



Scientific Research Monitoring on COVID-19

2 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.)

ABU DHABI PUBLIC
HEALTH CENTRE

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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

Today's Highlights



All articles presented in this report represent the authors' views and not necessarily represent Abu Dhabi Public Health Center views or directions.

Scientific Research

- **Pathogenesis:** an article discusses about the cytokine storm and clotting complication presented in COVID19 patients.
- **Clinical Feature:** study identified that postoperative pulmonary complications occur in half of patients with perioperative SARS-CoV-2 infection and are associated with high mortality.
- **Clinical Feature:** an article highlights the need for further studies to explore neurological complications (Stroke) in COVID19 patients.



WHO Daily Report 1 June 2020

- WHO has published a case report form for suspected cases of multisystem inflammatory syndrome (MIS) in children and adolescents temporally related to COVID-19
- During the last two weeks, WHO has delivered over 55 tons of health supplies by road to northeast Syria. These shipments contained equipment and medical supplies to treat many diseases, including COVID-19.
- “Clean hands save lives” and “Applaud healthcare workers” campaigns celebrated in North Macedonia. Midwives and nurses were honored with applause, as over 500 healthcare professionals were awarded the “Clean hands” certificate of recognition by WHO.
- Since the start of the pandemic, there has been an urgent need to accelerate the research and development of COVID-19 candidate vaccines. WHO has been supporting this effort. important progress has been achieved including :
 - Currently over 120 candidate vaccines have been mapped and sites in 40 countries have expressed an interest to join the [Vaccine Solidarity Trial](#).
 - Developing specific criteria that vaccine scientists, product developers, manufacturers, regulators and funding agencies can use for prioritization.
 - Outlining the desired characteristics for safe and effective vaccines, published in the WHO Target Product Profiles (TPP) for COVID-19 vaccines.
 - Developing a core protocol for a globally coordinated randomized controlled clinical trial for vaccines (makes it available for 3-6 month from development).



WHO Daily Report 1 June 2020

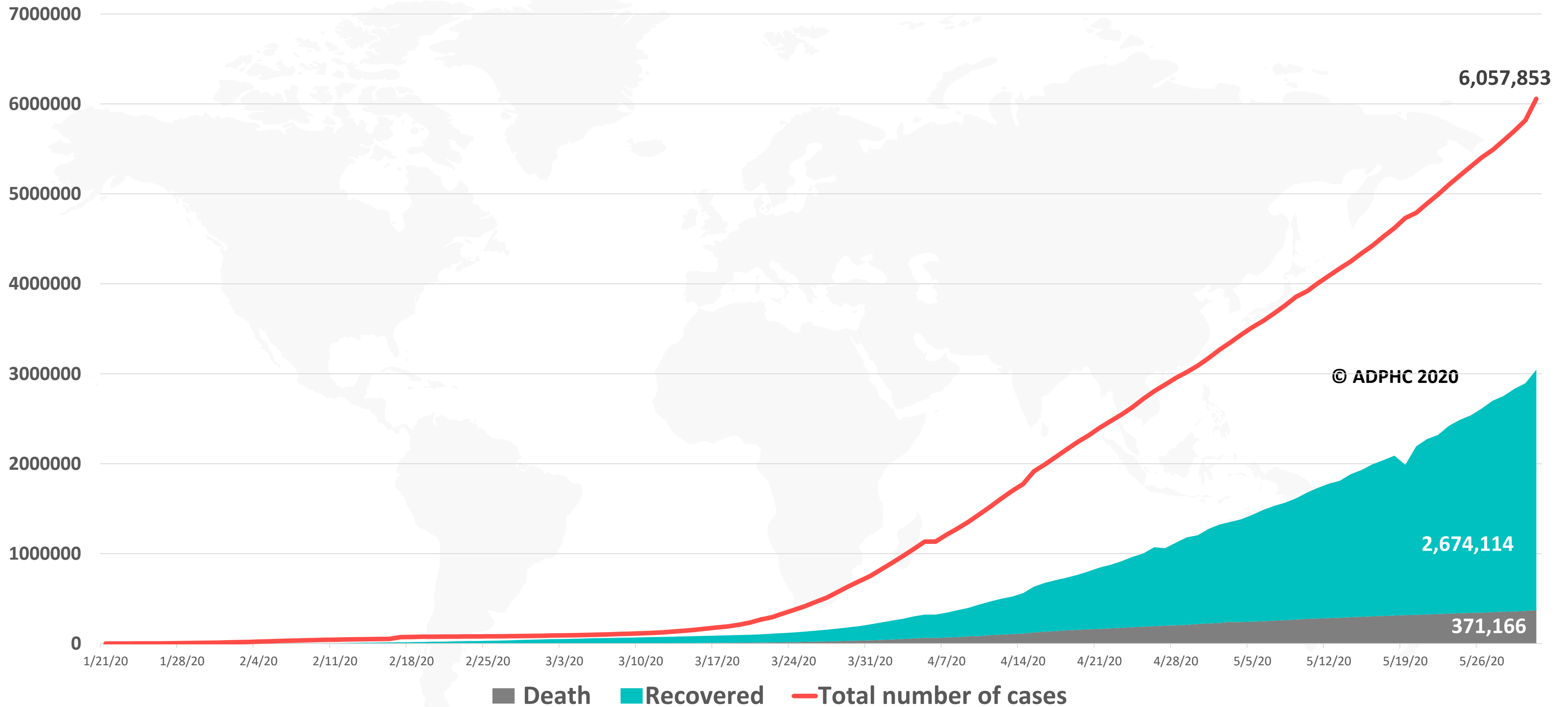
Cont.,

- Launching a call for interest in engaging on animal studies for vaccine evaluations with 17 laboratories in 8 countries with animal laboratory facilities.
- Establishing an Expert Group focusing on COVID-19 viruses, reagents and immune assays
- Establishing an Expert Group focusing on COVID-19 disease modelling and animal models that would replicate human COVID-19 with the goal of accelerating testing of vaccines and therapeutics.
- Coordinating the Human Challenge Studies Working Group, tasked with consider the feasibility, utility, realistic timelines and approximate costs for establishing a closely monitored experimental challenge model of infection with SARS-CoV-2 (fully virulent or attenuated) in healthy adult volunteers.

Epidemiology



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

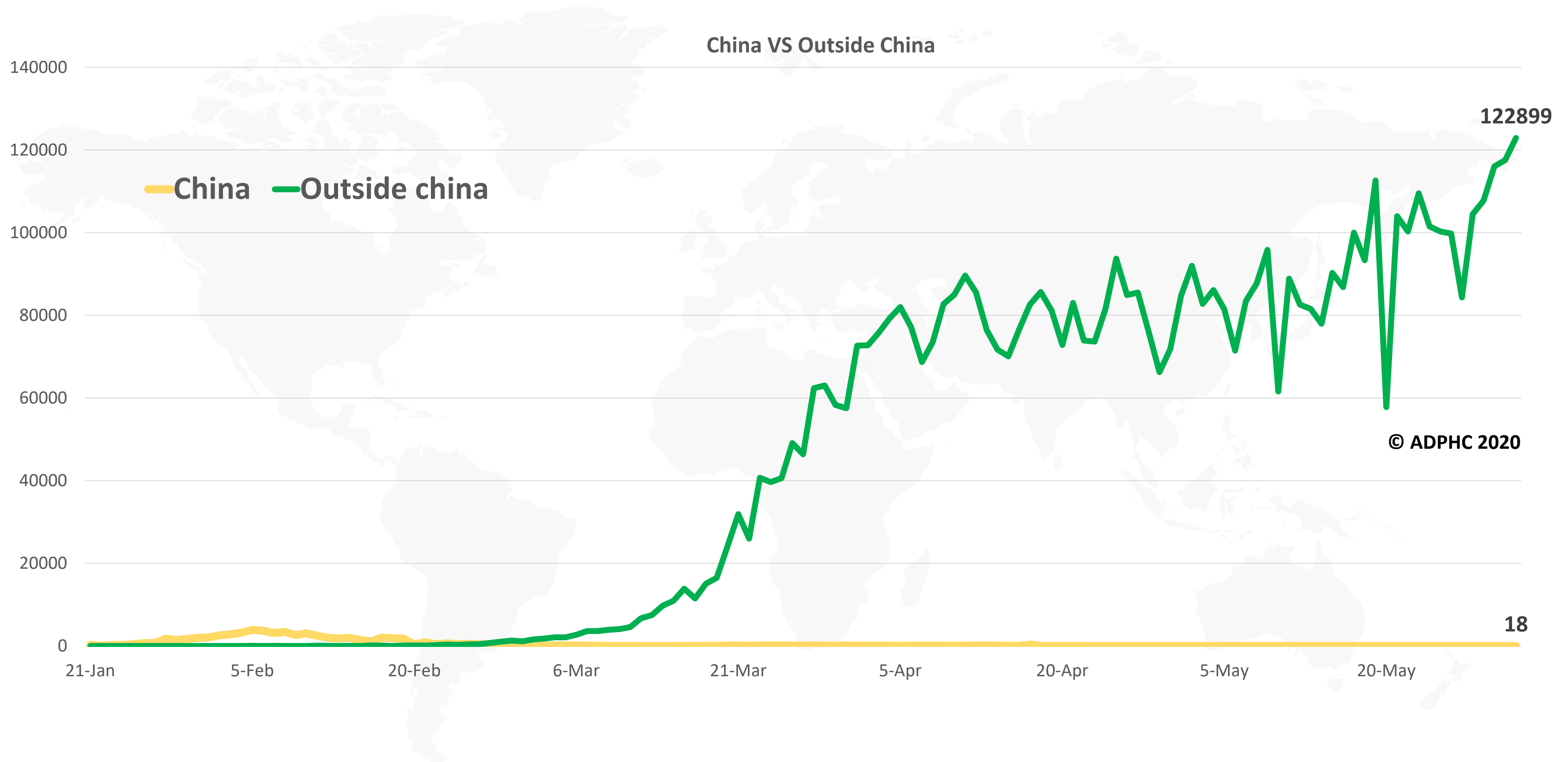


Line graph published by Abu Dhabi Public Health Center 2020.

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



Figure 2: Daily new infected COVID-19 cases reported between (January 21 to Jun 1st, 2020).



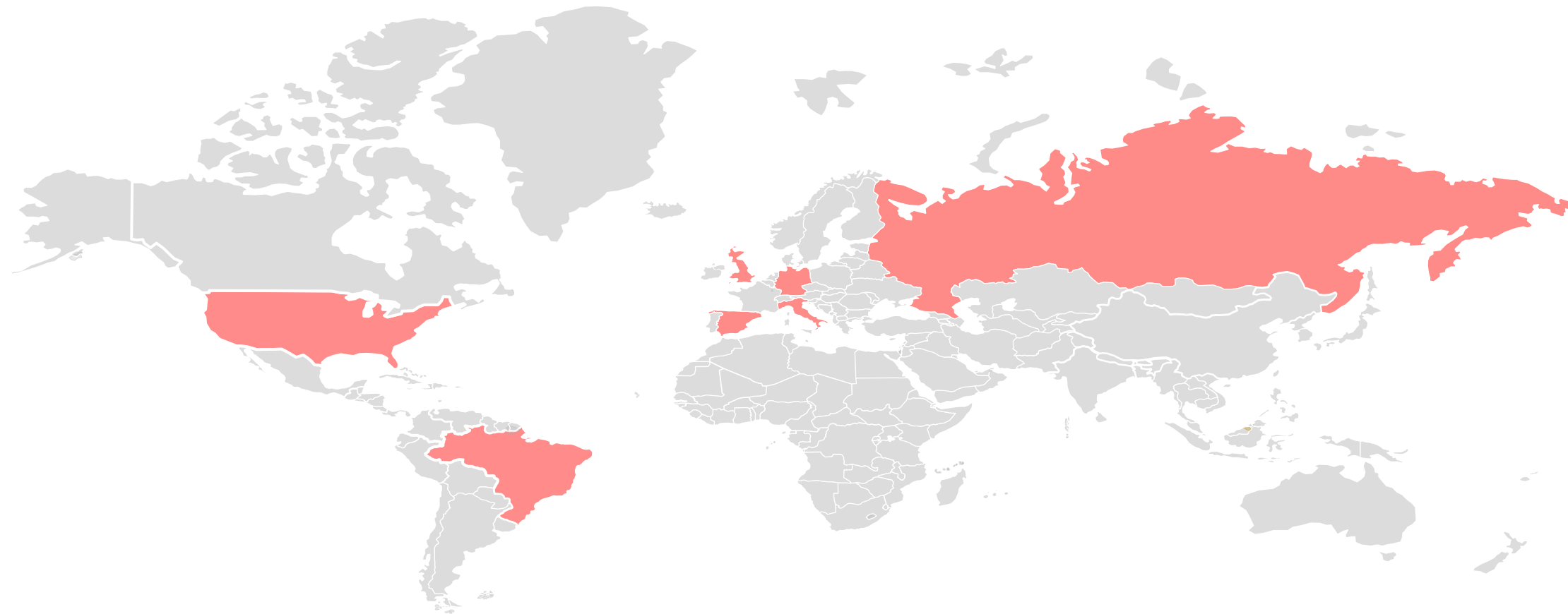
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Data resources: [WHO](https://www.who.int/)

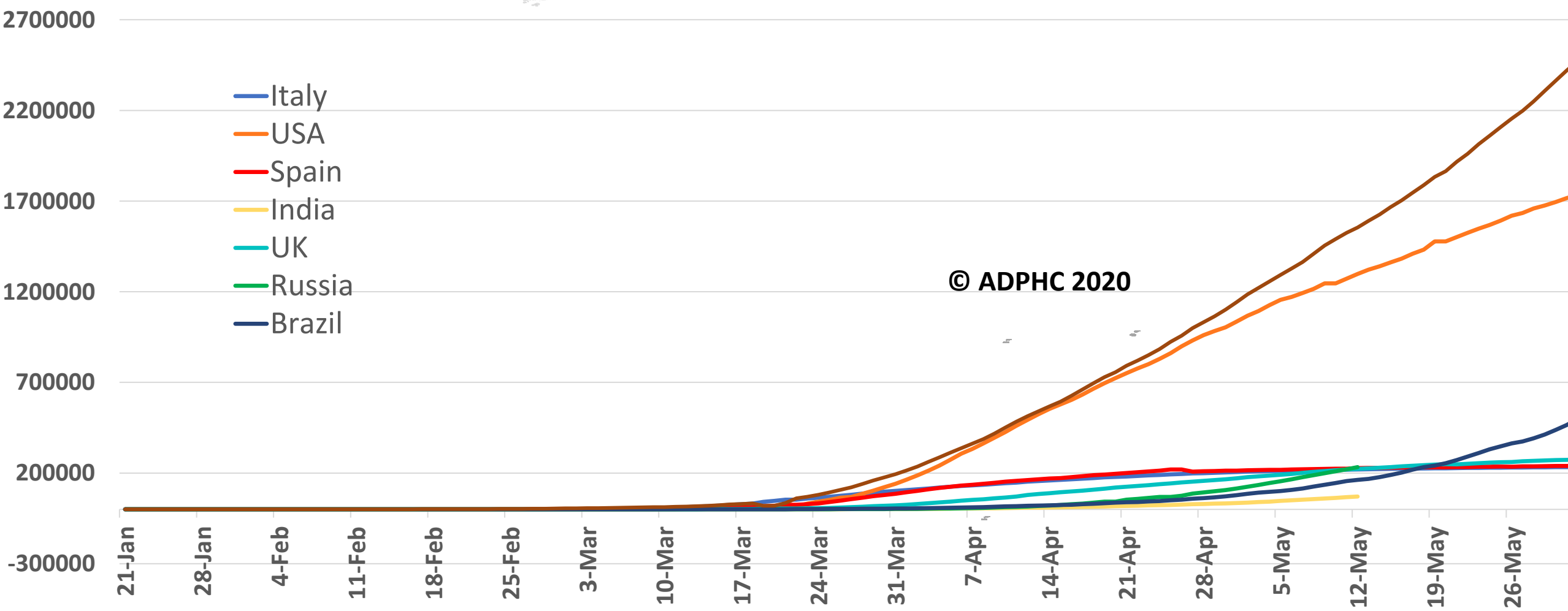
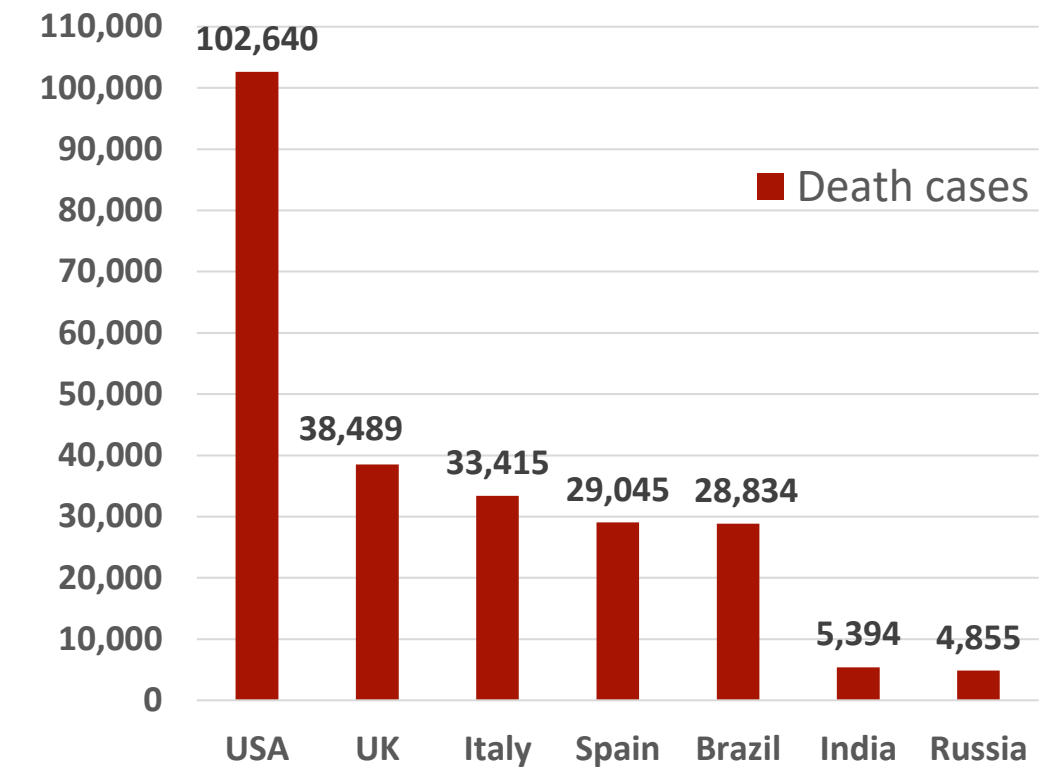
Epidemiology



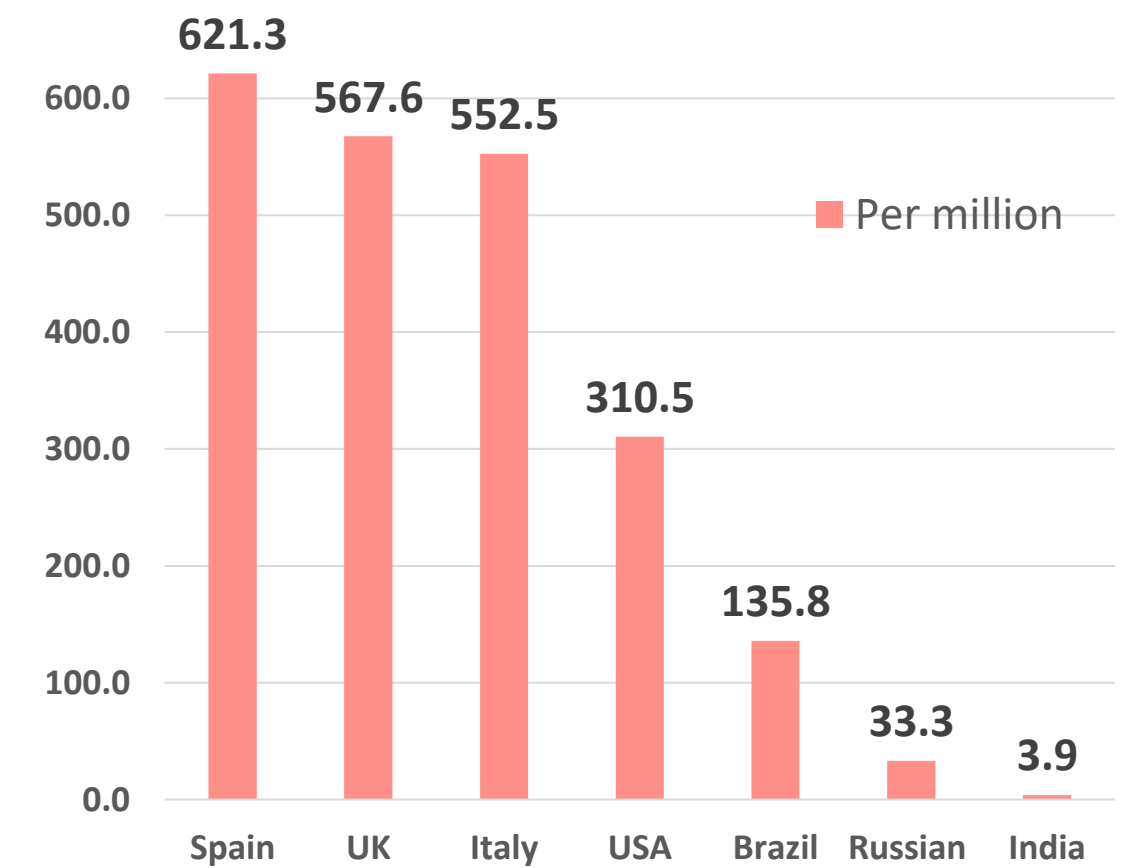
Figure 3 : Top 7 countries in the total number of cases due to COVID-19 (January 21 to Jun 1st, 2020).



TOTAL DEATHS



DEATHS PER MILLION

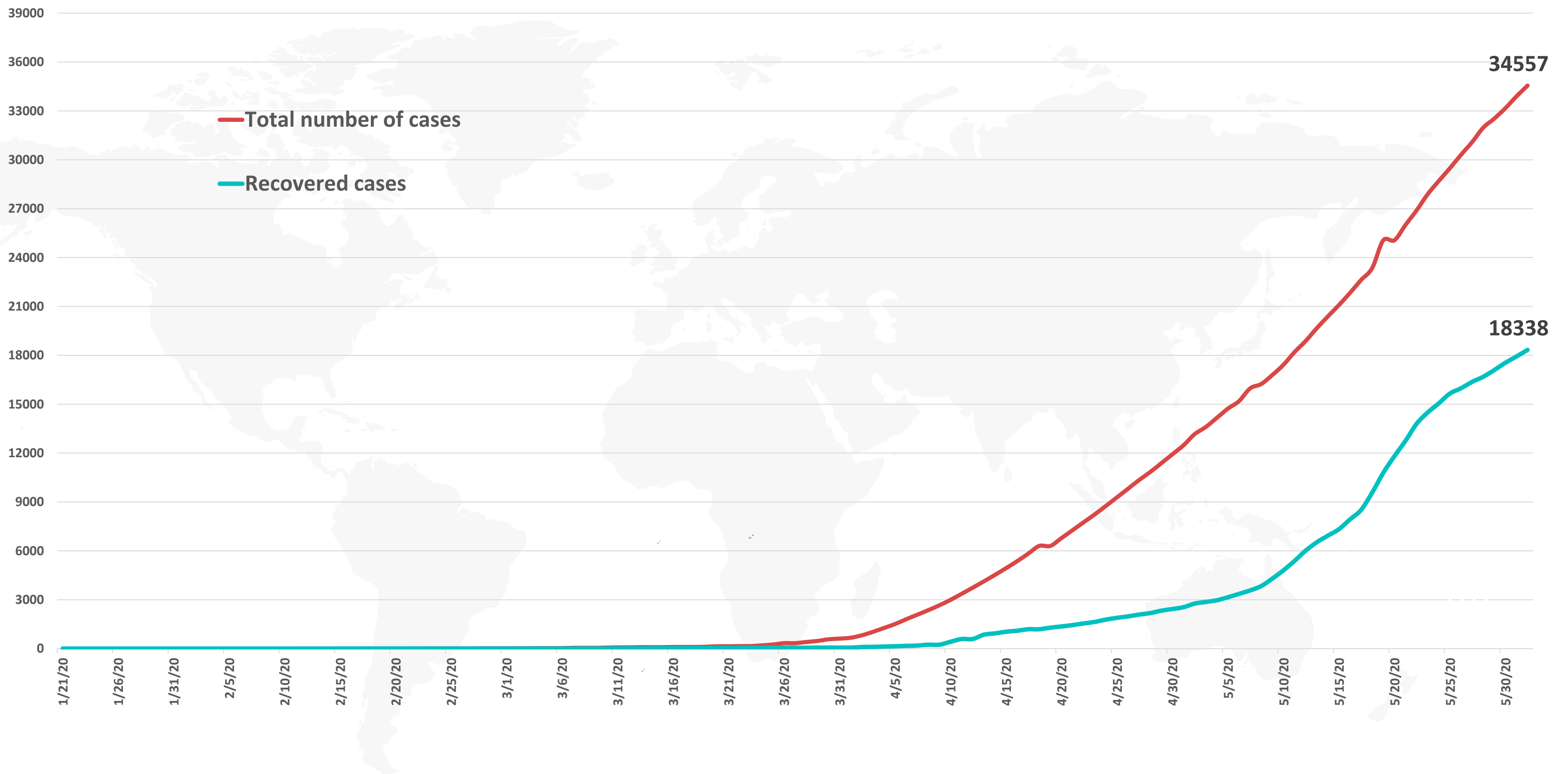


Line graph published by Abu Dhabi Public Health Center 2020.

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



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



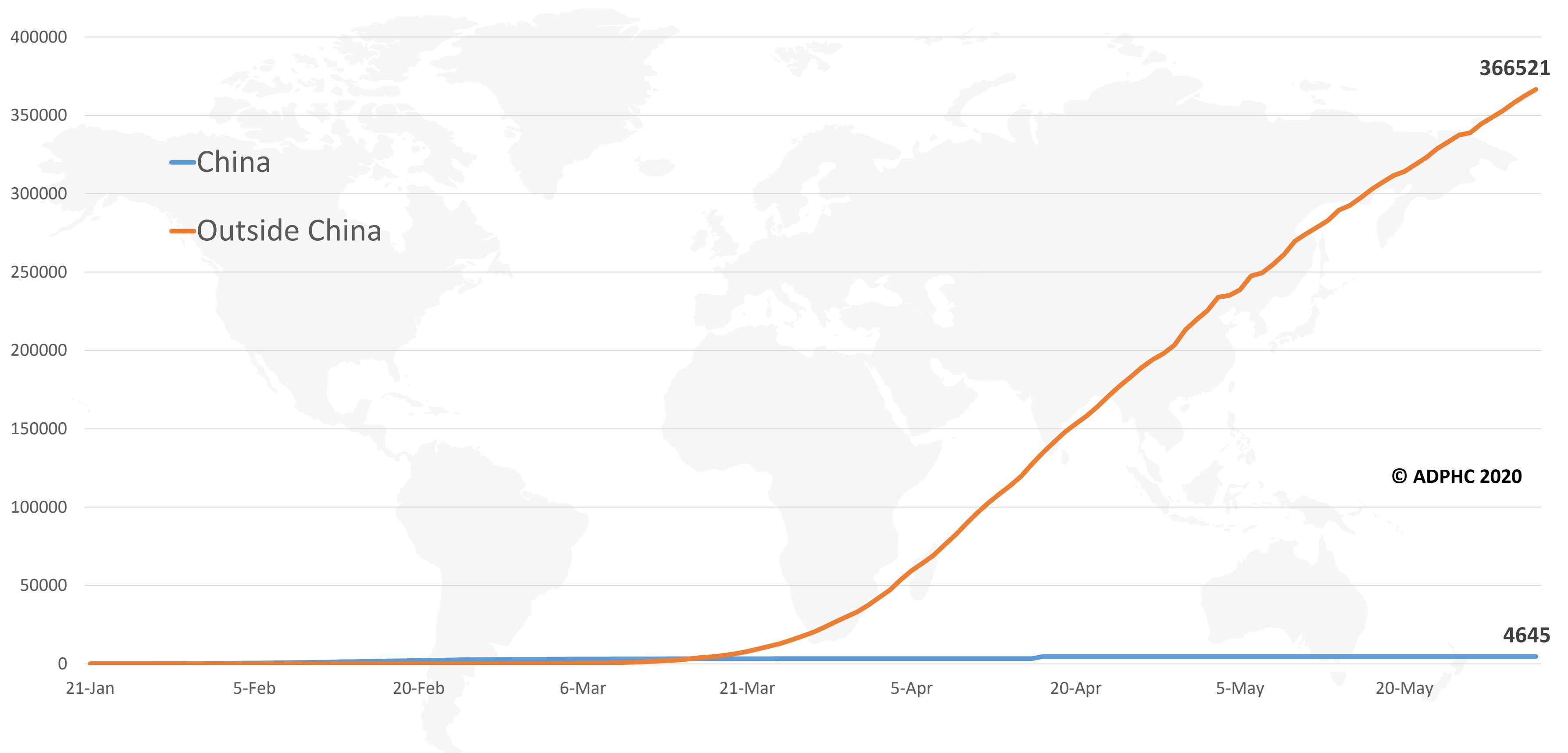
Line graph published by Abu Dhabi Public Health Center 2020.

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 Jun 1st, 2020).



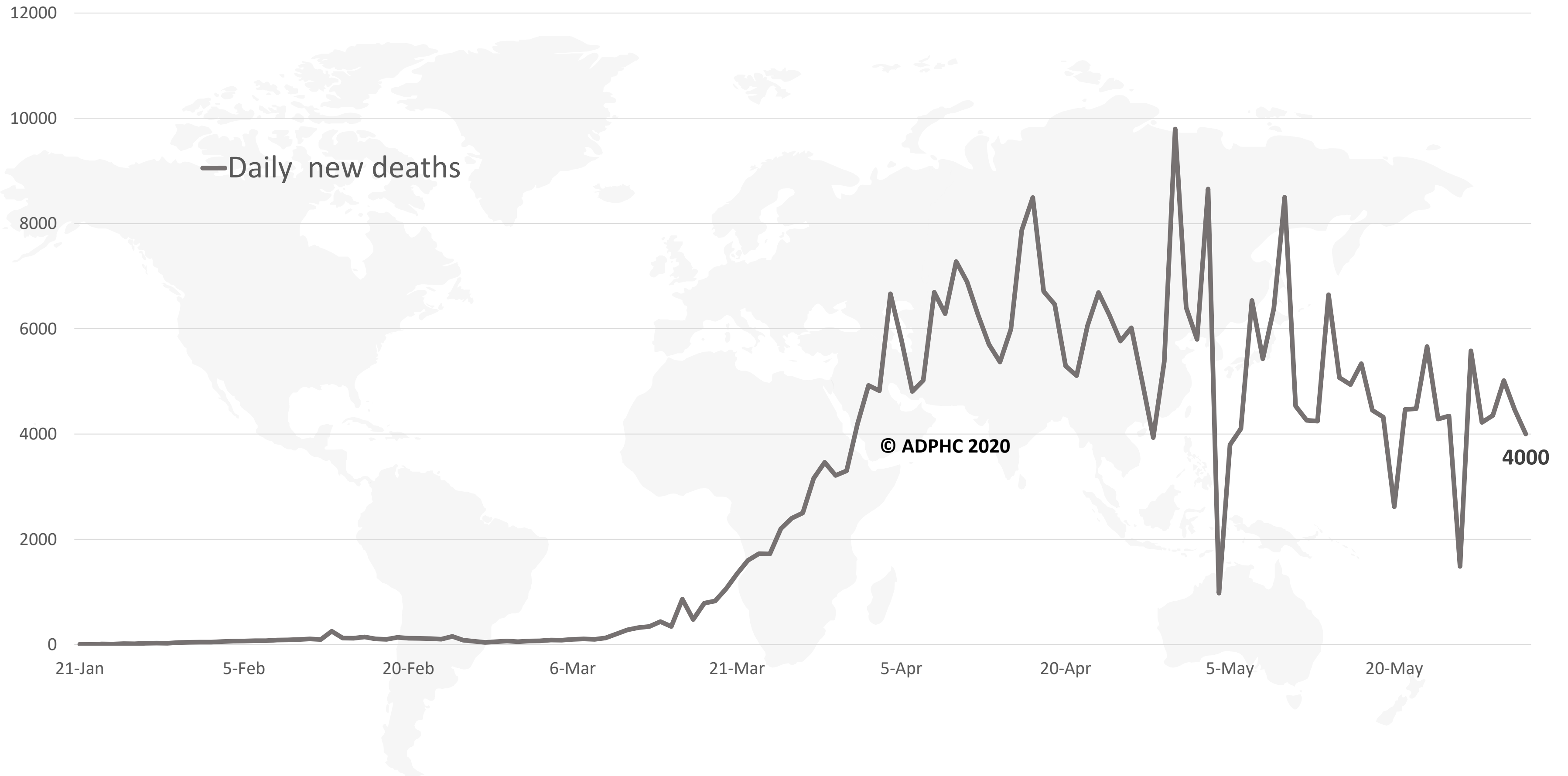
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Data resources: [WHO](https://www.who.int/)



Figure 6: Global daily new deaths due to COVID-19 (January 22 to Jun 1st, 2020).



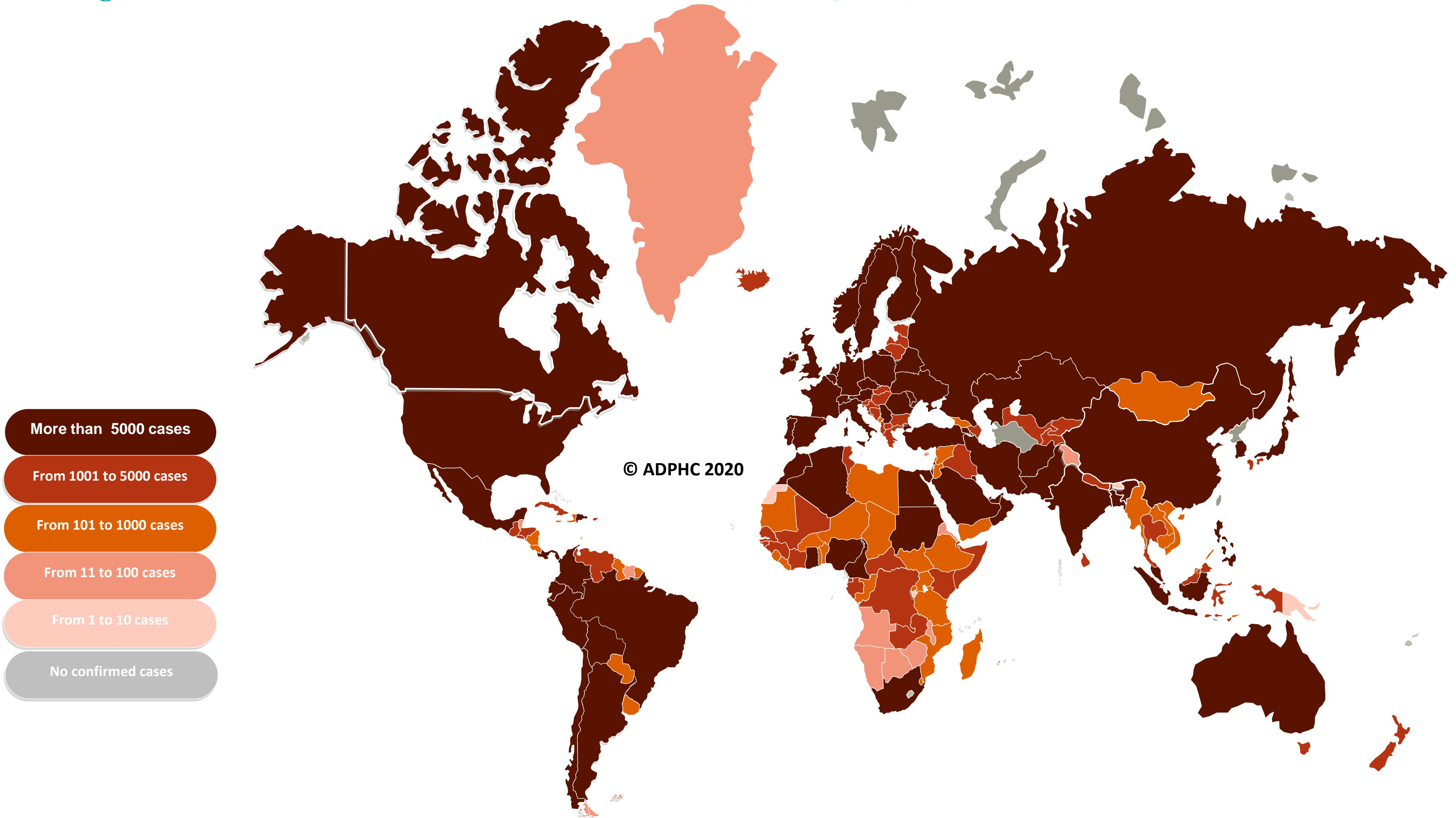
Line graph published by Abu Dhabi Public Health Center 2020.

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

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Figure 7a : Global distribution of COVID-19 cases (Jun 1st, 2020).

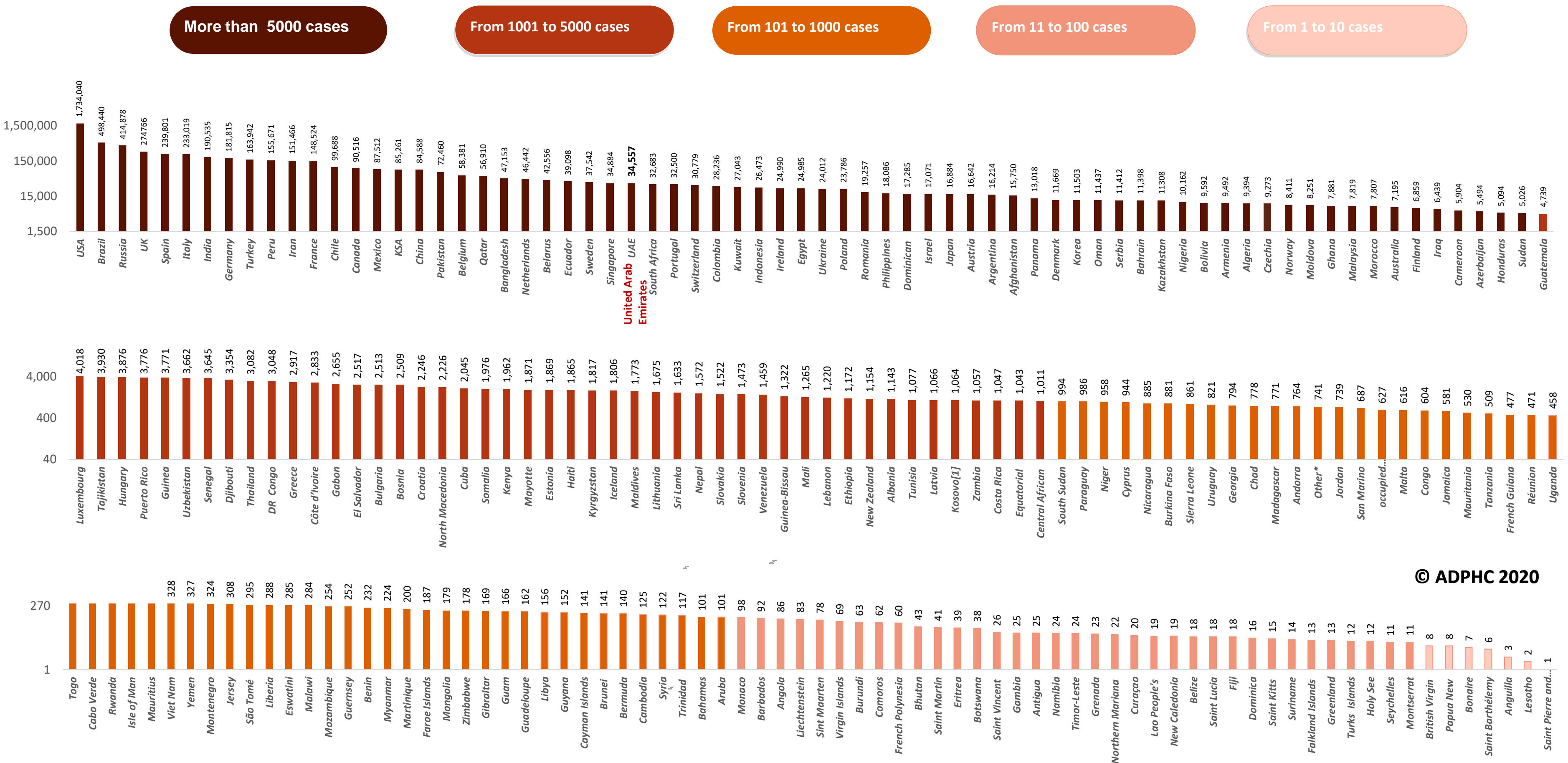


Map chart published by Abu Dhabi Public Health Center 2020.

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Figure 7B: Bar chart illustrate the global distribution of COVID19 cases Jun 1st, 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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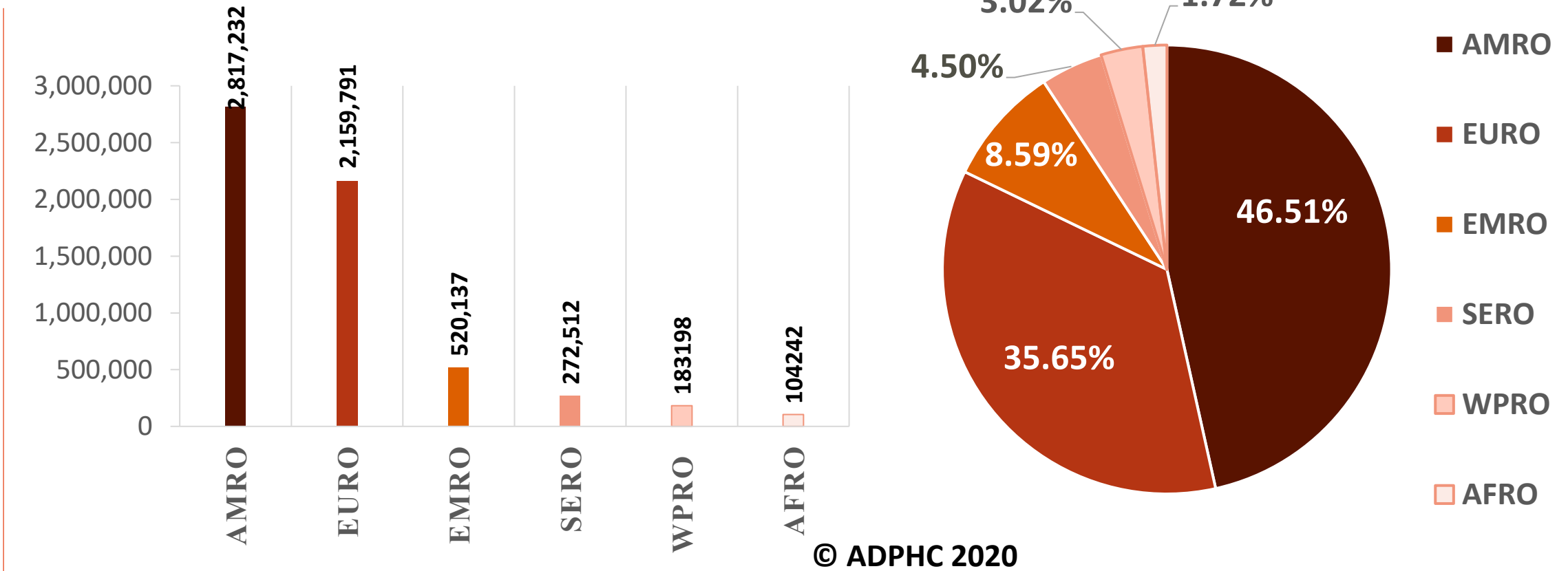
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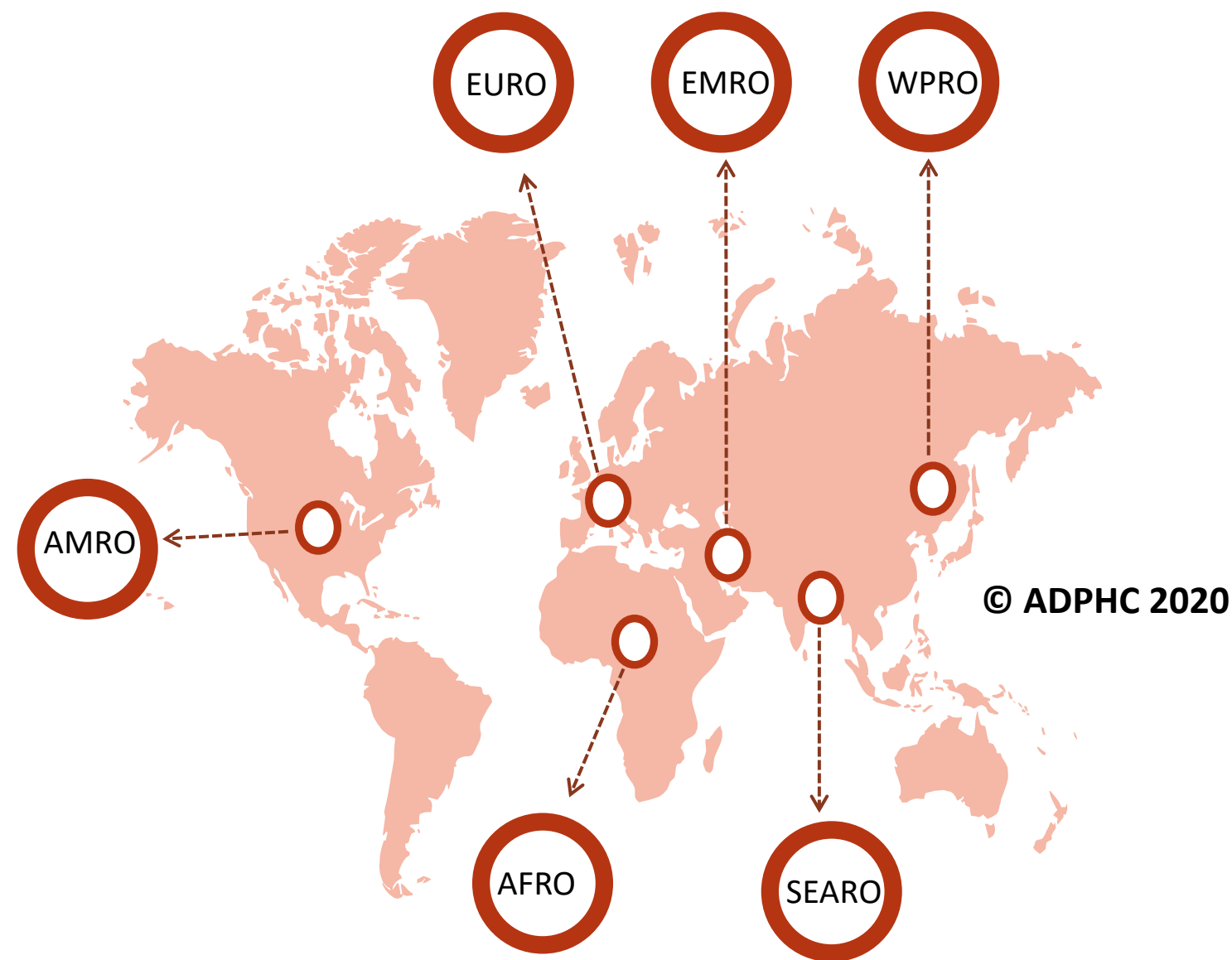
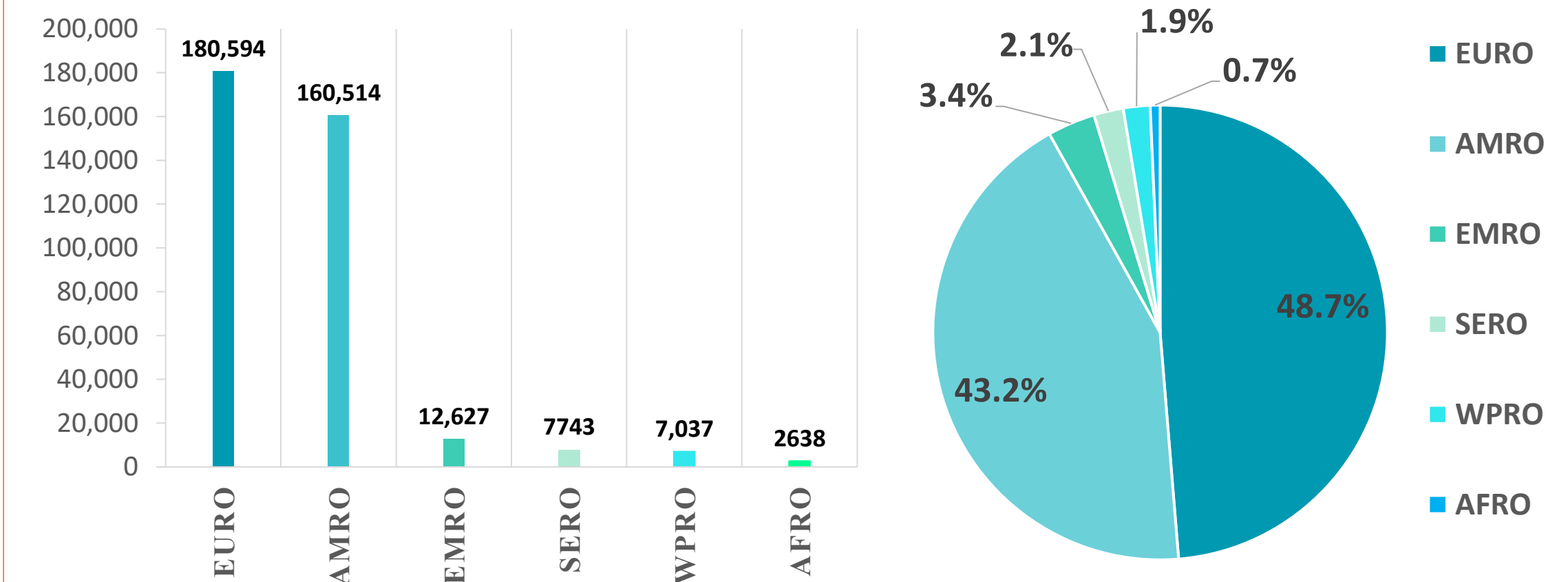


Figure 8: illustrate the Global distribution of COVID19 cases per region (Jun 1st, 2020)

INFECTED



DEATH



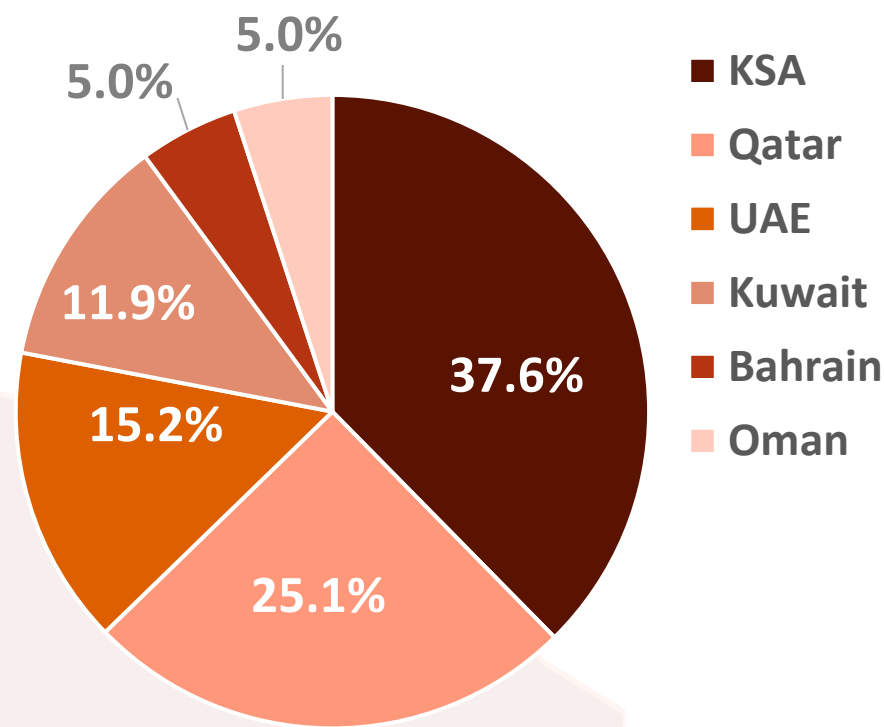
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Data resources: [WHO](https://www.who.int/)

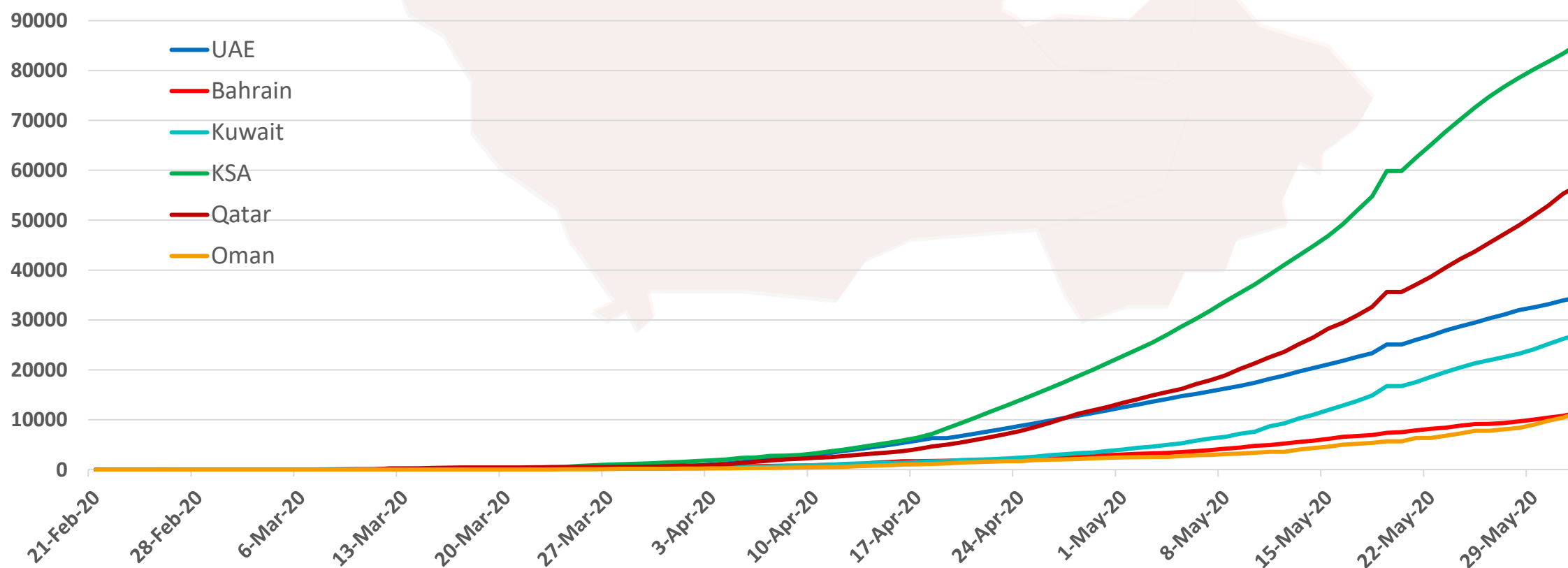


Figure 9: Comparative analysis of the distribution of COVID19 cases in GCC countries (Jun 1st, 2020)

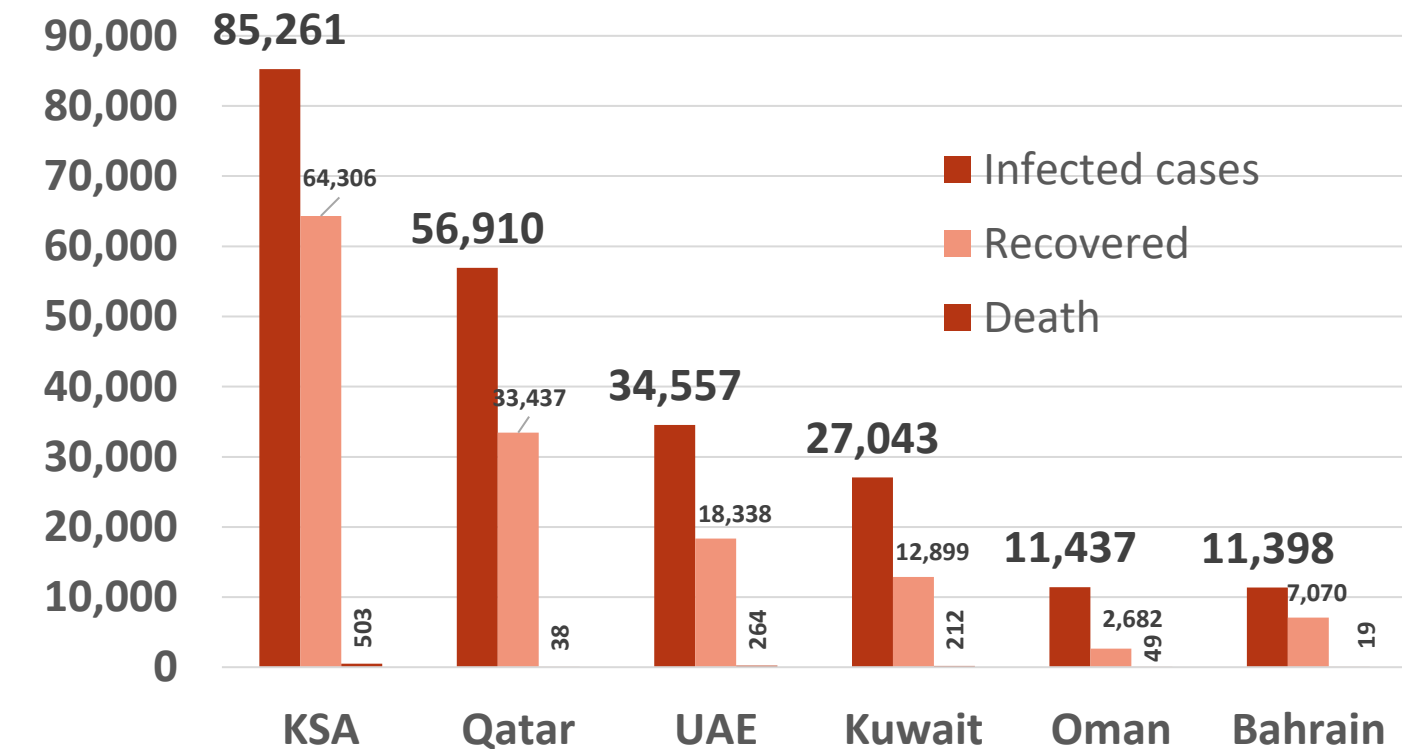
TOTAL NUMBER OF INFECTED CASES



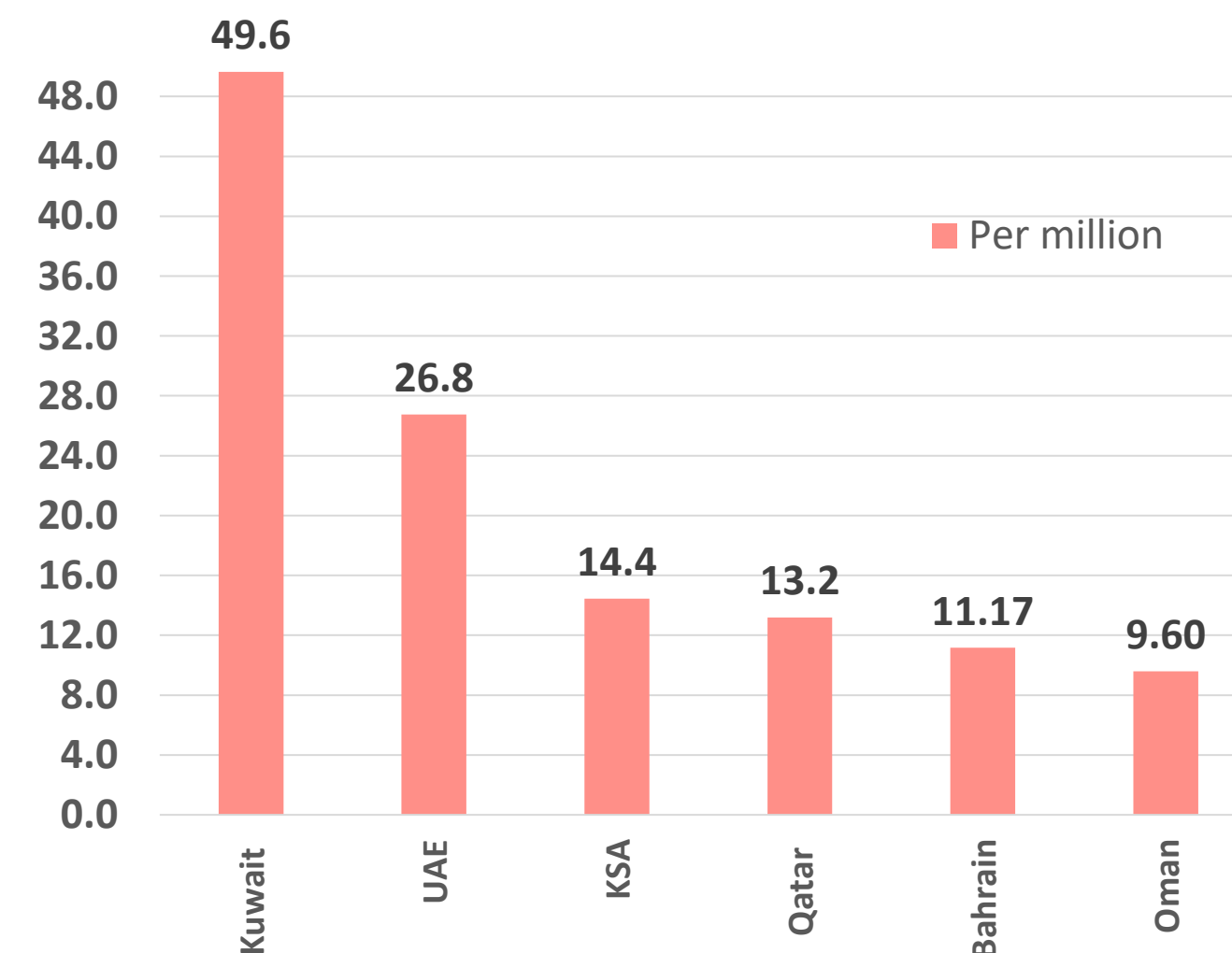
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Total number of infected, recovered and Deaths



Death per million



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

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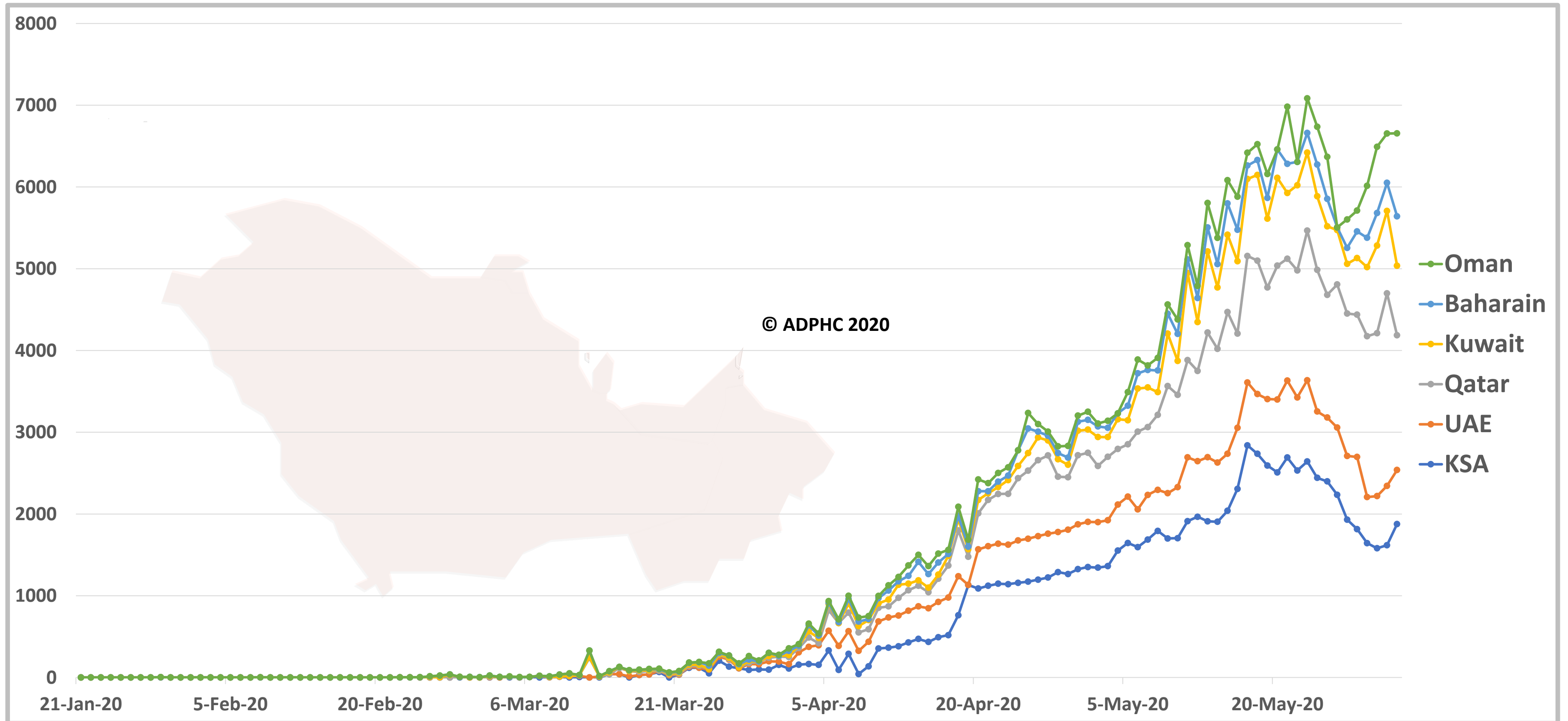
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Epidemiology



Figure 10: New cases of COVID19 in GCC countries (Jun 1st, 2020)



charts published by Abu Dhabi Public Health Center 2020.

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



Clinical Features

Article1: COVID-19 coagulopathy: an evolving story

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

Summary:

- COVID-19 related thrombotic complications is similar to other systemic coagulopathies during severe infections including sepsis induced coagulopathy (SIC) or disseminated intravascular coagulation (DIC).
- In the absence of strong evidence, regular monitoring of clotting markers such as D-dimers, prothrombin time, and platelet count among patients with COVID-19 and prophylactic use of low molecular weight heparin (LMWH) **can be recommended** (unless contraindicated). An overproduction of early response proinflammatory cytokines in patients with COVID-19 leads to a cytokine storm that can cause lung injury. This can trigger the generation of pulmonary thrombi.
- Treatment strategies targeting **inflammation and coagulation** might be effective for patients with severe COVID-19. Preliminary evidence suggests that **LMWH that has both anticoagulant and anti-inflammatory effects can improve prognosis among patients with severe COVID-19**. Other anticoagulants such as different antithrombin III, factor Xa, and complement inhibitors are currently in clinical trials.
- Health care providers exposed to many challenges to provide guidance to manage COVID-19 related coagulopathy. Still there is much to be learned about coagulopathy; however, fast and ongoing collaboration makes for an optimistic outcome.



Clinical Feature

Article 2: Mortality and pulmonary complications in patients undergoing surgery with perioperative SARS-CoV-2 infection: an international cohort study

Published: May 29, 2020 in [the lancet](#).

Summary

Multicenter, cohort study at 235 hospitals in 24 countries reports 30-day mortality and pulmonary complication rates in 1128 patients with perioperative SARS-CoV-2 infection (SARS-CoV-2 infection confirmed within 7 days before or 30 days after surgery).

Finding

- 835 (74.0%) had emergency surgery & 280 (24.8%) had elective surgery.
- SARS-CoV-2 infection was confirmed preoperatively in 294 (26.1%) patients. 30-day mortality was 23.8% (268 of 1128).
- Pulmonary complications occurred in 577 (51.2%) of 1128 patients; 30-day mortality in these patients was 38.0% (219 of 577), accounting for 82.6% (219 of 265) of all deaths.
- In 30-day mortality was associated with male sex, age 70 years or older, more in malignant, emergency surgery.

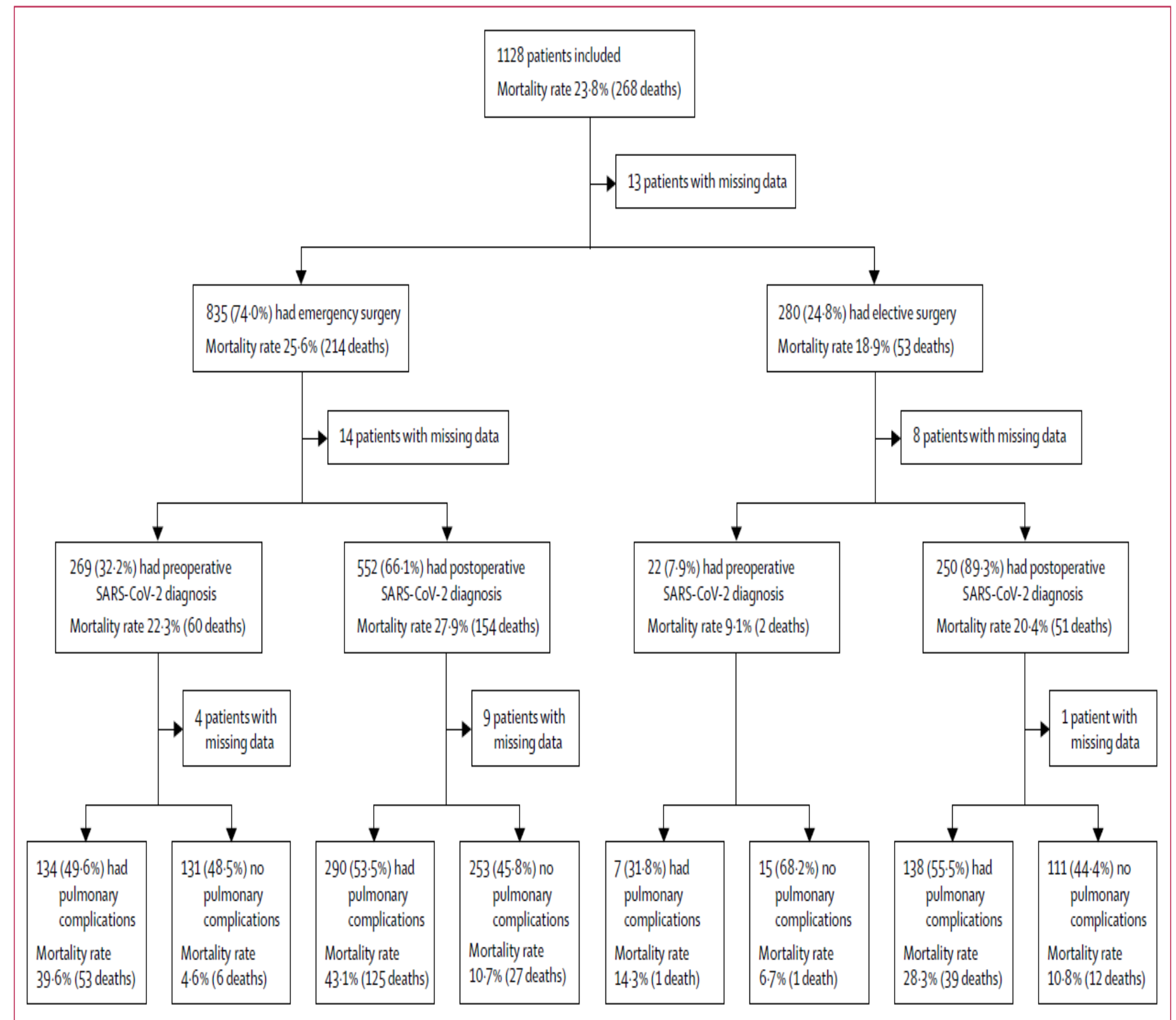


Figure 1: 30-day mortality rates by timing of surgery and development of pulmonary complications



Article 2: Cont.,

Conclusion

Postoperative pulmonary complications occur in half of patients with perioperative SARS-CoV-2 infection and are associated with high mortality. **Thresholds for surgery during the COVID-19 pandemic should be higher than during normal practice, particularly in men aged 70 years and older.**

Consideration should be given for **postponing non-urgent procedures and promoting non-operative treatment to delay or avoid the need for surgery.**

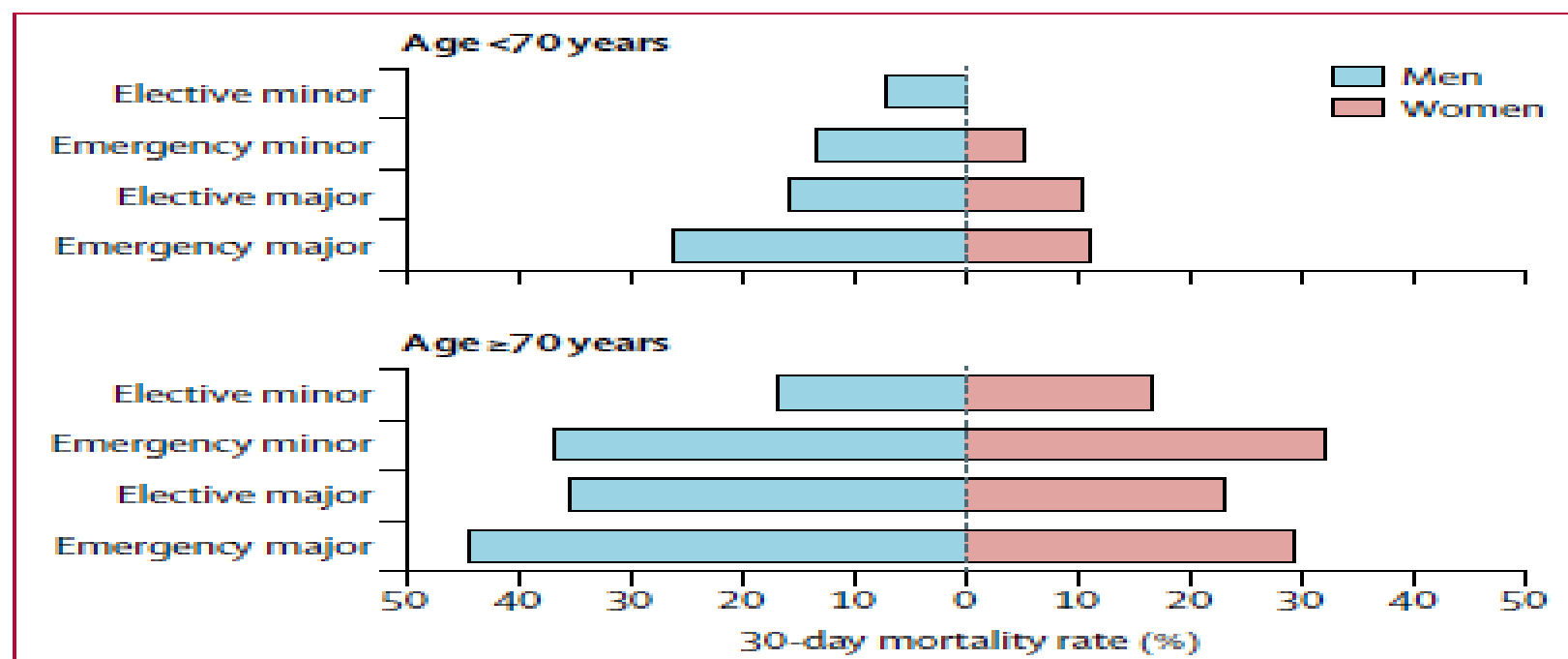


Figure 2: 30-day mortality rates by patient subgroup

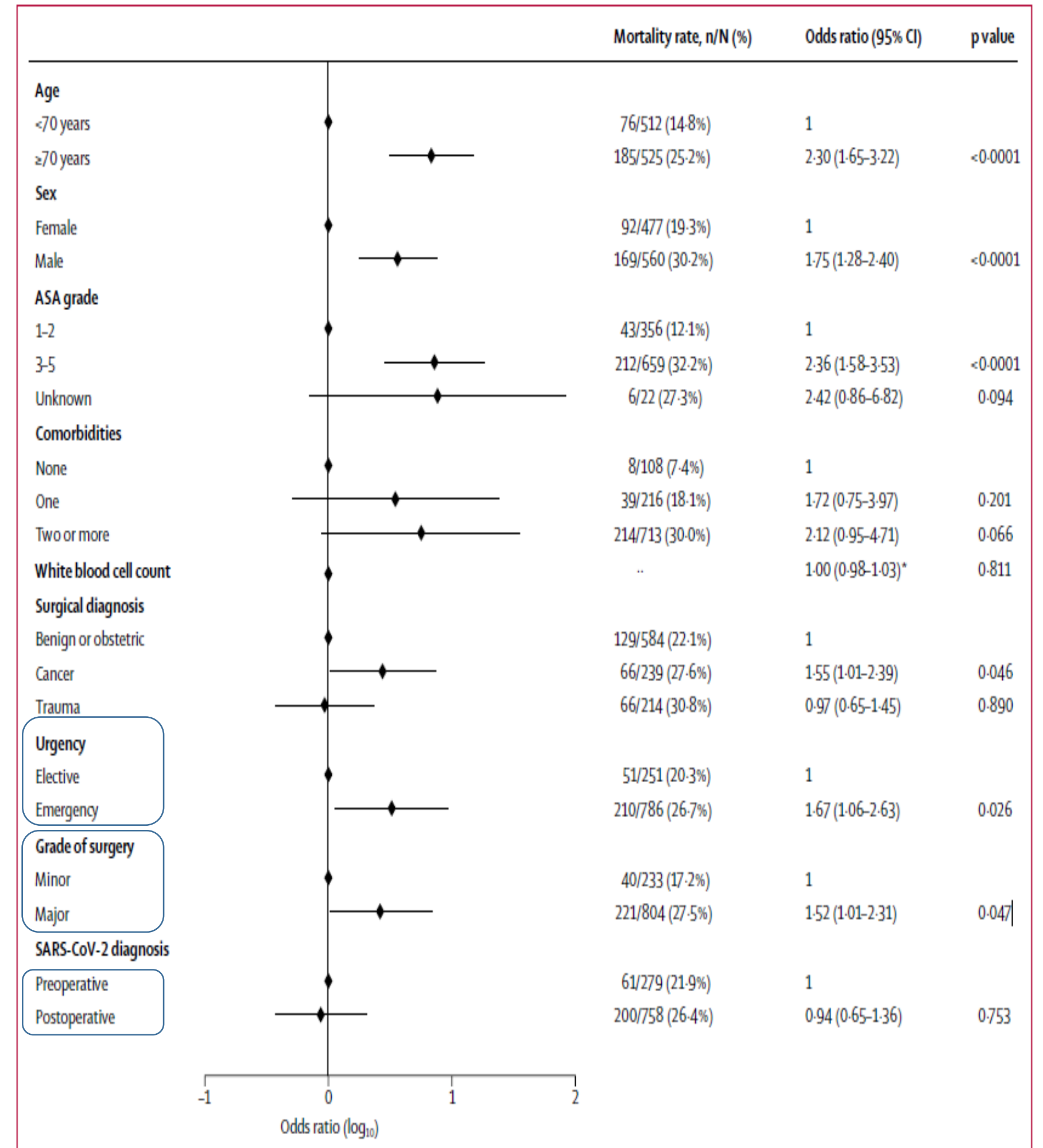


Figure 3: Adjusted model of predictors for 30-day mortality

Public Health Response:



Article 3: The neurological impact of COVID-19

Published: June 1, 2020 in [the lancet](#)

Summary:

- There is substantial impact of COVID-19 on neurological services and patients. Therapeutic services require awareness and recognition of neurological presentation. Neurological complications such as their characteristics are still unknown among patients with COVID-19. There was evidence suggested that **comorbidities including hypertension increased the severity of COVID-19**; however, there is **still lack of knowledge regarding the risk for patients with neurological disorders**.
- A research initiative - the COVID Human Genetic Effort aims to **identify genetic mutations that make some people highly vulnerable to infection by assessing the genomes of previously healthy patients < 50 years who have had severe COVID-19**. genetic susceptibility might be also behind the severe neurological complications caused by SARS-CoV-2.
- COVID-19 have a long-term impact on the management of patients with neurological disorders. As neurological diagnostic and treatment approach has been face to face, alternative means of care are required in order to protect both patients and health care providers. Although proposed care model with a patient centred perspective might not be generalized due to differences between healthcare systems; however, it has initiated discussions on the future of neurological services.
- As it will take time to recognize neurological presentation of COVID-19, collecting and sharing of data as well as a critical appraisal of the evidence will improve care of neurological patients. Several initiatives are underway to expedite research into the diagnosis, prevention, and treatment of the neurological complications of COVID-19.