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HEALTH CENTRE

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Scientific Research Monitoring on COVID-19

14 March 2020

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.
- Human coronavirus remains on inanimate surfaces such as metal or glass for up to 9 days, but can be efficiently inactivated by disinfection, suggesting that effects on SARS-CoV2 could be similar.
- 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

- **Public health** : a study shows that temperature and latitude correlated with the current cities and region exhibiting current community spread of COVID19. The study also predict the next move of the outbreak using weather model

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

- [Frequency of arrhythmia in novel coronavirus 2019 infection](#)
- [Clinical implications of aminotransferase elevation in hospitalised infants aged 8-90 days with respiratory virus detection](#)
- [Chest computed tomography images of early coronavirus disease \(COVID-19\)](#)
- [How to balance acute myocardial infarction and COVID-19: the protocols from Sichuan Provincial People's Hospital](#)
- [Chest computed tomography in children with COVID-19 respiratory infection](#)
- [Prevalence and impact of cardiovascular metabolic diseases on COVID-19 in China](#)
- [Geographical tracking and mapping of coronavirus disease COVID-19/severe acute respiratory syndrome coronavirus 2 \(SARS-CoV-2\) epidemic and associated events around the world: how 21st century GIS technologies are supporting the global fight against outbr](#)
- [Preparing for a COVID-19 pandemic: a review of operating room outbreak response measures in a large tertiary hospital in Singapore](#)
- [Sex difference and smoking predisposition in patients with COVID-19](#)



13th March 2020

A team of experts from WHO, concluded a technical support mission on COVID-19 to Iran on 10 March 2020. 5 days mission. They concluded the following:

- we see that Iran's strategies and priorities to control **COVID19** are evolving in the right direction
- We are also **impressed by the engagement from other sectors of the community.**
- Progress has been made in scaling up the number of **laboratories** to **over 30 laboratories** across the country now they have the capacity and **at least 20 more** will be added.
- So far, WHO has provided **lab testing kits** enough to **test at least 110,000** people and **seven tons of protective equipment and supplies.**
- **Contact tracing is expanding** and **new sanitariums** have opened in **Tehran and Qom** to care for those who are **recovering** from coronavirus, so that **overburdened hospitals can be decongested.**
- During the team's mission in Iran, the **Ministry of Health and Medical Education (MOHME)** launched a **national campaign** to control COVID-19. This will emphasize **early case detection, contact tracing, isolation, treatment** and **community engagement.**
- Emphasis on the advance **epidemiological data collection** and analysis, **which are key to getting a better understanding of the evolution of the outbreak and appropriate control measures.**



13th March 2020

- Five new countries/territories/areas (Jersey, Réunion, Saint Vincent and the Grenadines, Cuba and Guyana) have reported cases of COVID-19 in the past 24 hours.
- The WHO, UN Foundation and partners launched a first-of-its-kind COVID-19 Solidarity Response Fund today. The fund will raise money from a wide range of donors to support the work of the WHO and partners to help countries respond to the COVID-19 pandemic.
- Since the onset of the COVID-19 outbreak, Infection Prevention and Control (IPC) has been a major factor in preventive and mitigation measures. To ensure evidence-based quality guidance and prompt response to global demand, WHO convened a WHO Health Emergencies Program Experts Advisory Panel for IPC. The following guidance/tools has been issued with their consultation:
 - *Health workers exposure risk assessment and management in the context of COVID-19 virus.*
 - *Considerations for quarantine of individuals in the context of containment for coronavirus disease (COVID- 19)*
 - In collaboration with WASH colleagues including UNICEF, the team has developed a briefing on water, sanitation, hygiene and waste management for COVID-19. More information can be found here.

TIMELINE

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31 Dec 2019
– First case reported in China.

10 January 2020 – Chinese health officials post the full SARS-CoV2 genome sequence

11/12 January 2020 - China announces confirmation of a novel coronavirus as the causative agent of 41 pneumonia cases

20 January – Chinese authorities confirm evidence of human to human transmission

24 January 2020 – Travel bans begin to be instituted by the Chinese government, resulting in restricted travel in and out of Hubei Province, including the city of Wuhan

27 & 28 January – WHO organizes a meeting to discuss potential candidates for therapeutic intervention and clinical trials to treat corona

29 January – First reported cases (4) in the UAE)

3 February – UAE issues a travel restriction on flights to and from China, except to Beijing effective 5 February 2020

30 January – The WHO declares a Public Health Emergency; WHO set consultation for vaccine prioritization trial

7 February – A total of 72 countries have implemented travel restriction.

5 February – WHO estimates the action plan in response to COVID19 to cost USD 675.5 million from Feb to April 2020

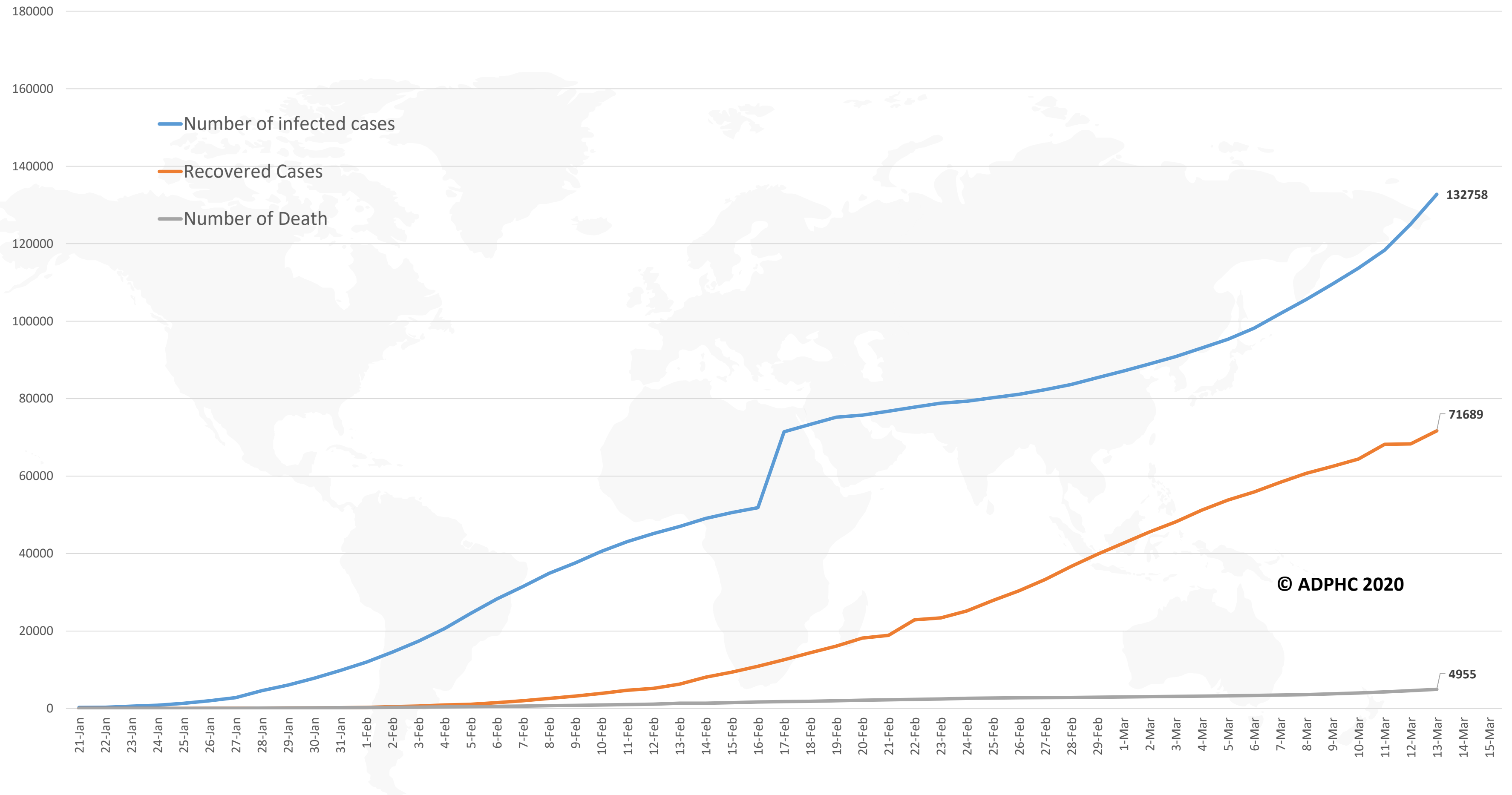
25 February – UAE halt flights to Iran

11 March- WHO announced pandemic of COVID19

Epidemiology



Figure 1: Total number of infected, recovered, and death cases (January 21st to March 13th, 2020)



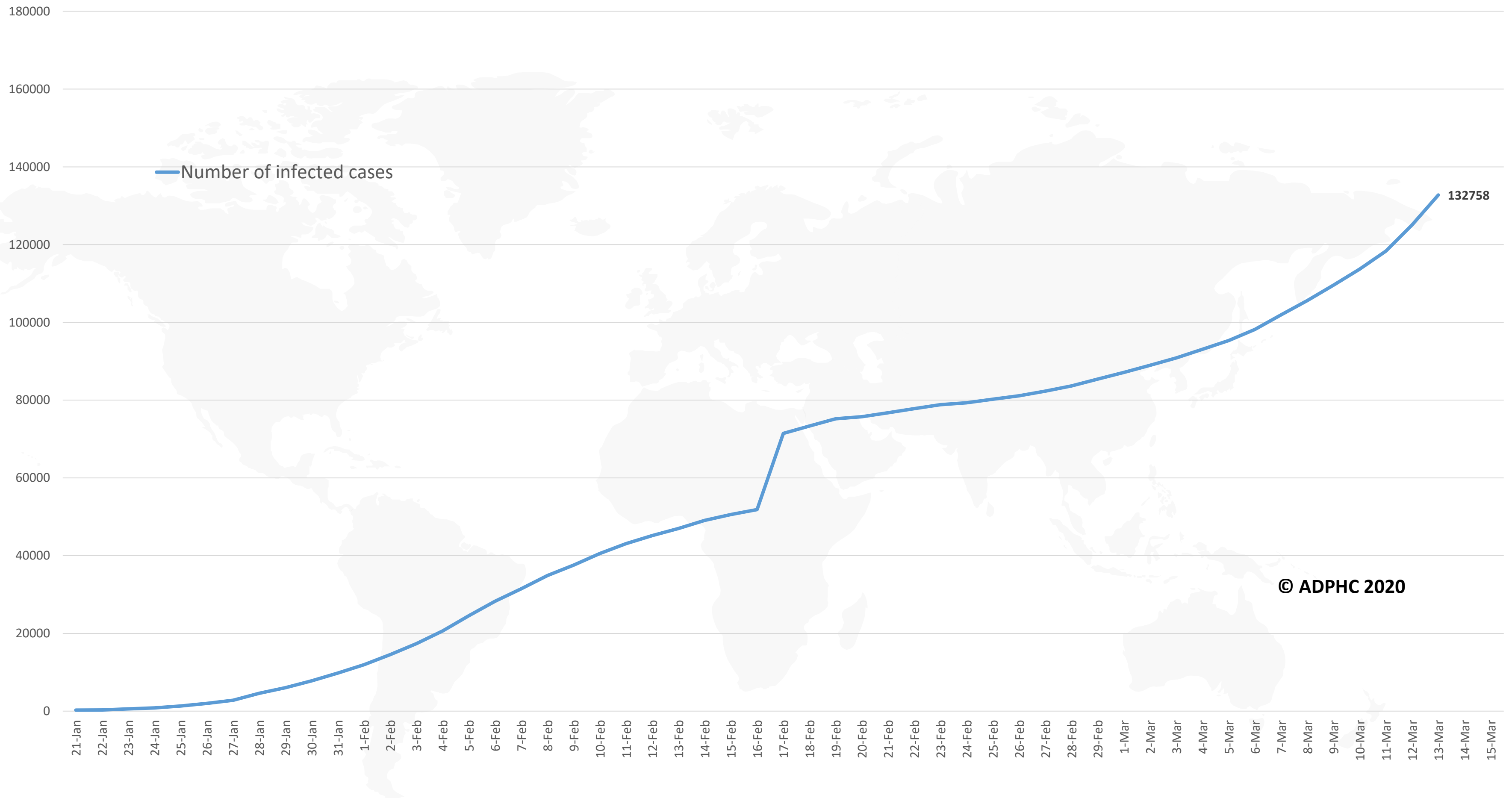
Line graph published by Abu Dhabi Public Health Center 2020.

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

Epidemiology



Figure 2: Number of infected COVID-19 cases worldwide (January 21 to March 13th, 2020).

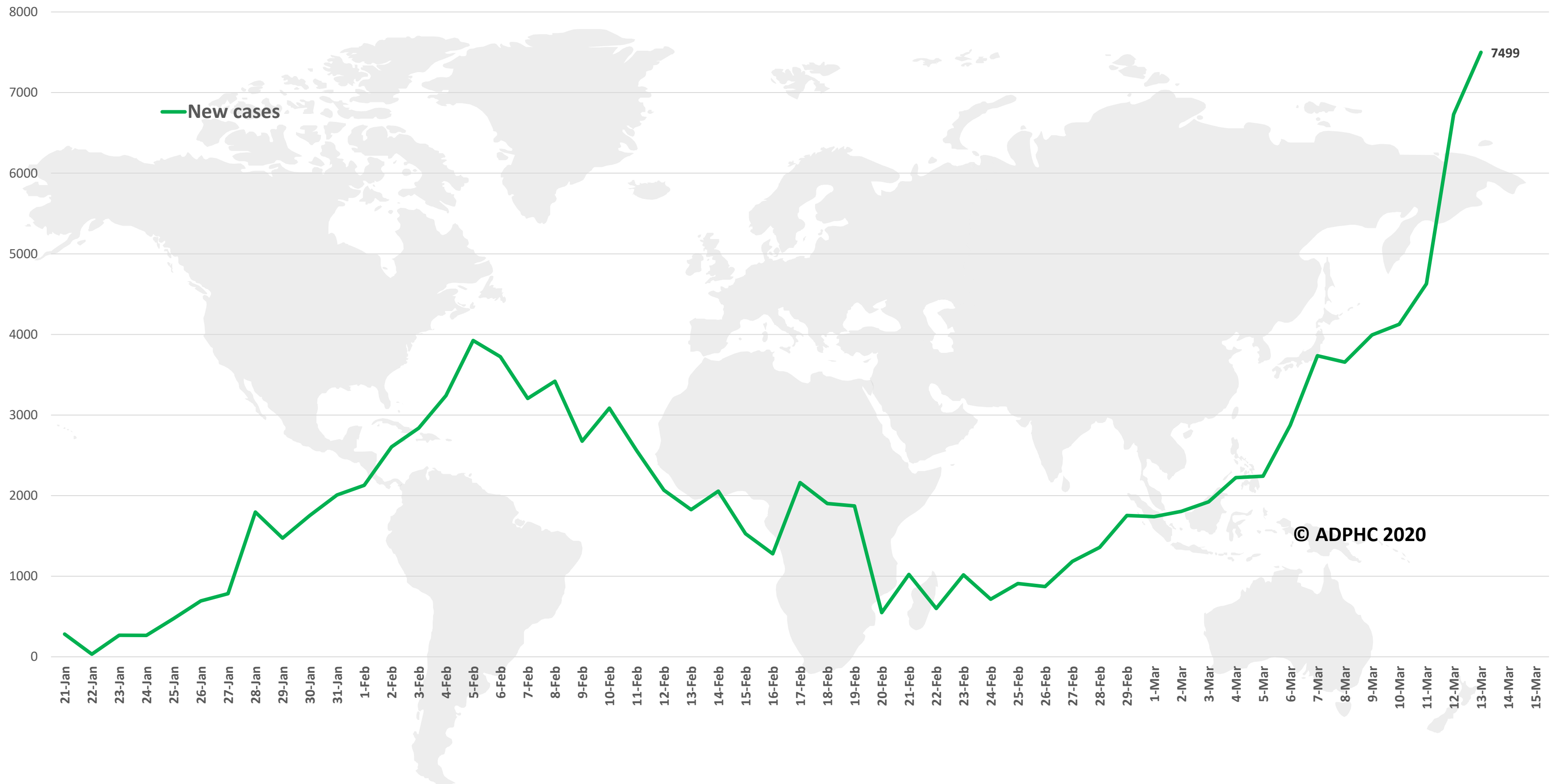


Line graph published by Abu Dhabi Public Health Center 2020.

Data resources: [WHO](#)



Figure 3: Daily new infected COVID-19 cases worldwide (January 21 to March 13th, 2020).

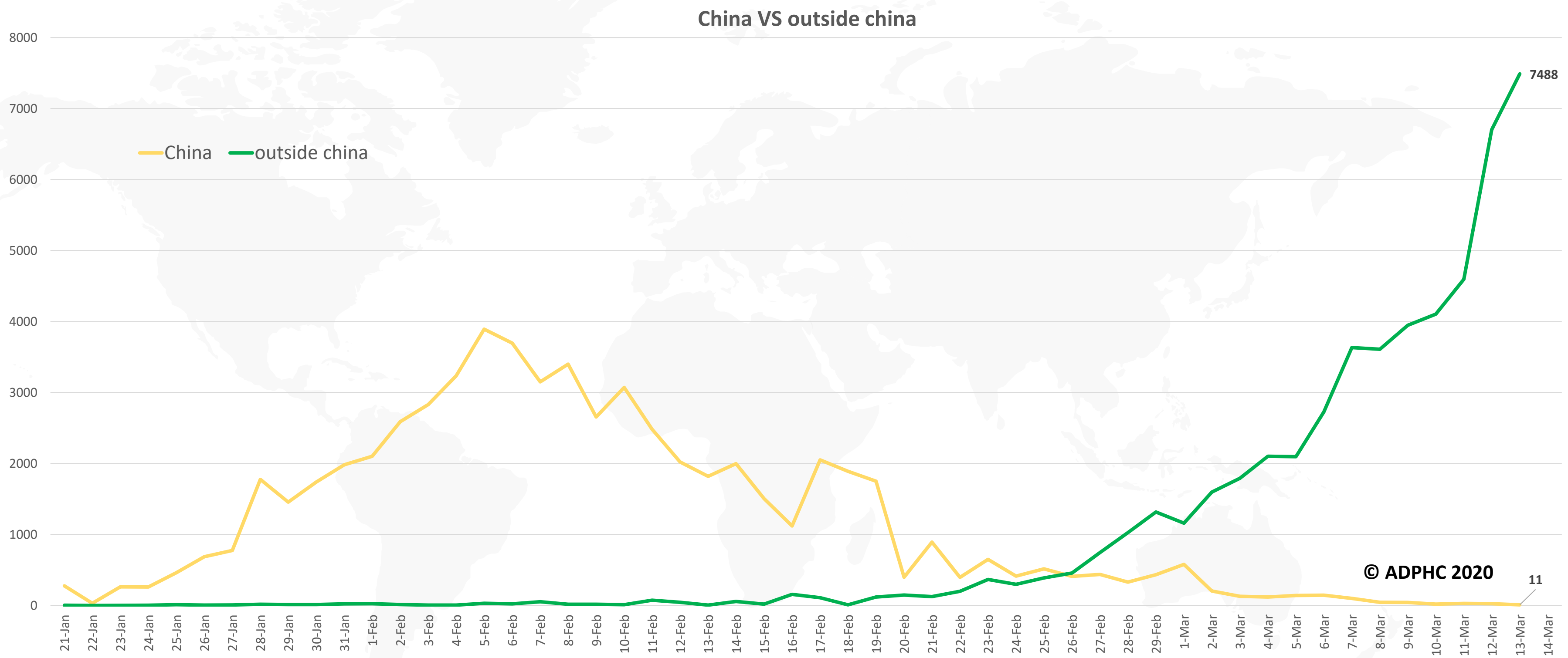


Line graph published by Abu Dhabi Public Health Center 2020.

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



Figure 4: Daily new infected COVID-19 cases reported by China and the rest of the world (January 21 to March 13th, 2020).



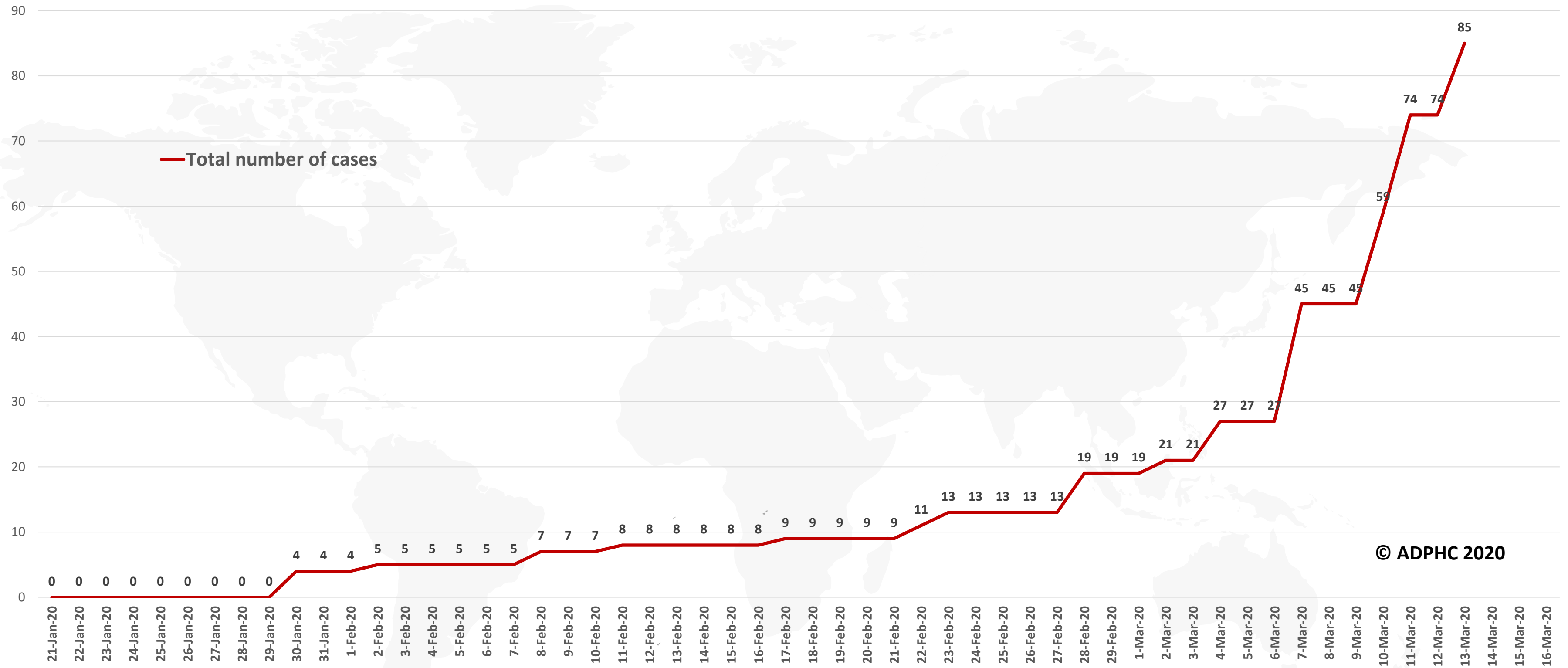
Line graph published by Abu Dhabi Public Health Center 2020.

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

Epidemiology



Figure 5: Total number of COVID-19 cases in UAE over time



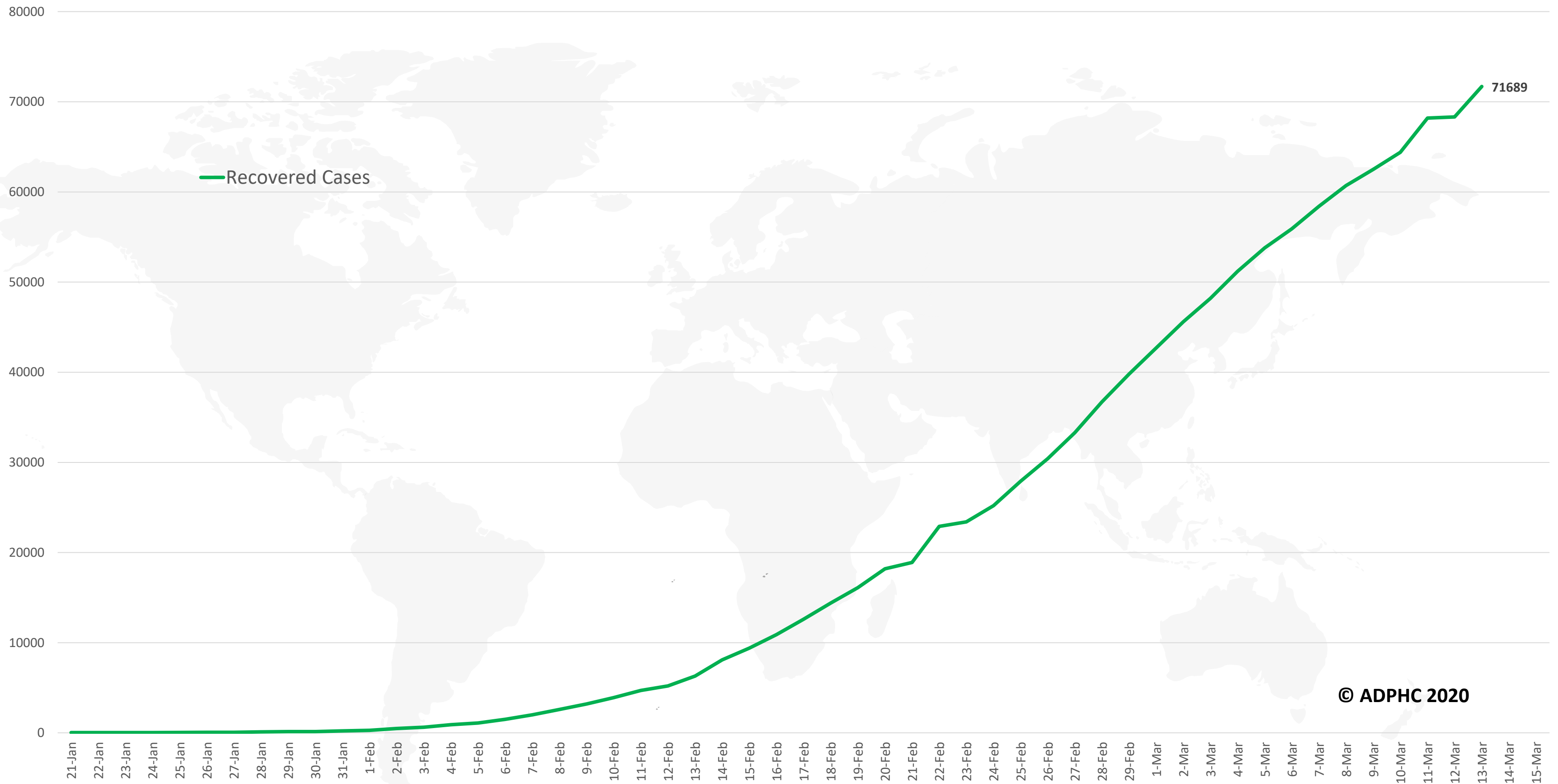
Line graph published by Abu Dhabi Public Health Center 2020.

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

Epidemiology



Figure 6: Number of recovered COVID-19 cases worldwide (January 21 to March 13th, 2020).



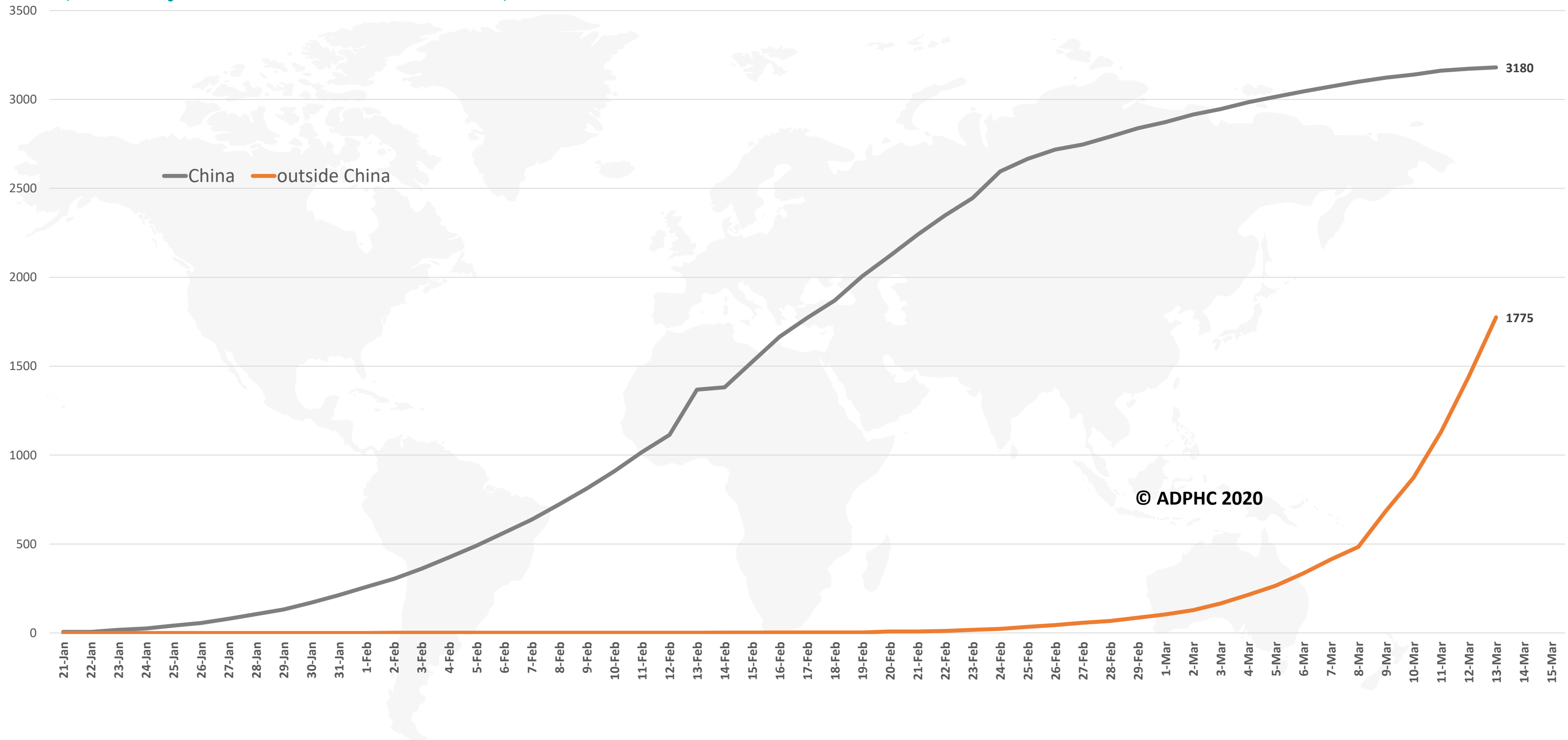
Line graph published by Abu Dhabi Public Health Center 2020.

Data resources: [John Hopkins University](#)

Epidemiology



Figure 7: Daily number of death due to COVID-19 reported by China and the rest of the world (January 21 to March 13th, 2020).



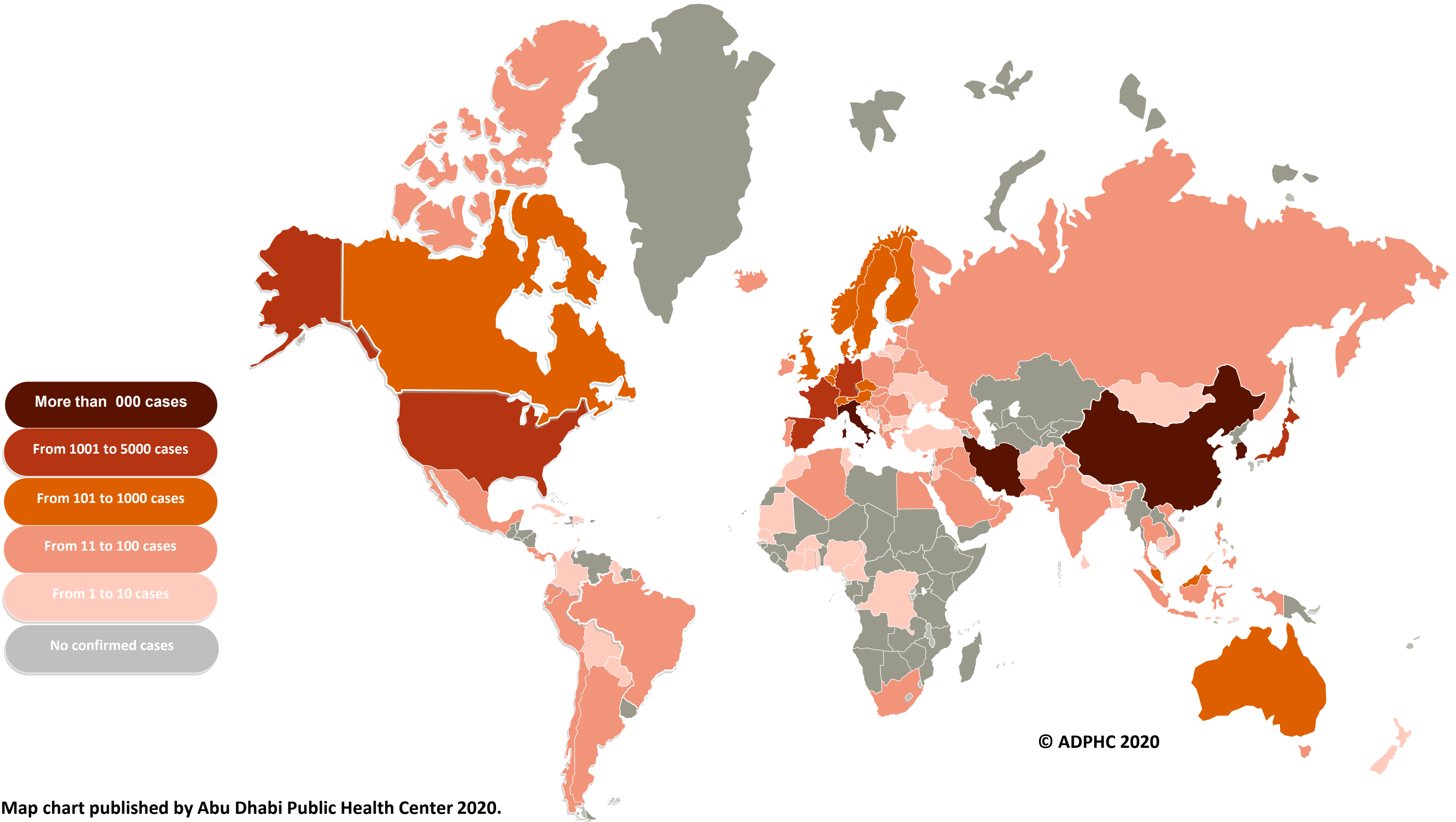
Line graph published by Abu Dhabi Public Health Center 2020.

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

Epidemiology



Figure 8A: Global distribution of COVID-19 cases (January 21 to March 13th, 2020).



Map chart published by Abu Dhabi Public Health Center 2020.

Epidemiology



Figure 8B: Bar chart illustrate the global distribution of COVID19 cases (January 21st to March 13th, 2020)



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Map chart published by Abu Dhabi Public Health Center 2020.

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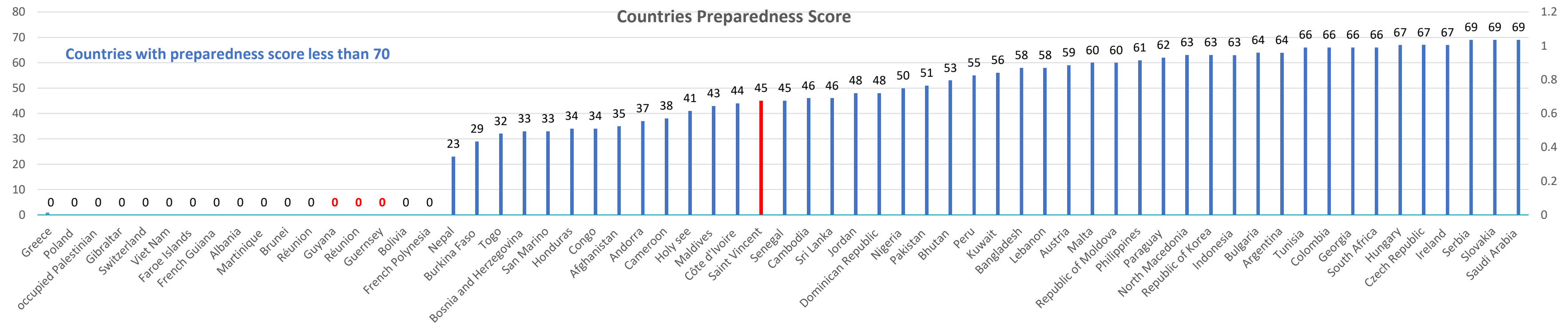
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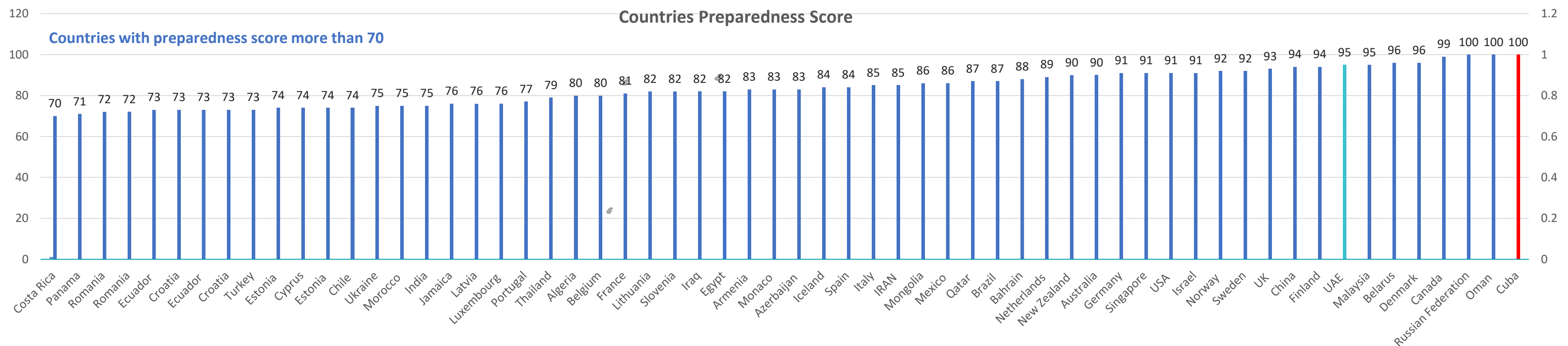


Figure 9 : Countries capacities to report COVID-19 cases

Figure 9A: Countries' preparedness score in responding to Public health risks and acute events. *



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Data resources : [SPAR score](#) , [IDVI score](#)

* Published in 2018

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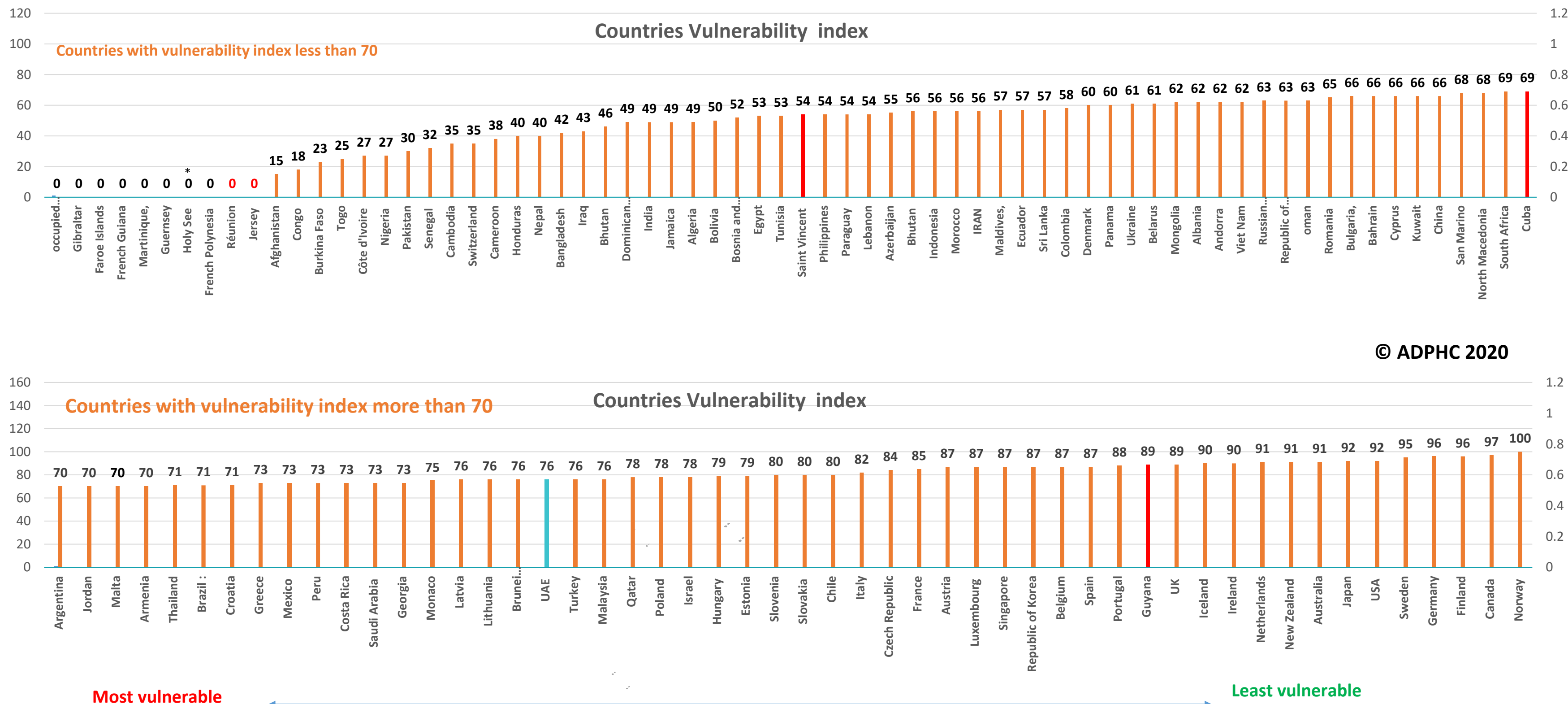
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Figure 9: Countries capacities to report COVID-19 cases

Figure 9B: Countries' vulnerability index to spread infectious disease. **



* No available data on those countries.

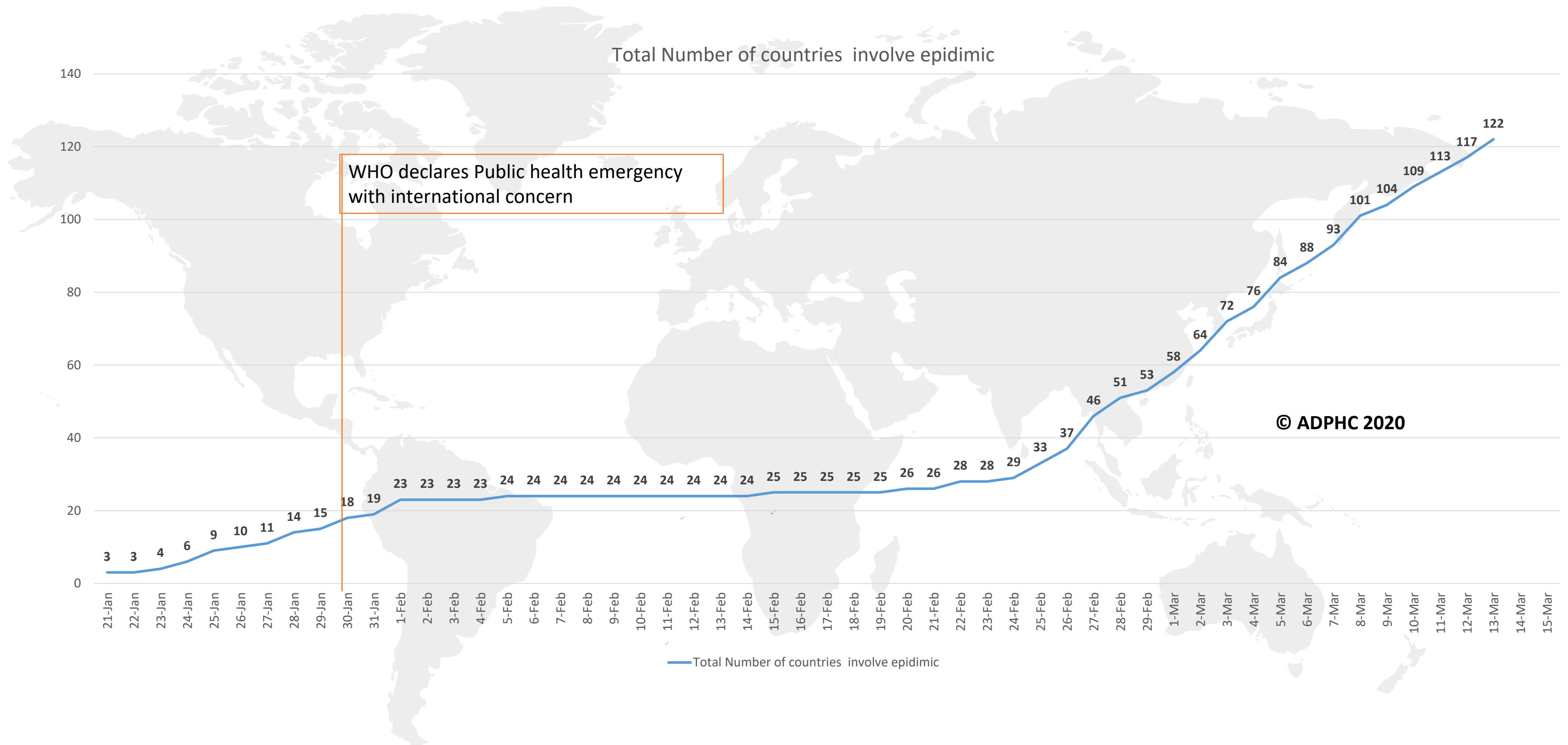
Line graph published by Abu Dhabi Public Health Center 2020.

Data resources : [SPAR score](#), [IDVI score](#)

**Published in 2016



Figure ?? Total number of countries reporting cases of COVID-19 outside China over time (January 21 to March 13, 2020).



Line graph published by Abu Dhabi Public Health Center 2020.

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

Diagnosis



Article : Temperature and Latitude Analysis to Predict Potential Spread and Seasonality for COVID-19 (1/2)

Published: 9 March 2020

Link: [click here](#)

Summery:

The study is hypothesizing that the current community spread is located in cities and regions in narrow east west distribution roughly along the 30-50 N” corridor at consistently similar weather patterns (5-11OC and 47-79% humidity). As indicated in map , Figure 1

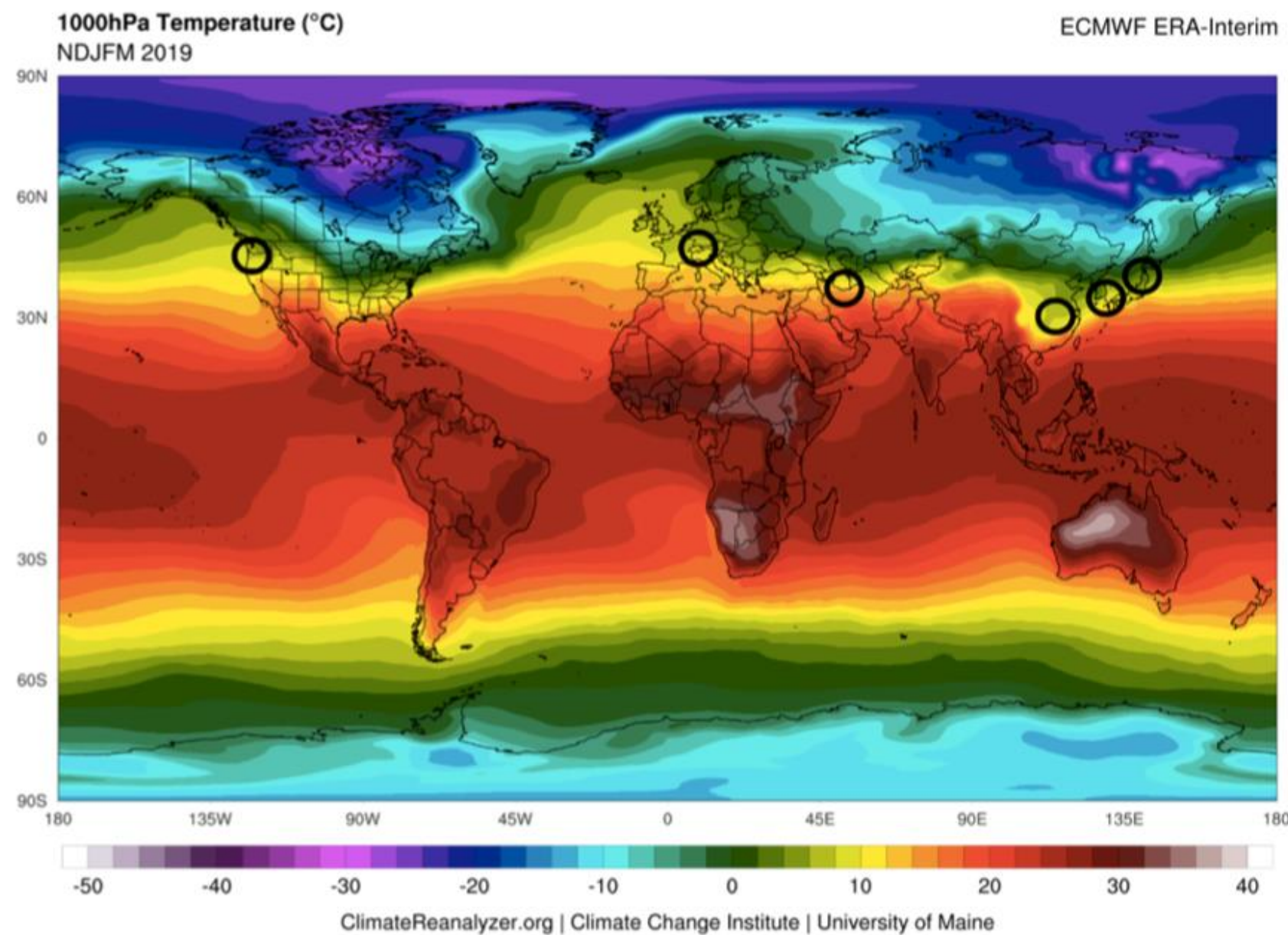


Figure 1 : circulars indicate the current area of outbreaks. They exhibit a commonality in that the timing of the outbreak coincides with a nadir in the yearly temperature cycle

City	Nov 2019	Dec 2019	Jan 2020	Feb 2020
<i>Cities with community spreading of COVID-19</i>				
Wuhan	18°C/44%	12°C/56%	7°C/74%	13°C/66%
Tokyo	17°C/53%	11°C/52%	9°C/54%	10°C/47%
Qom	12°C/52%	10°C/58%	7°C/59%	10°C/47%
Milan	11°C/77%	8°C/74%	7°C/69%	11°C/58%
Daegu	11°C/64%	5°C/62%	4°C/68%	5°C/62%
Seattle	9°C/76%	6°C/84%	6°C/84%	7°C/79%
Mulhouse	7°C/84%	6°C/82%	6°C/80%	8°C/74%
<i>Large cities tentatively predicted to be at risk in the coming weeks</i>				
London	8°C/78%	8°C/80%	8°C/80%	8°C/70%
Manchester	7°C/82%	6°C/83%	7°C/83%	6°C/73%
Berlin	8°C/81%	5°C/80%	5°C/81%	6°C/75%
Prague	7°C/81%	4°C/78%	3°C/79%	6°C/71%
Hamburg	6°C/89%	5°C/86%	6°C/88%	6°C/83%
Vancouver	8°C/75%	6°C/84%	5°C/84%	5°C/78%
New York	8°C/55%	4°C/72%	4°C/61%	5°C/62%
Warsaw	8°C/76%	4°C/78%	3°C/78%	5°C/72%
Glasgow	5°C/87%	5°C/89%	6°C/86%	4°C/84%
Kiev	6°C/74%	4°C/83%	1°C/85%	3°C/76%
St. Louis	6°C/71%	5°C/78%	3°C/77%	3°C/73%
Beijing	9°C/33%	2°C/43%	2°C/41%	5°C/45%
<i>Previously predicted city where COVID-19 failed to take hold</i>				
Bangkok	31°C/52%	30°C/45%	32°C/50%	32°C/51%

Table 1: November 2019 to February 2020 average temperature (oC) and humidity (%) data from cities with community spreading of COVID-19 and those potentially at risk.

Diagnosis



Article : Temperature and Latitude Analysis to Predict Potential Spread and Seasonality for COVID-19(2/2)

- The study is predicting the next outbreak using the temperature data of March and April 2019. They expect the outbreak will **move to North** of the current areas at risk. Will include (from East to West) **Manchuria, Central Asia, the Caucasus, Eastern Europe, Central Europe, the British Isles, the Northeastern and Midwestern United States, and British Columbia.**
- Not the study did not analyze the following factors: **climate variables** (cloud cover, maximum temperature, etc.), **human factors** (impact of epidemiologic interventions, concentrated outbreaks like cruise ships, travel, etc.), **viral factors** (mutation rate, pathogenesis, etc.), mean that **although the current correlations with latitude and temperature seem strong, a direct causation has not been proven and predictions in the near term are speculative and have to be considered with extreme caution**

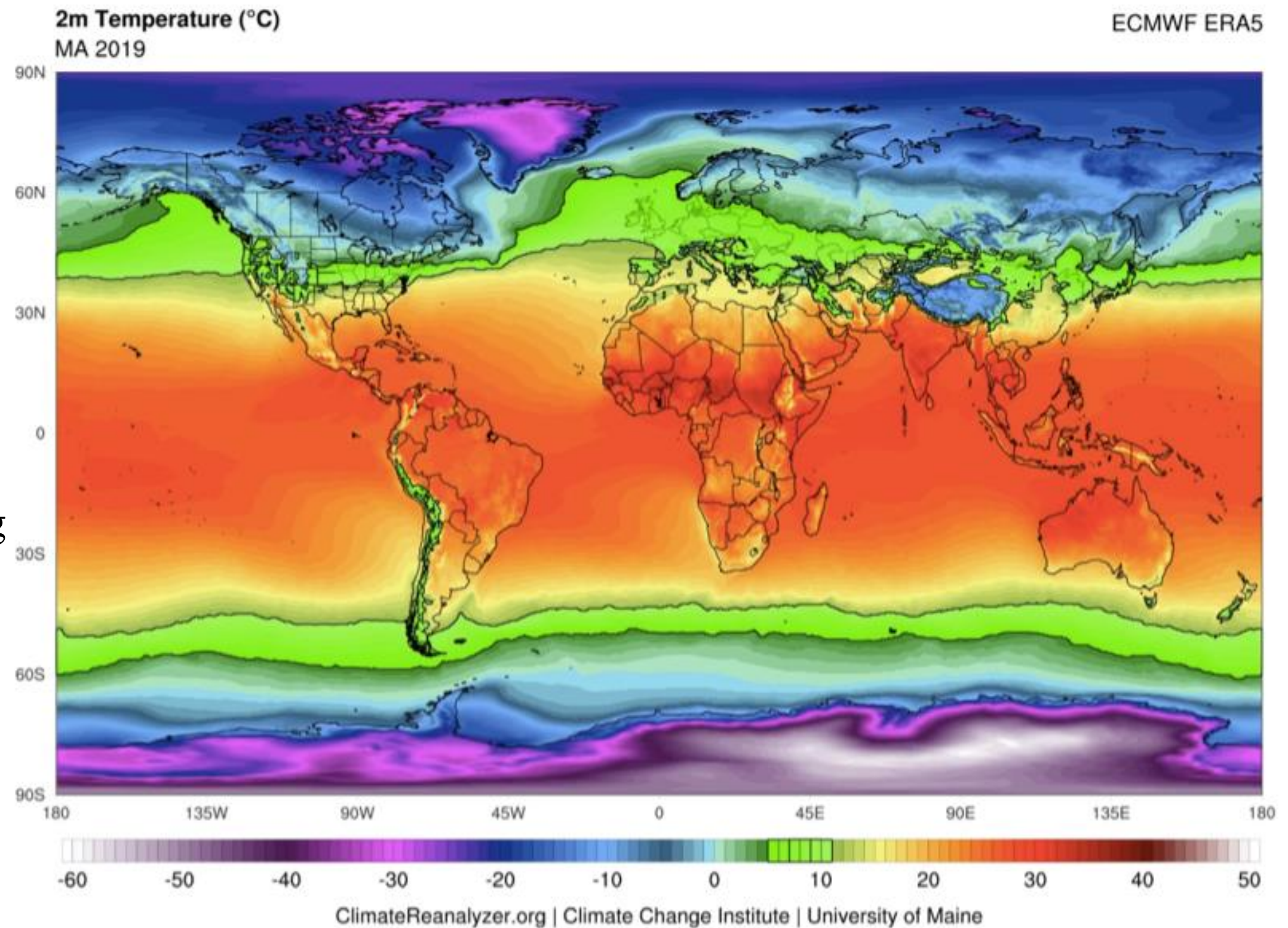


Figure 2: Tentative zone at risk for significant community spread in the near-term include land areas within the green bands, outlined in dark black (showing 5-11oC zone based on 2019 data),