ABU DHABI PUBLIC HEALTH CENTRE | مركز أبوظبي للصحة العامة

Scientific Research Monitoring on COVID-19

10 April 2020

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.
- 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

Clinical feature and transmission: Prediction models for diagnosis and prognosis of COVID-19 infection showed prognosis predictors are age, sex, features derived from CT scans, C-reactive protein, lactic dehydrogenase and lymphocyte count.

Public health response: Article summarizes lessons to learn for Italy's response to COVID19

Public Health Response: review of school closure stated in case of longer periods of quarantine and social distancing measures, schools remaining open only for the children of health-care and other essential workers might be a better strategy to implement for policy makers.

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

- **We Signed Up for This!" — Student and Trainee Responses to the Covid-19 Pandemic**
- **Critical Illness in Patients With COVID-19**
- **Screening and Severity of Coronavirus Disease 2019 (COVID-19) in Children in Madrid, Spain**

WHO daily report

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WHO daily report

- No new country/territory/area reported cases of COVID-19 in the past 24 hours.
- The daily situation report will now report the COVID-19 transmission scenario for each country using the definitions published in the updated global surveillance guidance published on 20 March. Transmission scenarios are self-reported by Member States to WHO. The determination of transmission scenario is still pending for some Member States. The transmission scenarios are no confirmed cases, sporadic cases, clusters of cases, and community transmission.
- As millions of Christians, Jews and Muslims celebrate Easter, Passover and Ramadan, WHO has released guidance for religious leaders and faith-based communities in the context of COVID-19.
  - Sharing evidence-based information about COVID-19, preparedness, and response
  - Avoiding large group gatherings and conducting rituals and faith-related activities remotely/virtually, as required and whenever possible
  - Ensuring that any decision to convene group gatherings for worship, education, or social meetings is based on a sound risk assessment and in line with guidance from national and local authorities
  - Ensuring safe faith-based gatherings, ceremonies, and rituals when they do occur
  - Strengthening mental and spiritual health, well-being and resilience, through individual contact (while observing appropriate physical distancing) and through social and other communications media
  - Ensuring a human-rights-based approach to advocacy, messaging and service delivery
  - Addressing stigma, violence, and the incitement of hate
  - Promoting ecumenical and interfaith collaboration, and peaceful coexistence during the COVID-19 pandemic
  - Ensuring that accurate information is shared with communities; and misinformation in addressed.

- Today marks 100 days since WHO was notified of the first cases of “pneumonia with unknown cause” in China.

Epidemiology

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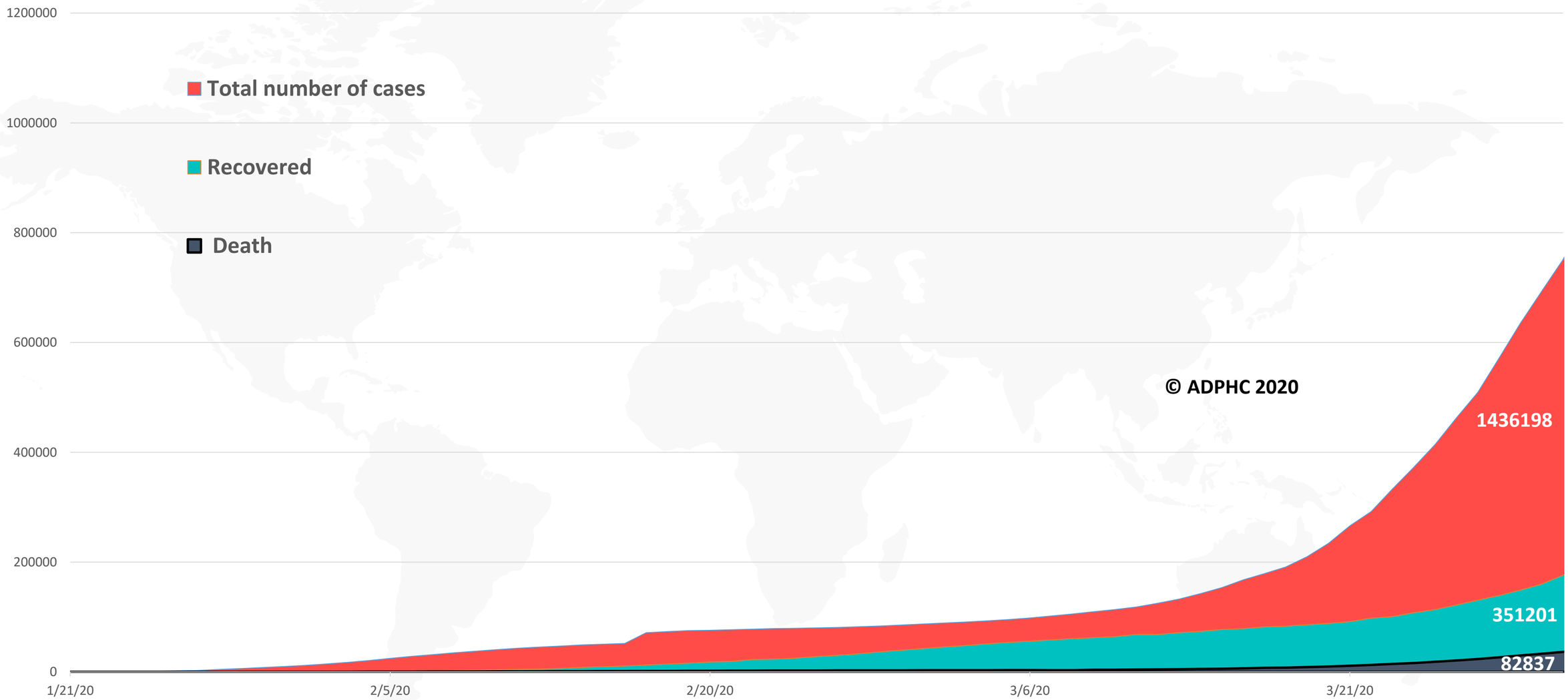
Figure 1: Total number of infected, recovered , and death cases (January 21st to April 9th , 2020)

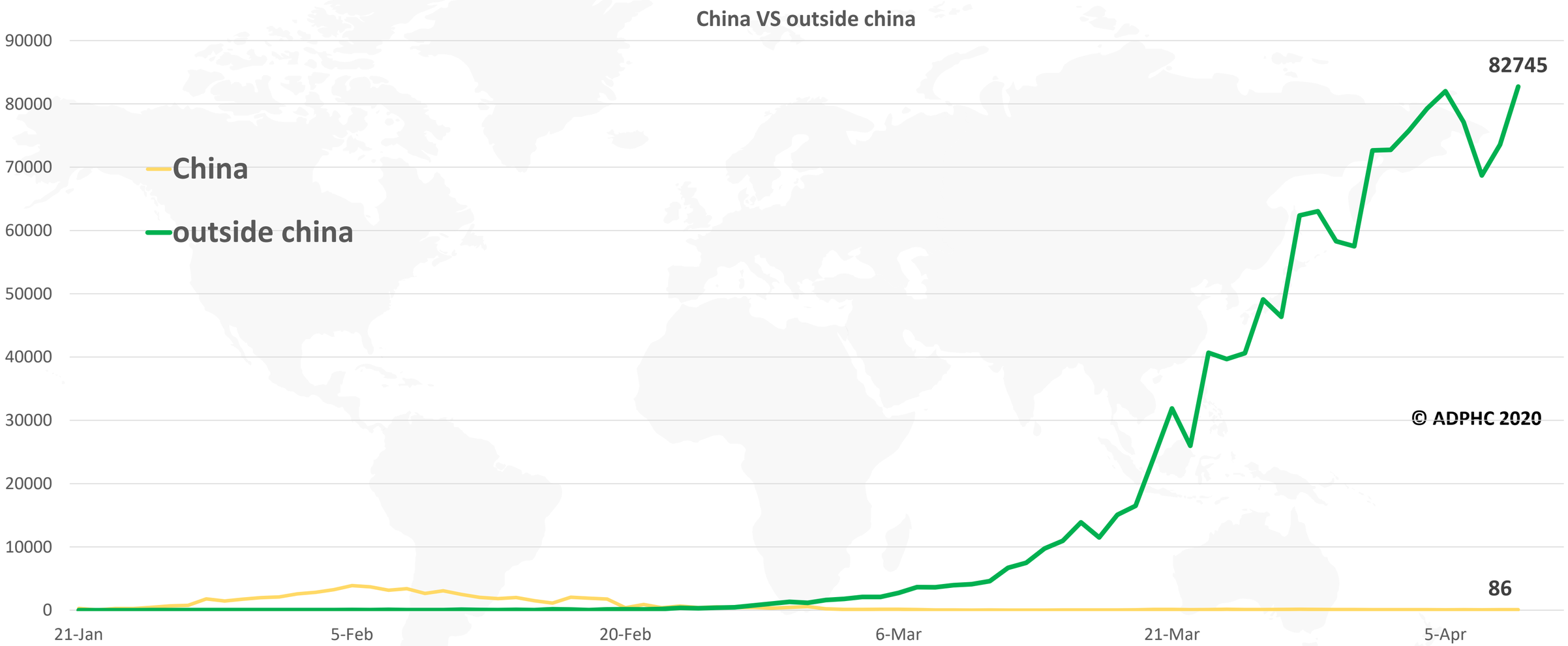


Line graph published by Abu Dhabi Public Health Center 2020.

Data resources: WHO, : John Hopkins University

Epidemiology

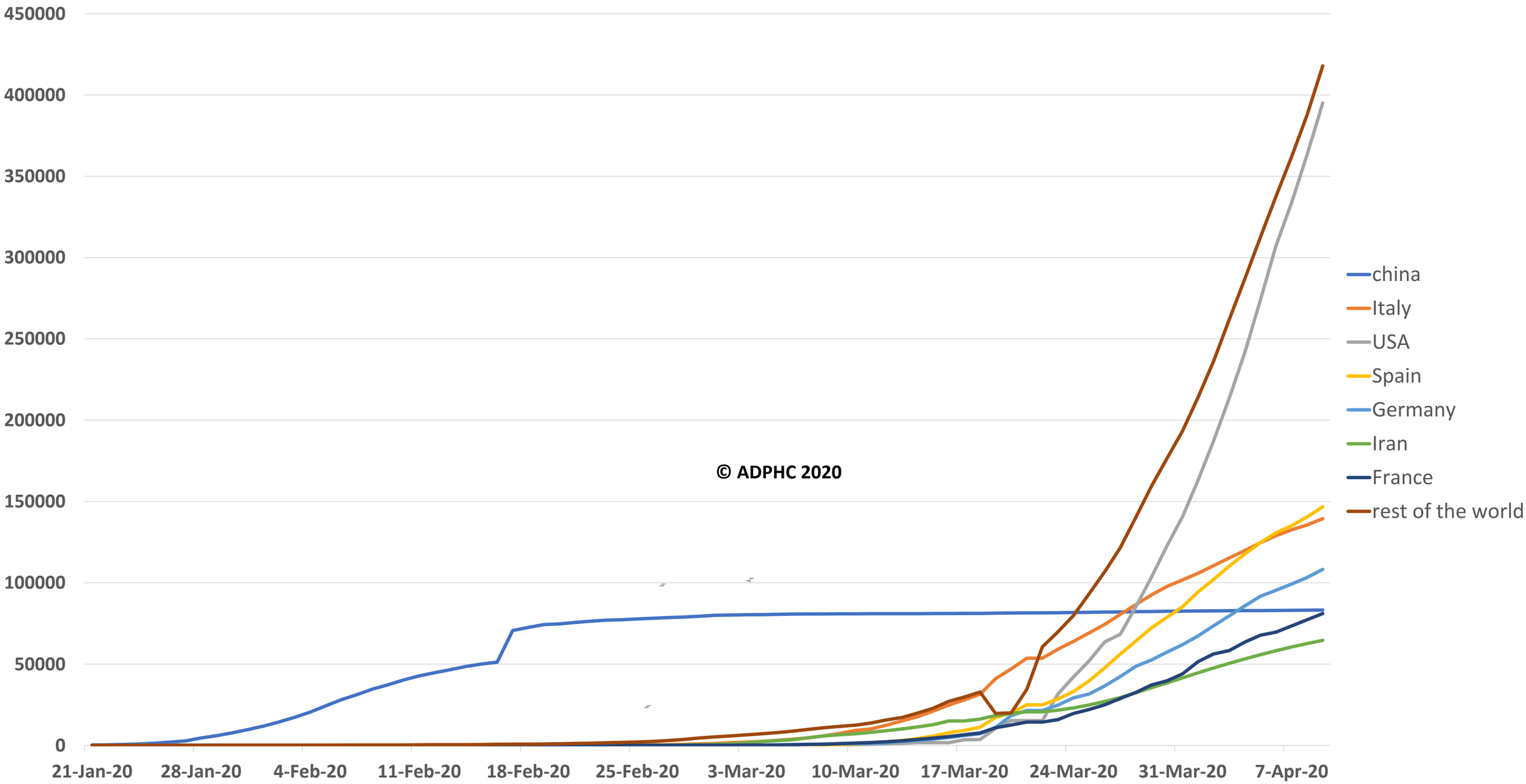
Figure 2: Daily new infected COVID-19 cases reported between (January 21 to April 9th, 2020).



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 9th, 2020).



Line graph published by Abu Dhabi Public Health Center 2020.

Data resources: WHO

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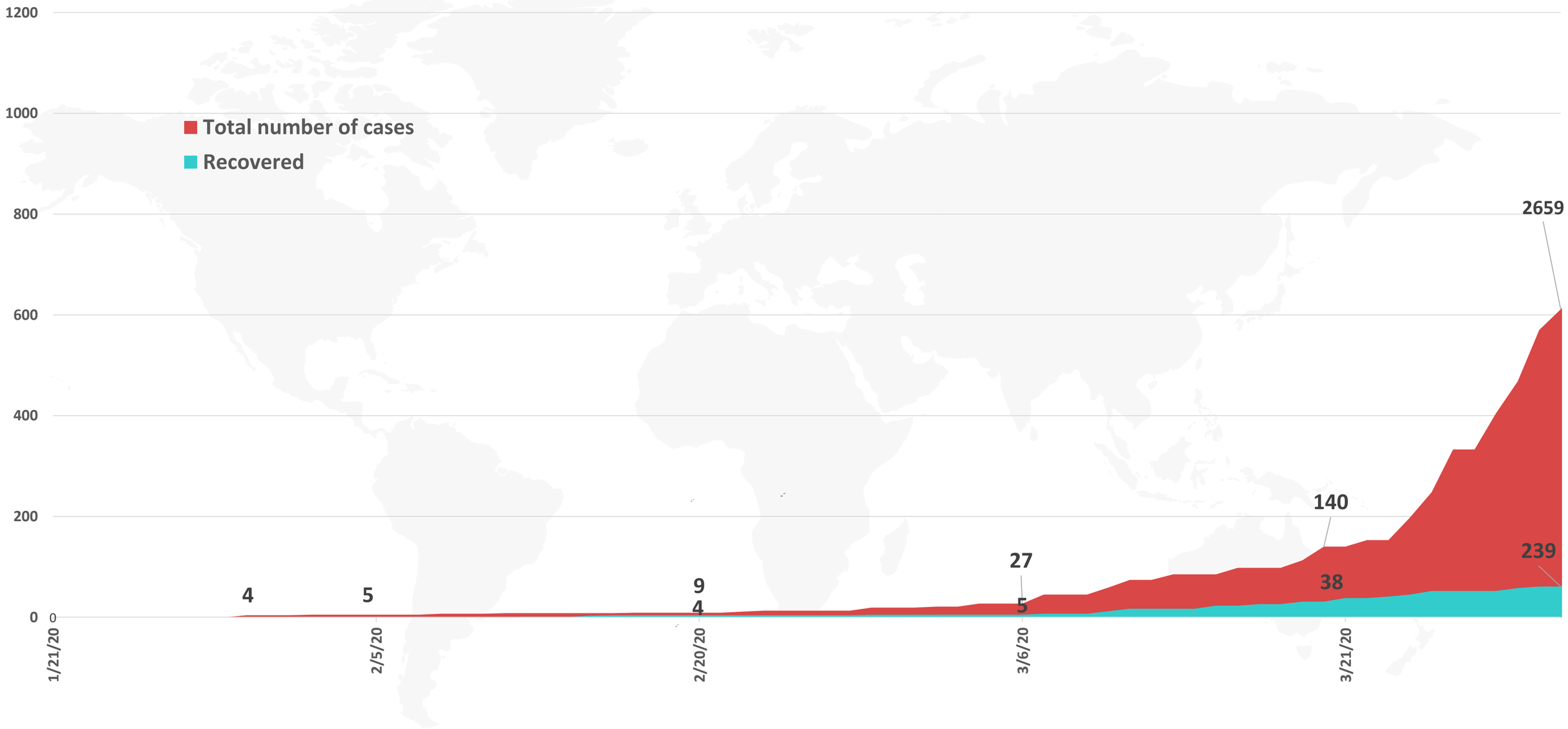
Figure 4: Total number of COVID-19 infected and recovered cases in UAE over time



Line graph published by Abu Dhabi Public Health Center 2020.
Data resources: WHO, : John Hopkins University

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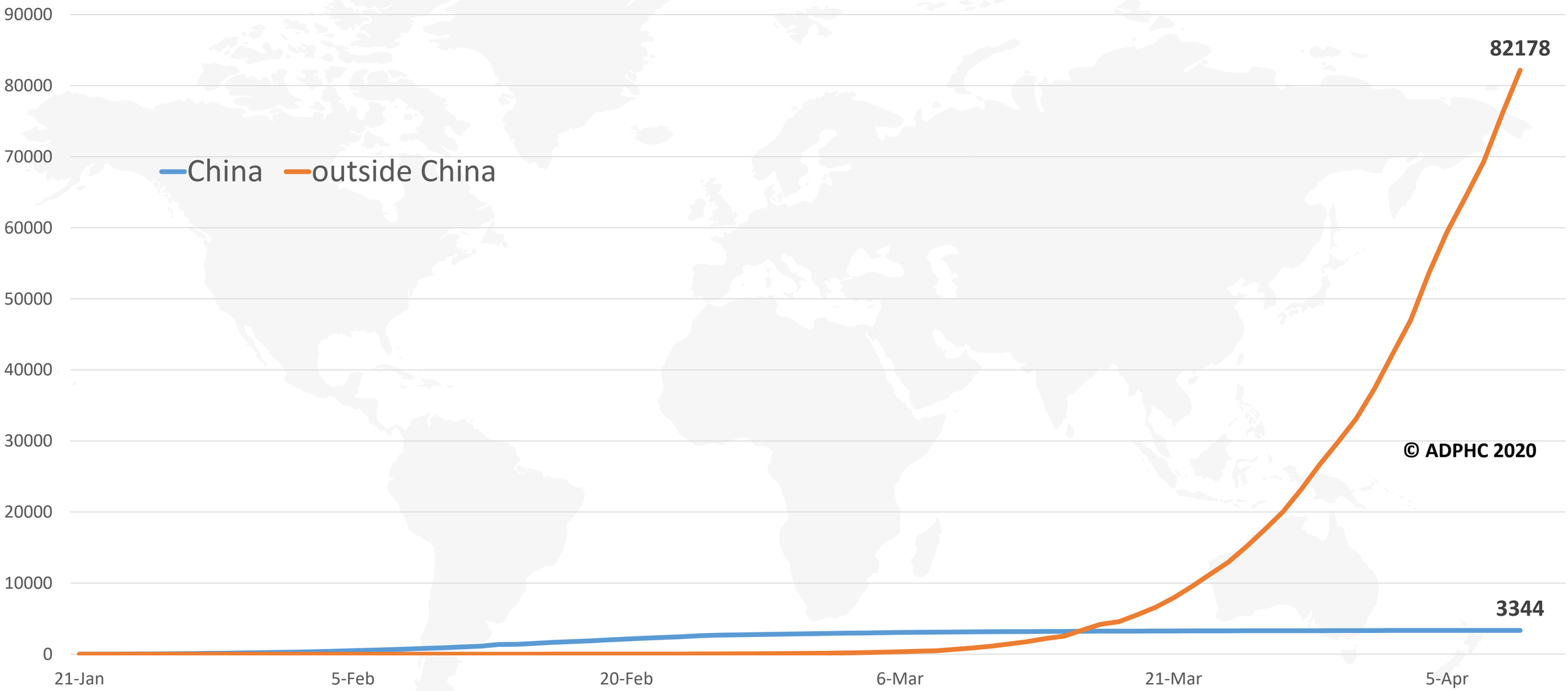
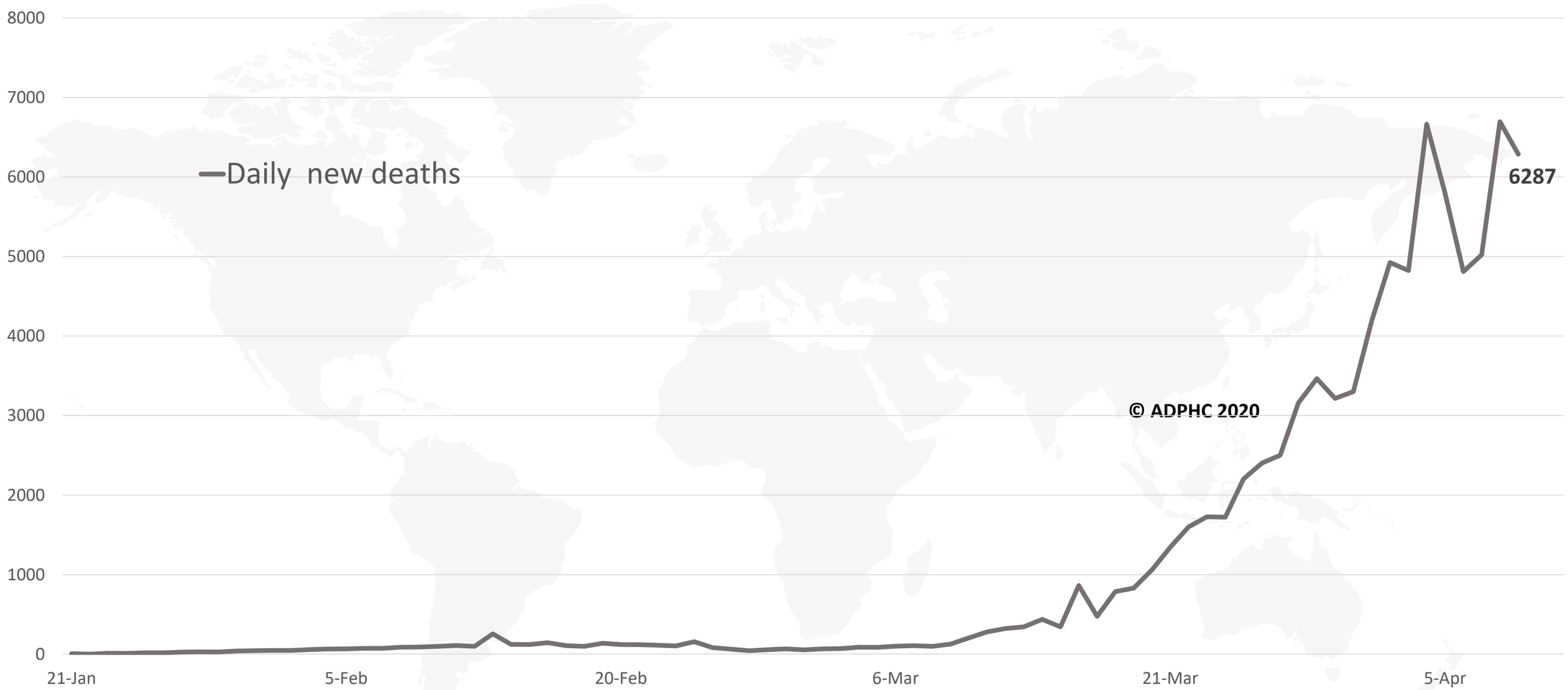
Figure 5: Total number of death due to COVID-19 reported by China and the rest of the world (January 21 to April 9th, 2020).



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

Epidemiology

Figure 6: Global daily new deaths due to COVID-19 (January 21 to April 9th, 2020).



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

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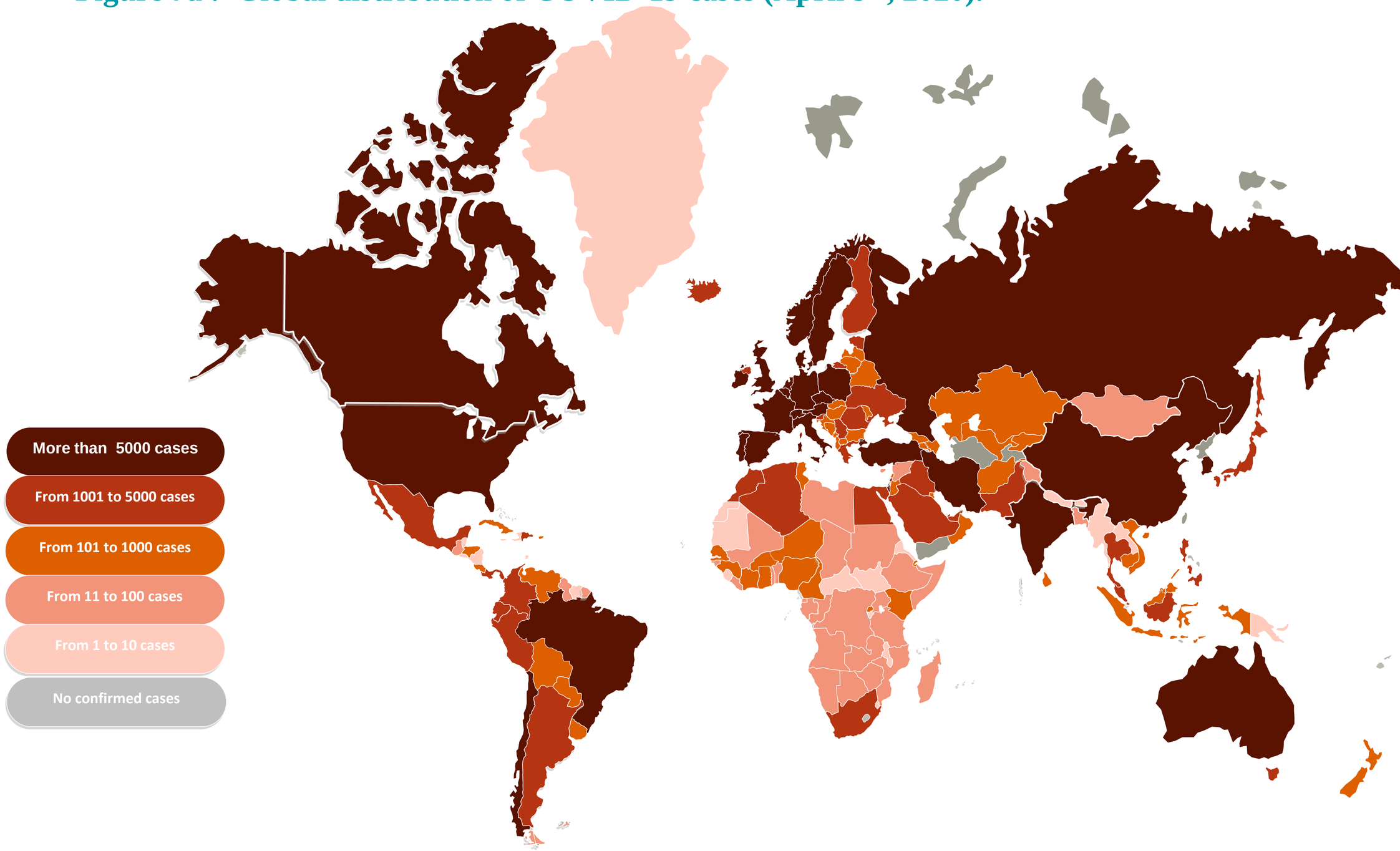
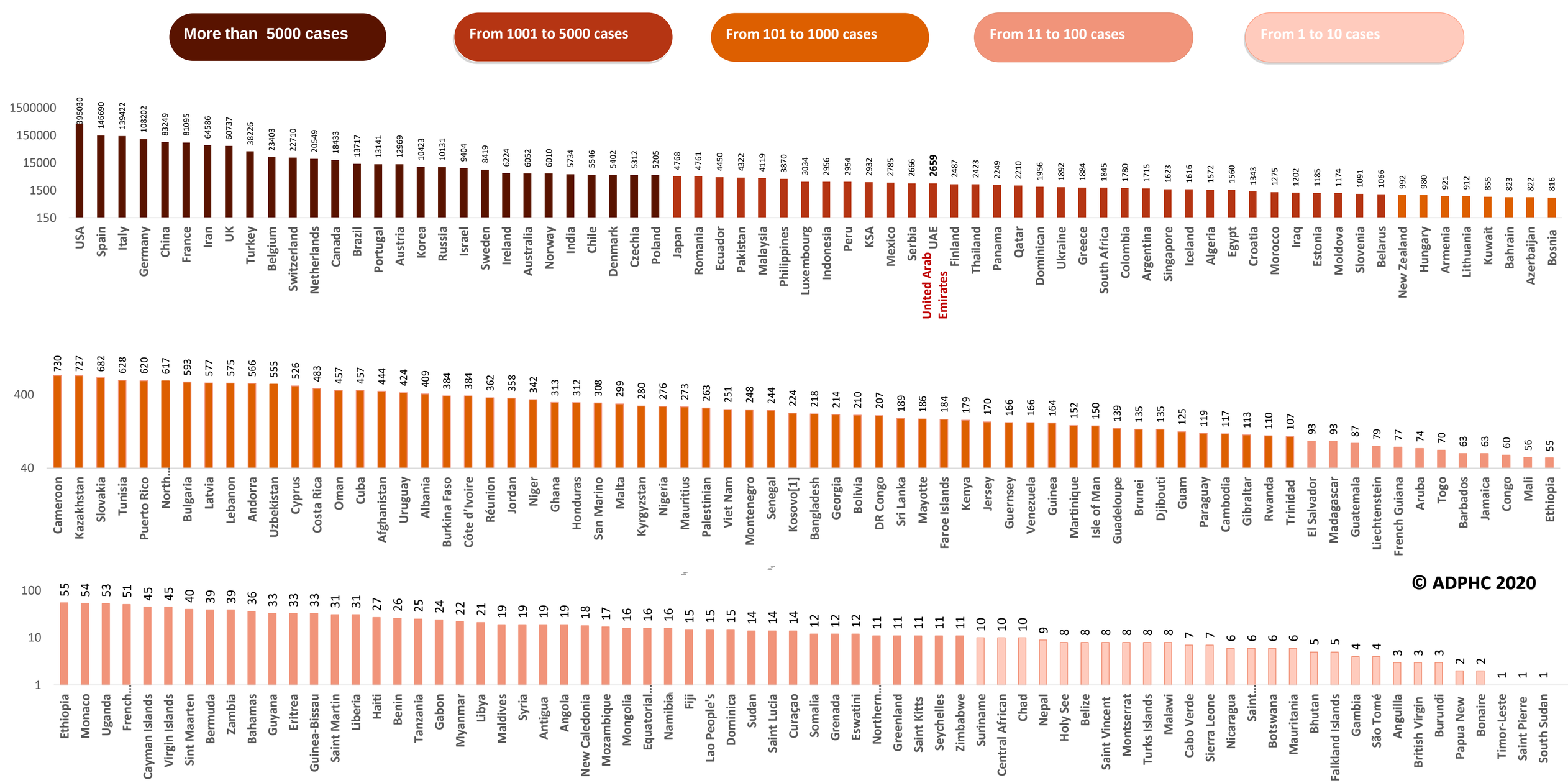
Figure 7a : Global distribution of COVID-19 cases (April 9th, 2020).



Map chart published by Abu Dhabi Public Health Center 2020.

Epidemiology

Figure 7B: Bar chart illustrate the global distribution of COVID19 cases April 9th, 2020)



Map chart published by Abu Dhabi Public Health Center 2020.

Data resources: WHO

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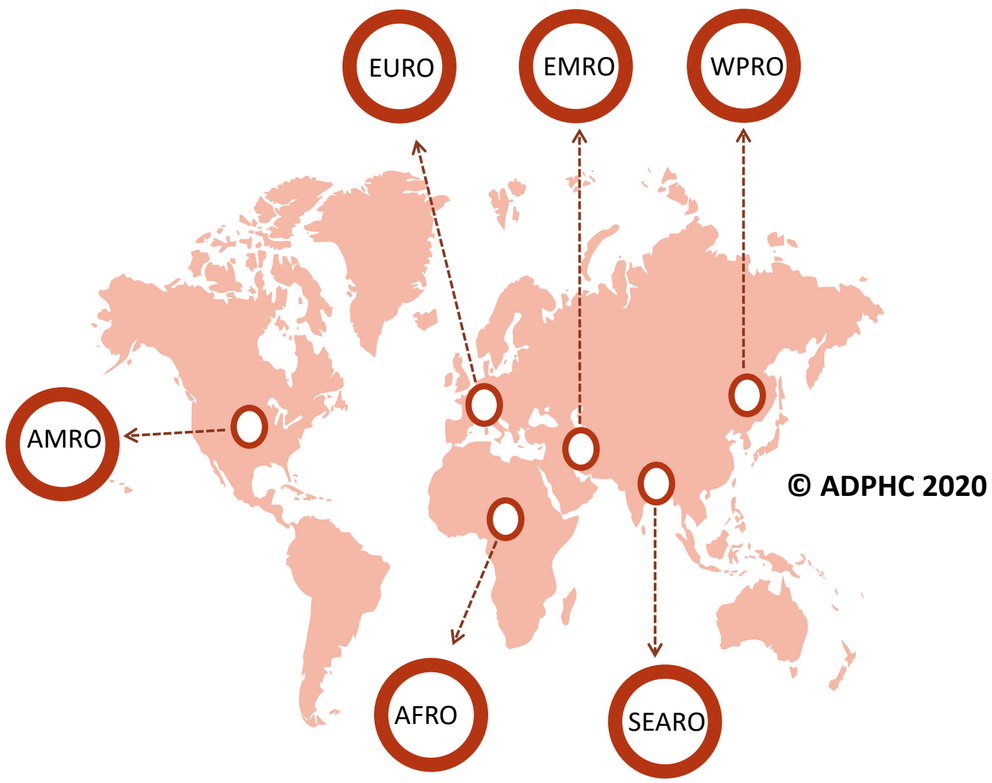
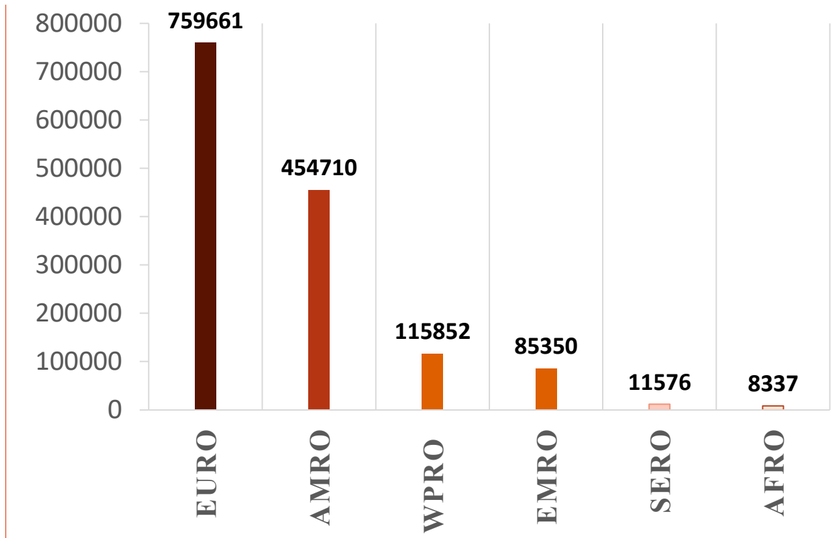
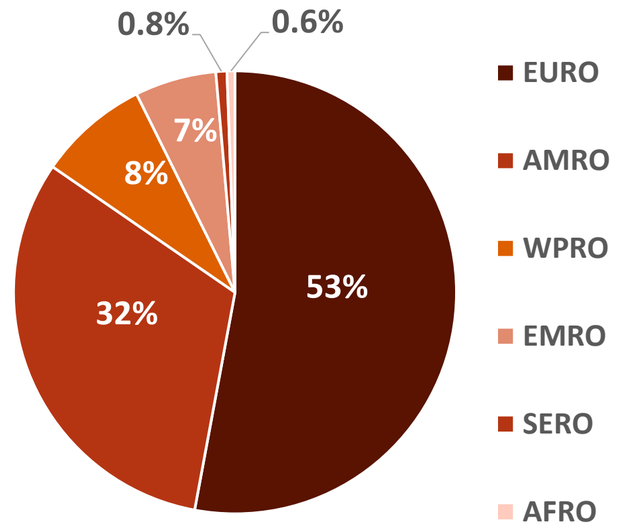
Figure 8: illustrate the Global distribution of COVID19 cases per region (April 9th, 2020)



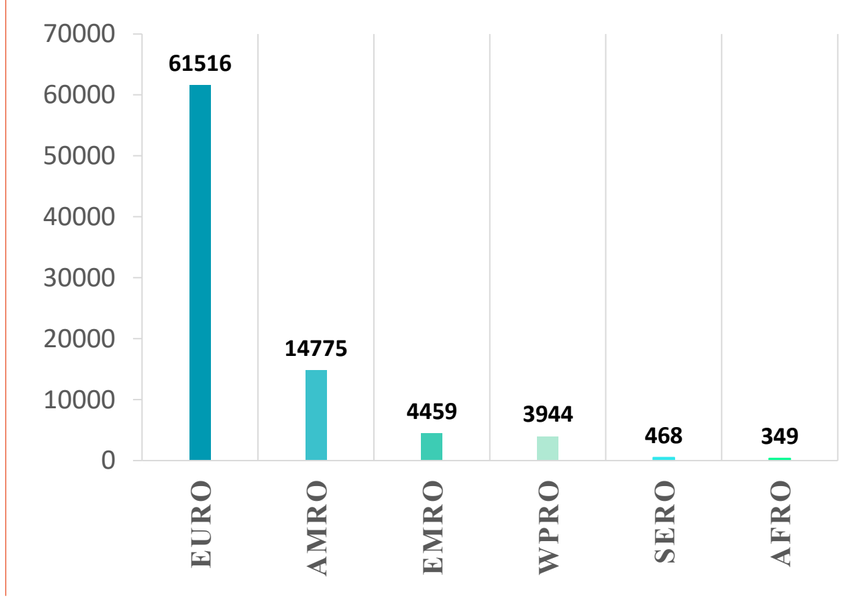
Map chart published by Abu Dhabi Public Health Center 2020.
Data resources: WHO

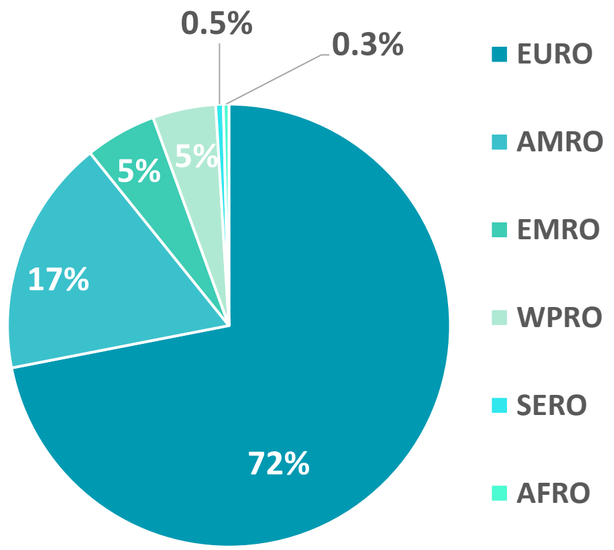
INFECTED





DEATH

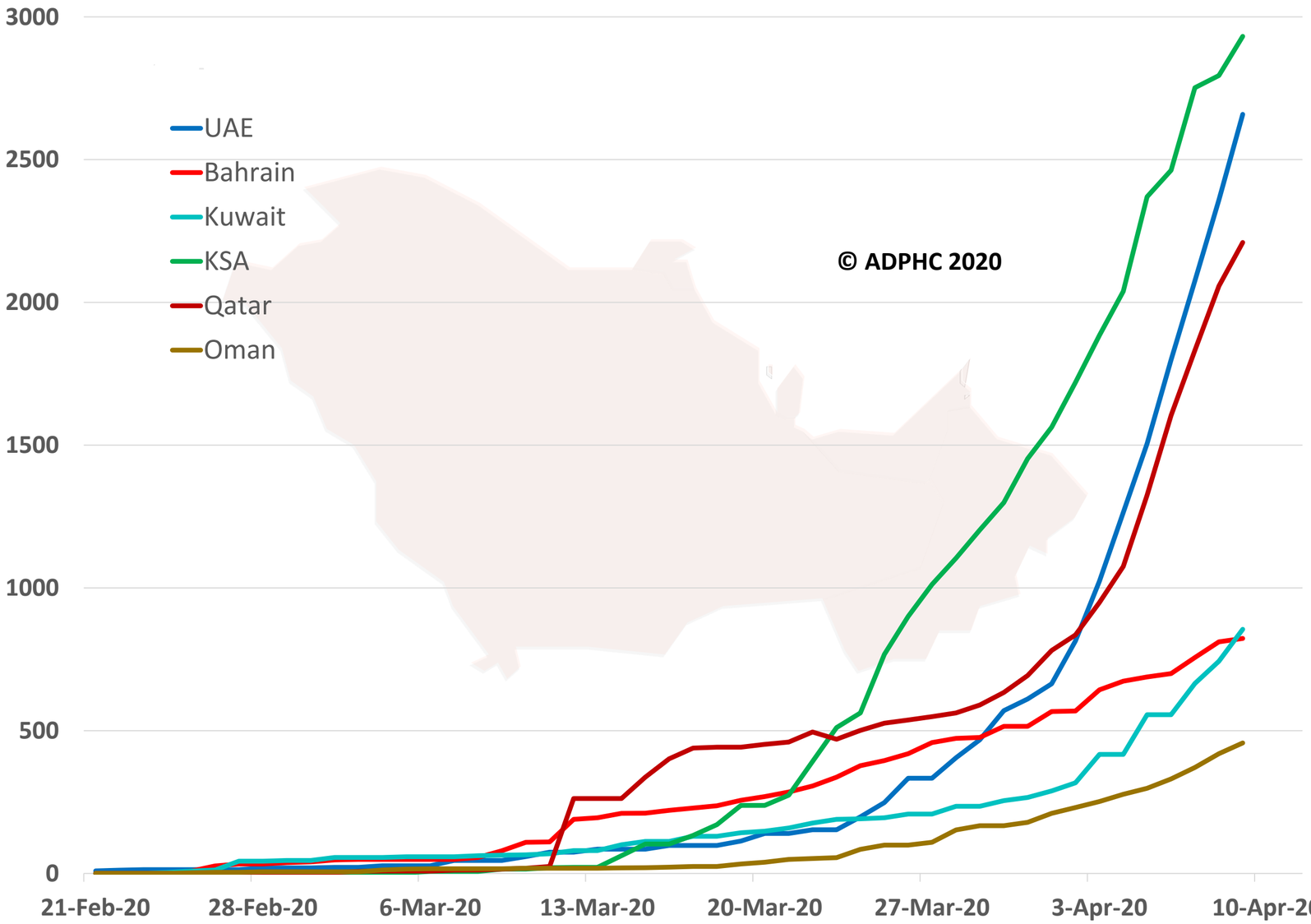


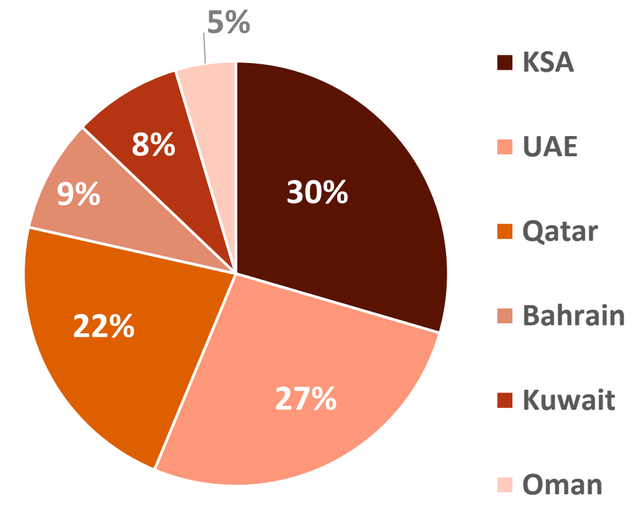


Epidemiology

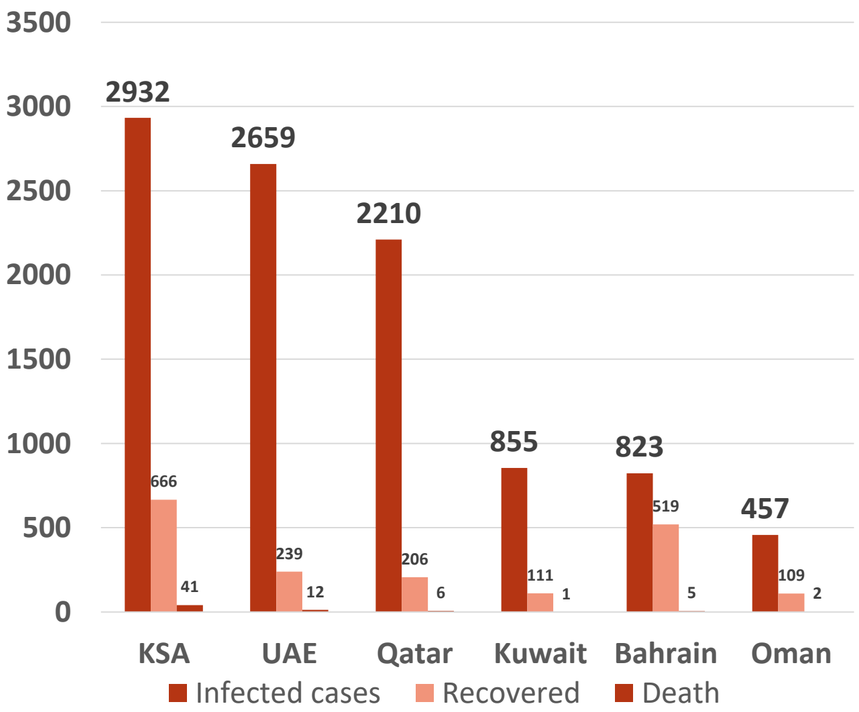
Figure 9: Comparative analysis of the distribution of COVID19 cases in GCC countries (April 9th, 2020)

TOTAL NUMBER OF INFECTED CASES





Total number of infected, recovered and Deaths



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

Public Health Response:

Article 1: School closure and management practices during coronavirus outbreaks including COVID-19: a rapid systematic review

Published: April 06 2020, The Lancet

This article was summarized by subject matter expert

Summary: This article presents the findings of a systematic review assessing the effectiveness of school closures and other school social distancing practices during coronavirus outbreaks (e.g, due to severe acute respiratory syndrome [SARS], Middle East respiratory syndrome, or COVID-19).

- Evidence from Influenza outbreak suggest that school closure can reduce transmission and number of infected people.
- Data from the SARS outbreak during 2003 in mainland China, Hong Kong, and Singapore suggest that school closures did not contribute to the control of the epidemic. However, most of the schools remained open for prolonged periods during the early part of the outbreak.
- In early 2020, school closures were implemented across mainland China and Hong Kong as part of a wider set of control measures for COVID-19.
- These data show that school closures helped to control of COVID-19 in China. However, we do not know whether the control of COVID-19 was due to school closures alone or due to a package of very broad quarantine measures, such as social distancing or staying at home generally.

Adverse Effects of School Closures

- The economic harms to working parents, health-care workers, and other key workers being forced from work to childcare.
- Transmission from children to vulnerable grandparents.
- Nutritional problems especially to children for whom free school meals are an important source of nutrition.
- Psychological harms to children and parents/care-takers.

Public Health Message

- Emergency school closures are often used as public health interventions during infectious disease outbreaks in an attempt to minimize the spread of infection. However, if children continue to mix with others outside the home during the closures, these measures are unlikely to be effective.
- Together with school closures, measures of other social distancing should be considered.
- In case of longer periods of quarantine and social distancing measures, schools remaining open only for the children of health-care and other essential workers might be a better strategy to implement for policy makers.

Clinical Features and transmission

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Article 2 : Prediction models for diagnosis and prognosis of covid-19 infection: systematic review and critical appraisal

Published: **07 April 2020** by BMJ

This article was summarized by subject matter expert

Summary:

- This article is the critical review of published and pre-published reports on the prediction models to diagnose COVID-19 in patients with suspected infection and their prognosis using systematic methods. Three models were identified for predicting hospital admission from pneumonia and other events; 18 diagnostic models for detecting COVID-19; and 10 models to predict the outcome of the disease such as risk of death, progression to severe disease or length of stay in the hospital. There was only study outside China.
- The most reported predictors for the suspected disease **include age, body temperature and signs & symptoms**. The **most reported predictors of severe prognosis** were **age**, **sex, features derived from CT scans, C-reactive protein, lactic dehydrogenase and lymphocyte count.**
- All studies have many limitations due to selection of patients, poor comparative control group of patients, and exclusion of patients who did not qualify the desired outcomes. Proposed models in these studies are poorly reported.
- So, the performance estimates are likely to be optimistic and misleading. Future studies are recommended to address these concerns. Sharing data and expertise for development, validation, and updating of covid-19 related prediction models is urgently needed. It is also recommended that studies should adhere to the TRIPOD (transparent reporting of a multivariable prediction model for individual prognosis or diagnosis.

Public health response

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Article 2 : What Other Countries Can Learn From Italy During the COVID-19 Pandemic
Published: April 7, 2020 by JAMA

Summary:
This paper reported what lessons can other countries learn from Italy's response to COVID-19.

- Socialization, frequent congregations, and clustering are the important part of Italian culture. During early stage of the epidemic, there was not much adoption of standard hygienic measures and instructions to stay at home showed difficult to accept with many complaints registered with the police. A higher level of preparedness should be considered for areas of mass gatherings or social intermingling.

- During winter in Italy, hospitals tend to run close to full capacity. Having little experience in dealing with SARS-CoV-2, it is unavoidable that some strategic mistakes were made about which patients should be hospitalized. **Many patients with relatively moderate symptoms were admitted by the time more serious patients started to arrive** and there were limited reserves. **Hospital admission could be avoided** for **suspected SARS-CoV-2 cases** except when they clearly require hospital care.

- **Overcrowded hospitals** may also **cause high infection rate** among medical personnel. Many medical personnel had **been found to be infected in Italy** since the outbreak began leading to further **loss of capacity for hospitals** to respond. Furthermore, early infection of medical personnel led to the spread of the infection to other patients within hospitals. **Strict hygienic procedures** should be maintained in the hospital environment and **immediate steps s**hould be taken in case of exposures of medical personnel to avoid loss of personnel capacity