ABU DHABI PUBLIC HEALTH CENTRE | مركز أبوظبي للصحة العامة

Scientific Research Monitoring on COVID-19

24 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

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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

- **Clinical Features :** observational and case–control study aimed at reporting the occurrence of SARS-CoV-2 infection in a single tertiary outpatient centre located in northern Italy with a high COVID-19 prevalence, to offer additional knowledge with respect to the course of SARS-CoV-2 infection in individuals with rheumatic diseases.
- **Treatment:**
  - Dexamethasone for Coronavirus Infection.
  - GM-CSF blockade with mavrilimumab in severe COVID-19 pneumonia and systemic hyperinflammation: a single-centre, prospective cohort study.
- **WHO:**
  - Coronavirus disease (COVID-19) advice for the public: Myth busters
  - Criteria for releasing COVID-19 patients from isolation
- **Public Health Response**: Household secondary attack rate of COVID-19 and associated determinants in Guangzhou, China: a retrospective cohort study
- **Public Health Response**: Clinical and immunological assessment of asymptomatic SARS-CoV-2 infections

WHO daily report

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WHO Daily Report 23 June 2020

- Unite for Our Future is a new campaign that will be held on 27 June. this event will provide governments, corporate leaders, and philanthropists with a platform to make their commitments towards the fair distribution of tools and treatments for COVID-19.

- WHO Director-General urged countries to double down on the fundamental public health measures while facing the delicate balance between protecting their people and minimizing the social and economic damage caused by the pandemic.

- WHO has been updated its Q&A page to include information on dexamethasone and COVID-19.

Epidemiology

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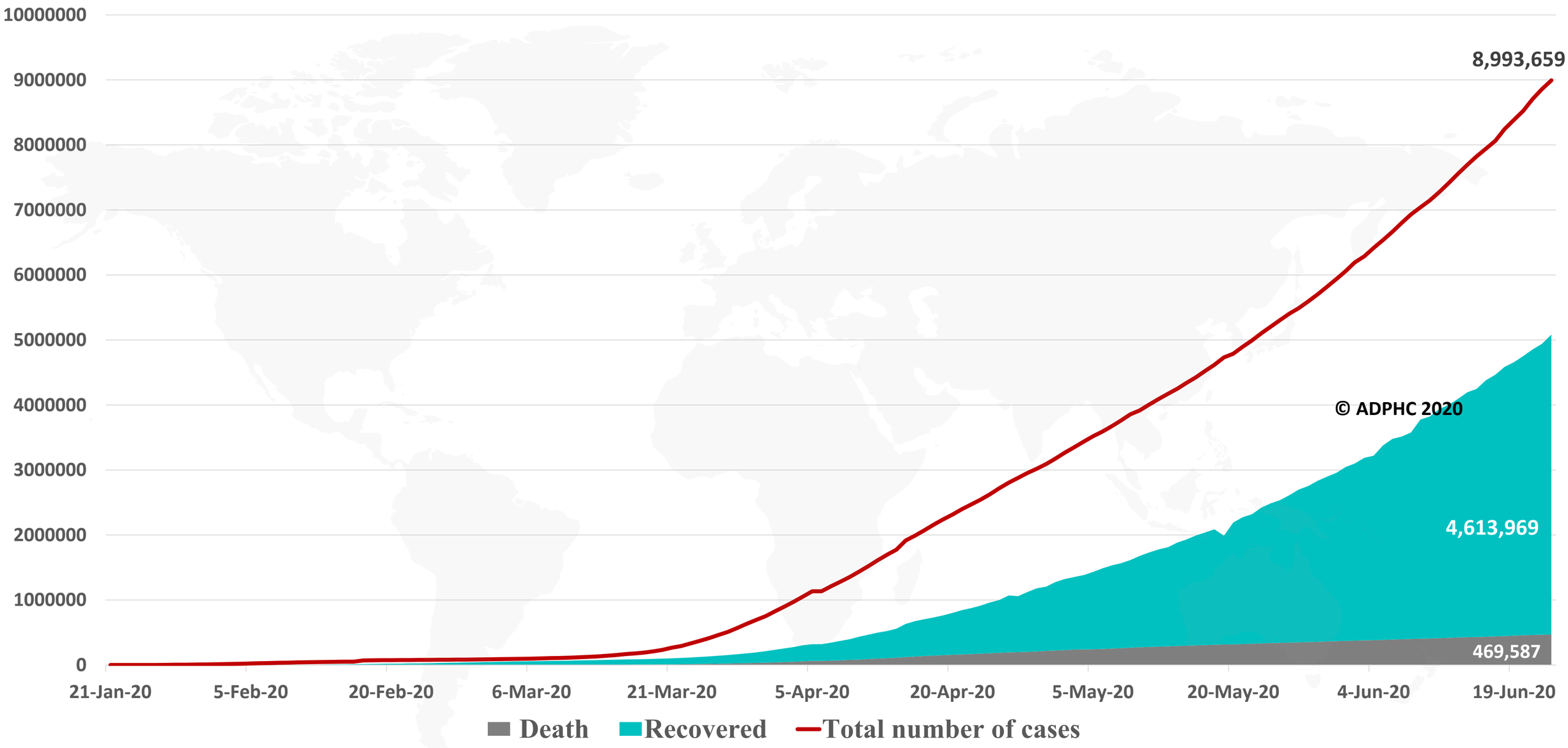
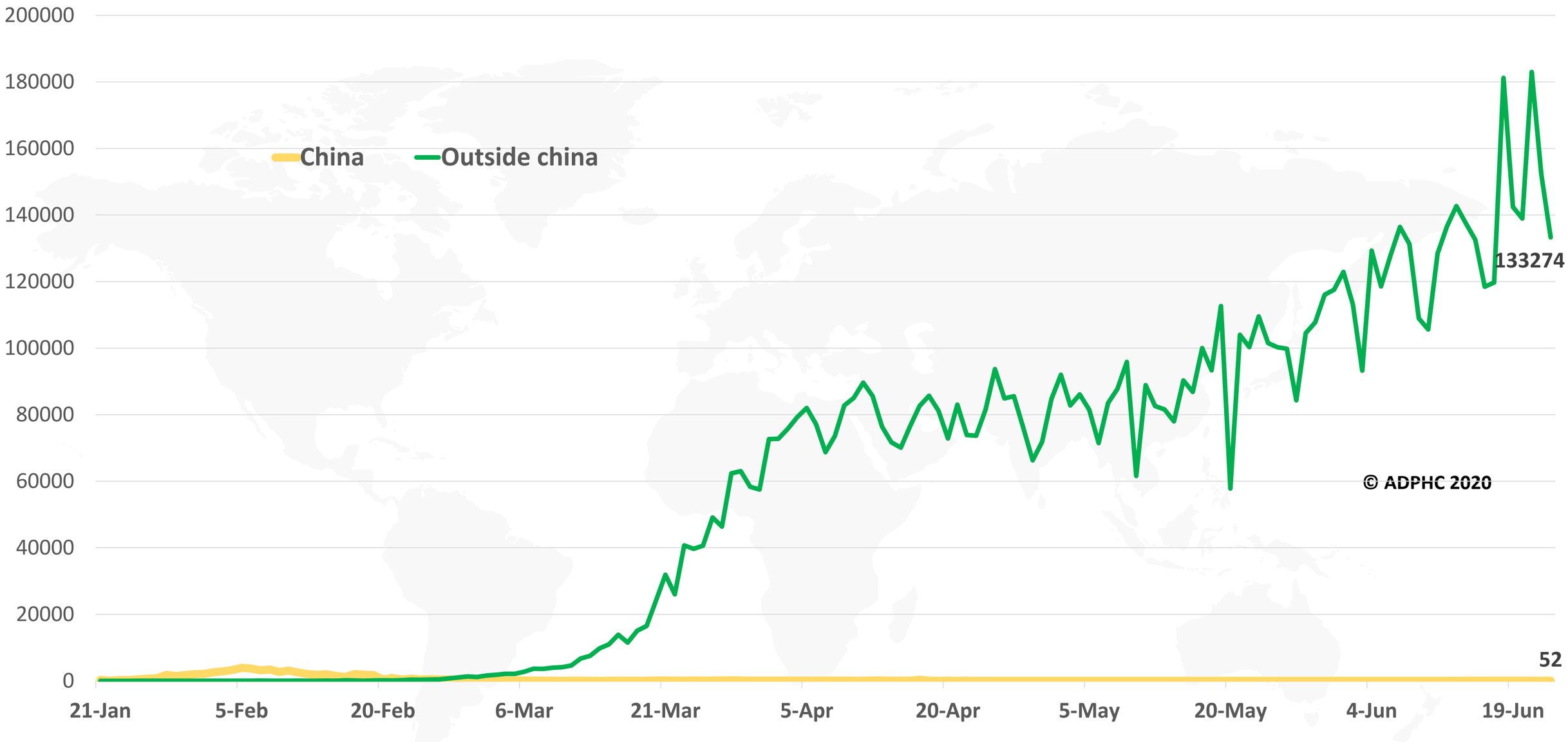
Figure 1: Total number of infected, recovered , and death cases (January 21st to Jun 23, 2020)



Line graph published by Abu Dhabi Public Health Center 2020.

Data resources: WHO

Figure 2: Daily new infected COVID-19 cases reported between (January 21 to Jun 23, 2020).



Line graph published by Abu Dhabi Public Health Center 2020.

Data resources: WHO

Epidemiology

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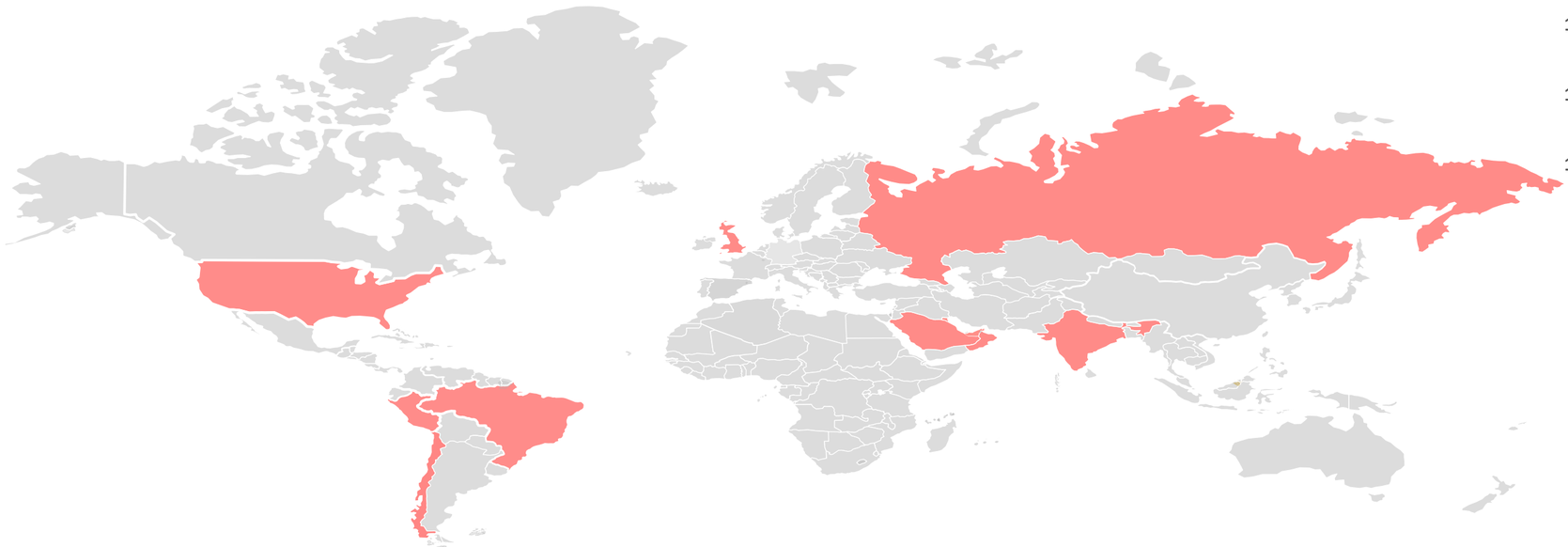
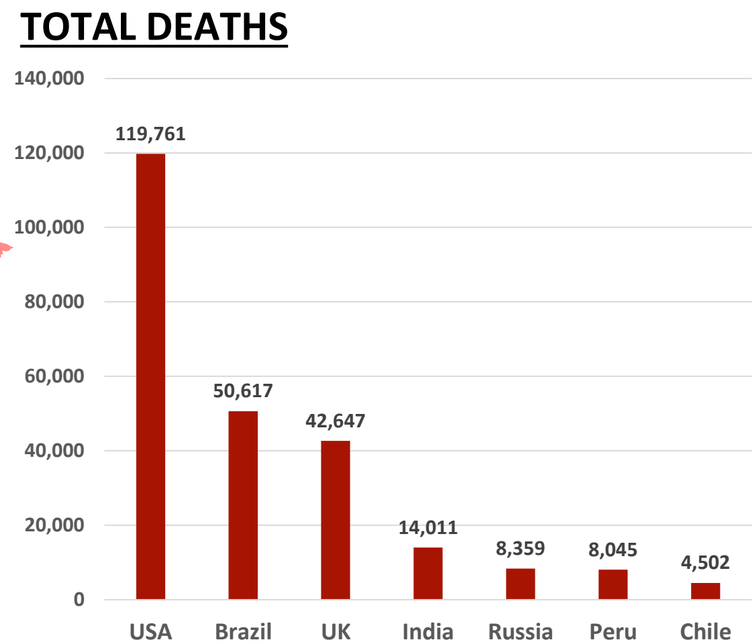
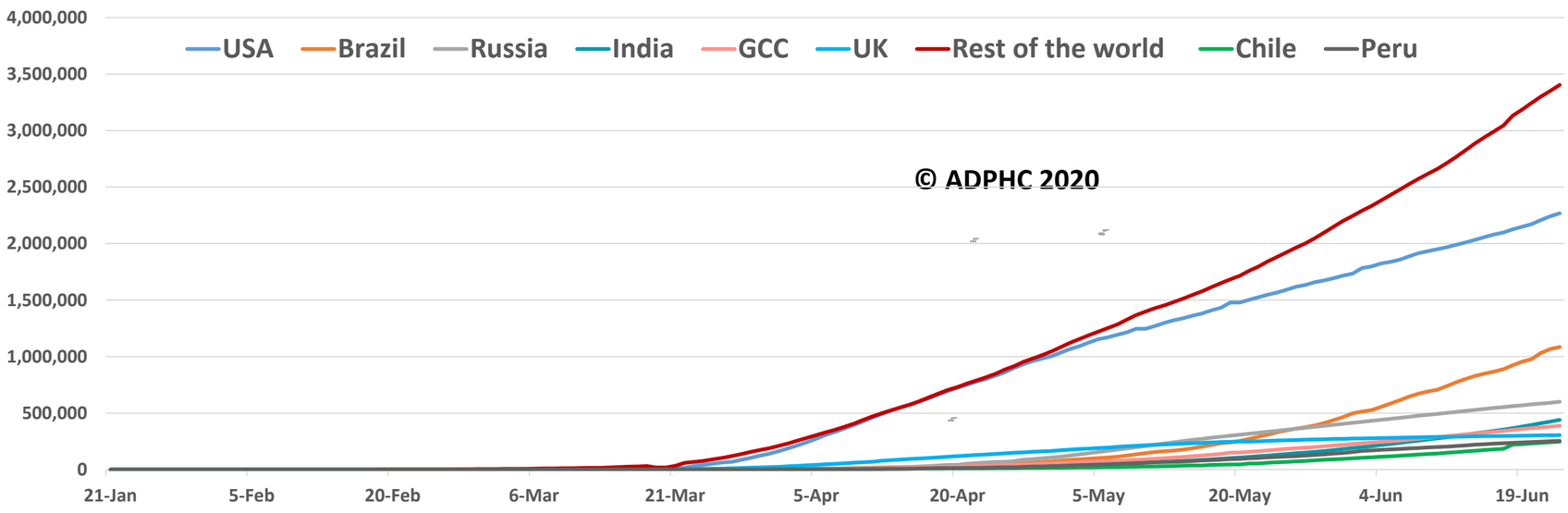
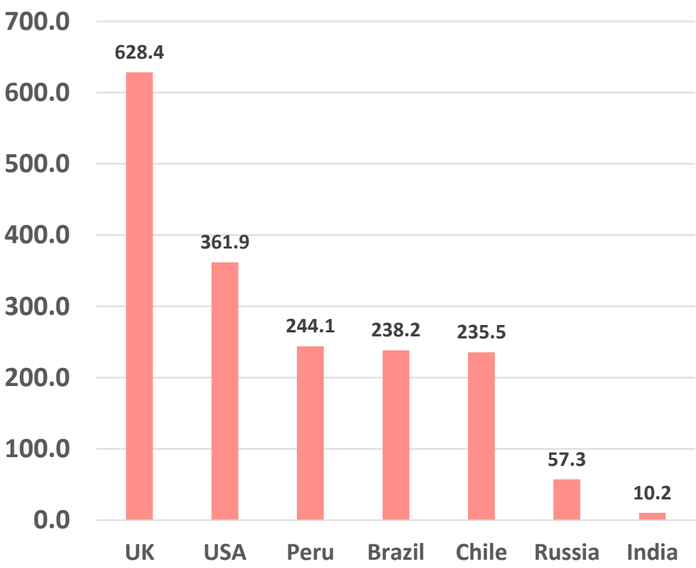
Figure 3 : Top 7 countries in the total number of cases due to COVID-19 (January 21 to Jun 23, 2020).







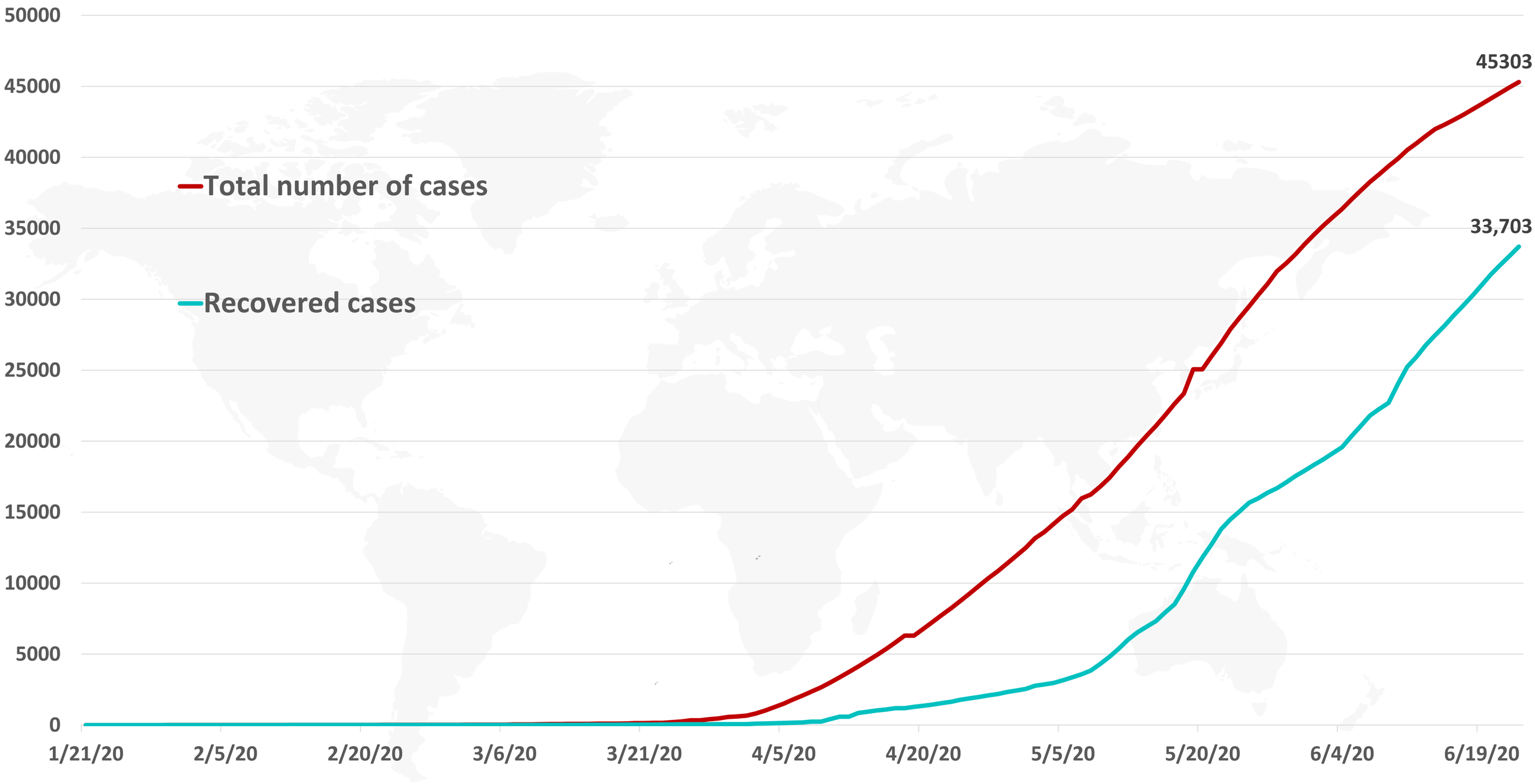


Line graph published by Abu Dhabi Public Health Center 2020.

Data resources: WHO

Epidemiology

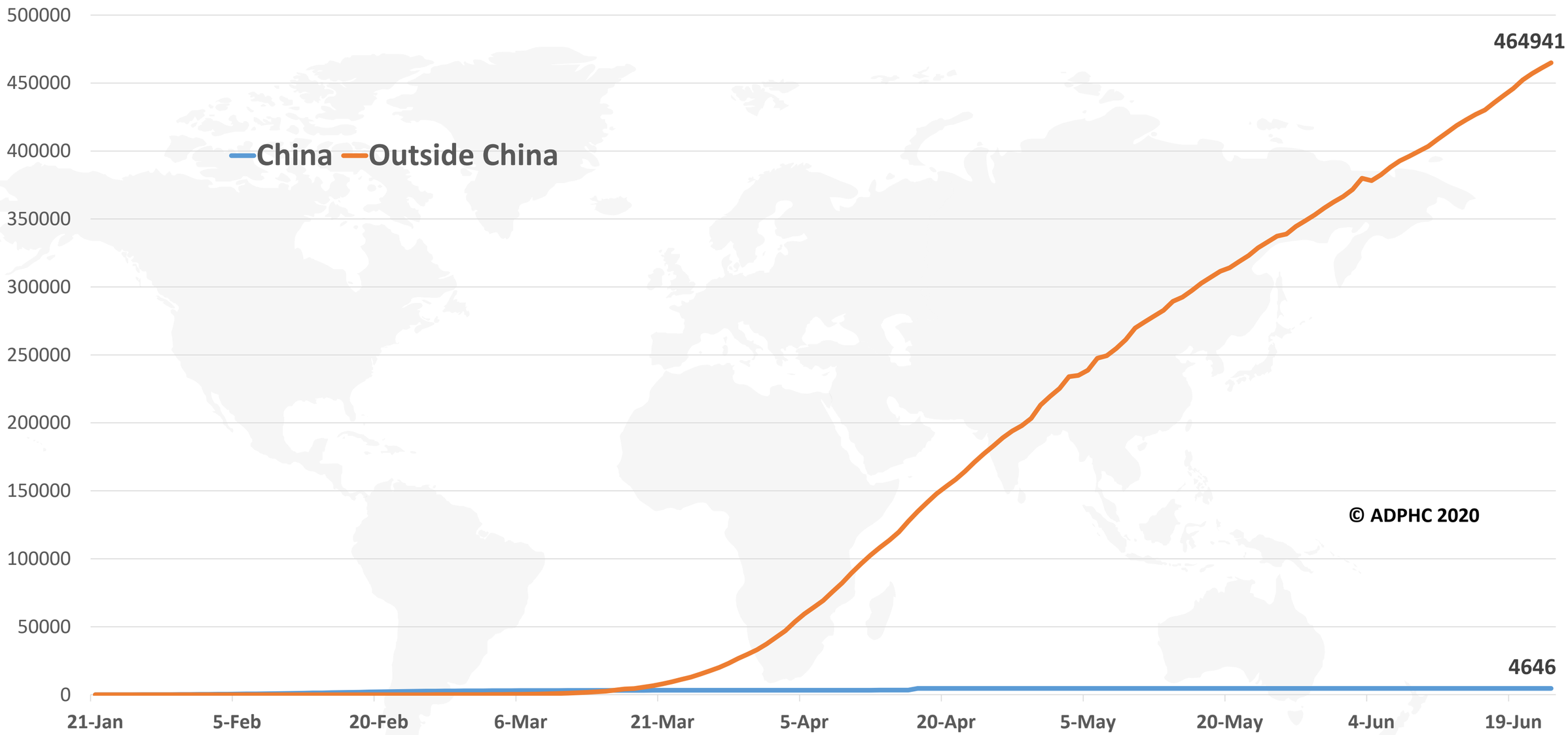
Figure 4: Total number of COVID-19 infected and recovered cases in UAE over time



Line graph published by Abu Dhabi Public Health Center 2020.

Data resources: WHO

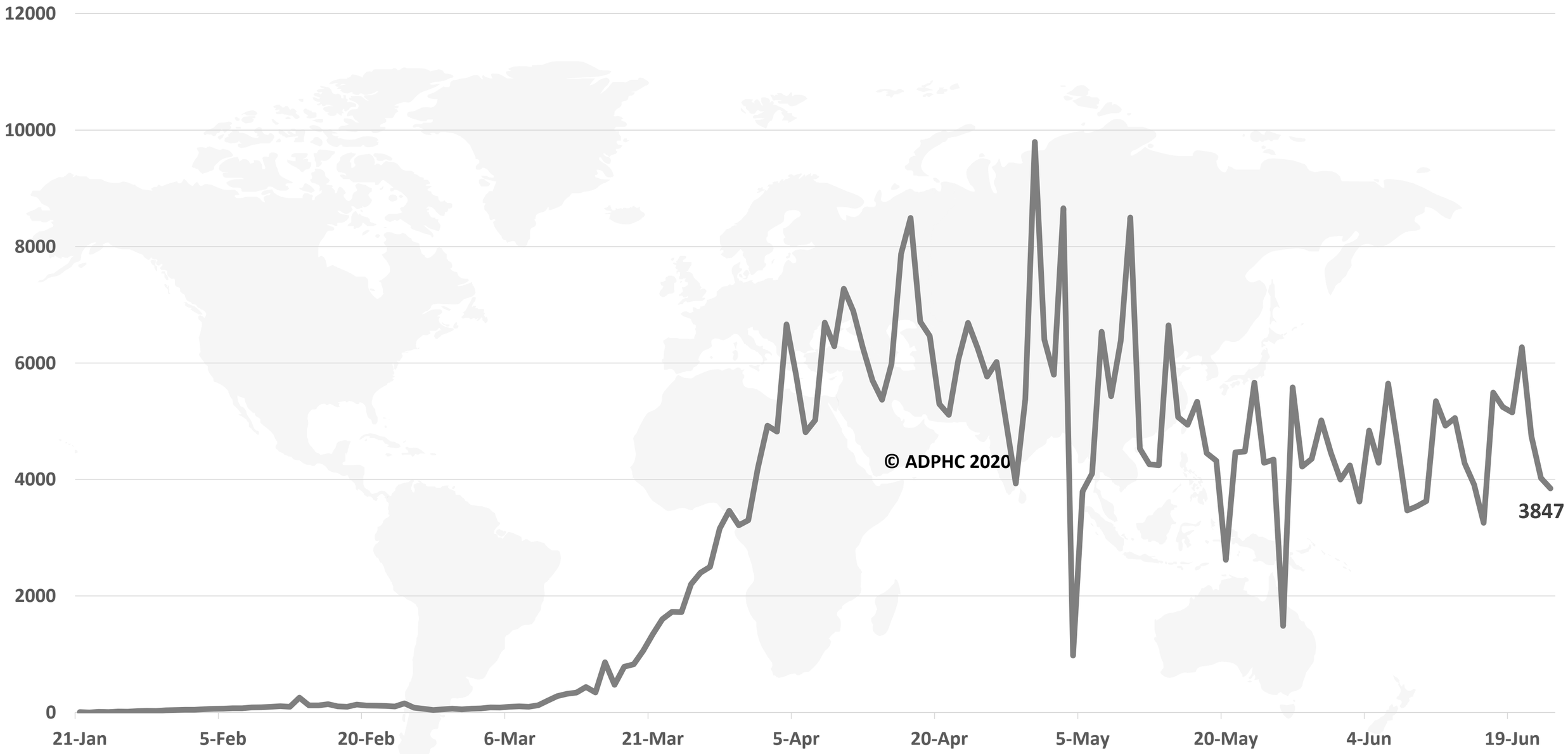
Figure 5: Total number of death due to COVID-19 reported by China and the rest of the world (January 22 to Jun 23, 2020).



Line graph published by Abu Dhabi Public Health Center 2020.

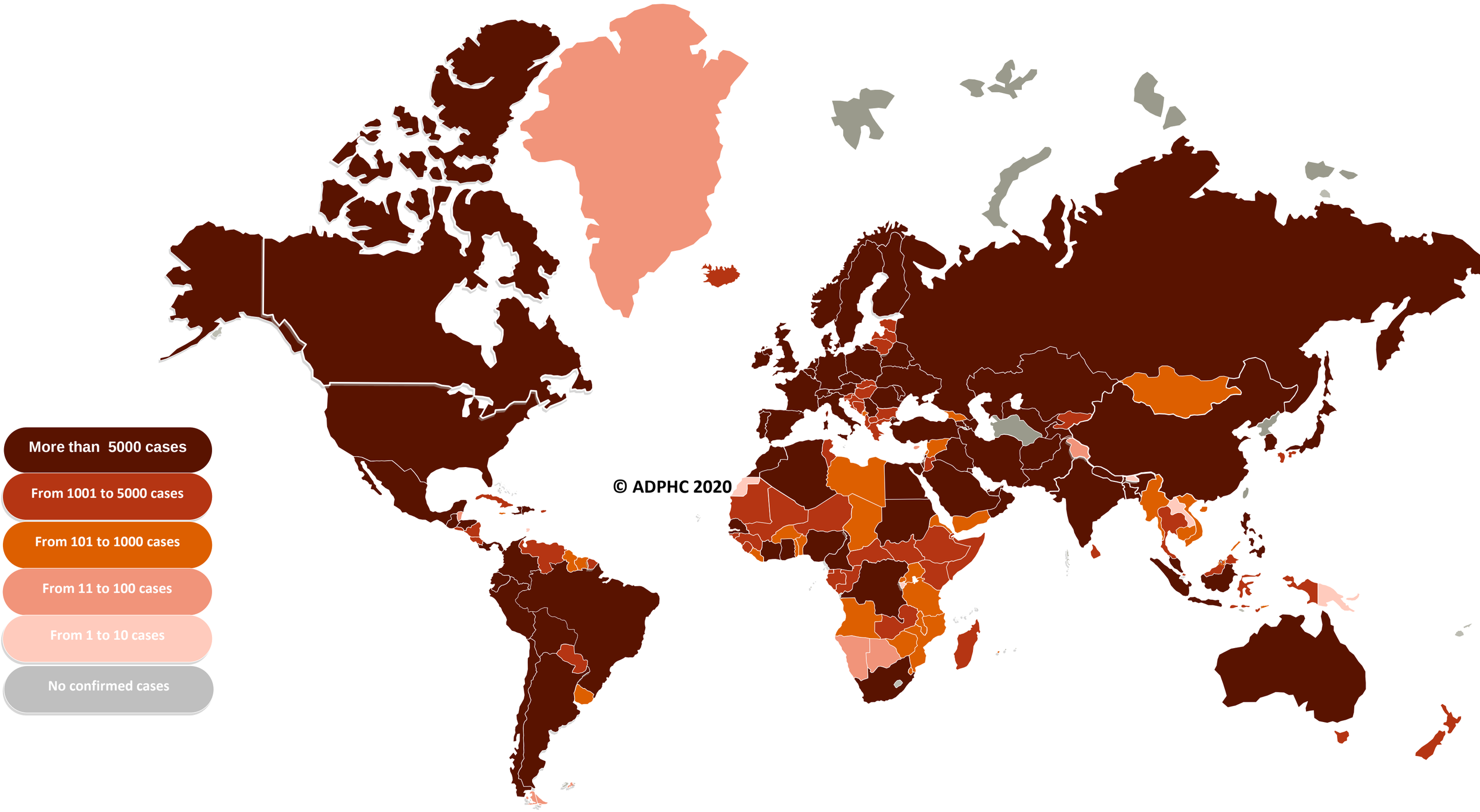
Data resources: WHO

Figure 6: Global daily new deaths due to COVID-19 (January 22 to Jun 23, 2020).



Line graph published by Abu Dhabi Public Health Center 2020.
Data resources: WHO

Figure 7a : Global distribution of COVID-19 cases (Jun 23, 2020).



Line graph published by Abu Dhabi Public Health Center 2020.

Data resources: WHO

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Figure 7B: Bar chart illustrate the global distribution of COVID19 cases Jun 23, 2020)

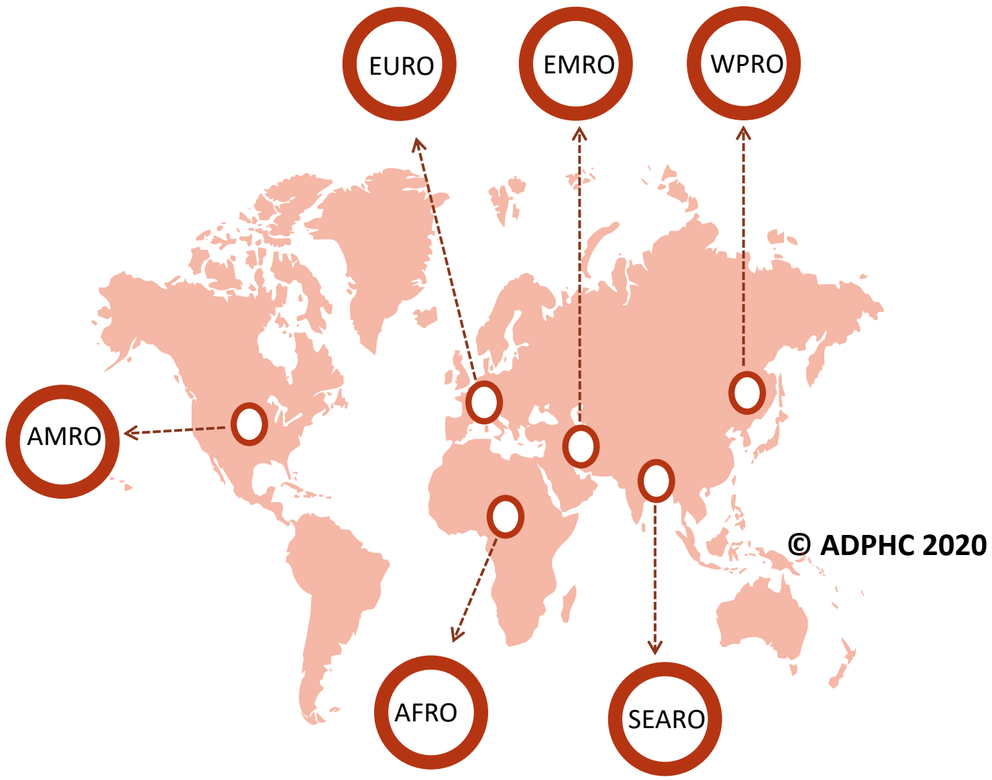
Other*:includes cases and deaths reported under the international conveyance(Diamond Princess)

Bar chart published by Abu Dhabi Public Health Center 2020.

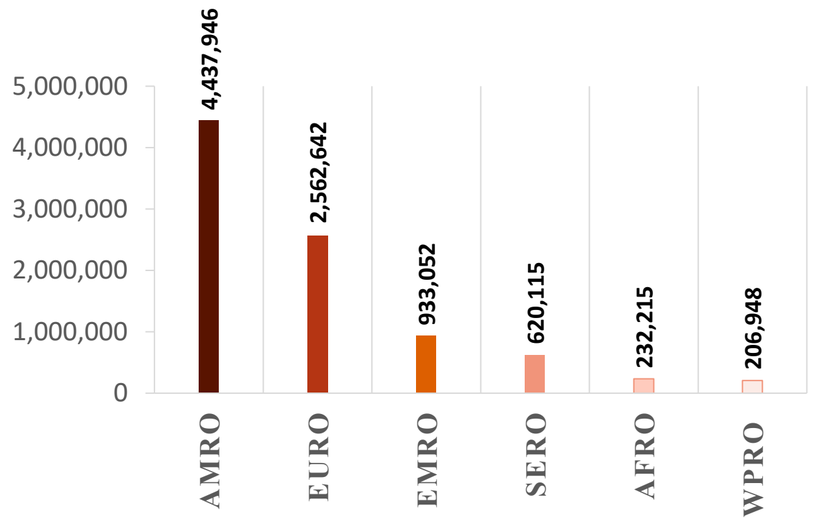
Data resources: WHO

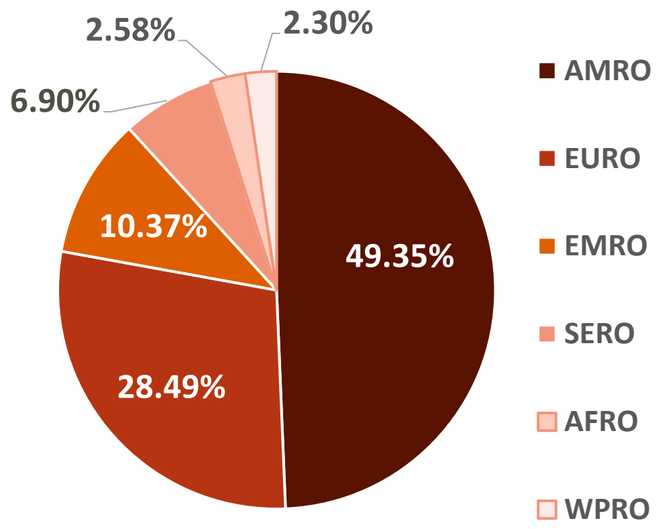
Epidemiology

Figure 8: illustrate the Global distribution of COVID19 cases per region (Jun 23, 2020)

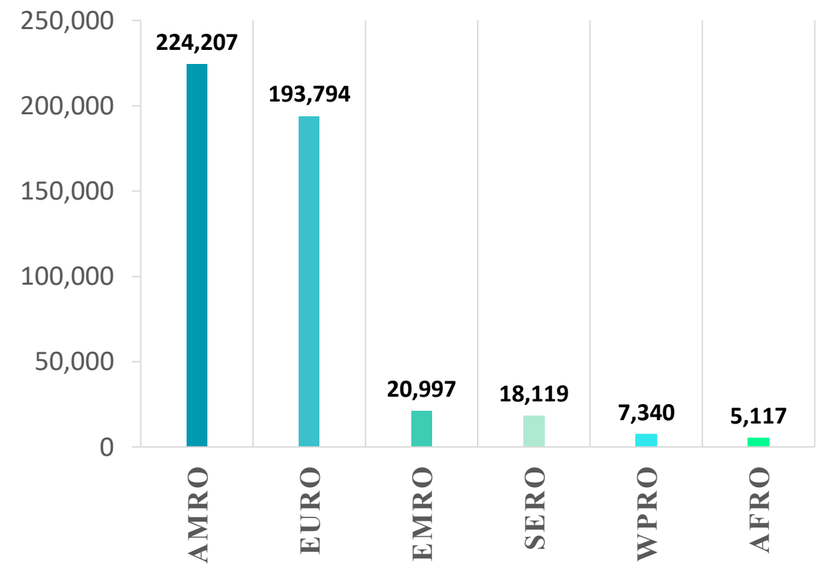


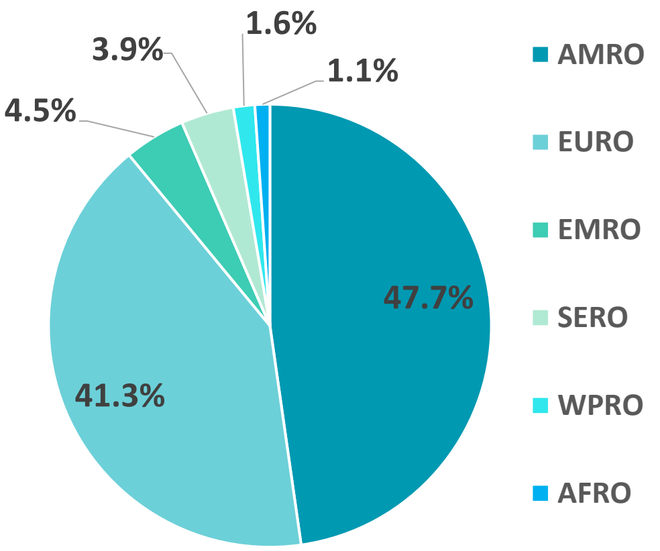
INFECTED





DEATH





Graphs published by Abu Dhabi Public Health Center 2020.
Data resources: WHO

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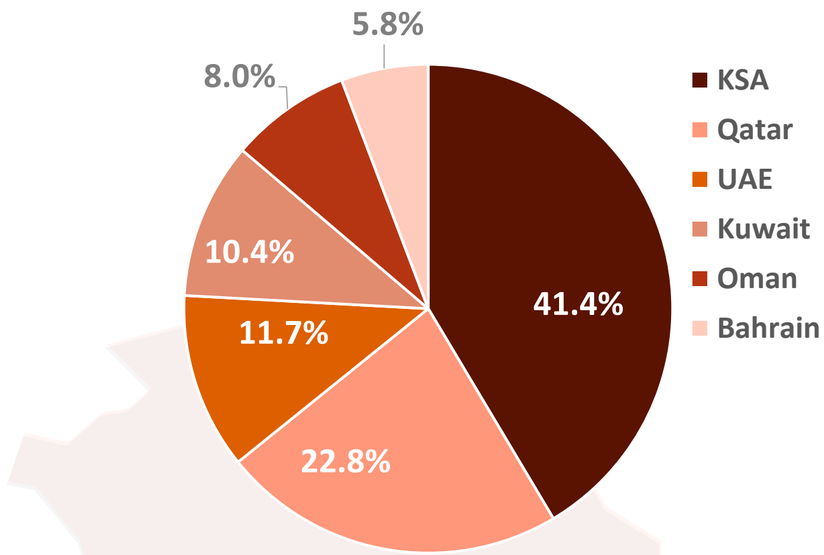
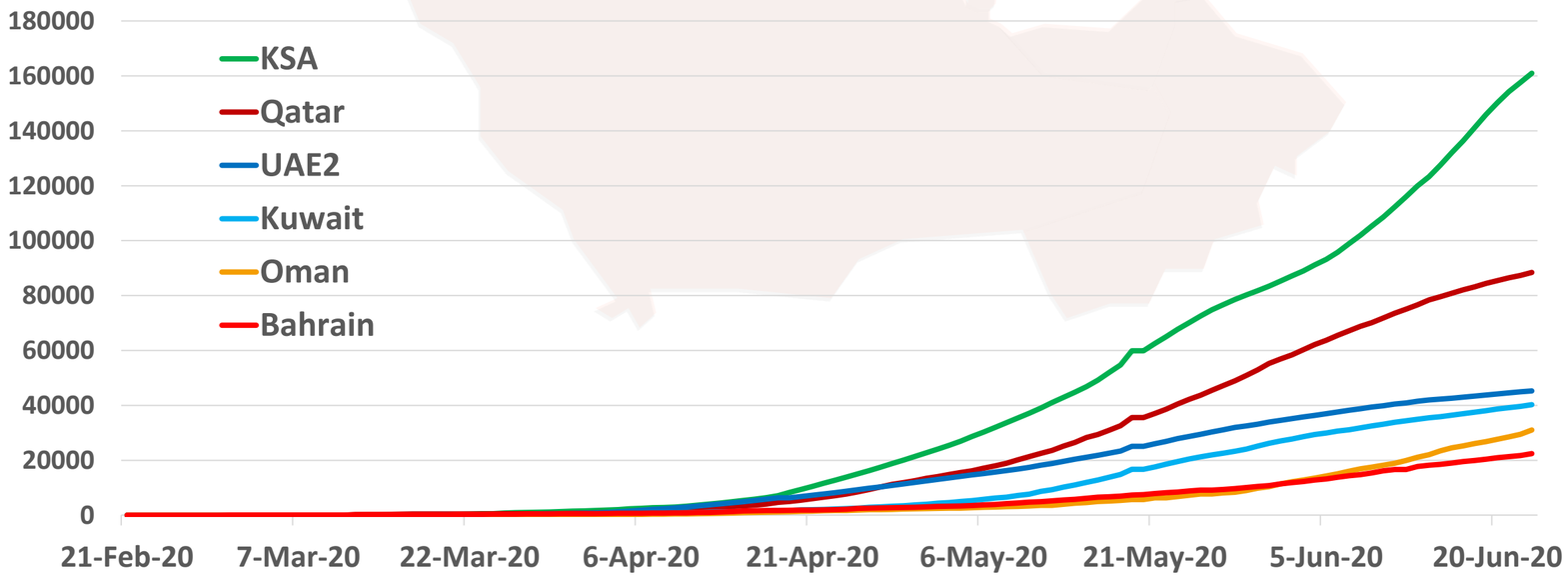
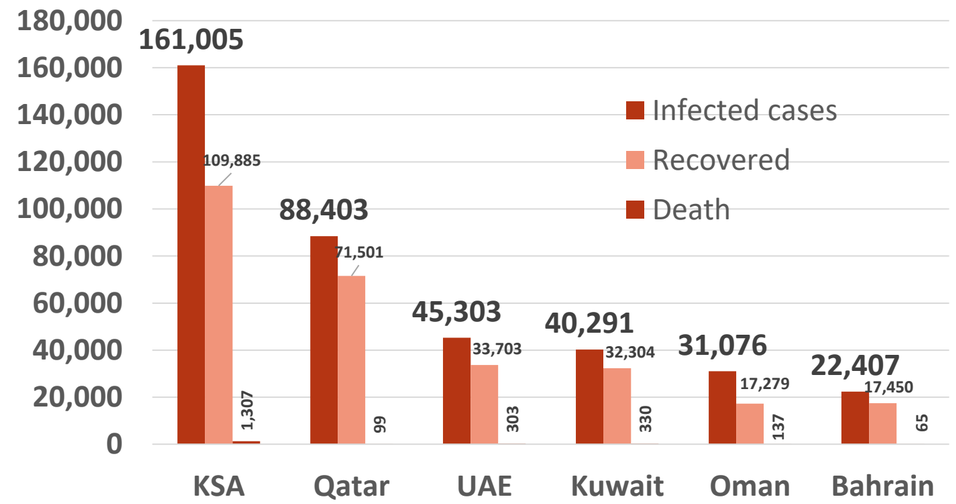
Figure 9: Comparative analysis of the distribution of COVID19 cases in GCC countries (Jun 23, 2020)

TOTAL NUMBER OF INFECTED CASES

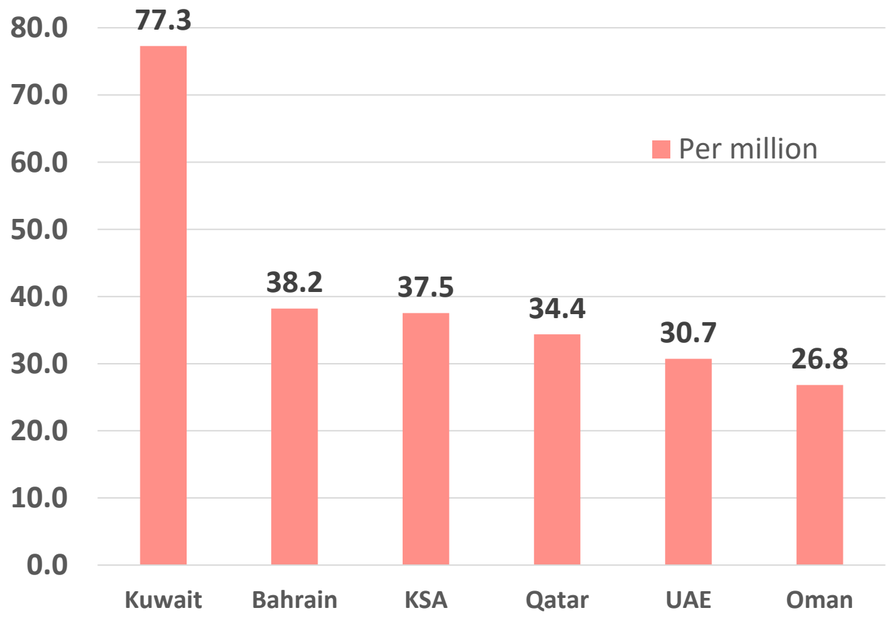




Total number of infected, recovered and Deaths



Death per million



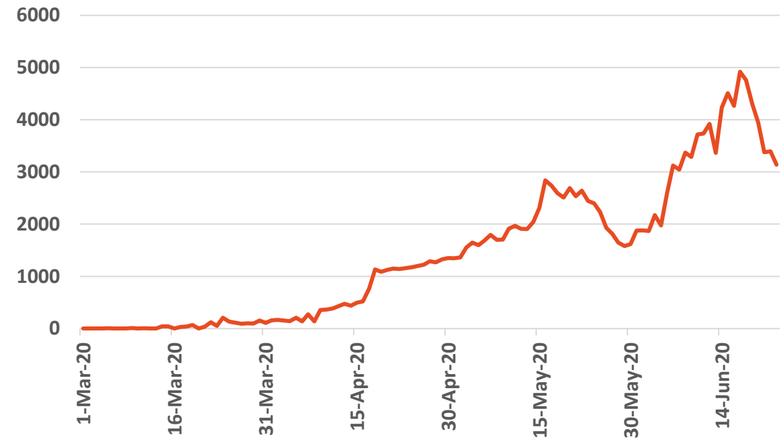
Graphs published by Abu Dhabi Public Health Center 2020.

Data resources: WHO

Epidemiology

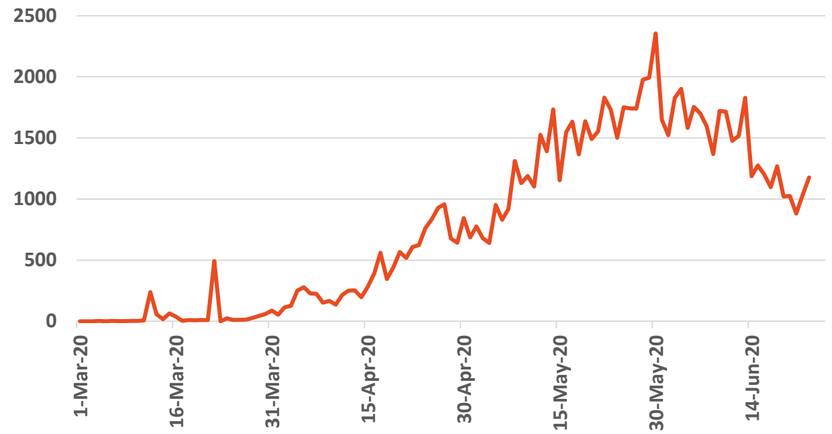
Figure 10: Comparative analysis of the distribution of COVID19 new cases in GCC countries (June 23, 2020)

KSA



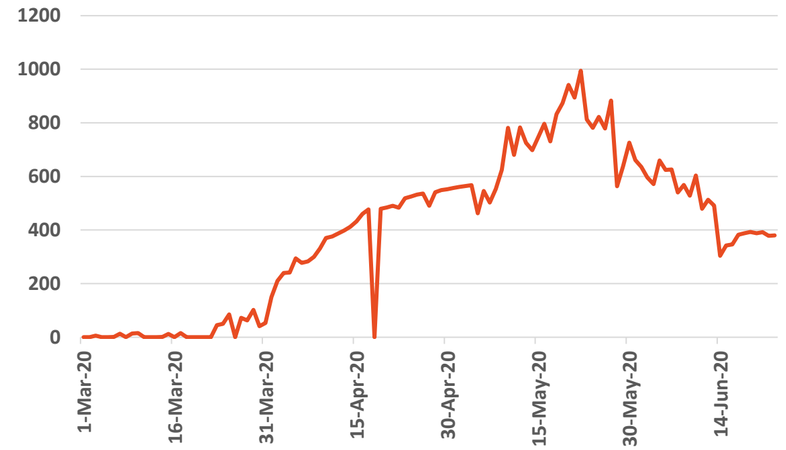
Source : KSA ministry of health

Qatar



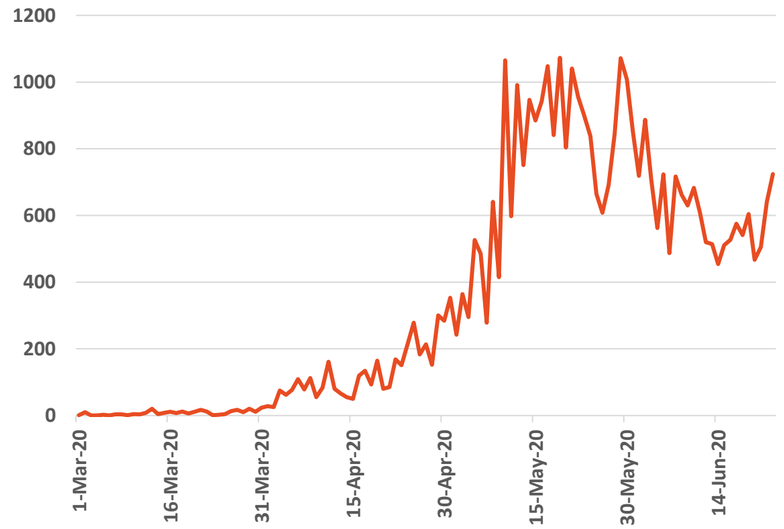
Source : Qatar ministry of health

UAE



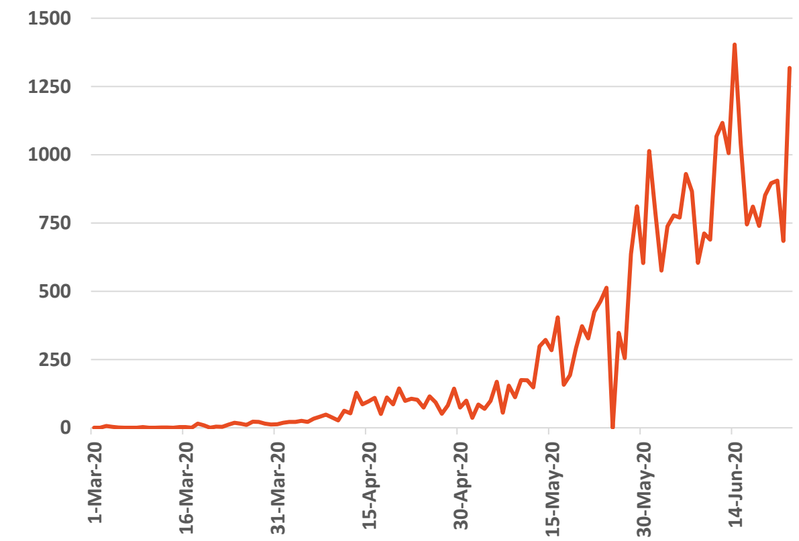
Source : National Emergency Crisis and Disaster Management Authority

Kuwait



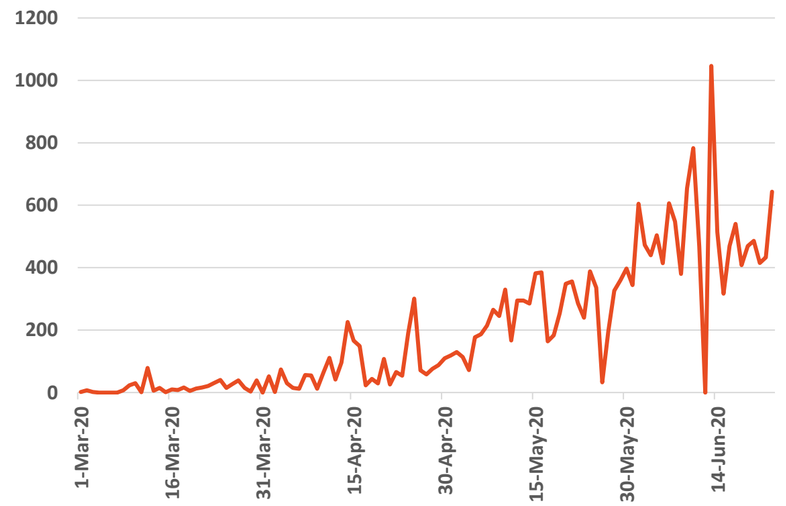
Source : Kuwait ministry of health

Oman



Source :Oman ministry of health

Bahrain



Source :WHO

Line graph published by Abu Dhabi Public Health Center 2020.

Data resources: WHO

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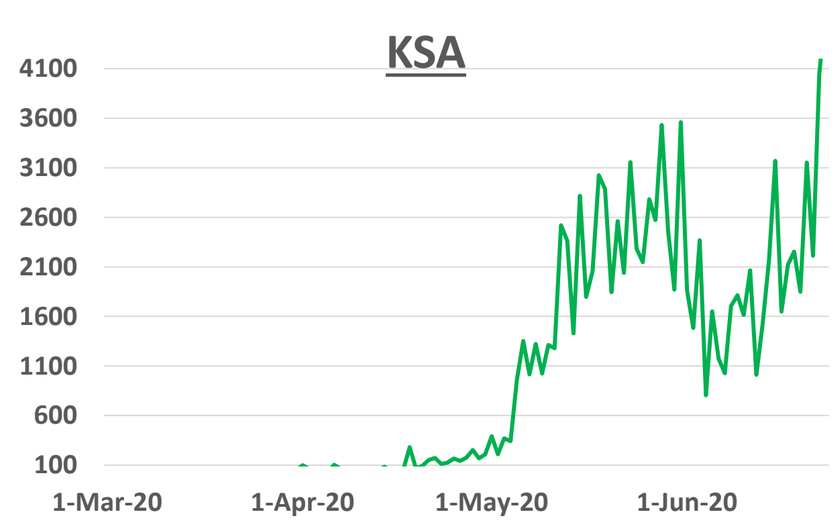
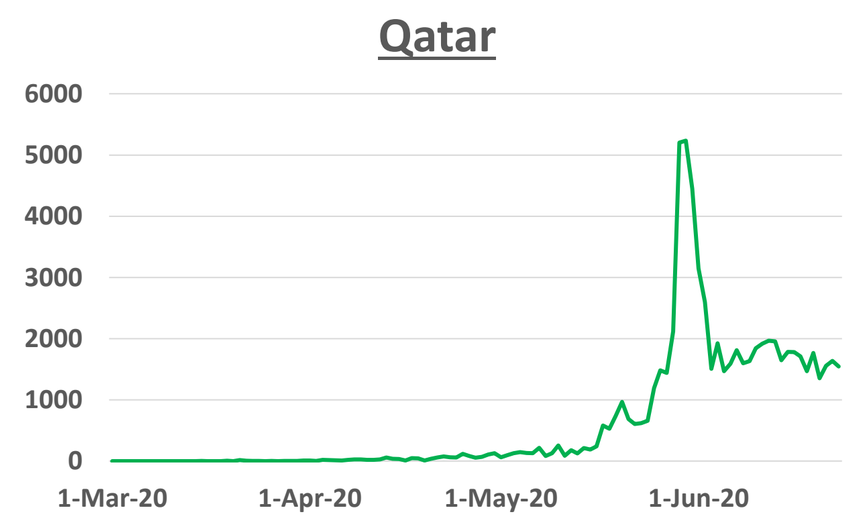
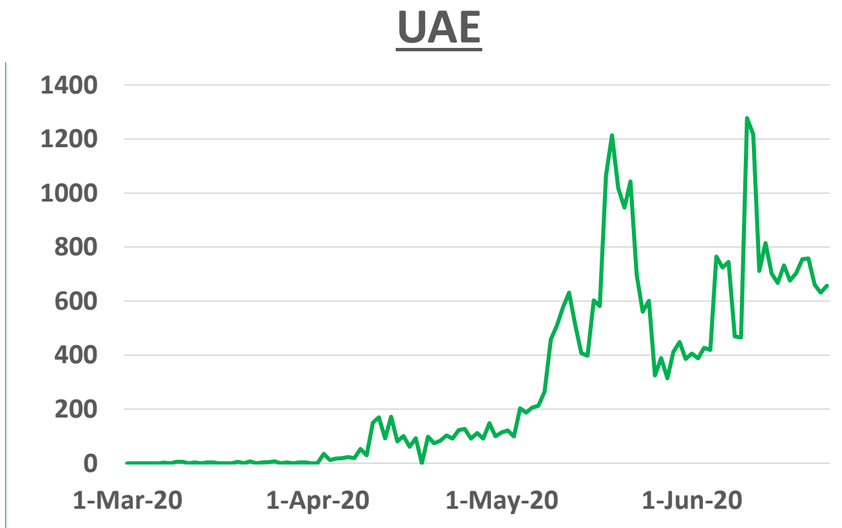
Figure 11 : Comparative analysis of the distribution of COVID19 newly recovered cases in GCC countries (June 23, 2020)



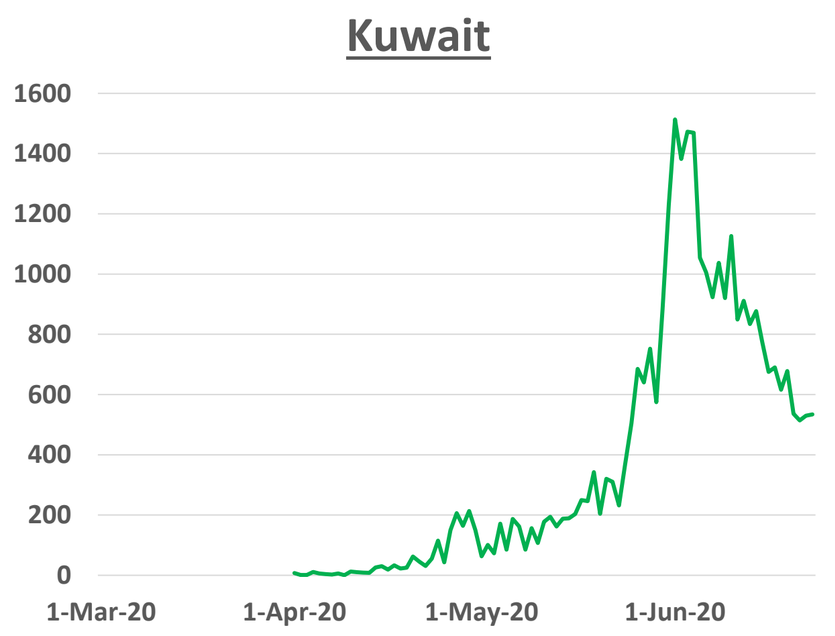
Source : KSA ministry of health



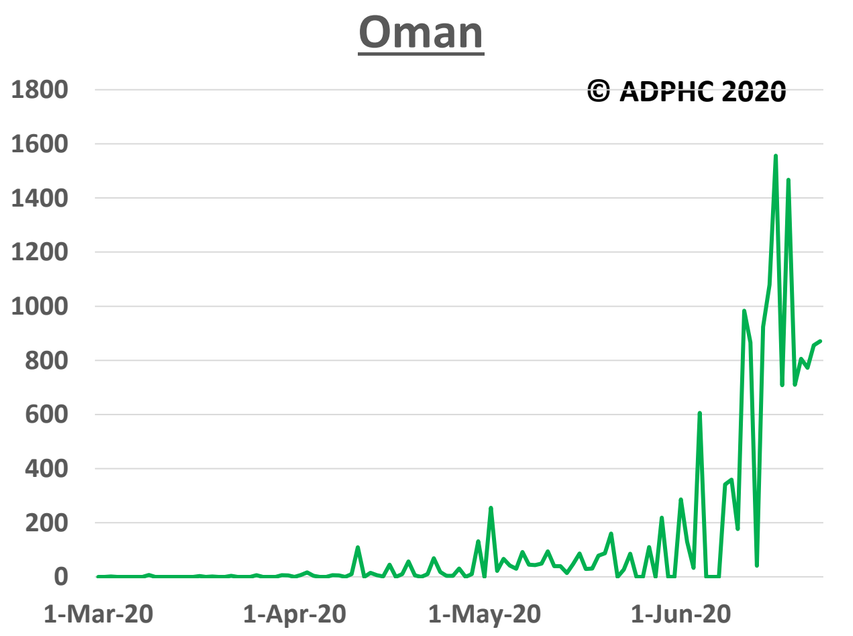
Source : Qatar ministry of health



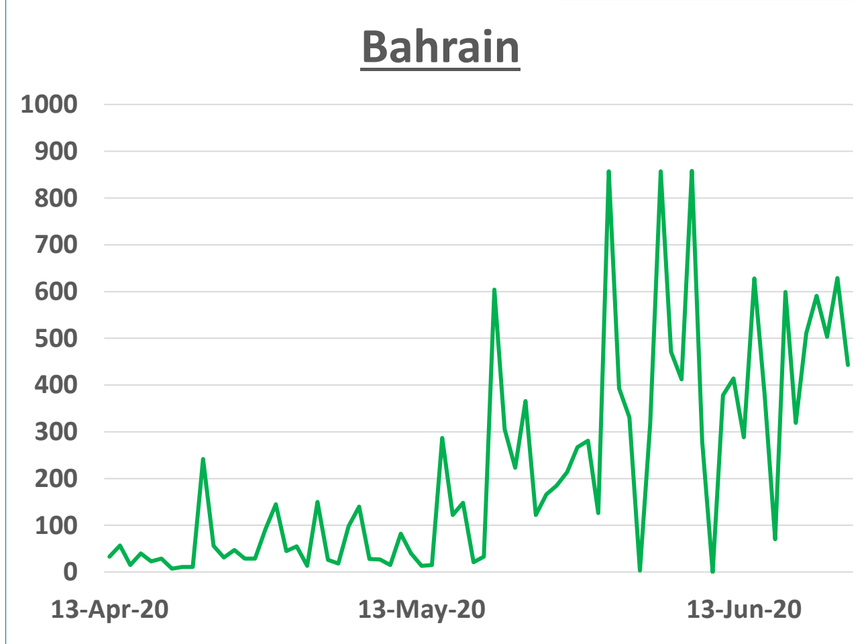
Source : National Emergency Crisis and Disaster Management Authority



Source : Kuwait ministry of health



Source :Oman ministry of health



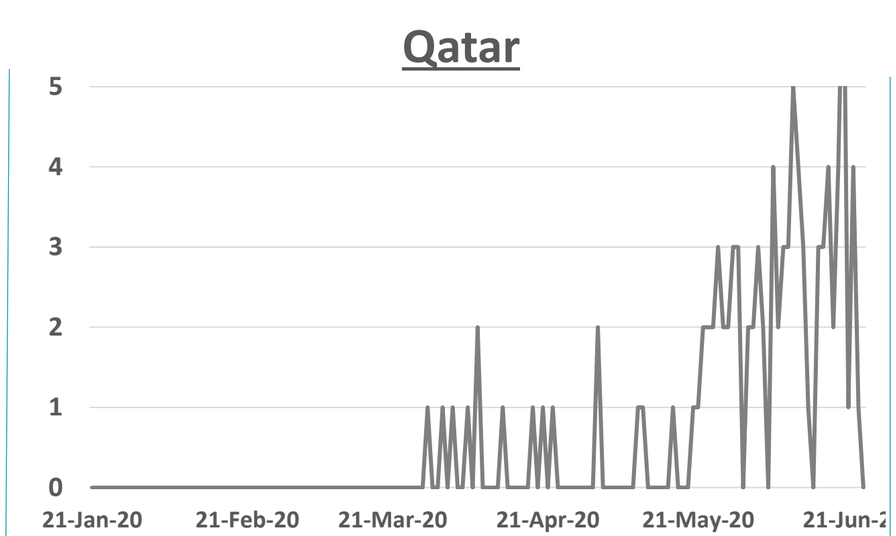
Source : GCCStat

Line graph published by Abu Dhabi Public Health Center 2020.

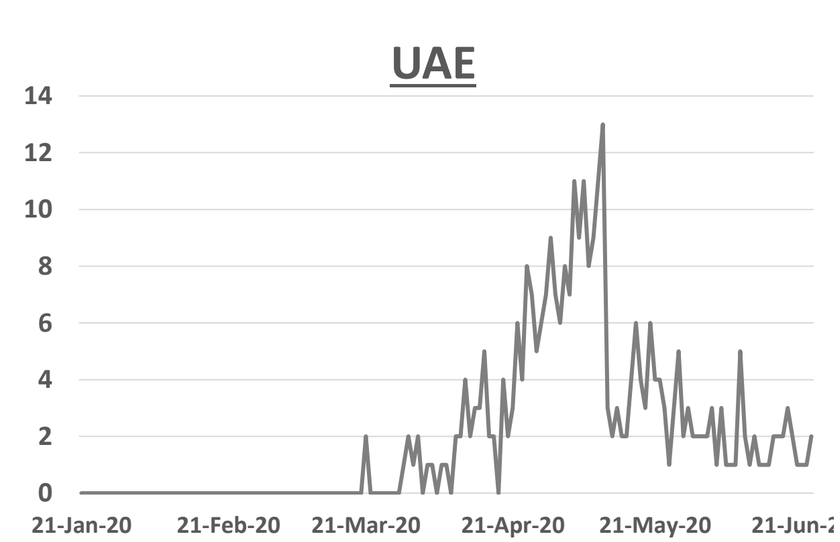
Data resources: WHO

Figure 12: Comparative analysis of the distribution of COVID19 newly death cases in GCC countries (June 23, 2020)

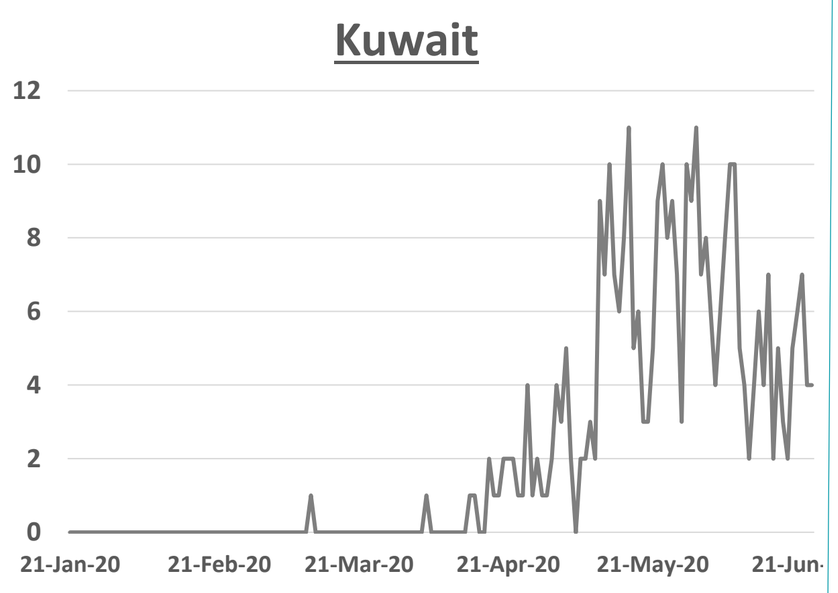
Source : KSA ministry of health



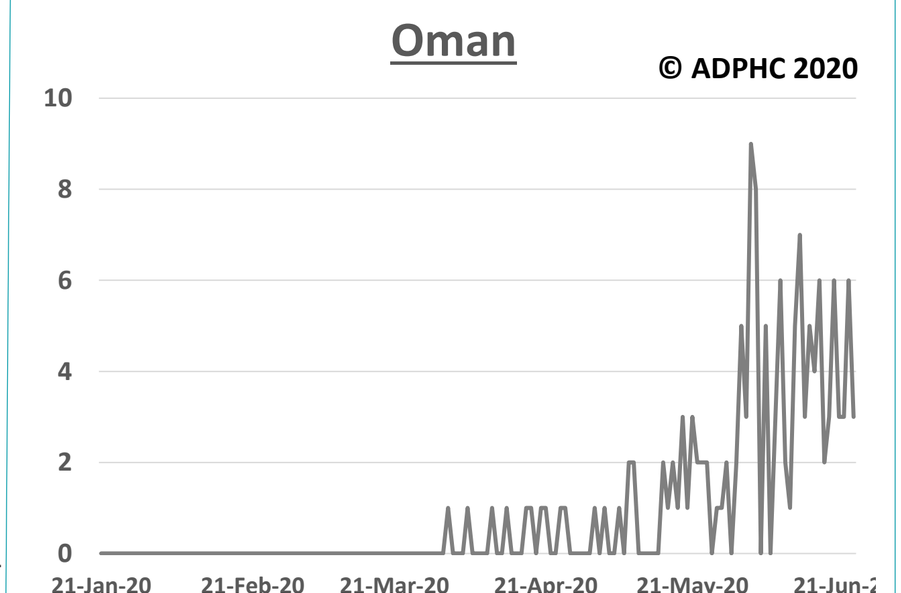
Source : Qatar ministry of health



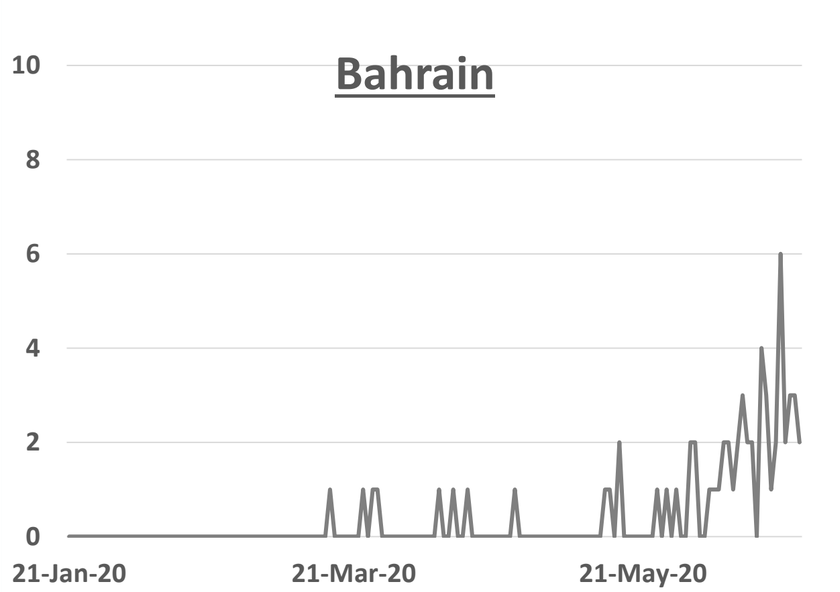
Source : National Emergency Crisis and Disaster Management Authority



Source : Kuwait ministry of health



Source :Oman ministry of health



Source :WHO

Clinical Features

Article 1 : COVID-19 in patients with rheumatic diseases in northern Italy: a single-centre observational and case–control study
Published: Lancet

Summary:

- This observational and case–control study aimed at reporting the occurrence of SARS-CoV-2 infection in a single tertiary outpatient centre located in northern Italy with a high COVID-19 prevalence, to offer additional knowledge with respect to the course of SARS-CoV-2 infection in individuals with rheumatic diseases. The data was collected from 1525 patients with rheumatic and musculoskeletal diseases using a survey between Feb 24 and May 1, 2020, that was administered via telephone or in the outpatient clinic by the rheumatologists.
- **The findings** of the study demonstrated that 117 (8%) presented with symptoms that were compatible with COVID-19. Around 65 patients had a swab confirmation of SARS-CoV-2 infection, while, 52 patients presented with a spectrum of symptoms indicative of COVID-19 but were not swab tested. Patients with confirmed COVID-19 were older than those with suspected COVID-19 and were more likely to have arterial hypertension and obesity. No difference was found in rheumatological disease or background therapy between confirmed and suspected COVID-19 cases. 47 (72%) of the 65 patients with confirmed COVID-19 developed pneumonia that required admission to hospital. 12 (10%) deaths occurred among the 117 patients with confirmed or suspected COVID-19 (ten in those with confirmed COVID-19 and two in those with suspected COVID-19). Deceased patients with confirmed COVID-19 were older than survivors. There was no difference found in comorbidities, sex, or therapies between the deceased survivors or patients.
- A case–control study of all patients with confirmed COVID-19 pneumonia and rheumatic and musculoskeletal diseases was also performed. The case–control study included 26 patients with rheumatic, musculoskeletal diseases and COVID-19 pneumonia and 62 matched controls. No significant differences were found between cases and controls in duration of COVID-19 symptoms before admission, duration of stay in hospital, or the local chest X-ray scoring system. Glucocorticoids were used for severe respiratory manifestations associated to lung involvement in 17 (65%) of 26 cases and tocilizumab in six (23%) of 26; thrombotic events occurred in four (15%) of 26 cases. Around 4 (15%) of 26 cases and six (10%) of 62 controls died during this study period. The results suggest that in patients with rheumatic and musculoskeletal diseases, comorbidities and older age should be considered as risk factors for a more severe course of COVID-19.

Article 2 : Household secondary attack rate of COVID-19 and associated determinants in Guangzhou, China: a retrospective cohort study

Published: the Lancet

Summary:

- This retrospective cohort study aimed to estimate the secondary attack rate of SARS-CoV-2 among household and non-household close contacts in Guangzhou, China, using a statistical transmission model. This is the first model that accounts for heterogeneous individual-level exposure history, potential exposure to untraced infection sources, tertiary transmission, and asymptomatic infections. Moreover, the study also examined the effects of sex, age, epidemic phase, and household size on the virus transmissibility and relative infectivity after and before the onset of the symptoms. Around 349 laboratory-confirmed SARS-CoV-2 infections were reported to Guangzhou CDC, among whom 19 (5%) individuals were asymptomatic. Contact tracing identified 195 unrelated close contact groups (134 secondary or tertiary cases, 215 primary cases, and 1964 uninfected close contacts).
- Greater infectivity was observed during infectivity throughout the incubation period than during the symptomatic period, while the difference was statistically significant. The estimated local reproductive number (R) based on observed contact frequencies of primary cases was 0·5 (95% CI 0·41–0·62) in Guangzhou. The projected local R, had there been no isolation of cases or quarantine of their contacts, was 0·6 (95% CI 0·49–0·74) when household was defined on the basis of close relatives.
- SARS-CoV-2 can be transmitted more within households and during the incubation period of COVID-19 cases. Since, pre-symptomatic and asymptomatic transmission has been observed, case-isolation alone is inadequate for mitigating this pandemic. Timely quarantine and comprehensive tracing of COVID-19 cases close contacts should be implemented to prevent onward transmission during their incubation periods.

Article 3 : GM-CSF blockade with mavrilimumab in severe COVID-19 pneumonia and systemic hyperinflammation: a single-centre, prospective cohort study

Published: the lancet

- This single-centre prospective cohort study aimed to examine whether mavrilimumab, an anti-granulocyte–macrophage colony-stimulating factor receptor-α monoclonal antibody, added to standard management, improves clinical outcomes in COVID-19 systemic hyperinflammation and pneumonia patients. Around 13 non-mechanically ventilated patients received mavrilimumab while, 26 patients were in the control group received standard care. The findings of the study offered preliminary data that mavrilimumab treatment was related with faster and greater improvement in a small population of non-mechanically ventilated patients with COVID-19-related severe pneumonia, hyperinflammation, and hypoxia, associated with a contemporaneous control cohort, with earlier discharge from the hospital and no progression to death with mavrilimumab treatment. Treatment was well tolerated. Confirmation of efficacy needs controlled testing.

Article 4 : Dexamethasone for Coronavirus Infection
Published: BMJ

- Initial findings of a clinical trial from the United Kingdom demonstrated that dexamethasone, a corticosteroid, can be lifesaving for patients who are critically ill with COVID-19. This is the first treatment to be shown to reduce mortality in COVID-19 patients requiring oxygen or ventilator support. These findings reinforce the significance of a large randomized control trial that produces actionable evidence.
- https://www.who.int/news-room/detail/16-06-2020-who-welcomes-preliminary-results-about-dexamethasone-use-in-treating-critically-ill-covid-19-patients

Article 5 : Coronavirus disease (COVID-19) advice for the public: Myth busters
Published: WHO

- The World Health Organization (WHO) has issued some guidelines to negate misconceptions among individuals regarding the current outbreak of the COVID-19. Click on the link below to get more information on some of the common myths surrounding the COVID-19.

Article 6 : Criteria for releasing COVID-19 patients from isolation
Published: WHO

- This scientific brief provides the rationale for the changes made to the clinical management of COVID-19 guidance, based on recent scientific evidence along with the updated recommendations on the criteria for discharging patients from isolation. Criteria for discharging patients from isolation (i.e., discontinuing transmission-based precautions) without requiring retesting:
- For symptomatic patients: 10 days after symptom onset, plus at least 3 additional days without symptoms (including without fever and without respiratory symptoms).
- For asymptomatic cases: 10 days after positive test for SARS-CoV-2
- For example, if a patient had symptoms for two days, then the patient could be released from isolation after 10 days + 3 = 13 days from date of symptom onset; for a patient with symptoms for 14 days, the patient can be discharged (14 days + 3 days =) 17 days after date of symptom onset; for a patient with symptoms for 30 days, the patient can be discharged (30+3=) 33 days after symptom onset).
- *Countries may choose to continue to use testing as part of the release criteria. If so, the initial recommendation of two negative PCR tests at least 24 hours apart can be used.

Article 7 : Clinical and immunological assessment of asymptomatic SARS-CoV-2 infections
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- Clinical and immunological assessment of asymptomatic SARS-CoV-2 infections
- This study examined 37 asymptomatic individuals in the Wanzhou District who were diagnosed with RT–PCR-confirmed SARS-CoV-2 infections but without any relevant clinical symptoms in the preceding 14 days and during hospitalization. The asymptomatic individuals, 81.1% (30/37) and 93.3% (28/30) had reduction in neutralizing antibody and IgG levels, respectively, during the early convalescent phase, as compared to 62.2% (23/37) and 96.8% (30/31) of symptomatic patients. Around 40% of the asymptomatic participants became seronegative and 12.9% of the symptomatic group became negative for IgG in the early convalescent phase. Furthermore, asymptomatic individuals exhibited lower level of 18 pro- and anti-inflammatory cytokines. This data indicates that asymptomatic individuals had a weaker immune response to SARS-CoV-2 infection. The reduction in IgG and neutralizing antibody levels in the early convalescent phase might have implications for serological surveys to study the true infection rate along with immunity strategy.