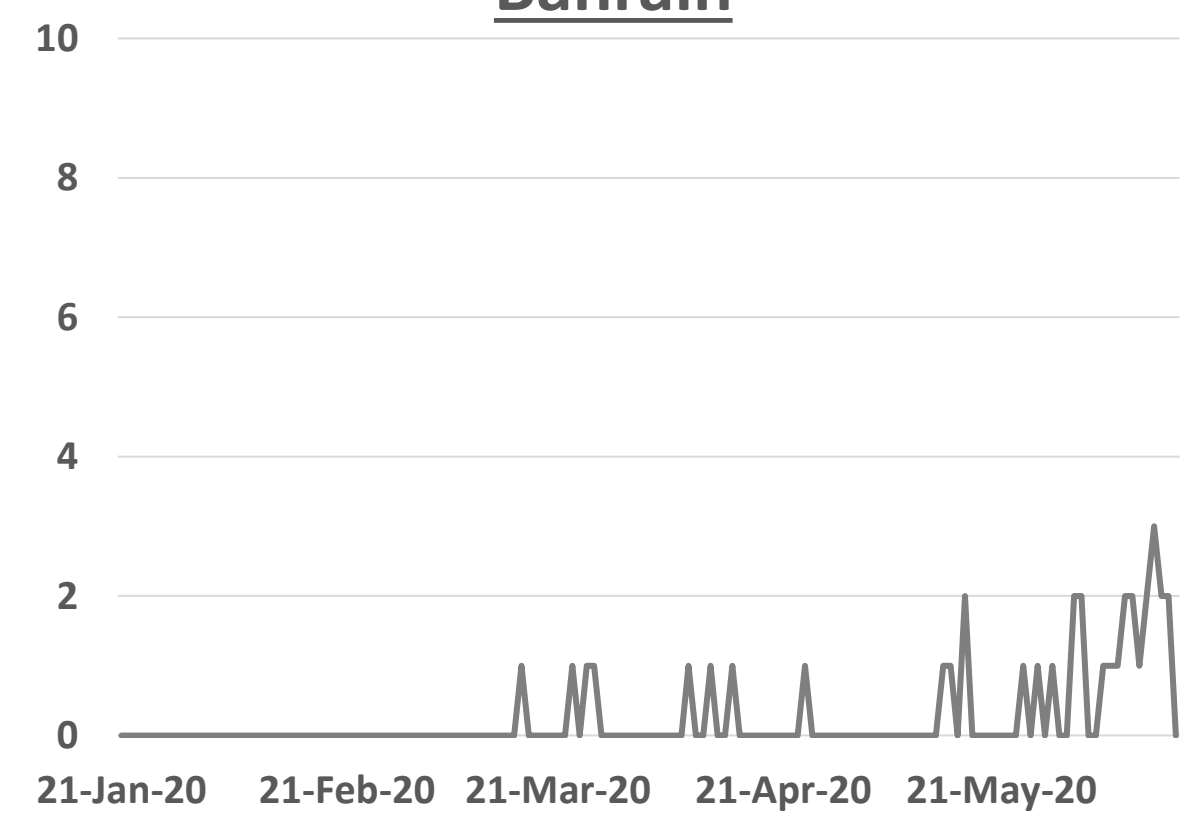
Oman

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Source :Oman ministry of health

Bahrain



Source :WHO



Public Health response

Article 1: Seroprevalence of anti-SARS-CoV-2 IgG antibodies in Geneva, Switzerland (SEROCov- POP): a population-based study

Published: June 11, 2020 in [the lancet](#)

Summary:

- A population-based sero-prevalence study (SEROCov-POP) was conducted (between April 6 and May 9, 2020) with 2766 participants (of a representative sample of the population of the canton of Geneva) and their household members (cases were ≥ 5 years) in aim to estimating infection rates and monitoring the progression of the epidemic by checking immunity of SARS-COV2 in the population.

Results:

219 of 2766 individuals tested positive for SARS-CoV-2 anti-S1 IgG antibodies by ELISA.

- In the first week, an overall of 4.8% of positive antibody increased to 8.5% (n=469) in second week; 10.9% (n=577) in third week, 6.6% (n=604) in fourth week; and 10.8% (n=775) in fifth week.

After accounting for the time to seroconversion, it was estimated that for **every reported confirmed case, there were 11.6 infections in the community.** Children aged 5-9 years and those >65 years had a significantly lower risk of being seropositive than those 20-49 years.

| | SARS-CoV-2 serology test result | | | Estimated seroprevalence in the general population of Geneva (95% CI) | p value |
|----------------|---------------------------------|-------------|---------------|-----------------------------------------------------------------------|---------|
| | Positive | Negative | Indeterminate | | |
| Week 1 (n=341) | 12 (3.5%) | 322 (94.4%) | 7 (2.1%) | 4.8% (2.4-8.0) | 0.043 |
| Week 2 (n=469) | 28 (6.0%) | 435 (92.8%) | 6 (1.3%) | 8.5% (5.9-11.4) | .. |
| Week 3 (n=577) | 61 (10.6%) | 500 (86.7%) | 16 (2.8%) | 10.9% (7.9-14.4) | 0.23 |
| Week 4 (n=604) | 36 (6.0%) | 557 (92.2%) | 11 (1.8%) | 6.6% (4.3-9.4) | 0.29 |
| Week 5 (n=775) | 82 (10.6%) | 685 (88.4%) | 8 (1.0%) | 10.8% (8.2-13.9) | 0.22 |

Data are n (%) unless otherwise stated. Week 2 is the reference week, with which all other weeks are compared. p values are Bayesian p values following Gelman and colleagues.¹⁴ SARS-CoV-2=severe acute respiratory syndrome coronavirus 2.

Table 2: Overview of seroprevalence estimates by week



Article 1: Cont.,

- The results highlight that as the end of the epidemic curve in Geneva approaches, **the immunological aspect has not changed significantly** since the pandemic start with most people **having no evidence of past infection**.
- These results suggest that most of the population of Geneva remained uninfected during this wave of the pandemic, despite the high prevalence of COVID-19 in the region (5000 reported clinical cases over <2.5 months in the population of half a million people). Assuming that the presence of IgG antibodies is associated with immunity, these results highlight that the epidemic is far from coming to an end by means of fewer susceptible people in the population.
- As the world develops plans to find a new balance between minimizing the direct impacts of COVID-19 on those infected and the indirect effects on all of society, serological studies are essential to provide new insights about transmission and the otherwise hidden immunological state of the population.

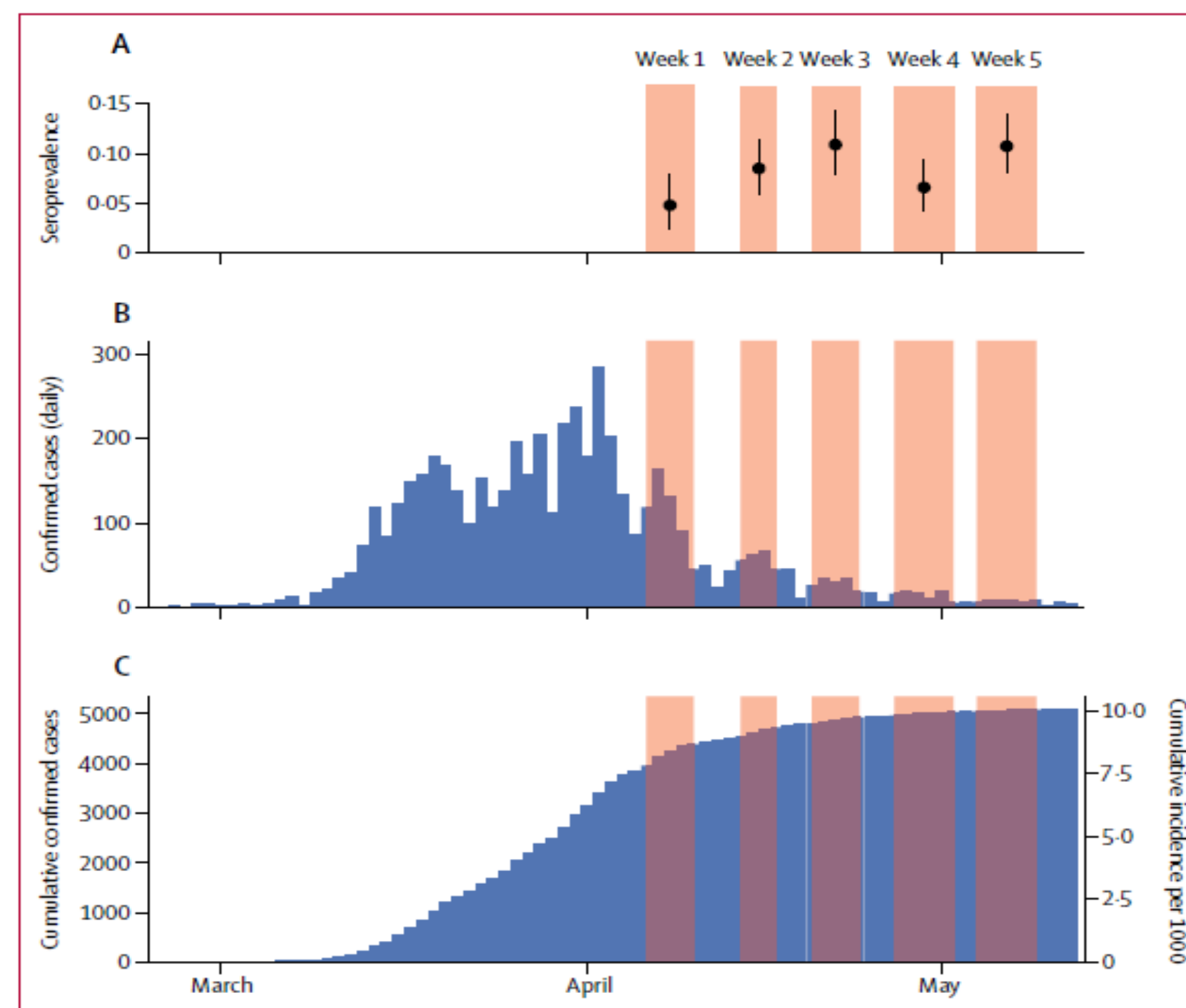


Figure: Seroprevalence estimates and 95% CIs for each week of the survey (A), daily confirmed COVID-19 cases reported in Geneva (B), and cumulative case counts per day and cumulative incidence rate of confirmed COVID-19 (C)

Clinical Feature



Article 2: Natural History of Asymptomatic SARS-CoV-2 Infection

Published: June 12, 2020 in the [NEJM](#)

Summary:

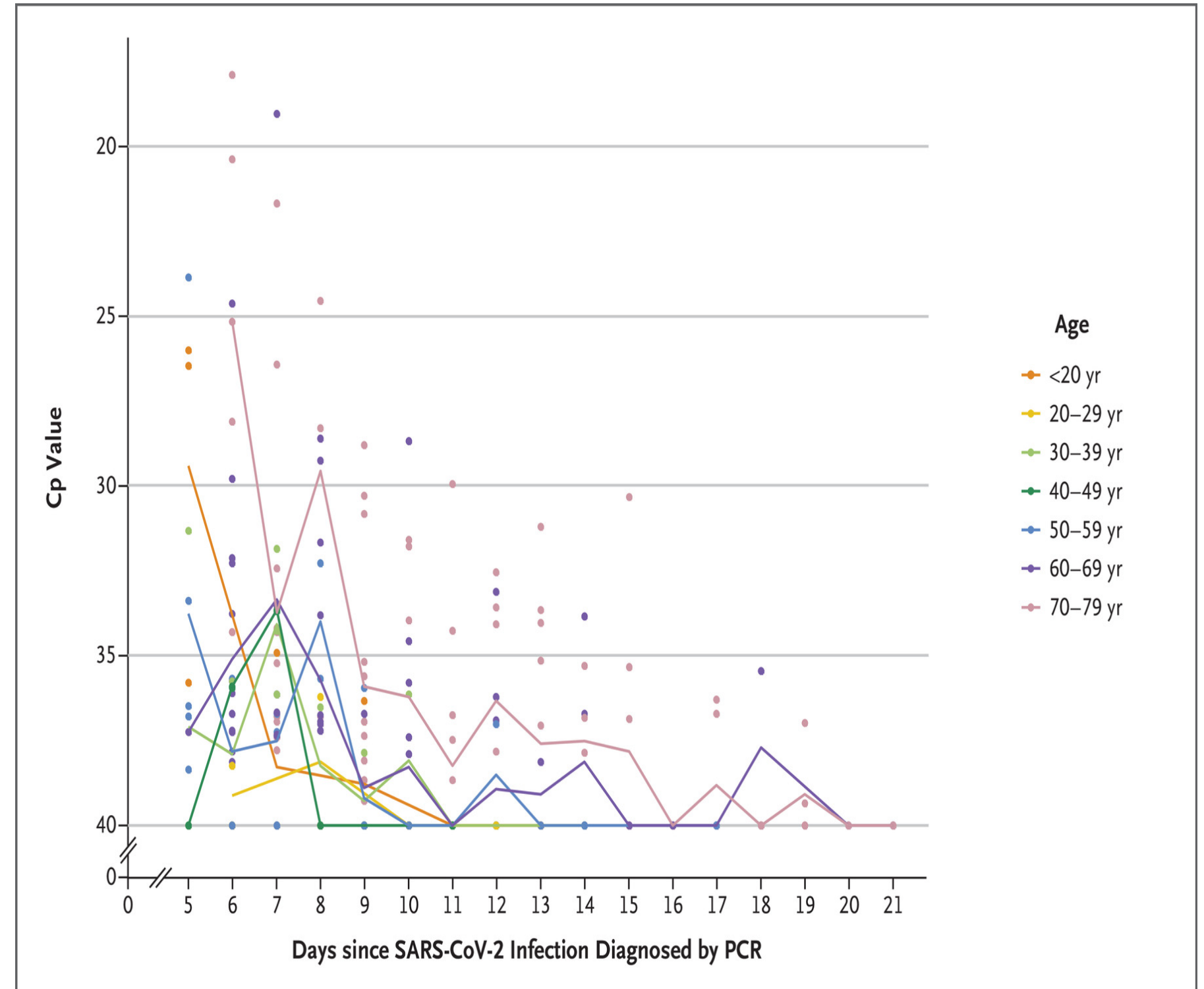
The article discussed a history of asymptomatic patient from the cruise ship Diamond Princess led to 712 persons being infected with SARS-CoV-2 among the 3711 passengers and crew members, and 410 (58%) of these infected persons were asymptomatic at the time of testing.

From asymptomatic cases 410, 90 only continue to be asymptomatic during the course of infection. The end of infection was considered at the day when patient have 2 negative consecutive samples.

Patient who were asymptomatic had a median age of 59.5 years

A total of 24 of these persons (27%) had coexisting medical conditions, including hypertension (in 20%) and diabetes (9%).

The median number of days between the first positive PCR test (either on the ship or at the hospital) and the first of the two serial negative PCR tests was 9 days



Additional finding: the cumulative percentage of persons with resolution of infection 8 and 15 days after the first positive PCR test were 48% and 90%, respectively

Conclusion:

The time to the resolution of infection increased with increasing age

Public Health Response:



Article 3: The Dual Epidemics of COVID-19 and Influenza Vaccine Acceptance, Coverage, and Mandates

Published: June 11, 2020 in [the JAMA](#)

Summary:

- In the United States, according to Centers for Disease Control and Prevention (CDC), every person ≥ 6 months get vaccinated for influenza unless contraindicated. However, influenza vaccine coverage remains low. Vaccine hesitancy is related to perceptions of low effectiveness and safety issue. High vaccine coverage would reduce influenza related mortality and preserve the function of health system during spread of influenza and SARS-CoV-2. Furthermore, vaccines reduce intensive care admissions and duration of hospitalizations.
- Federal government should fund an evidence-based mass communication campaign focus on public benefit. Health messages would highlight that influenza vaccinations help protect vulnerable populations (e.g. older adults) who die disproportionately from both influenza and COVID-19. Based on previous experience, federal government should create comprehensive plan to expand coverage for COVID-19 vaccines including tailored messages, routine offering, and ongoing evaluation.
- **Mandatory immunization requirements as a prerequisite to school enrollment is associated with higher vaccine coverage and lower rates of disease.** Colleges and universities routinely offer but do not require influenza vaccination. The Association of Immunization Managers (AIM) advises ‘sparingly and cautious’ consideration of mandates. Influenza vaccines fulfill most of the AIM criteria such as sufficient vaccine funding, inclusion in state immunization registries, stable and adequate supply, adequate vaccine safety data, physician/health care provider support, and public acceptance.
- Experience with increasing influenza vaccination coverage could be informative. Government should develop evidence-based immunization plans, appealing to individuals’ ethical responsibilities to protect themselves, health care workers, family members, and vulnerable populations.