

ABU DHABI PUBLIC  
HEALTH CENTRE

مركز أبوظبي  
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# Scientific Research Monitoring on COVID-19

12 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)



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

## Scientific Research

- **Management:** The European CDC posted the suggested Discharge criteria for confirmed COVID-19 cases.
- **Transmission dynamic :** A study found the average contagious period of SARS-CoV-2 infected patients was 20 days. Longer observation period and **more than 2 series of negative viral test** are necessary for patients  $\geq 65$  years.

*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

- [Epidemic Features and Control of 2019 Novel Coronavirus Pneumonia in Wenzhou, China](#)
- [Imaging Features in COVID-19 Patients: Analysis of Data from Patients in Non-Pandemic Areas](#)
- [Clinical Findings of Patients with Coronavirus Disease 2019 in Jiangsu Province, China: A Retrospective, Multi-Center Study](#)
- [Findings of Acute Pulmonary Embolism in COVID-19 Patients](#)
- [Epidemiological and Clinical Features of Corona Virus Disease 2019 \(COVID-19\) in Changsha, China](#)
- [Characteristics of Respiratory Virus Infection During the Outbreak of 2019 Novel Coronavirus in Beijing](#)
- [The Potential Role of IL-6 in Monitoring Coronavirus Disease 2019](#)
- [Clinical Characteristics of SARS-CoV-2 Infected Pneumonia with Diarrhea](#)
- [Clinical Hallmarks of 13 COVID-19 Patients Revealing SAA Biomarker](#)
- [COVID-19 Presents High Risk to Older Persons](#)



# WHO daily report (1/2)



11th March 2020

- WHO Director-General in his regular media briefing today stated that WHO has been assessing this outbreak around the clock and we are deeply **concerned both by the alarming levels of spread and severity, and by the alarming levels of inaction**. WHO therefore have made the assessment that COVID-19 can be characterized as **a pandemic**.
- **Summarized recommended strategy:**
  - First, prepare and be ready.
  - Second, detect, protect and treat.
  - Third, reduce transmission.
  - Fourth, innovate and learn.
- **Four new** countries/territories/areas (Bolivia [Plurinational State of], Jamaica, Burkina Faso and Democratic Republic of the Congo) have reported cases of COVID-19 in the past 24 hours.



11th March 2020

- The COVID-19 virus infects people of all ages. However, evidence to date suggests that **two groups of people are at a higher risk of getting severe COVID-19 disease. These are older people; and those with underlying medical conditions.**
- **The risk of severe disease gradually increases with age starting from around 40 years**
- WHO has issued advice for these **two groups** and for community support to ensure that they are protected from COVID-19:
  - The advice covers the subject of **receiving visitors, planning for supplies of medication and food, going out safely in public and staying connected with others through phone calls or other means**

#### Key advice for older adults and people with pre-existing conditions:



When you have visitors to your home, exchange “1 metre greetings”, like a wave, nod, or bow.



Ask visitors and those you live with to wash their hands.



Regularly clean and disinfect surfaces in your home, especially areas that people touch a lot.



If someone you live with isn't feeling well (especially with possible COVID-19 symptoms), limit your shared spaces.



If you become ill with symptoms of COVID-19, contact your healthcare provider by telephone before visiting your healthcare facility.



Make a plan in preparation for an outbreak of COVID-19 in your community.



When you go out in public, follow the same preventative guidelines as you would at home.

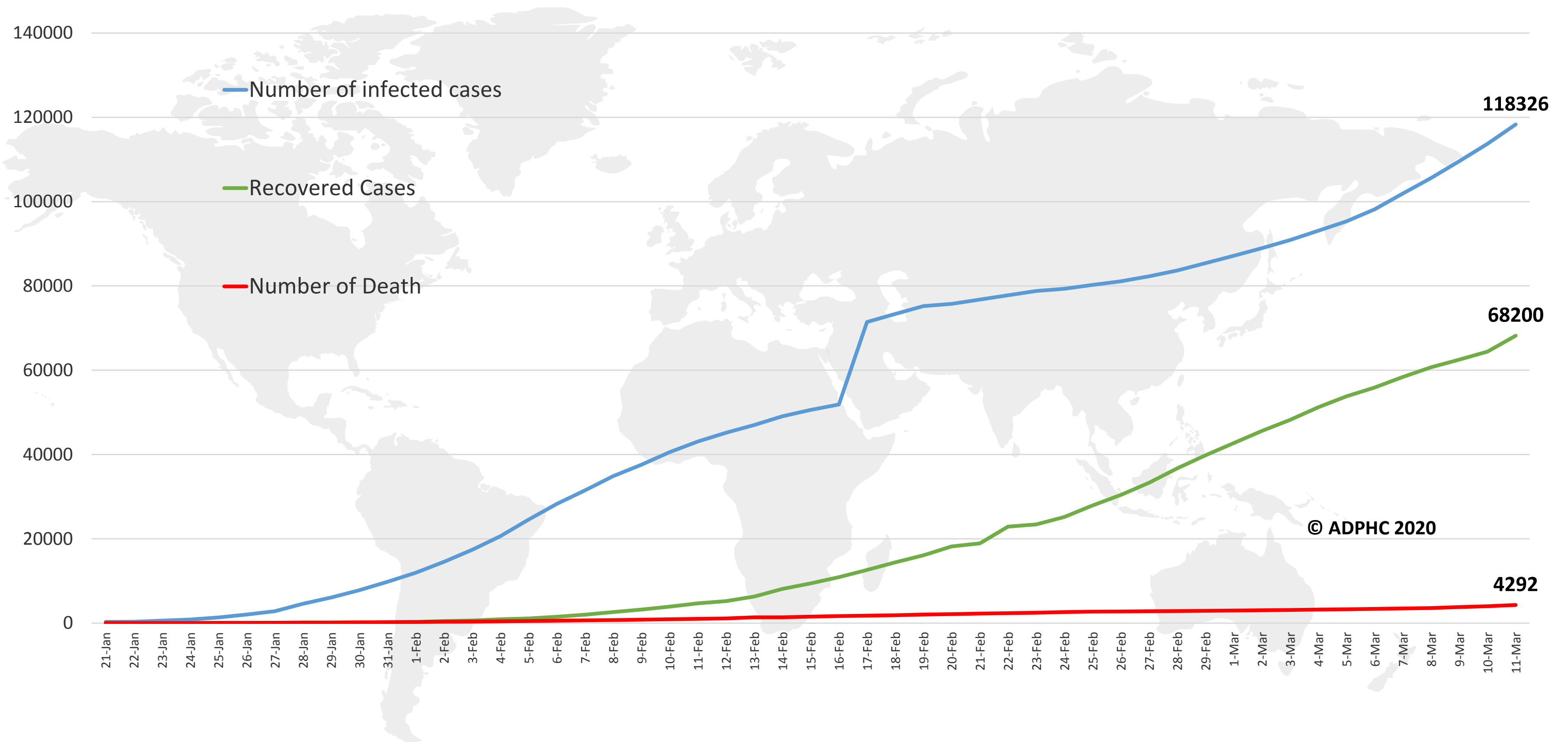


Stay up to date using information from reliable sources.

# Epidemiology



Figure 1: Total number of infected, recovered, and death cases (January 21<sup>st</sup> to March 11<sup>th</sup>, 2020)

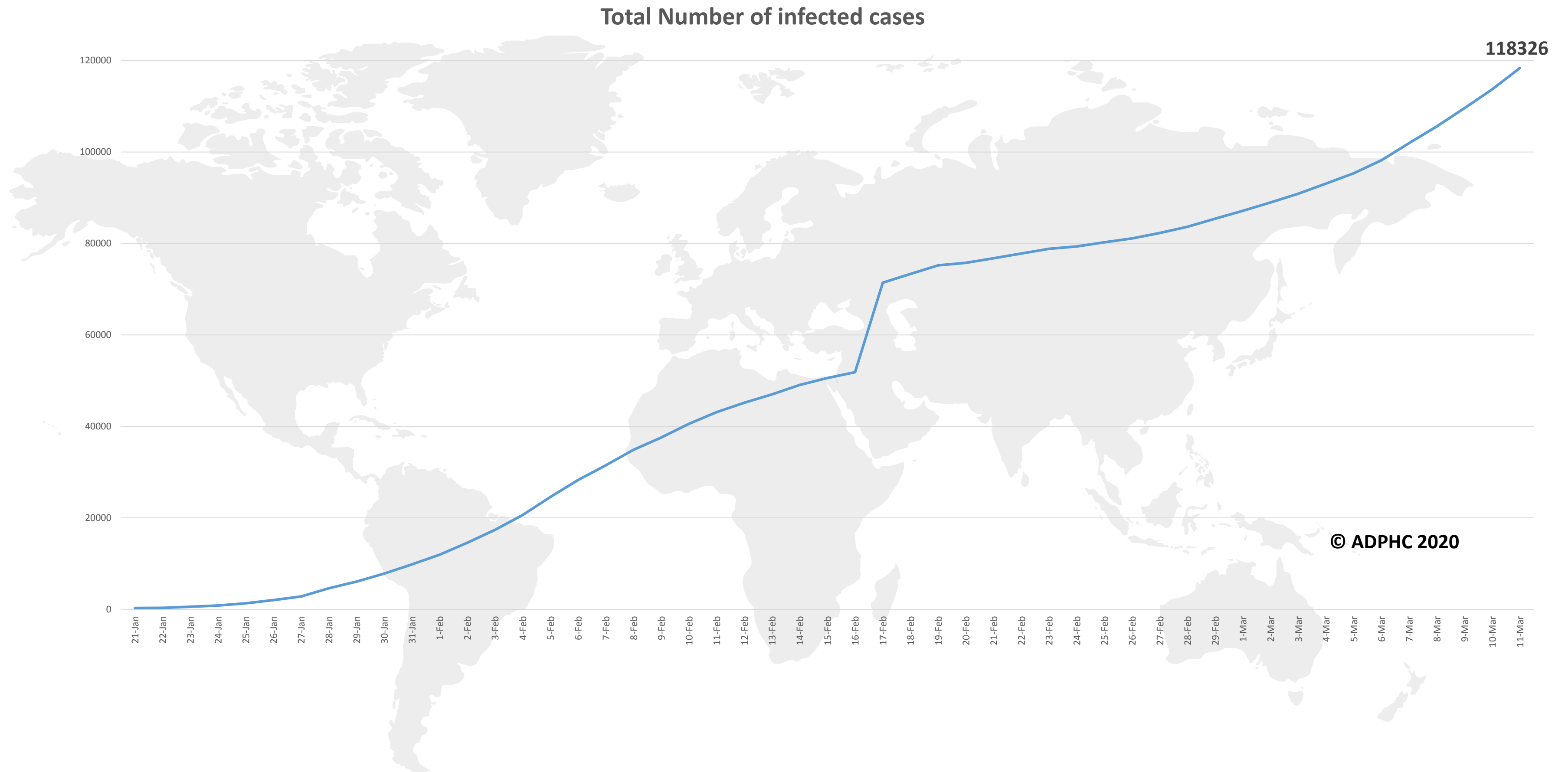


Line graph published by Abu Dhabi Public Health Center 2020.

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



Figure 2: Number of infected COVID-19 cases worldwide (January 21 to March 11, 2020).



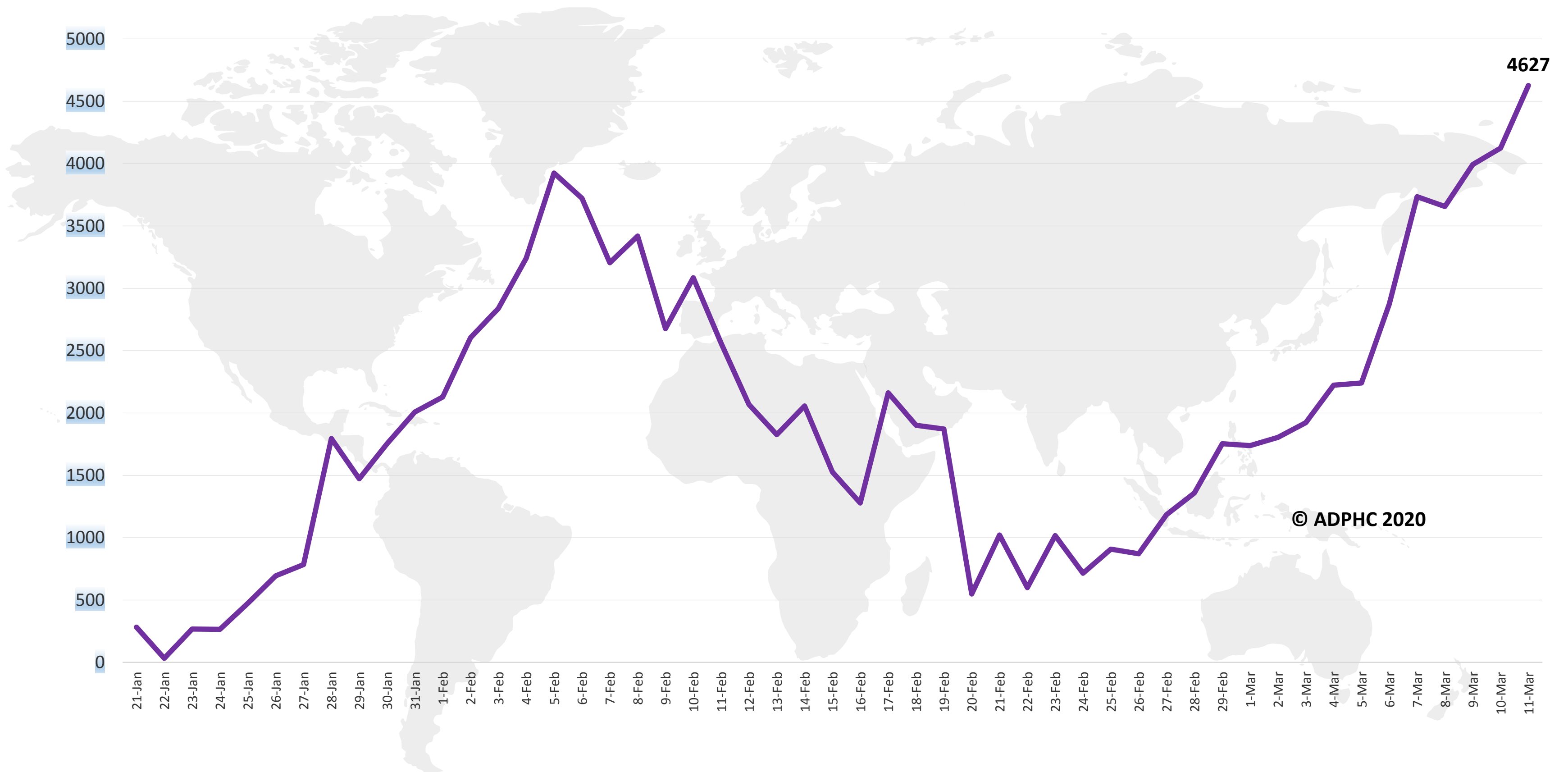
Line graph published by Abu Dhabi Public Health Center 2020.

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





Figure 3: Daily new infected COVID-19 cases worldwide (January 21 to March 11, 2020).

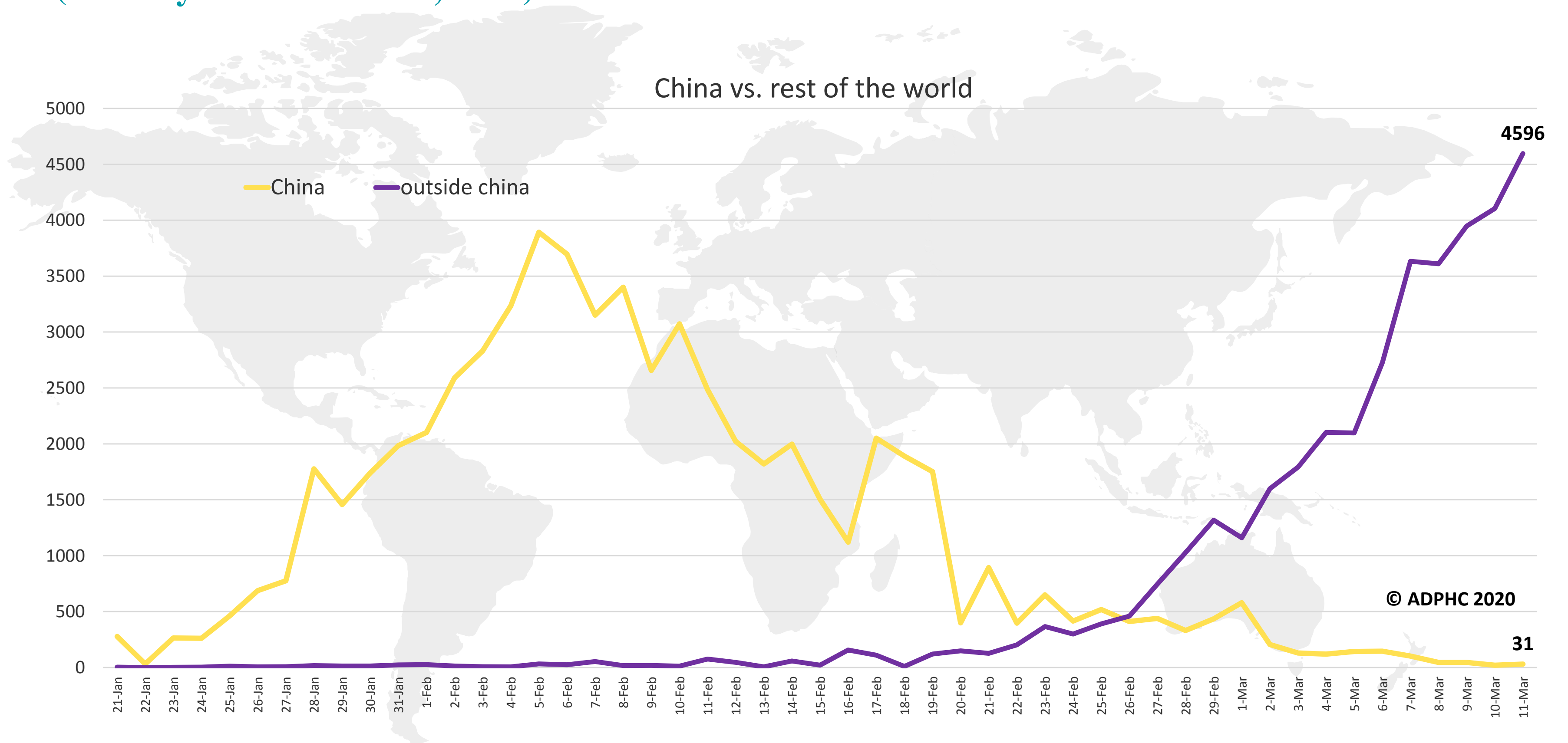


Line graph published by Abu Dhabi Public Health Center 2020.

Data resources: [WHO](#)



**Figure 4: Daily new infected COVID-19 cases reported by China and the rest of the world (January 21 to March 11, 2020).**



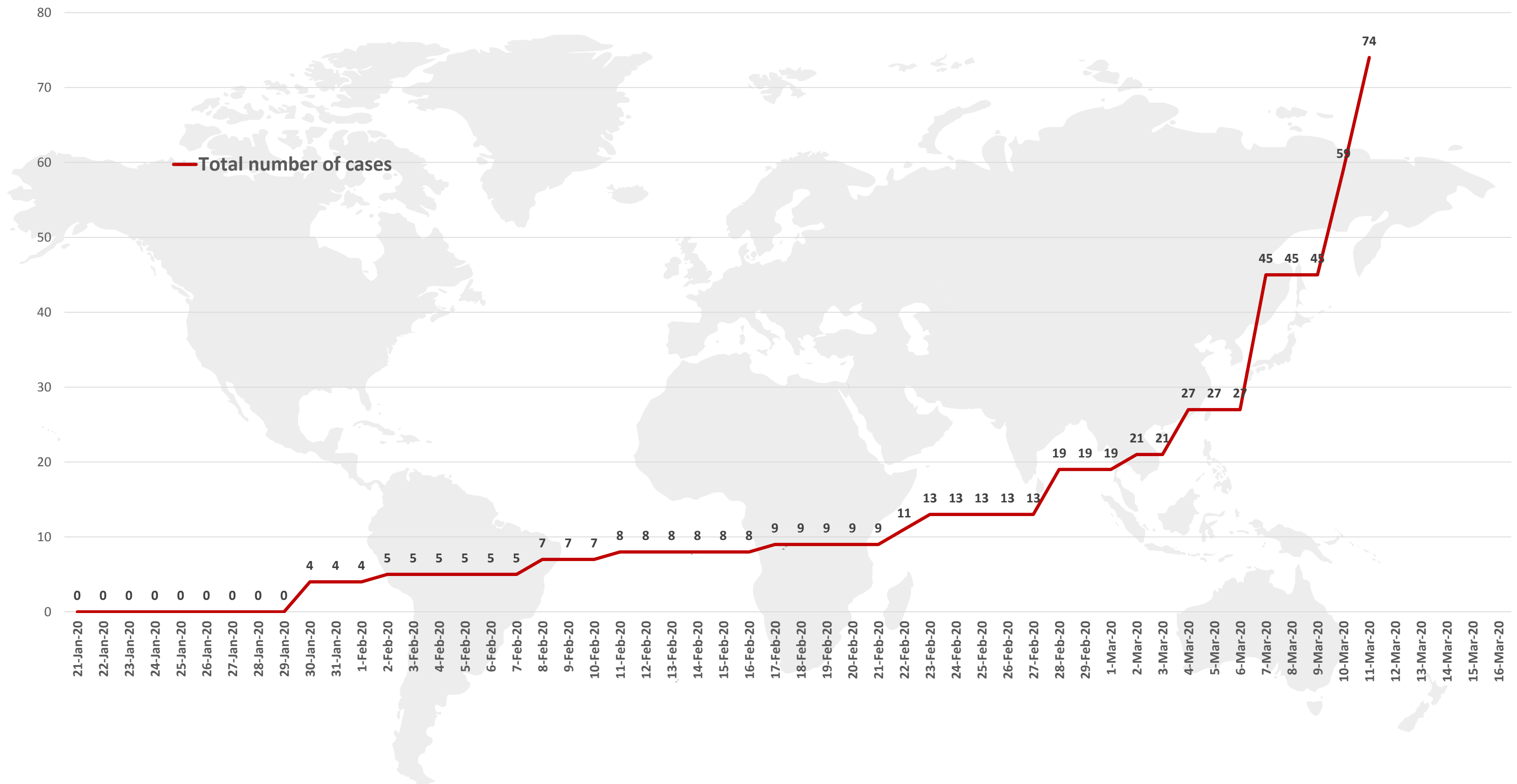
Line graph published by Abu Dhabi Public Health Center 2020.

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

# Epidemiology



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



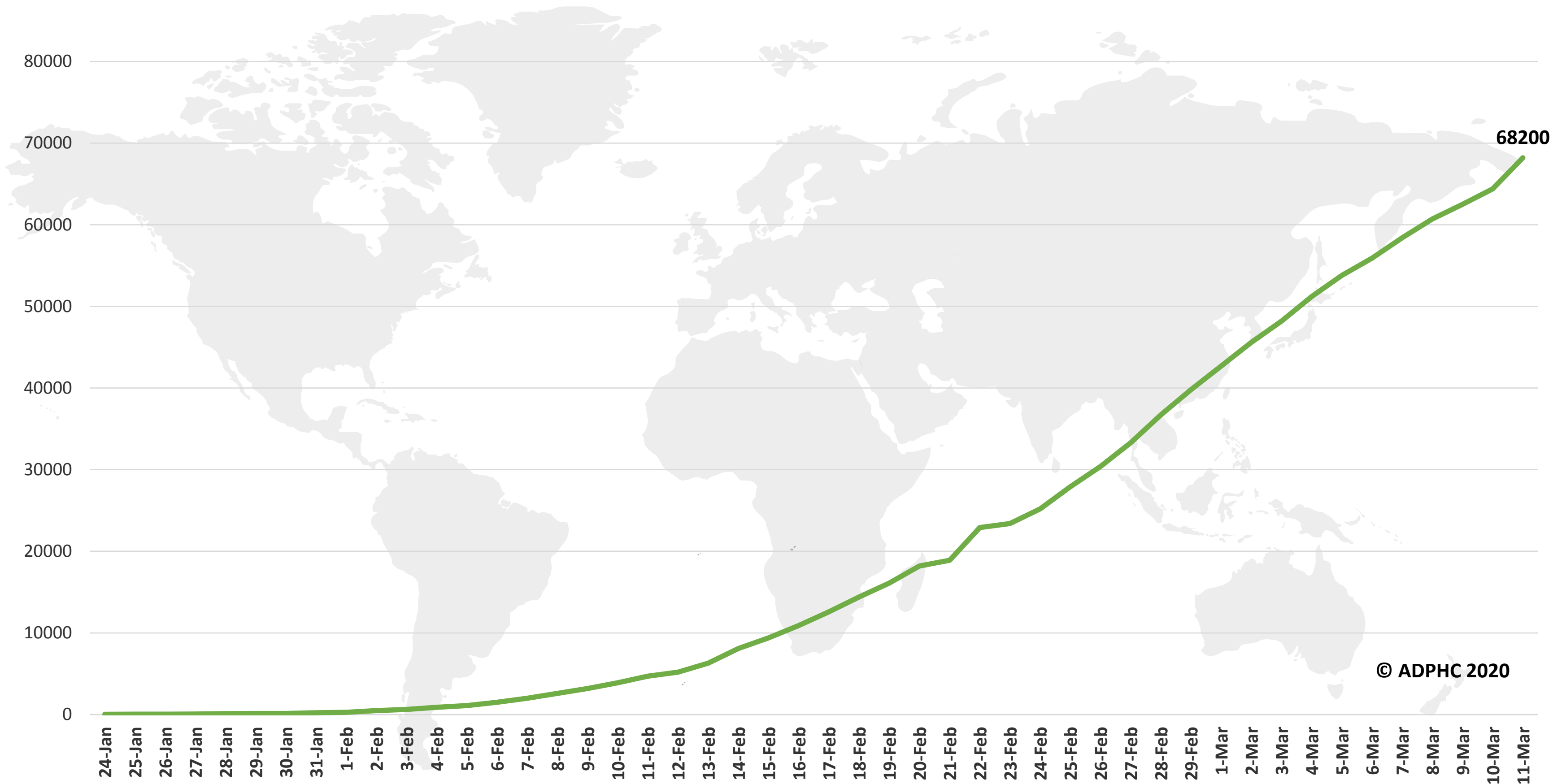
Line graph published by Abu Dhabi Public Health Center 2020.

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

# Epidemiology



Figure 6: Number of recovered COVID-19 cases worldwide (January 21 to March 11, 2020).



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Line graph published by Abu Dhabi Public Health Center 2020.

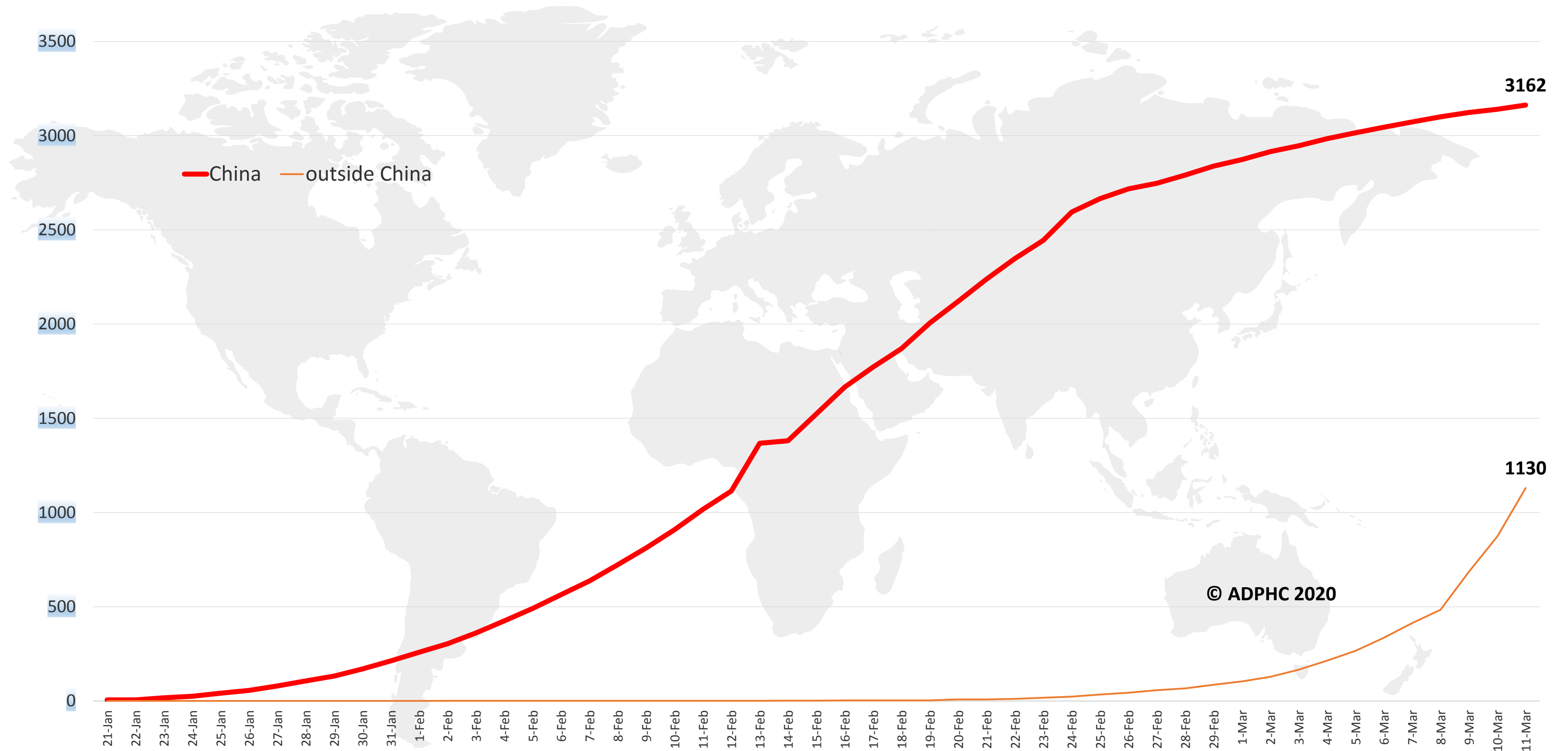
Data resources: [John Hopkins University](#)



# Epidemiology



**Figure 7: Daily number of death due to COVID-19 reported by China and the rest of the world (January 21 to March 11, 2020).**



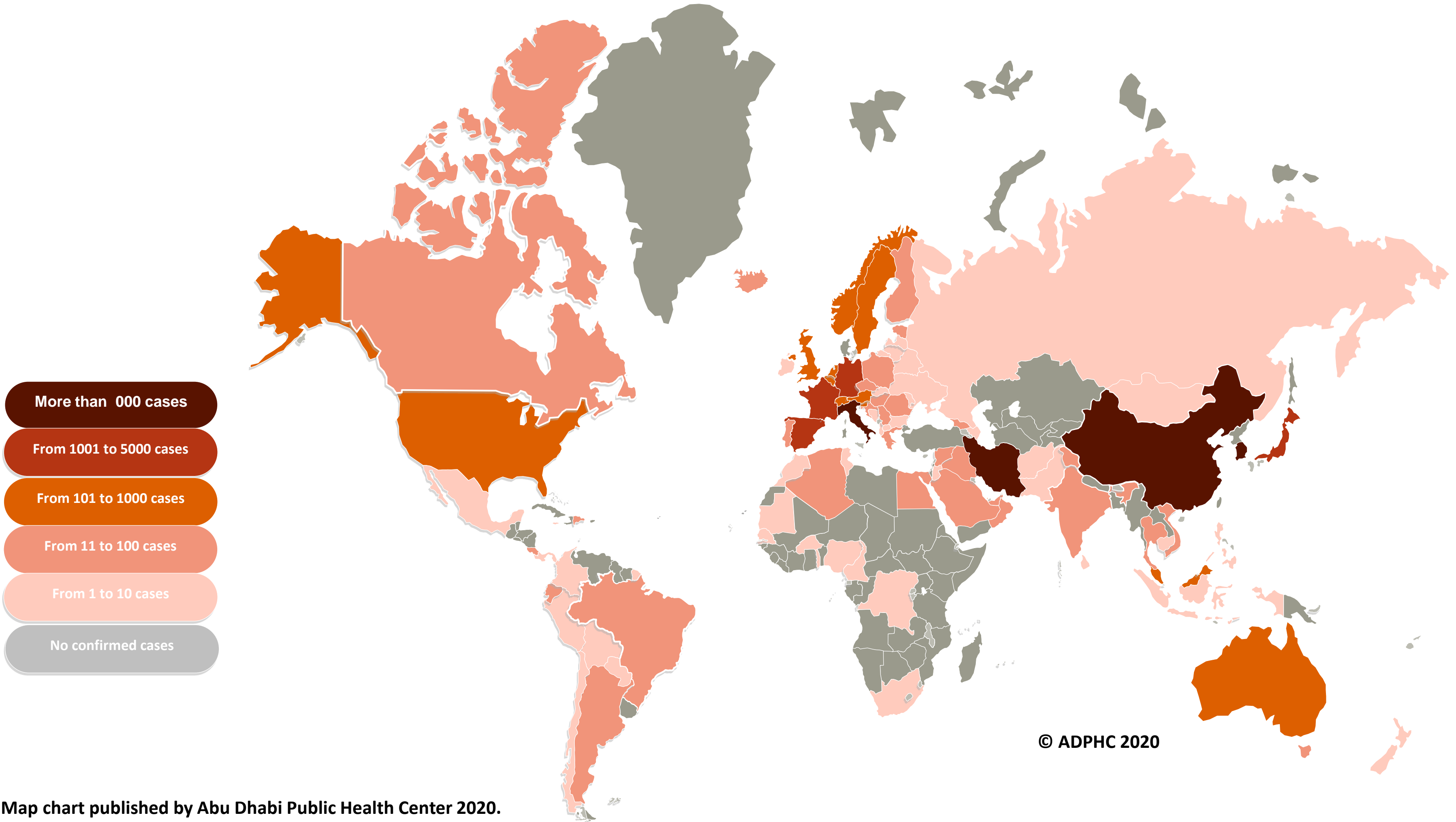
Line graph published by Abu Dhabi Public Health Center 2020.

Data resources: [WHO](#)

# Epidemiology



Figure 8A: Global distribution of COVID-19 cases (January 21 to March 11, 2020).



Map chart published by Abu Dhabi Public Health Center 2020.

# Epidemiology



Figure 8B: Bar chart illustrate the global distribution of COVID19 cases (January 21<sup>st</sup> to March 11<sup>th</sup>, 2020)



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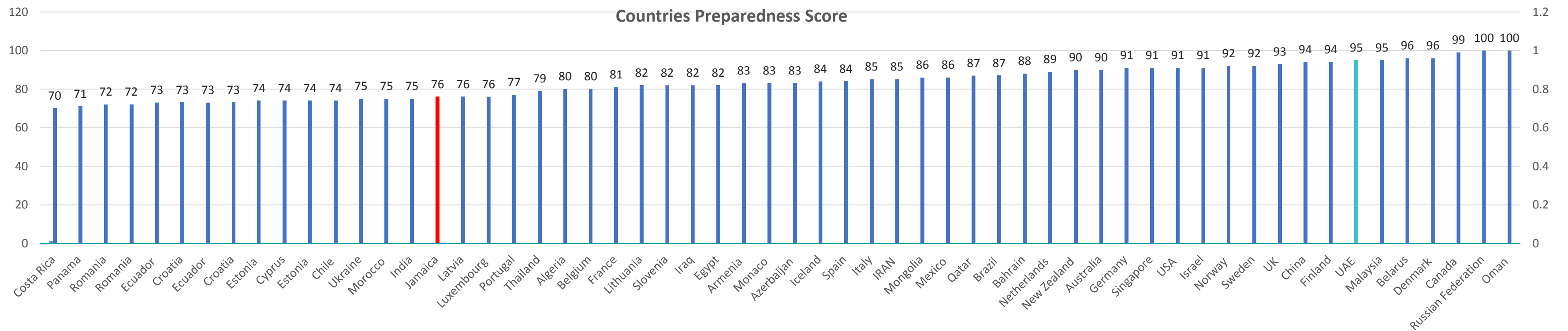
Map chart published by Abu Dhabi Public Health Center 2020.

# Epidemiology

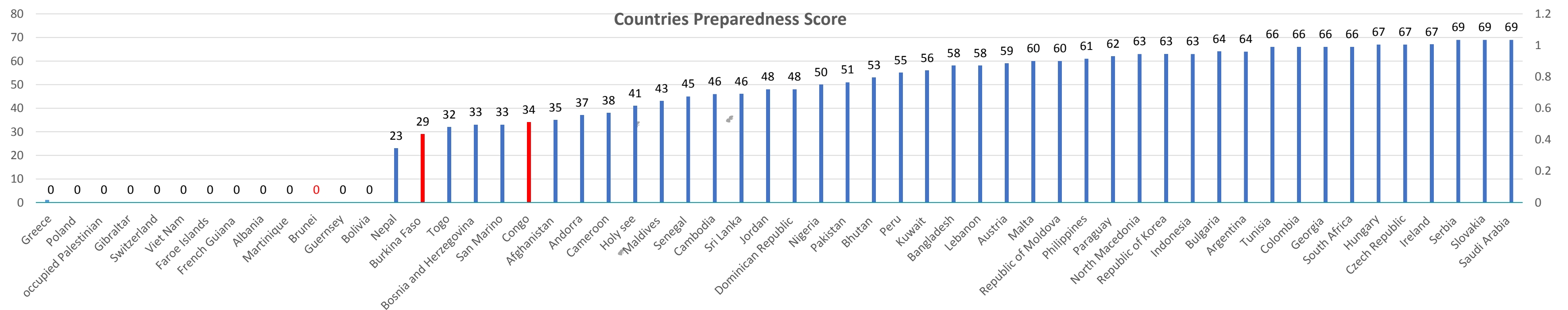


## Figure 9 : Countries capacities to report COVID-19 cases

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



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Line graph published by Abu Dhabi Public Health Center 2020.

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

\* Published in 2018

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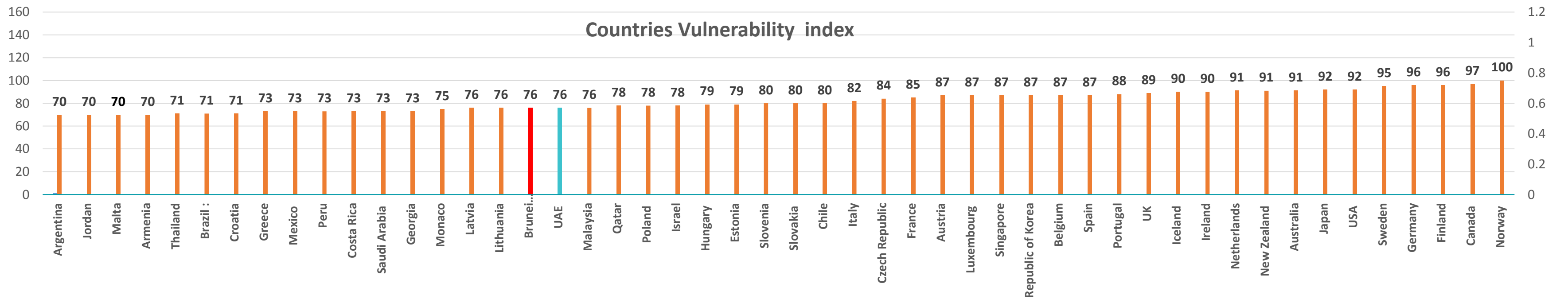


# Epidemiology

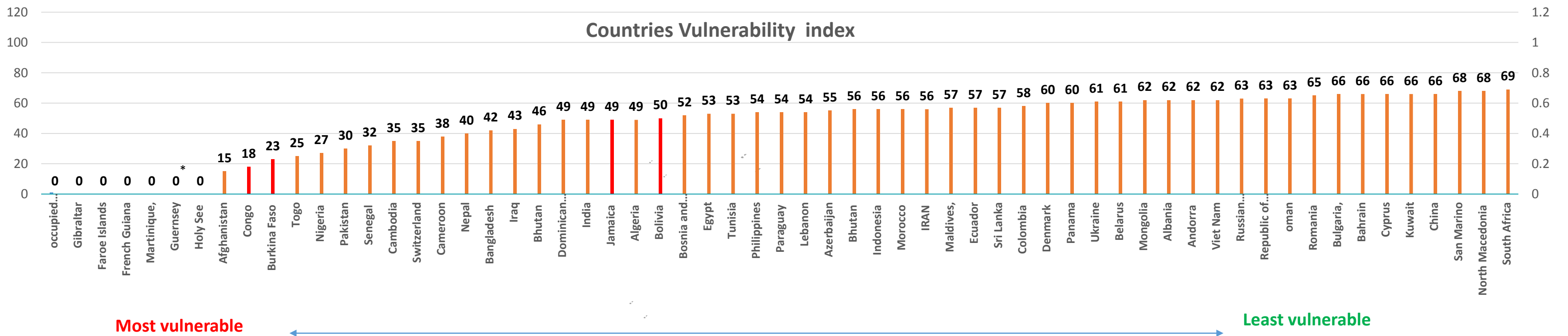


Figure 9: Countries capacities to report COVID-19 cases

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



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\* 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



## **Article 1: Discharge criteria for confirmed COVID-19 cases – When is it safe to discharge COVID-19 cases from the hospital or end home isolation?**

**Published: 10 March 2020**

**Link : [Click here](#)**

### **Summary:**

- When deciding on criteria for hospital discharge of COVID-19 patients, health authorities should take into account several factors such as **the existing capacity of the healthcare system, laboratory diagnostic resources, and the current epidemiological.**

### **Suggested criteria by the EUR-CDC :**

- **In the context of no apparent sustained transmission + no pressure on healthcare facilities:**
  - Clinical criteria (e.g. no fever for > 3 days, improved respiratory symptoms, pulmonary imaging showing obvious absorption of inflammation, no hospital care needed for other pathology, clinician assessment)
  - Laboratory evidence of SARS-CoV-2 clearance in respiratory samples; 2 to 4 negative RT-PCR tests for respiratory tract samples (nasopharynx and throat swabs with sampling interval  $\geq$  24 hours). Testing at a minimum of 7 days after the first positive RT-PCR test is recommended for patients that **clinically improve earlier.**
  - **Serology:** appearance of specific IgG when an appropriate serological test is available.
- **In the context of sustained widespread transmission+ increasing pressure on healthcare systems :**
  - Discharge from hospital of **mild cases** – if clinically appropriate – may be considered with **14 days of further isolation** with regular health monitoring.
  - Provided the patient's home is equipped for patient isolation and the patients takes all necessary precautions
- Due to increasing evidence of virus shedding through feces by convalescent patients, **particularly children,** recommendations for **careful personal hygiene precautions** after **de-isolation** are warranted.

**Article 1: Discharge criteria for confirmed COVID-19 cases – When is it safe to discharge COVID-19 cases from the hospital or end home isolation?(2/2)**



Country	Symptomatic cases, hospitalized	Asymptomatic infections, persons isolated at home
Italy (28 February 2020)	<ul style="list-style-type: none"> <li>Two negative tests for SARS- CoV-2 at 24-hour intervals.</li> <li>Patients recover earlier <b>than 7 days</b> after onset, <b>an interval of 7 days between the first and the final test is advised.</b></li> </ul>	<b>Negative SARS-CoV-2 RNA test at 14 days after the first test (end of the quarantine period).</b>
China CDC –	<ul style="list-style-type: none"> <li><b>Afebrile for &gt;3 days,</b></li> <li>Improved respiratory symptoms, &amp; <b>Pulmonary imaging</b> shows obvious absorption of inflammation, and twice consecutively (sampling interval <math>\geq 24</math> hours).</li> <li><b>After discharge patient's are requested additional 14 days of home isolation.</b></li> <li>Follow-up visits after 2 and 4 weeks.</li> </ul>	
(NCID) Singapore	<p>Follow-up if indicated and with daily wellness calls until day <b>14 after last possible exposure</b>, under the following conditions:</p> <ul style="list-style-type: none"> <li>Afebrile <math>\geq 24</math> hours,</li> <li>Two negative swabs in <math>\geq 24</math> hours,</li> <li>Day of illness from onset <math>\geq 6</math> days <b>OR</b> Alternative aetiology found (e.g. influenza, bacteraemia) <b>OR</b> Not a close contact of a COVID-19 case</li> <li>Does not require in-patient care for other reasons.</li> </ul>	
CDC USA	<p>Negative swab at least 2 consecutive sets of <b>nasopharyngeal and throat swabs collected <math>\geq 24</math> hours</b> apart (a total of <b>four negative specimens</b>) <b>AND</b> afebrile , improvement in illness signs and symptoms.</p> <p>Note: <i>Decision to be taken on a case-by-case basis in consultation with clinicians and public health officials</i></p>	





# Transmission dynamic

**Article 2 : Dynamic profile of RT-PCR findings from 301 COVID-19 patients in Wuhan, China: a descriptive study .**

**Published: 10<sup>th</sup> Mar 2020**

**Link : [click Here](#)**

## Summary:

A study on **301 confirmed COVID-19 patients** in Wuhan, China. Study duration from **21 Jan to 11 February 2020**

The study aim to describe the **viral detection results across different time points throughout the disease course.**

## Findings:

- Using specimens from **nasal swabs** to run the **RT-PCR test showed a higher positive rate** than using specimens from **throat swabs.**
- **20 days was the average contagious period.**
- **Infected patient  $\geq 65$  years old stayed contagious longer AND require longer observation period and more than 2 series of negative viral test.**
- At the last follow-up, **85 (28.2%) patients still got positive results.**

Table 1. The demographic and clinical characteristics of all patients

Variables	All Patients
<b>Clinical parameters (N=301)</b>	
Age, median (IQR), y	58 (44-68)
<65	63.5% (191/301)
$\geq 65$	36.5% (110/301)
<b>Gender</b>	
Male	51.2% (154/301)
Female	48.8% (147/301)
Onset of symptom to admission, median (IQR), d	9 (7-12)
<b>Status</b>	
In-hospital	81.7% (246/462)
Discharge	18.3% (55/301)
<b>SARS-CoV-2 RT-PCR assay</b>	
Total tests	1113
Tests/patient	3.7 tests/patient
Throat swabs	92.7% (1028/1113)
Nasal swabs	7.6% (85/1113)
<b>Onset of symptom to, median (IQR), d</b>	
First SARS-CoV-2 RT-PCR assay	8 (5-12)
Last SARS-CoV-2 RT-PCR assay	24 (20-28)
Positive SARS-CoV-2 RT-PCR assay	16 (10-23)
Negative SARS-CoV-2 RT-PCR assay	20 (17-24) (N=216)
<b>Positive rate of SARS-CoV-2 RT-PCR, d</b>	
Day 0-7	97.9% (137/140)
Day 8-14	68.8% (152/221)
Day 15-21	36.3% (127/350)
Day 22-28	30.0% (92/307)
>28 days	26.3% (25/95)

Abbreviations: IQR, interquartile range; RT-PCR, real-time reverse transcription polymerase chain reaction.

**Note: This paper should not be used for clinical decision making or reporting of research to a lay audience without indicating that this is preliminary research that has not been peer-reviewed.**