مركز أبوظبي
للصحة العامة
ABU DHABI PUBLIC
HEALTH CENTRE

SCIENTIFIC RESEARCH MONITORING ON COVID-19

4 JULY 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

Todays Content

The views and opinions expressed in this report are those of the authors and do not reflect the official policy or position of the Abu Dhabi Public Health Center.

Scientific Research

Public Health Response:

- Clusters of Coronavirus Disease in Communities, Japan, January–April 2020 (page 17-18)
- Cognitive Bias and Public Health Policy During the COVID-19 Pandemic (page 19)
- Applications of Digital Technology in COVID-19 Pandemic Planning and Response (page 20)

WHO Situation Report (03 July 2020)

- WHO Director-General Dr Tedros and WHO Regional Director for Europe Dr Hans Henri P. Kluge addressed the European Parliament Committee on the Environment, Public Health and Food Safety on the global response to COVID-19. “The EU is in a unique position to provide global leadership in defining the ‘new normal’ as part of the global recovery,” Dr Tedros said, though he cautioned parliamentarians that, globally, the situation “is still getting worse.”

- Regional Officer for the Americas/PAHO has released a report that presents an overview of PAHO’s response to the COVID-19 pandemic. It also provides an analysis of the epidemiological situation in the Americas and the impact of the spread of the virus on health systems in Latin America and the Caribbean.

- WHO is working with the Kenyan Ministry of Health and leveraging 21 community radio stations throughout the country to relay COVID-19 messages and conduct debates and discussions on the disease and its spread. “Community engagement is critical in this response,” says Dr Rudi Eggers, WHO Kenya Representative.

- United Nations Secretary-General’s Special Representative to Somalia, Mr. James Swan, has called for continuing international support to the Somali government’s response to COVID-19 and praised the efforts of frontline health care workers.

- WHO has released a new online course on controlling the spread of COVID-19 at ground crossings. The objectives of the course are to reduce the spread of COVID-19 resulting from travel, transportation, and trade on and around ground crossings

Epidemiology

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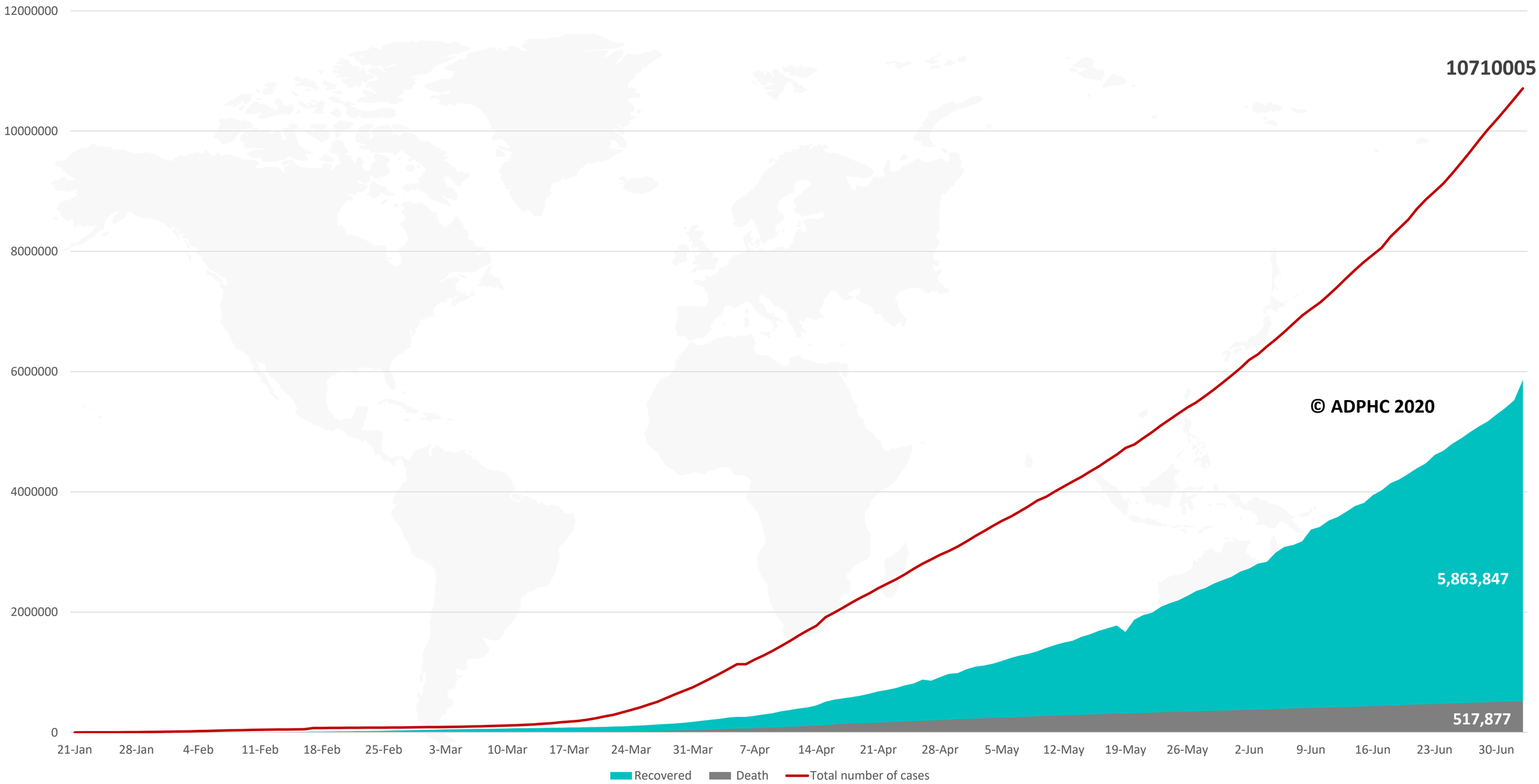
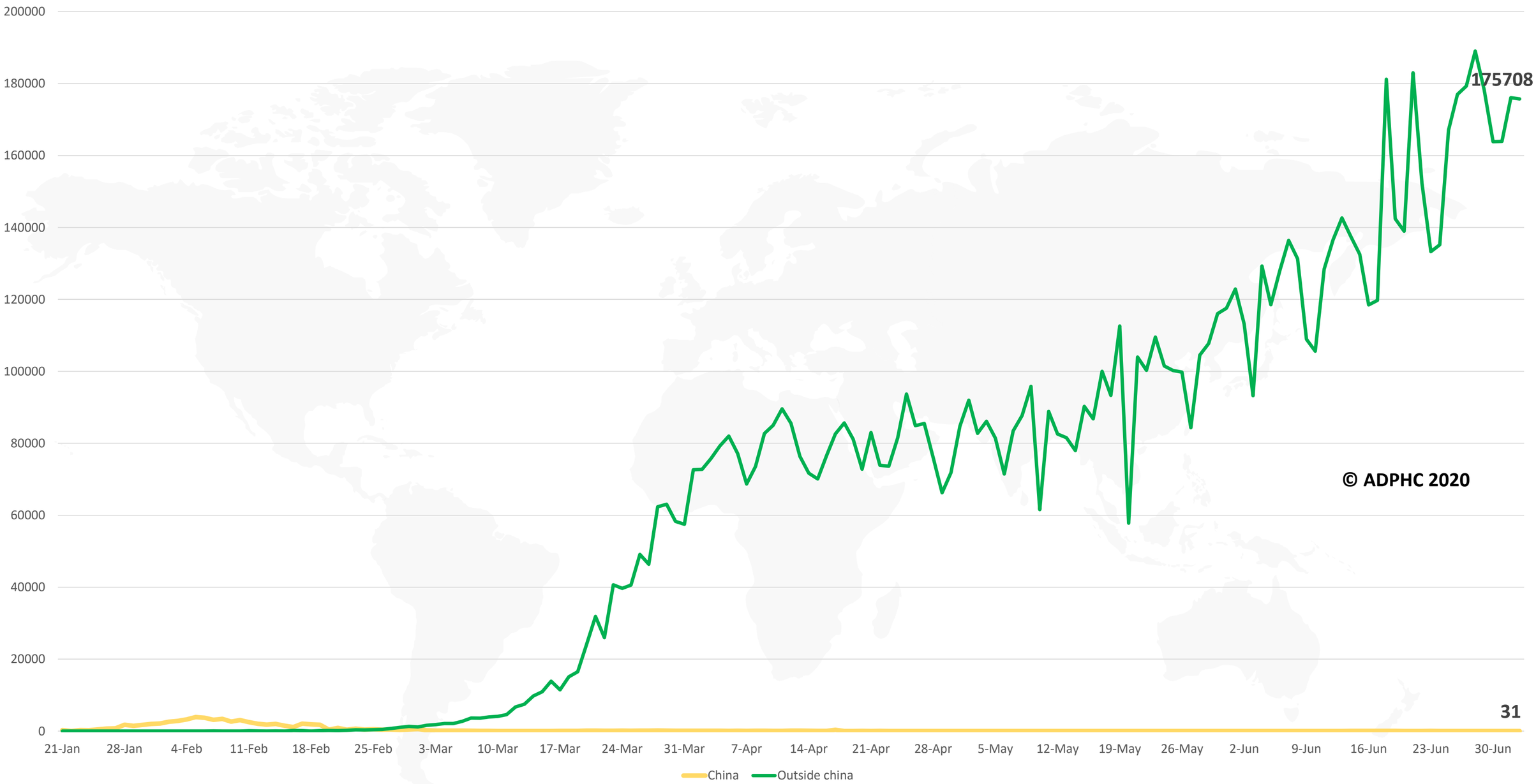
Figure 1: Total number of infected, recovered , and death cases (January 21st to July 3, 2020)



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 July 3, 2020).



Line graph published by Abu Dhabi Public Health Center 2020.

Data resources: WHO

Epidemiology

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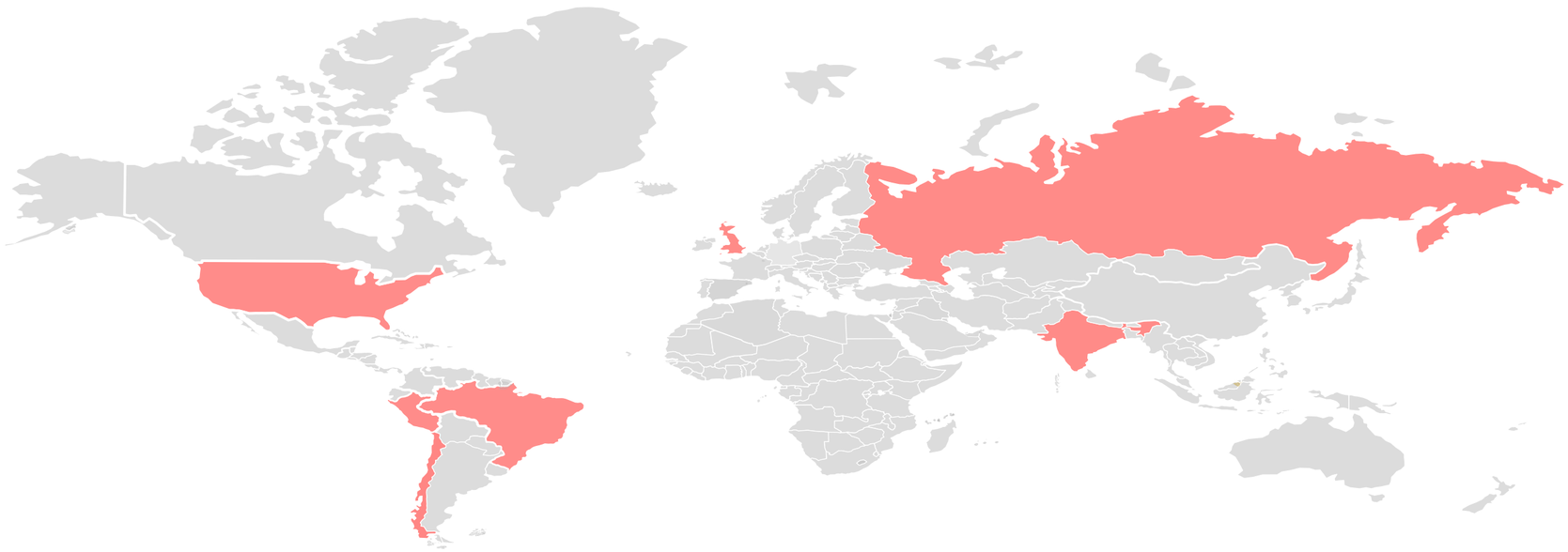
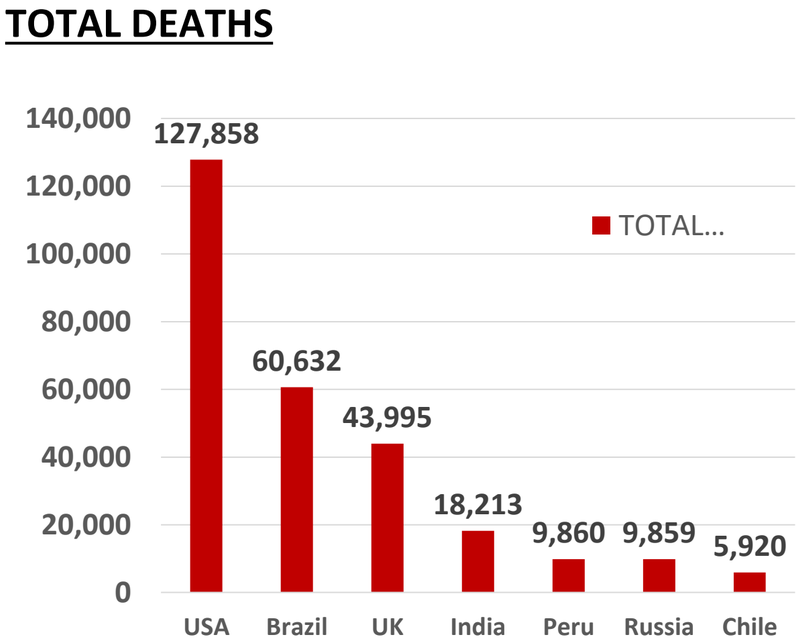
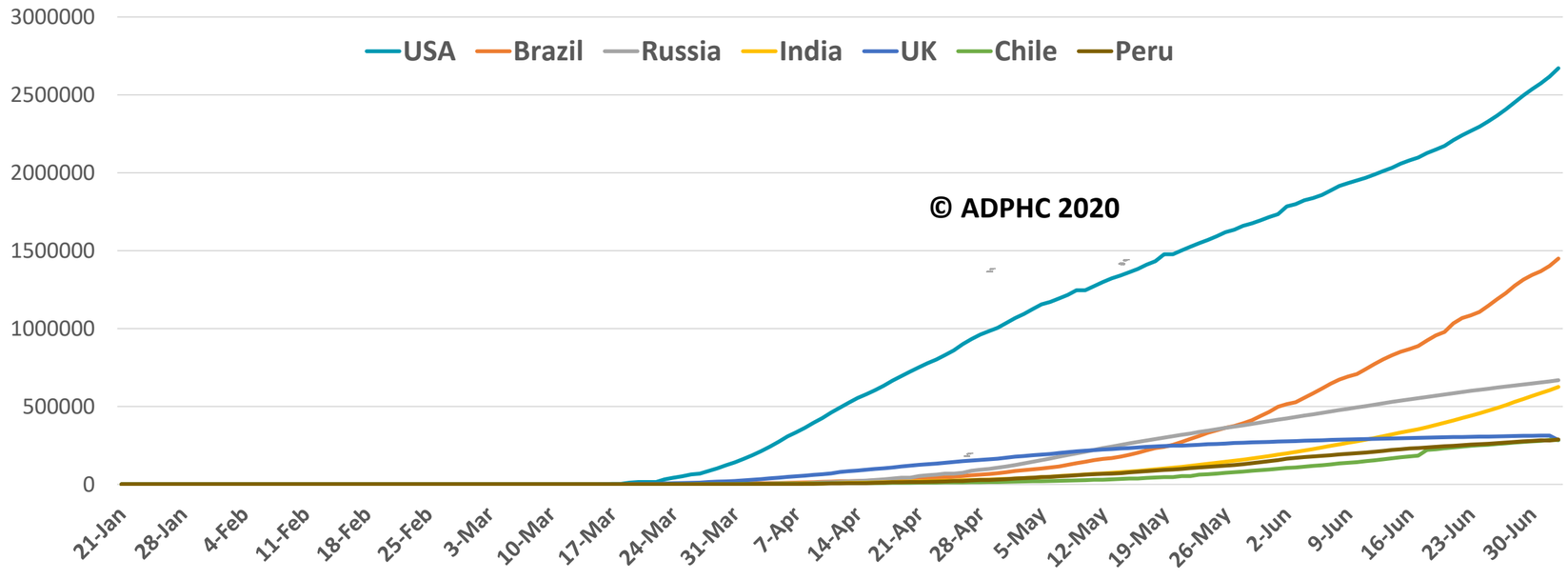
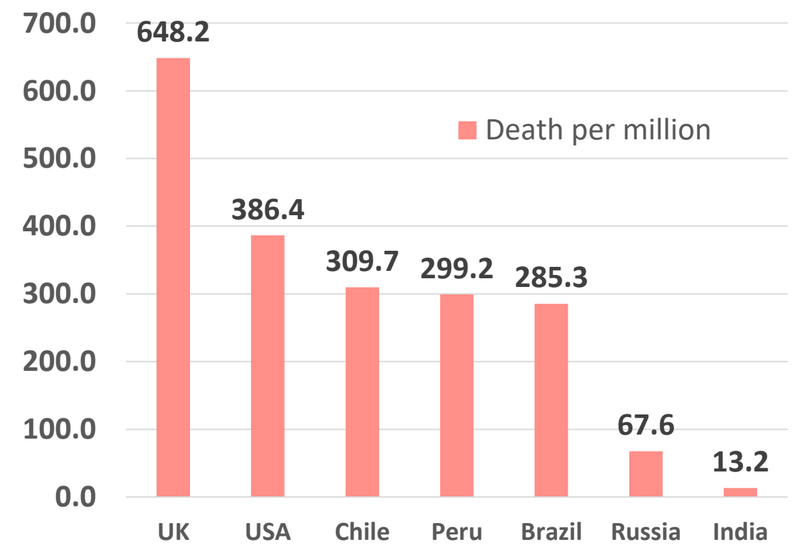
Figure 3 : Top 7 countries in the total number of cases due to COVID-19 (January 21 to July 3, 2020).









Line graph published by Abu Dhabi Public Health Center 2020.

Data resources: WHO

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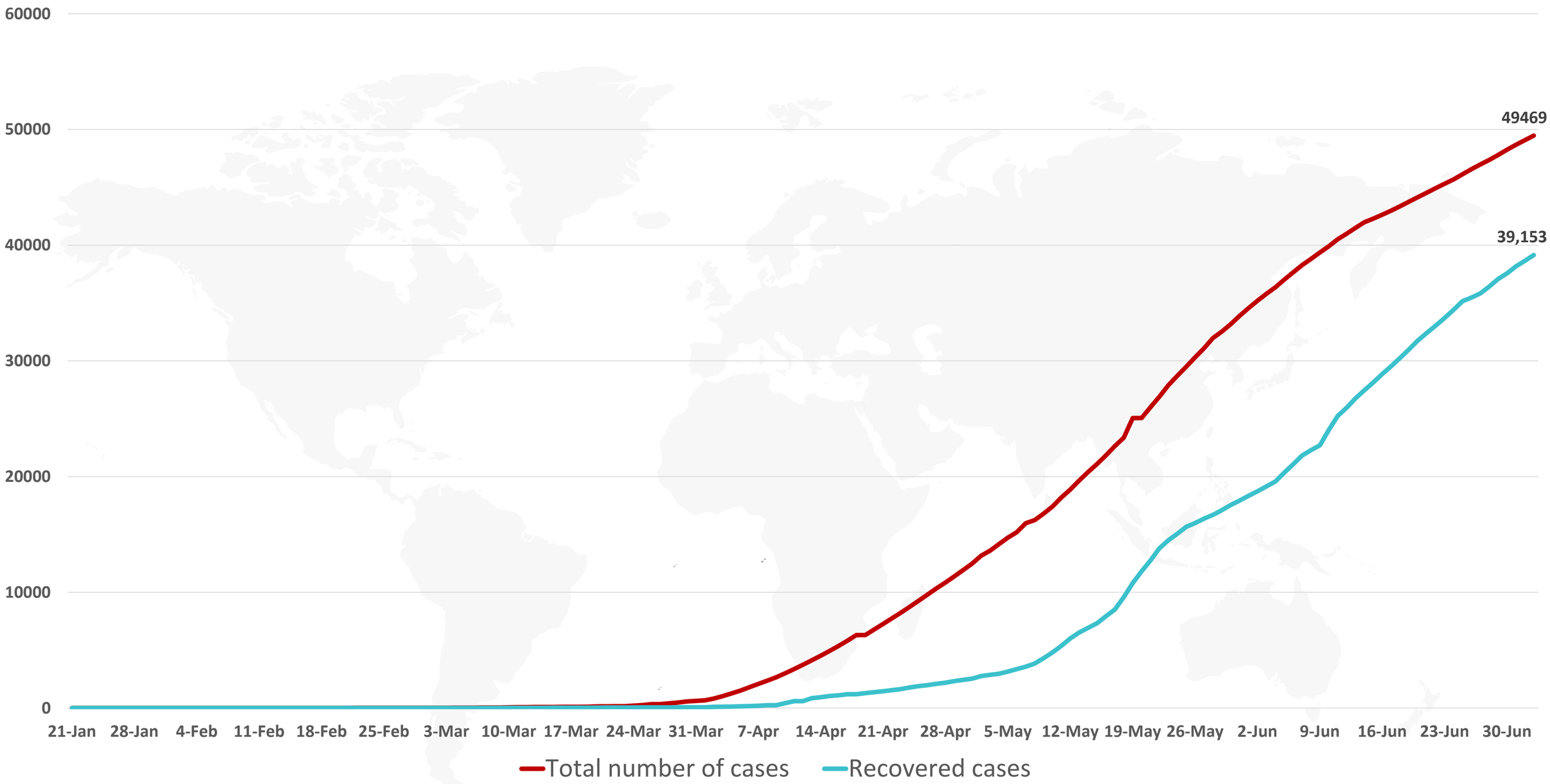
Figure 4: Total number of COVID-19 infected and recovered cases in UAE over time



Line graph published by Abu Dhabi Public Health Center 2020.

Data resources: WHO

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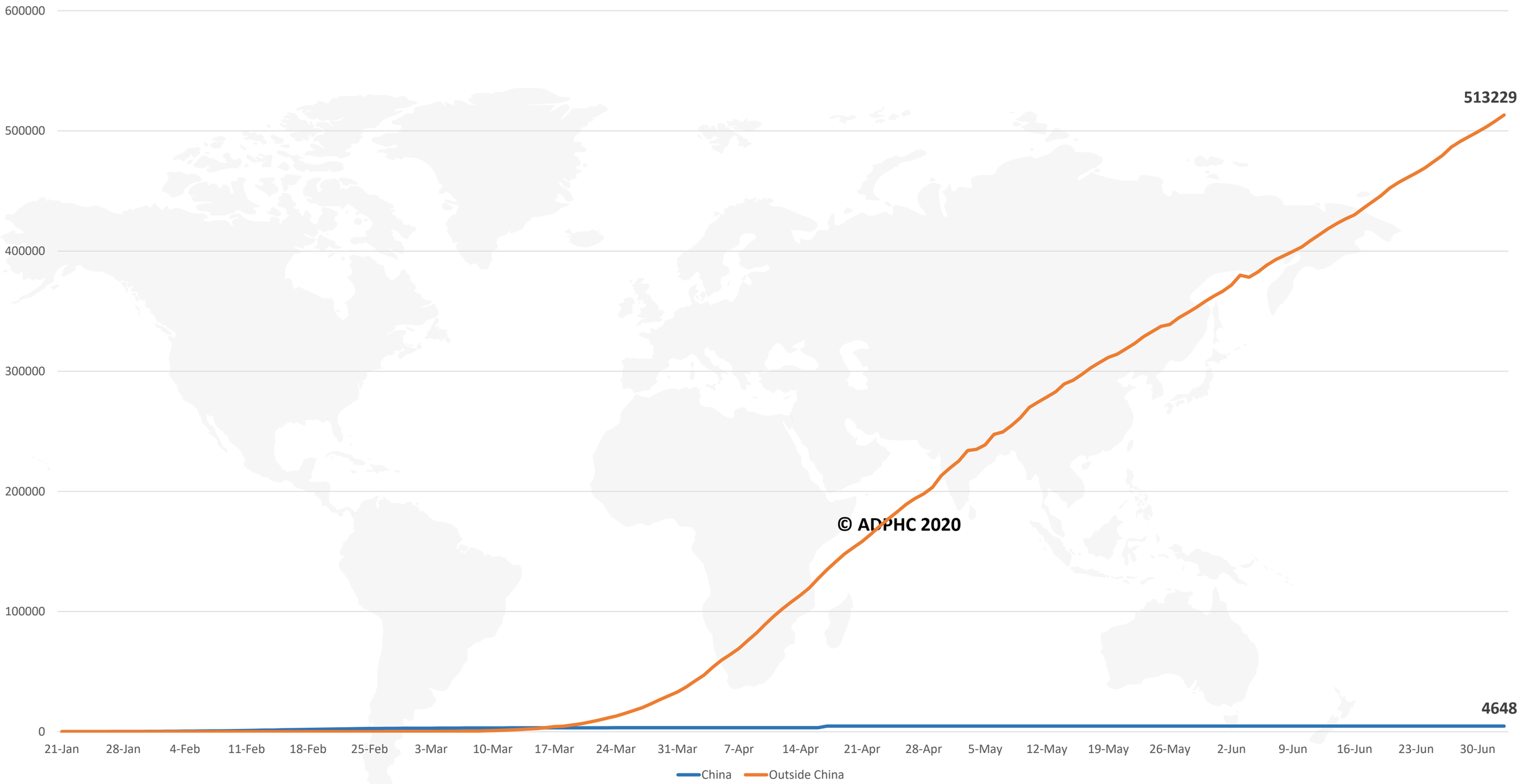
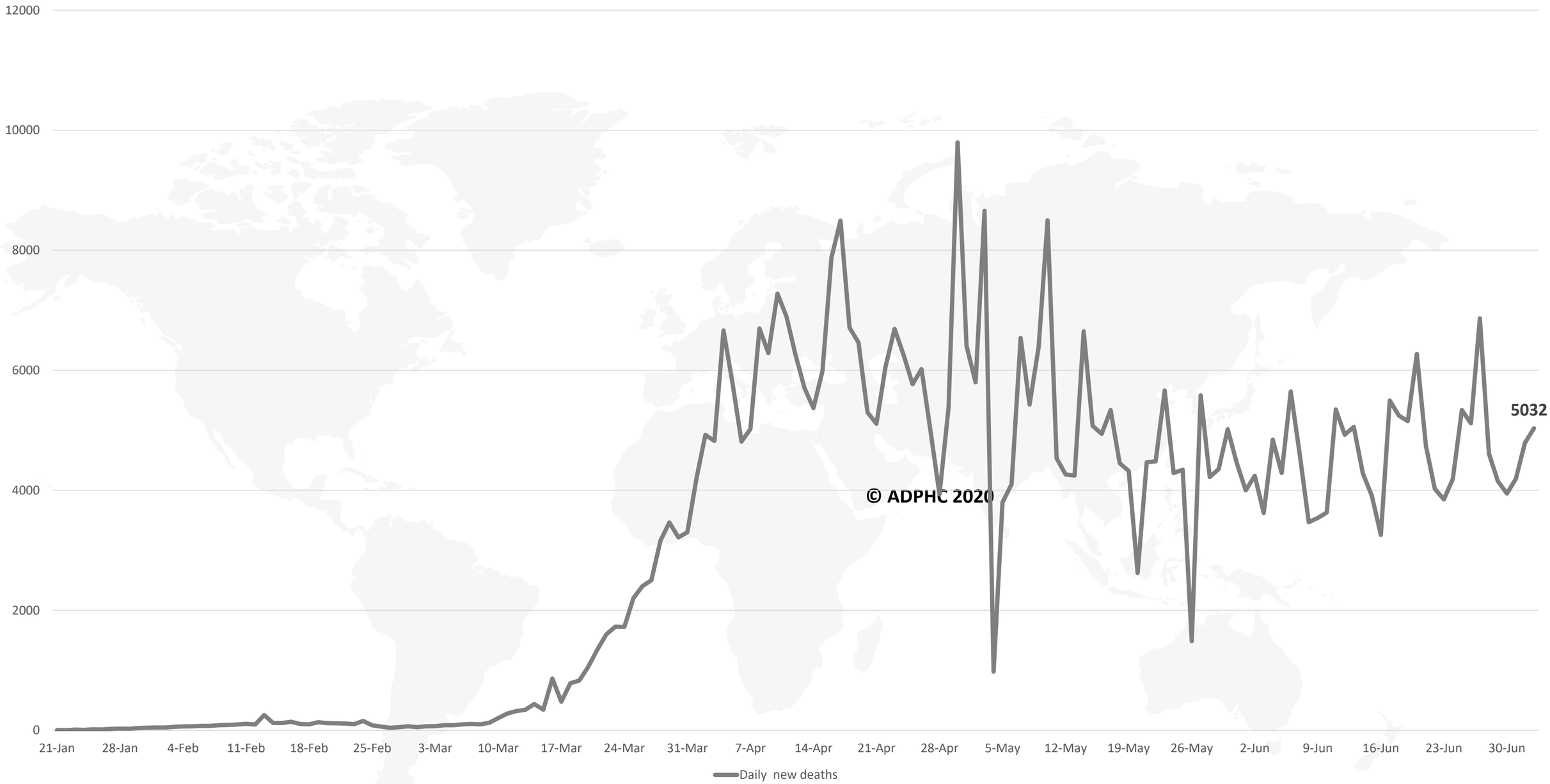
Figure 5: Total number of death due to COVID-19 reported by China and the rest of the word (January 22 to July 3, 2020).



Line graph published by Abu Dhabi Public Health Center 2020.

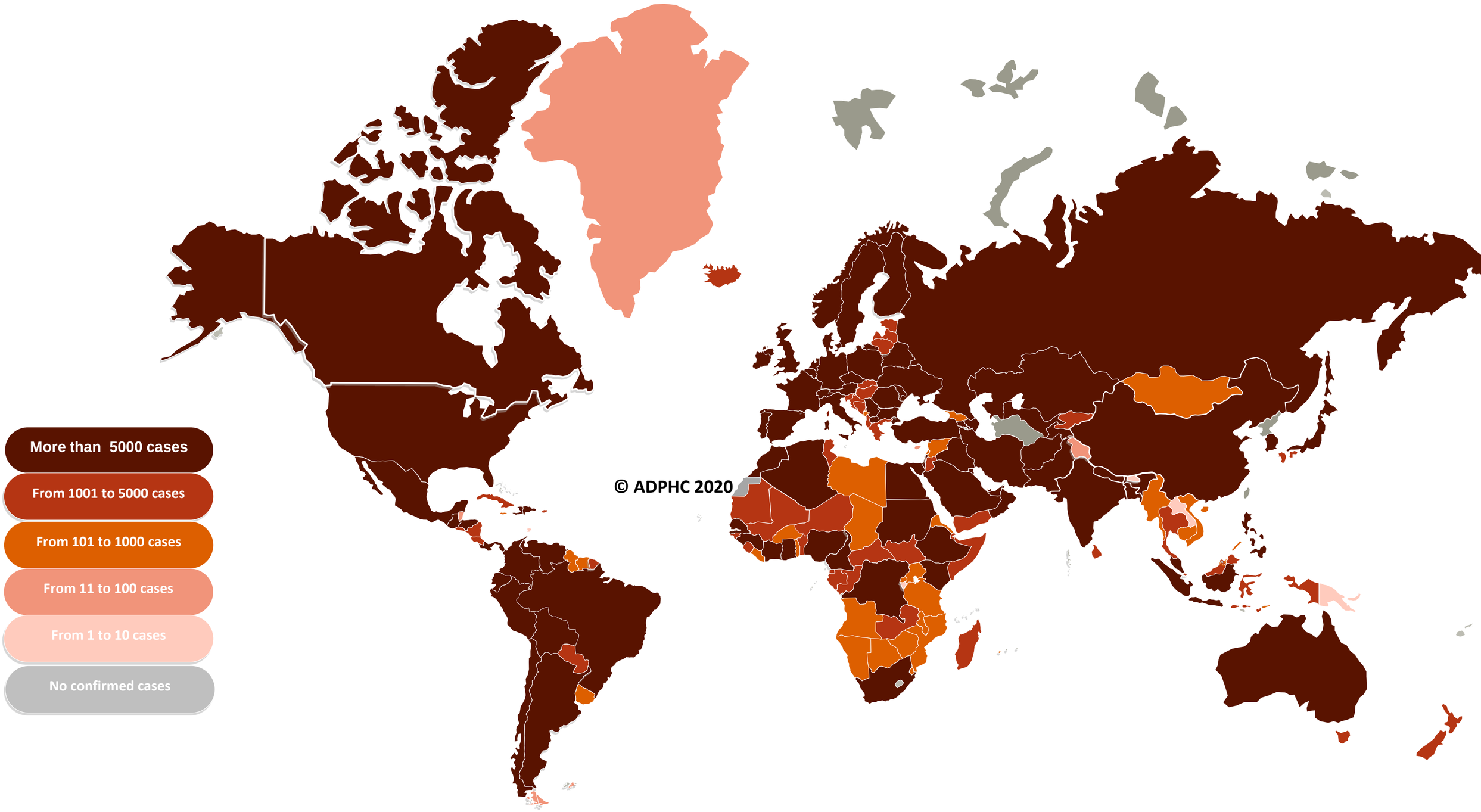
Data resources: WHO

Figure 6: Global daily new deaths due to COVID-19 (January 22 to July 3, 2020).



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

Figure 7a : Global distribution of COVID-19 cases (July 3, 2020).



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

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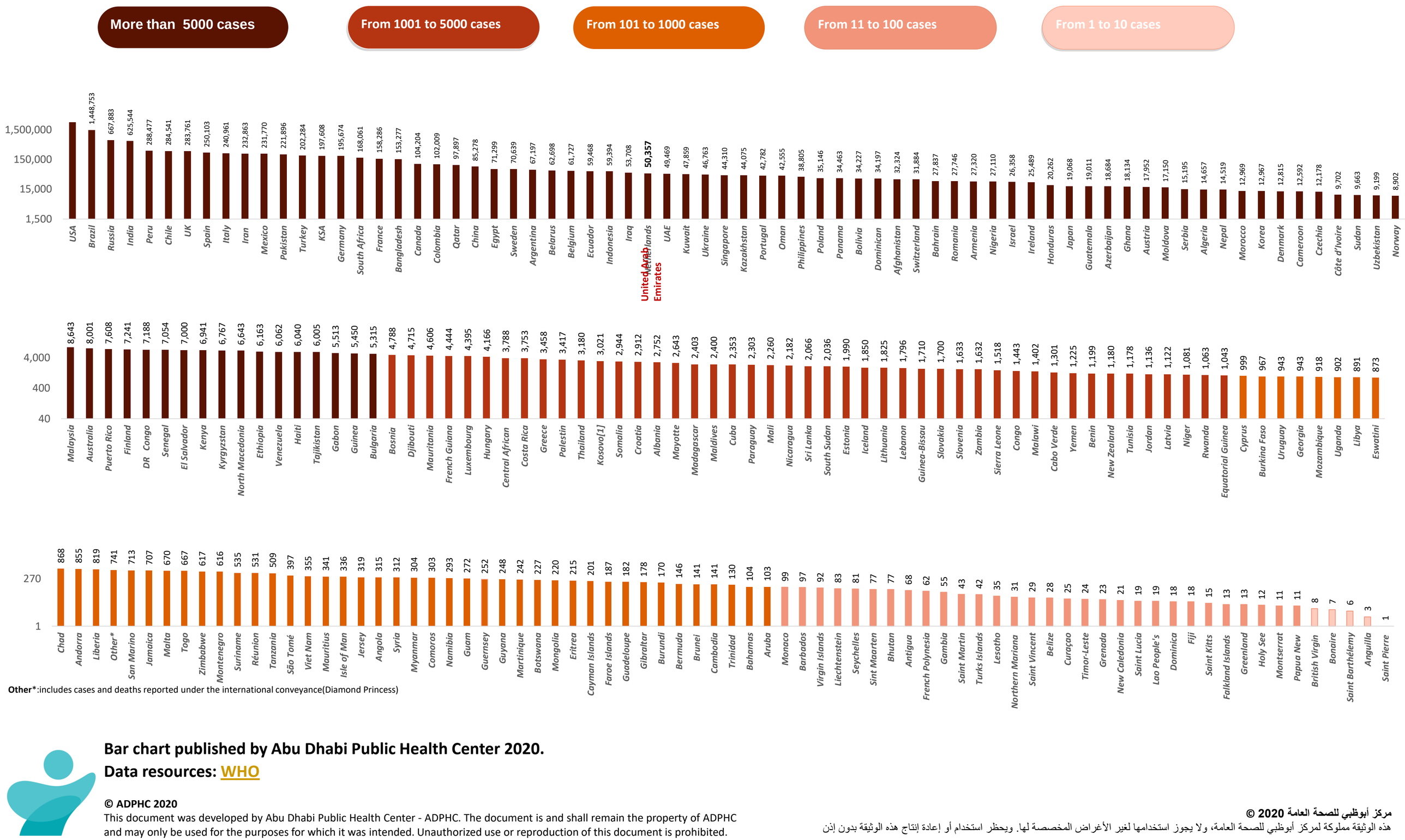
Figure 7B: Bar chart illustrate the global distribution of COVID19 cases July 3, 2020)



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

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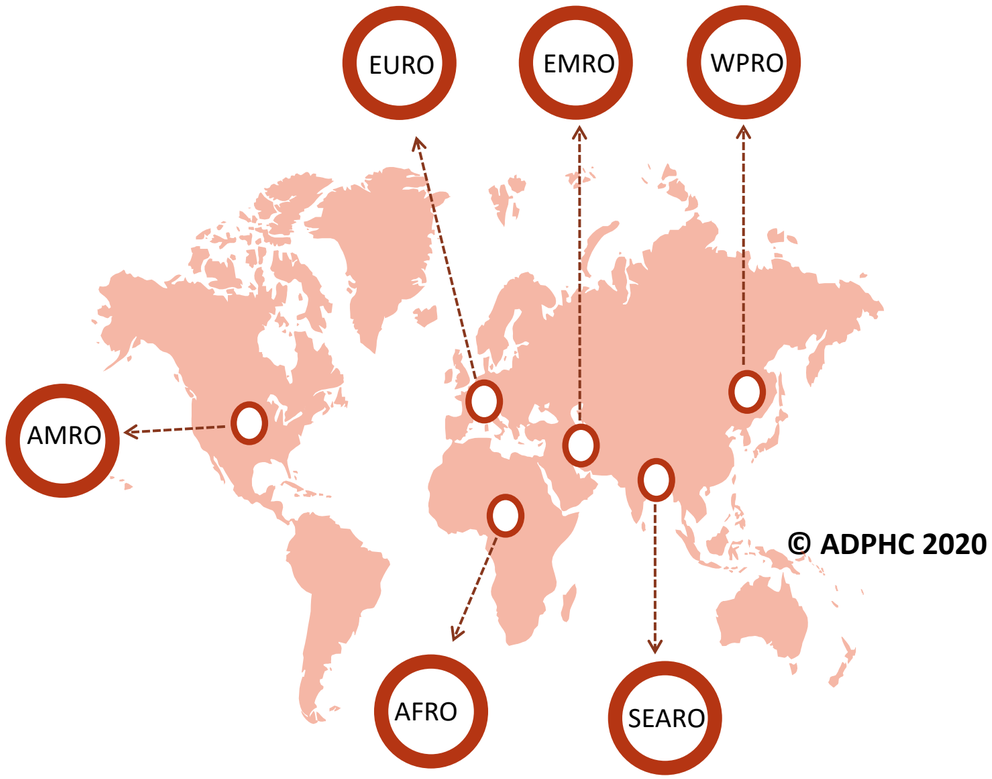
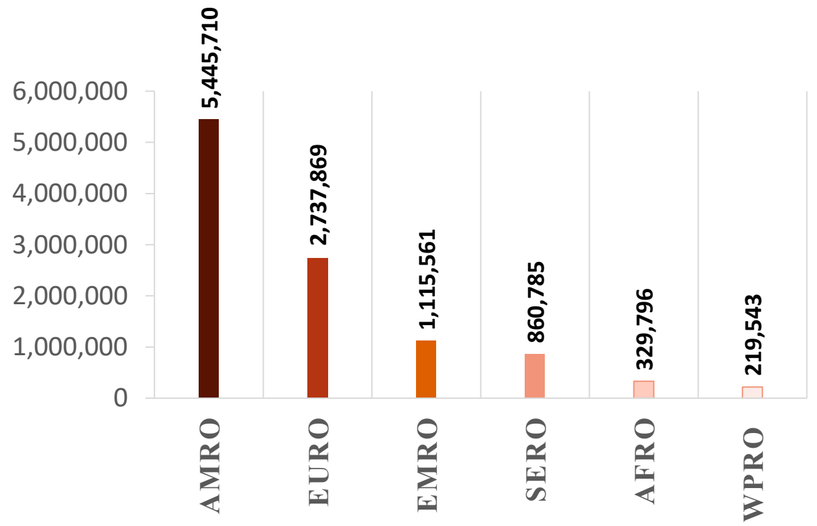
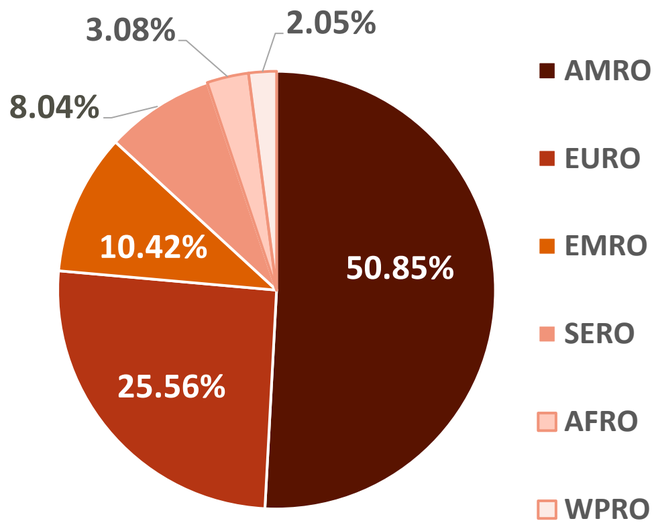
Figure 8: illustrate the Global distribution of COVID19 cases per region (July 3, 2020)

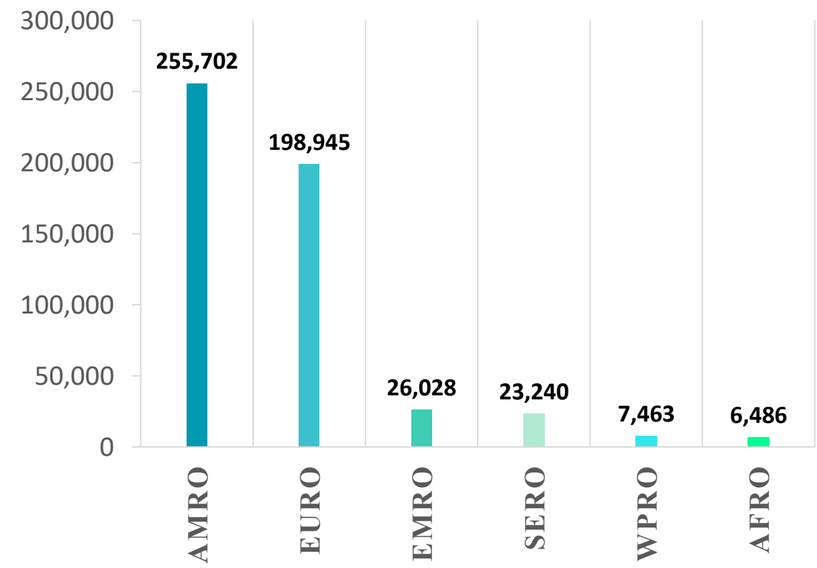


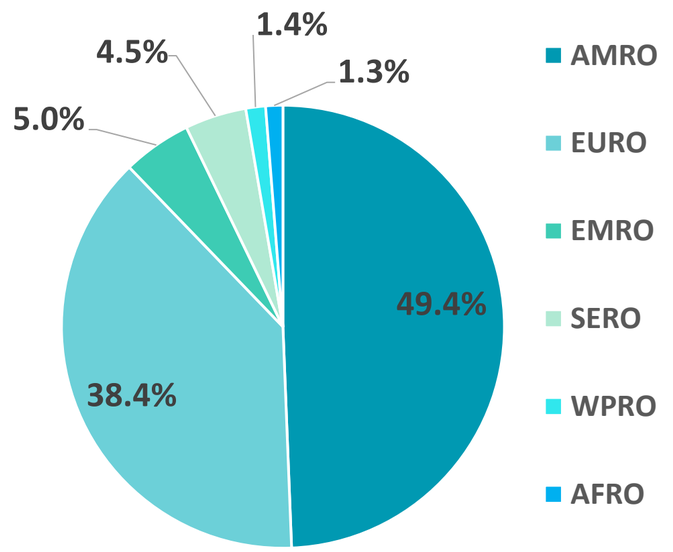
INFECTED





DEATH





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

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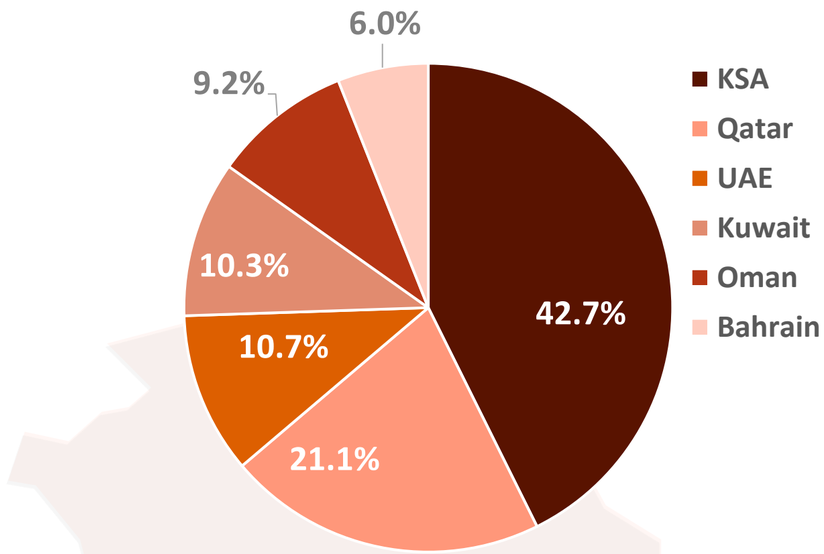
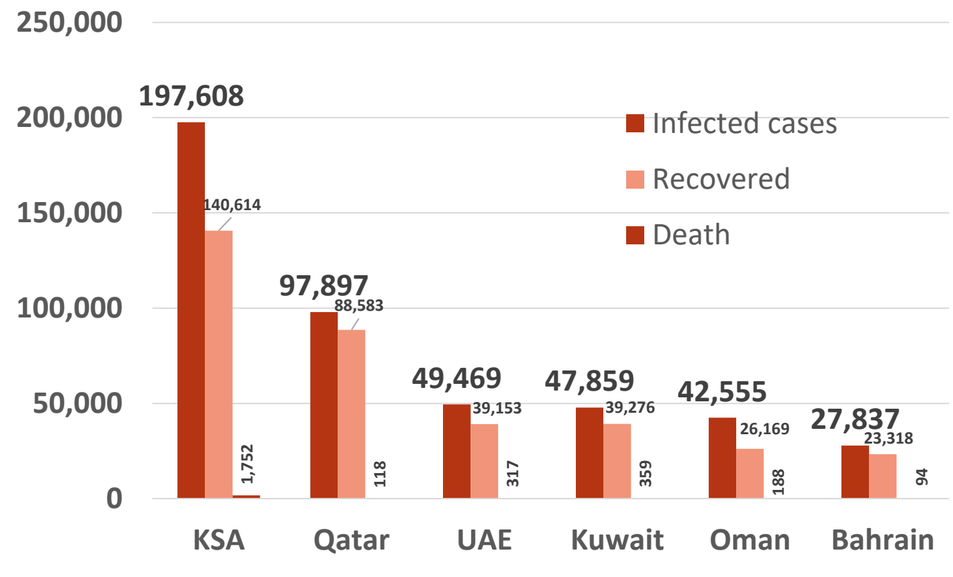
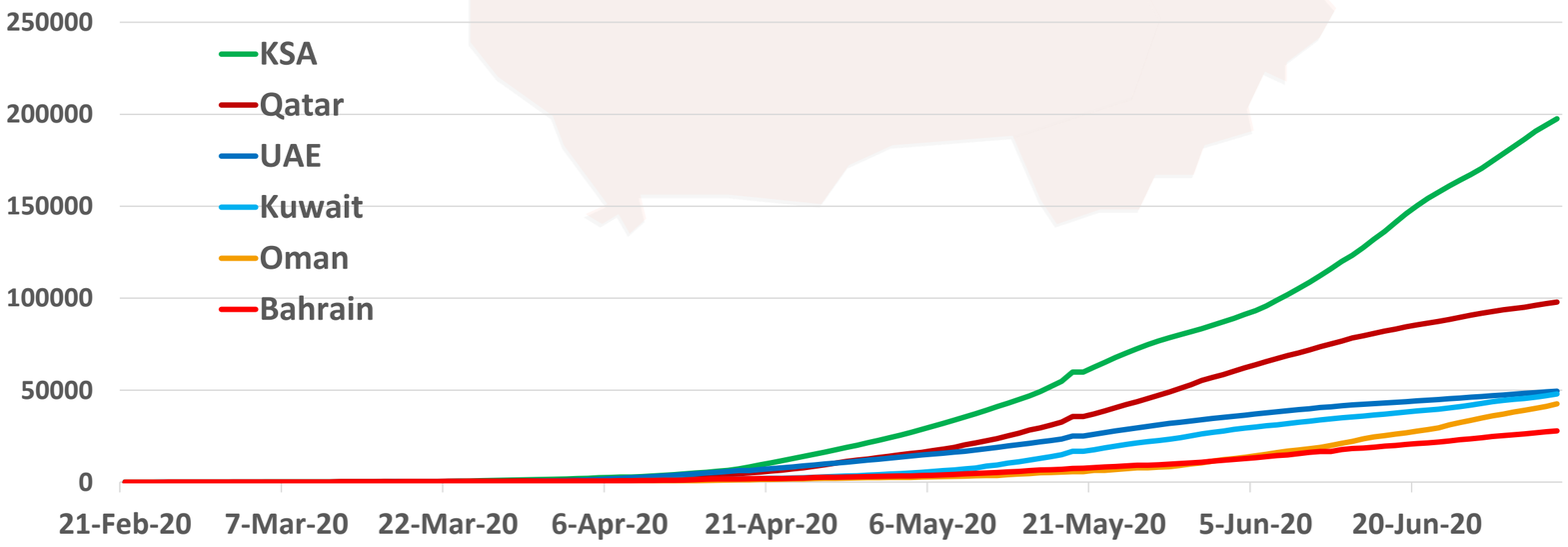
Figure 9: Comparative analysis of the distribution of COVID19 cases in GCC countries (July 3, 2020)

TOTAL NUMBER OF INFECTED CASES

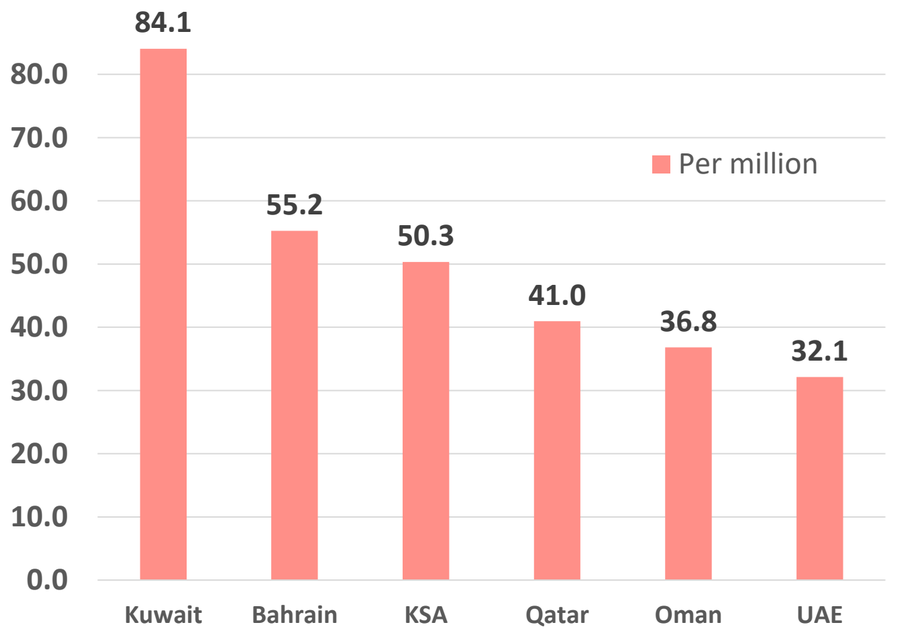


Total number of infected, recovered and Deaths





Death per million

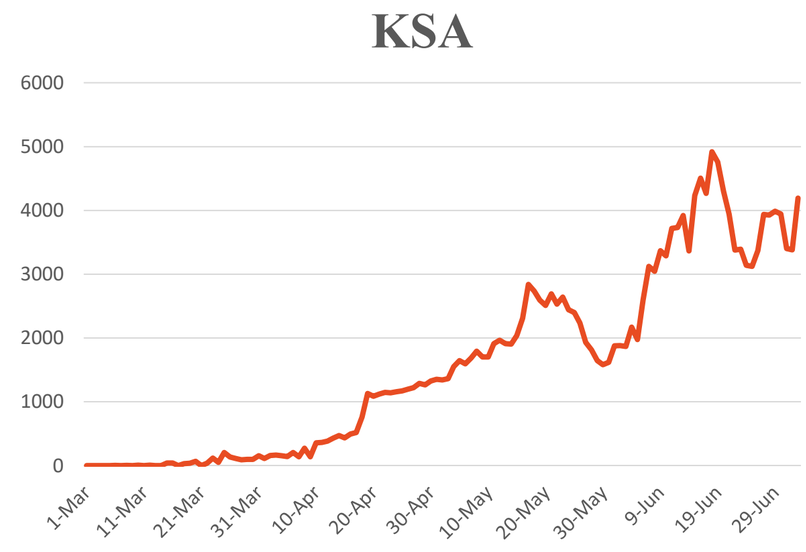


Graphs published by Abu Dhabi Public Health Center 2020.

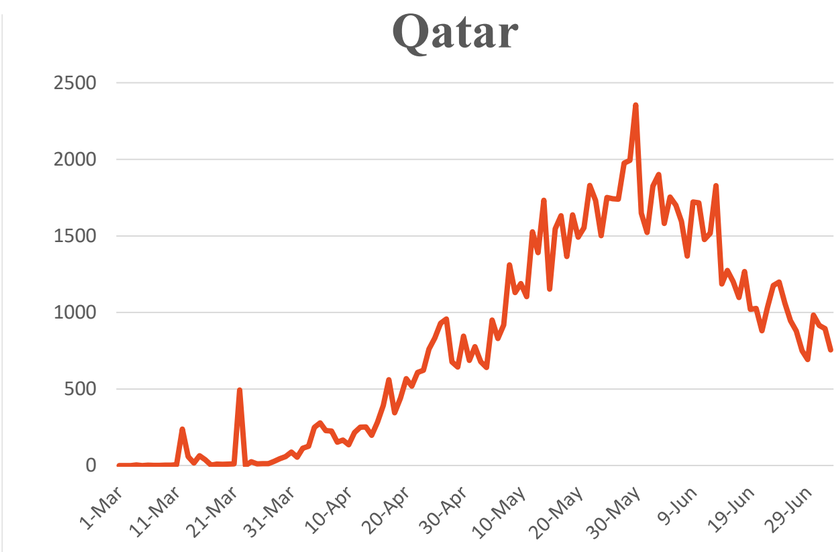
Data resources: WHO

Epidemiology

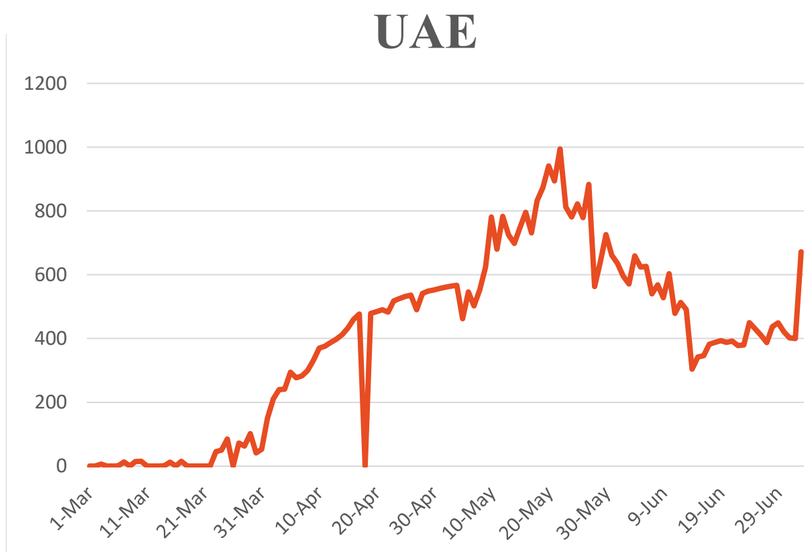
Figure 10: Comparative analysis of the distribution of COVID19 new cases in GCC countries July 3, 2020)



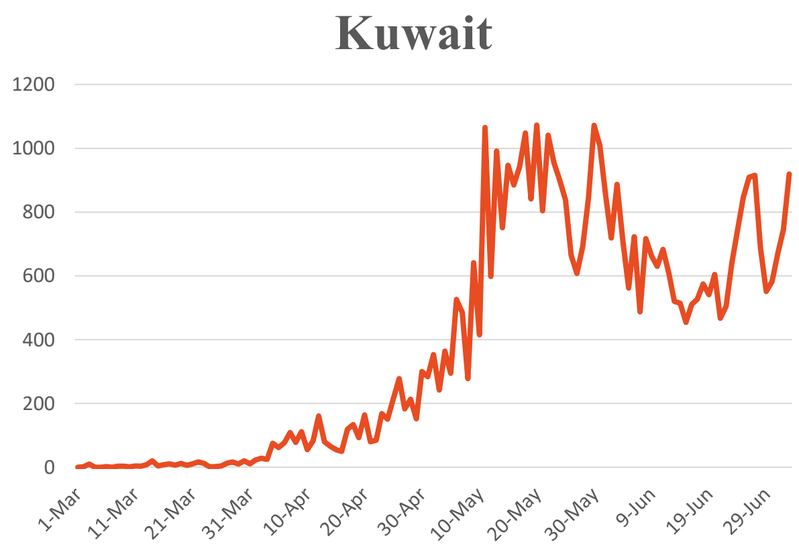
Source : KSA ministry of health



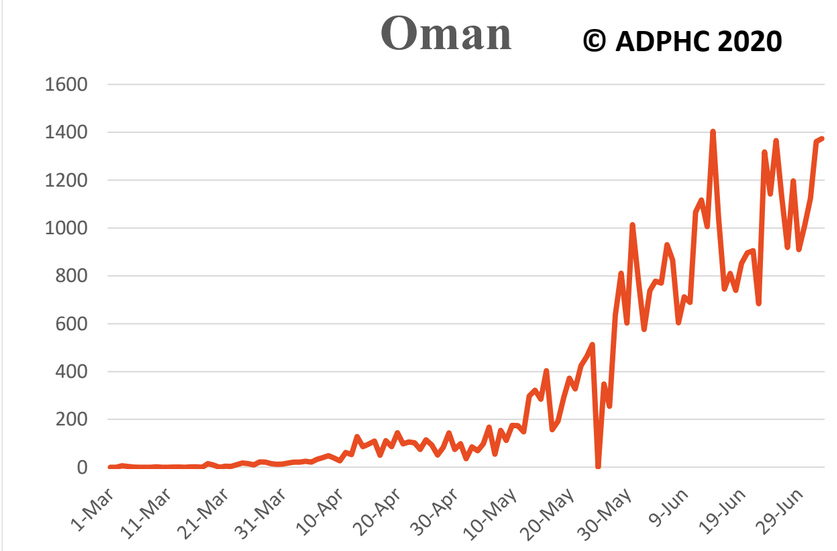
Source : Qatar ministry of health



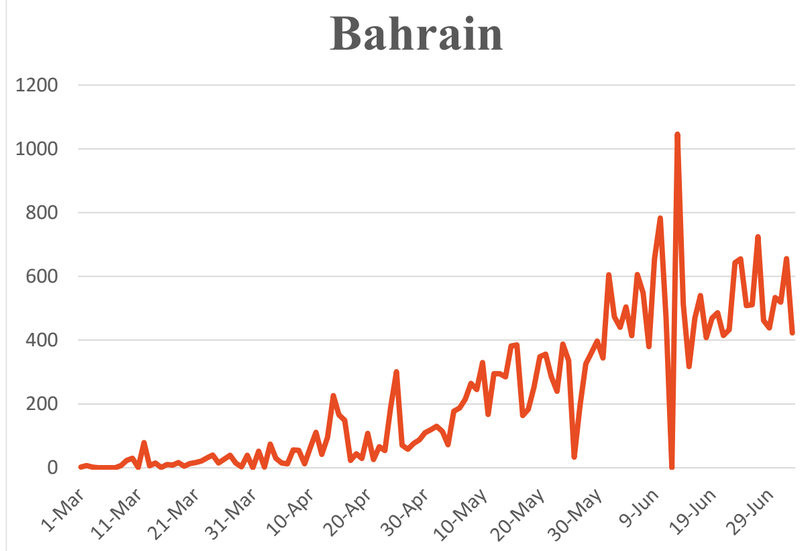
Source : National Emergency Crisis and Disaster Management Authority



Source : Kuwait ministry of health



Source :Oman ministry of health



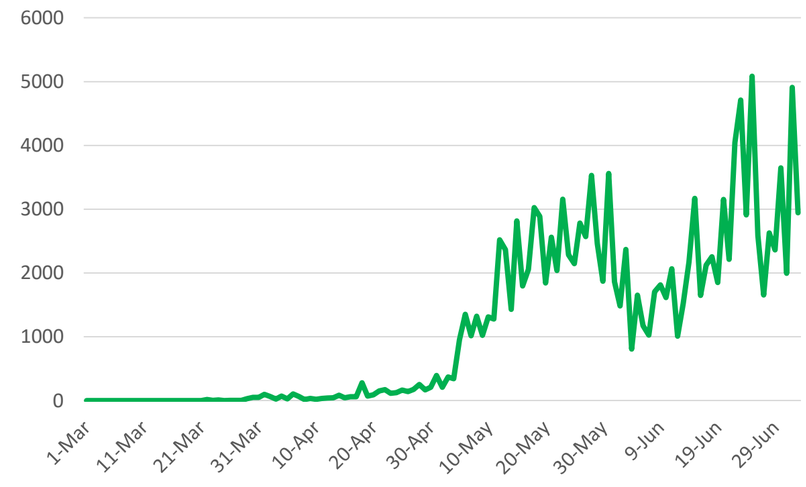
Source :WHO

Line graph published by Abu Dhabi Public Health Center 2020.

Data resources: WHO

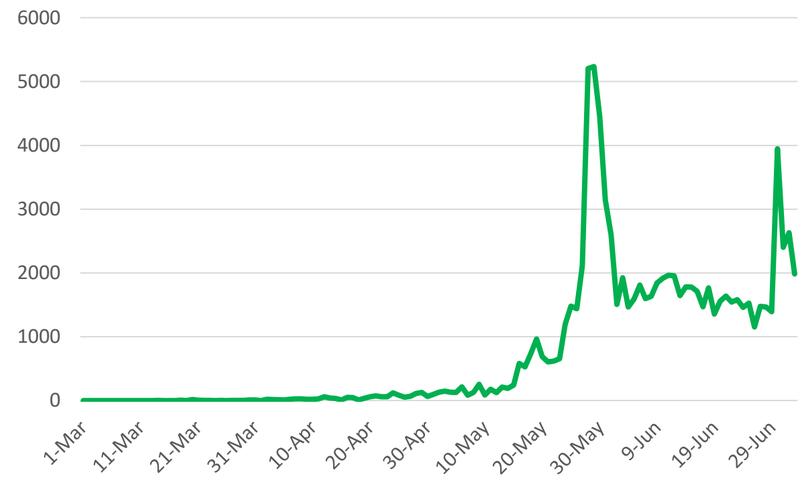
Figure 11 : Comparative analysis of the distribution of COVID19 newly recovered cases in GCC countries (July 3, 2020)

KSA



Source : KSA ministry of health

Qatar



Source : Qatar ministry of health

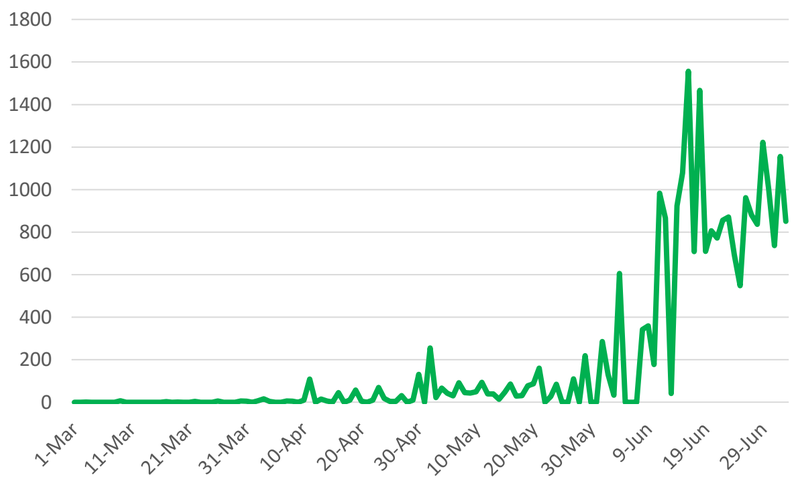
UAE

Source : National Emergency Crisis and Disaster Management Authority

Kuwait

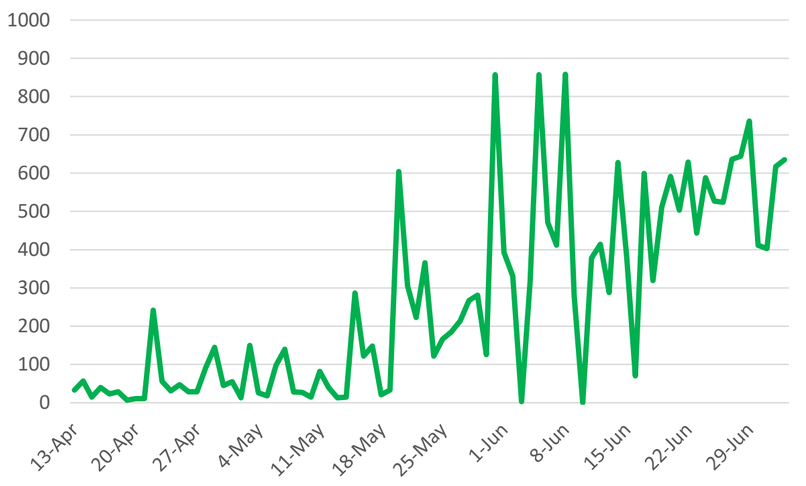
Source : Kuwait ministry of health

Oman



Source :Oman ministry of health

Bahrain



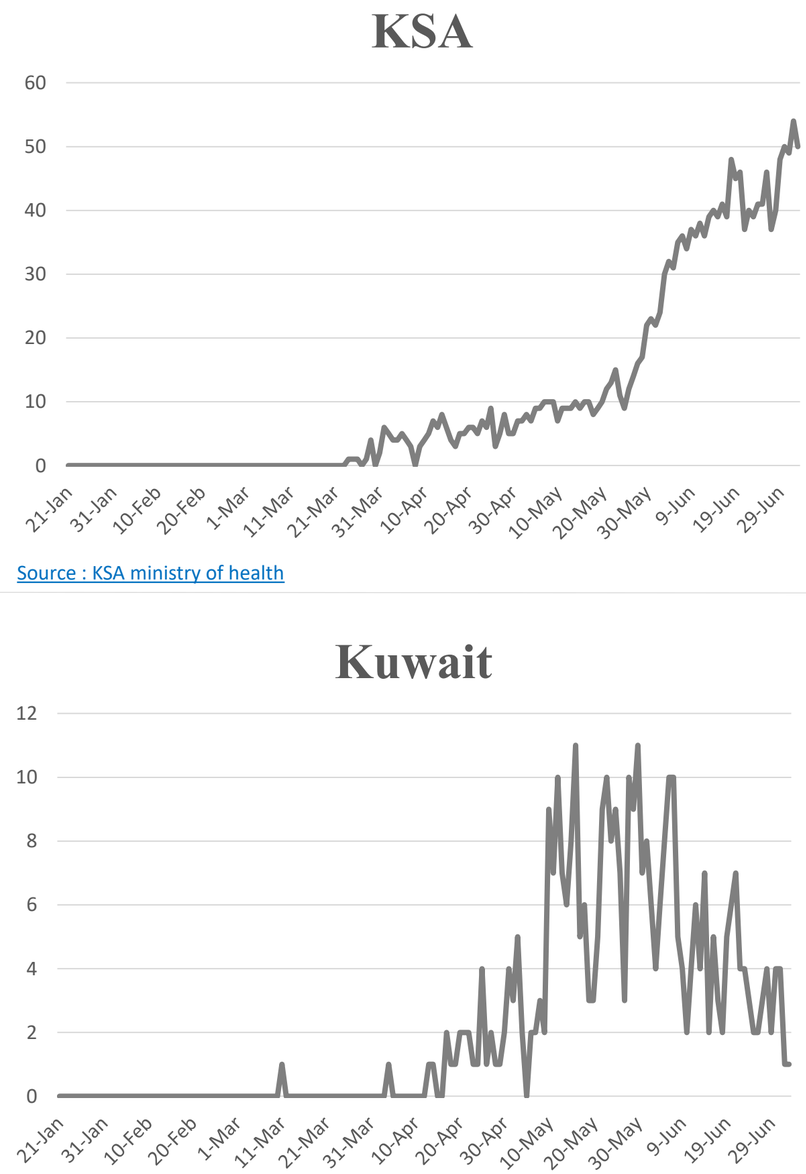
Source : GCCStat

Line graph published by Abu Dhabi Public Health Center 2020.

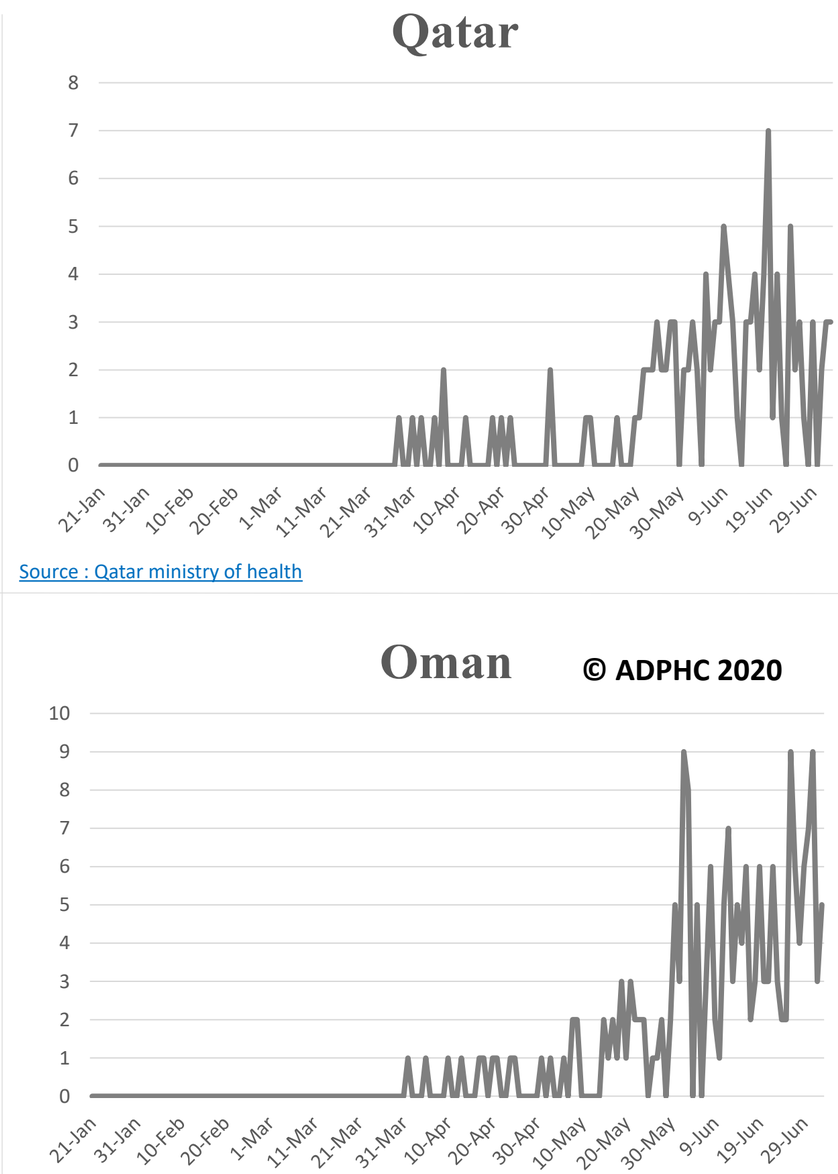
Data resources: WHO

Epidemiology

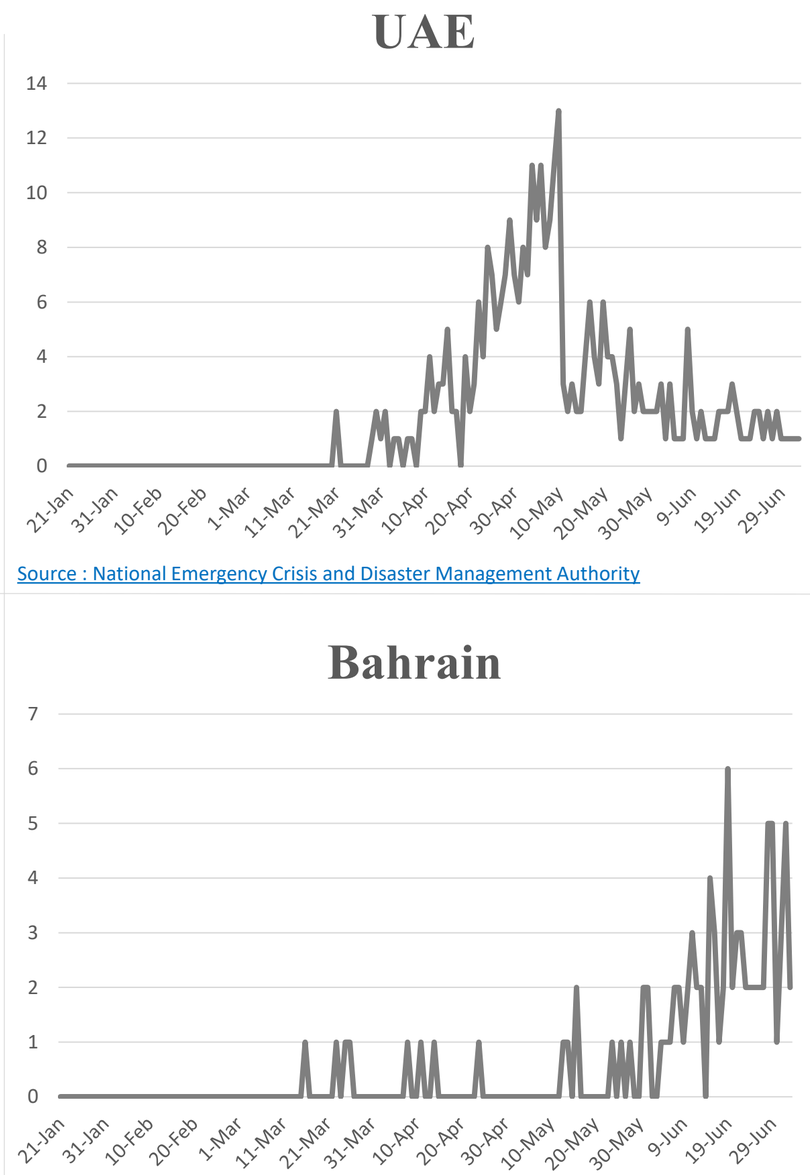
Figure 12: Comparative analysis of the distribution of COVID19 newly death cases in GCC countries (July 3, 2020)



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

Public Health Response

Article: **Clusters of Coronavirus Disease in Communities, Japan, January–April 2020**
Published: **10 April 2020** **CDC**

Summarized by subject matter expert

Summary:

Examination of the number of primary cases and clusters of COVID-19 in Japan between January and April 2020.

How the Study Was Done

- Analysis of RT-PCR confirmed cased of COVID-19 between January 15–April 4, 2020, in healthcare and other care facilities, restaurants and bars, workplaces, and music events.
- Through case interviews, local health authorities collected demographic and epidemiologic information, such as possible source of infection and contact and travel history.
- A cluster was defined as more than 5 cases with primary exposure reported at a common event or venue, excluding within-household transmissions.

What the Study Found

- 3184 laboratory-confirmed COVID-19 cases, including 309 imported cases, were reported.
- 712 cases detected on a cruise anchored at Yokohama Port, Japan, from February 3 - March 1 were excluded.
- 61 clusters in various communities were identified.
- 18 (30%) clusters from healthcare facilities.
- 10 (16%) clusters from care facilities of other types, such as nursing homes and day care centers.
- 10 (16%) clusters from restaurants or bars.
- 8 (13%) clusters from workplaces.
- 7 (11%) clusters from music-related events, such as live music concerts, chorus group rehearsals and karaoke parties.
- 5 (8%) clusters from gymnasiums.
- 2 (3%) clusters from ceremonial functions.
- 1 (2%) cluster was transportation-related in an airplane.
- Largest cluster involved more than 100 cases in a hospital, including nosocomial infections and staff infections.
- Largest non–healthcare-related cluster observed among more than 30 persons who attended a live music concert, including performers, audience members, and event staff.

Public Health Response

Article: **CONT.,**

Primary Case-Patients

- 22 probable primary case-patients were identified who had developed symptoms before they had contact with other case-patients in a cluster or who had prior epidemiologic links before contact with a cluster.
- The authors believe that these 22 case-patients contributed to the incidence of clusters.
- 41% (9/22) probable primary case-patients were female.
- The most frequently observed age groups among probable primary cases were 20–29 years (n = 6; 27%) and 30–39 years (n = 5, 23%).
- 41% (9/22) of probable primary case-patients were pre-symptomatic or asymptomatic at the time of transmission.
- 50% (11/22) of primary cases were 20–39 years of age, which is younger than the age distribution of all Covid-19 cases in Japan.
- Probable primary Covid-19 case-patients appear to transmit the virus and generate clusters even in the absence of apparent respiratory symptoms, such as cough.
- Three Cs": closed spaces with poor ventilation, crowded places, and close-contact settings could increase the risk for Covid-19 cases.
- Active case finding and detecting clusters of cases can lead to effective quarantine of close contacts and to the identification of risk factors for the formation of such clusters.

Public Health Message

- Healthcare facilities, such as hospitals, and care facilities, such as nursing homes, were the primary sources of clusters, some of which had more than 100 cases.
- Many Covid-19 clusters were associated with heavy breathing in close proximity, such as singing at karaoke parties, cheering at clubs, having conversations in bars, and exercising in gymnasiums.

Public Health Response

Article 2: **Cognitive Bias and Public Health Policy During the COVID-19 Pandemic**
Published: **29 June 2020 JAMA**

Summary:

Cognitive biases (identifiable lives and optimism bias, present bias, and omission bias) distracts government leaders from optimal public health policy making and citizens from taking steps to promote their own and others interests and may have been evolutionarily selected.

- Identifiable Lives and Optimism Bias:
  - Effective policy making is the 'identifiable victim effect'. Humans respond more aggressively to threats to identifiable lives (e.g. family member) than to hidden statistical deaths reported during a crisis. Humans are inspired with a strong and neutrally mediated tendency to predict outcomes that are systematically more optimistic than observed outcomes (optimism bias).

- Present Bias:
  - Humans are present biased - individuals tend to prefer immediate benefits to larger benefits in the future.

- Omission Bias:
  - This involves the tendency to prefer that harm occurs by failure to act rather than direct consequence of actions that are taken.

- Important goal of governance is to alleviate the effects of biases on public policy and to communicate reasons for difficult decisions to the public:
  - Had governments better understood the 'identifiable victim effect' they may have realize that promoting flattening the curve as a way to reduce pressure on hospitals would be less effective than promoting early restaurant and retail store closures
  - Leaders support for heavily funding contact tracing could have been generated by communicating such efforts as 'lifesaving'
  - Government leaders could force their own present bias by passing laws that require estimating the effects on lives saved or life years gained over several years to justify policy responses. In addition, they could improve adherence to measures such as mandatory quarantining by promoting future thinking among their electorates

Public Health Response

Article : **Applications of Digital Technology in COVID-19 Pandemic Planning and Response**

Published: **29 June 2020** **The Lancet**

Summary:

Digital technology can assist pandemic preparedness and response in ways that are difficult to achieve manually. This article provides a framework for application of digital technologies in pandemic preparedness and response, highlighting ways in which successful countries have adopted and integrated these technologies for pandemic planning, surveillance, testing, contact tracing, quarantine, and health care. Countries that have utilized digital technologies to facilitate planning, surveillance, testing, contact tracing, quarantine, and clinical management have remained front runners in managing disease burden.

	Functions	Digital technology	Countries	Advantages	Disadvantages
Tracking	Tracks disease activity in real time	Data dashboards; migration maps; machine learning; real-time data from smartphones and wearable technology	China; Singapore; Sweden; Taiwan; USA	Allows visual depiction of spread; directs border restrictions; guides resource allocation; informs forecasts	Could breach privacy; involves high costs; requires management and regulation
Screening for infection	Screens individuals and populations for disease	Artificial intelligence; digital thermometers; mobile phone applications; thermal cameras; web-based toolkits	China; Iceland; Singapore; Taiwan	Provides information on disease prevalence and pathology; identifies individuals for testing, contact tracing, and isolation	Could breach privacy; fails to detect asymptomatic individuals if based on self-reported symptoms or monitoring of vital signs; involves high costs; requires management and regulation; requires validation of screening tools
Contact tracing	Identifies and tracks individuals who might have come into contact with an infected person	Global positioning systems; mobile phone applications; real-time monitoring of mobile devices; wearable technology	Germany; Singapore; South Korea	Identifies exposed individuals for testing and quarantine; tracks viral spread	Could breach privacy; might detect individuals who have not been exposed but have had contact; could fail to detect individuals who are exposed if the application is deactivated, the mobile device is absent, or Wi-Fi or cell connectivity is inadequate
Quarantine and self-isolation	Identifies and tracks infected individuals, and implements quarantine	Artificial intelligence; cameras and digital recorders; global positioning systems; mobile phone applications; quick response codes	Australia; China; Iceland; South Korea; Taiwan	Isolates infections; restricts travel	Violates civil liberties; could restrict access to food and essential services; fails to detect individuals who leave quarantine without devices
Clinical management	Diagnoses infected individuals; monitors clinical status; predicts clinical outcomes; provides capacity for telemedicine services and virtual care	Artificial intelligence for diagnostics; machine learning; virtual care or telemedicine platforms	Australia; Canada; China; Ireland; USA	Assists with clinical decision-making, diagnostics, and risk prediction; enables efficient service delivery; facilitates patient-centred, remote care; facilitates infection control	Could breach privacy; fails to accurately diagnose patients; involves high costs; equipment may malfunction

Table: **Digital technology initiatives used in pandemic preparedness and response**

THANK YOU

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