

ABU DHABI PUBLIC  
HEALTH CENTRE

مركز أبوظبي  
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# Scientific Research Monitoring on COVID-19

17 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

- **Clinical Feature and Transmission:** An article hypothesize that certain medications used to treat Diabetes and hypertension increase an enzyme that facilitate infection of COVID19 and increase its severity.
- **Clinical Feature and Transmission:** A case study from US found **that person- to-person transmission of COVID-19 might** be most likely to occur through **unprotected, prolonged** exposure to a patient with symptomatic COVID-19. which is different than Wuhan

*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

- [revalence and Influencing Factors of Anxiety and Depression Symptoms in the First-Line Medical Staff Fighting Against the COVID-19 in Gansu](#)
- [Psychological Effects of COVID-19 on Hospital Staff: A National Cross-Sectional Survey of China Mainland](#)
- [Novel Coronavirus \(2019-nCoV\) Infection in Humans: A Scoping Review and Meta-Analysis](#)
- [Revealing the Influence of National Public Health Response for the Outbreak of the SARS-CoV-2 Epidemic in Wuhan, China Through Status Dynamic Modeling](#)
- [Acute Cerebrovascular Disease Following COVID-19: A Single Center, Retrospective, Observational Study](#)



16th March 2020

- Four new countries/territories/areas (African Region [2], European Region and Region of the Americas) have reported cases of COVID-19 in the past 24 hours.
- The total number of cases and **deaths outside China** has **overtaken** the total number of cases **in China**
- The WHO COVID-19 Incident Management Team is working closely with partners across all levels to provide support to countries, strengthen technical and operational networking and collaboration, and support operational coordination of the global response.
  - WHO is mobilizing experts to support countries based on request.
  - Public Health England, the Chinese Center for Disease Control and others **have sent staff** to WHO to work on COVID-19 response in **Geneva, Switzerland, Manila, Philippines and New Delhi, India**
  - A major focus of the response is on **case detection and contact tracing**.
  - **WHO have published a Data Tool** ; which is an outbreak investigation tool for field data collection during public health emergencies.
- Two new technical guidance documents were published today: **Critical preparedness, readiness and response actions for COVID-19** and **Risk Communication and Community Engagement (RCCE) Action**

## Plan Guidance



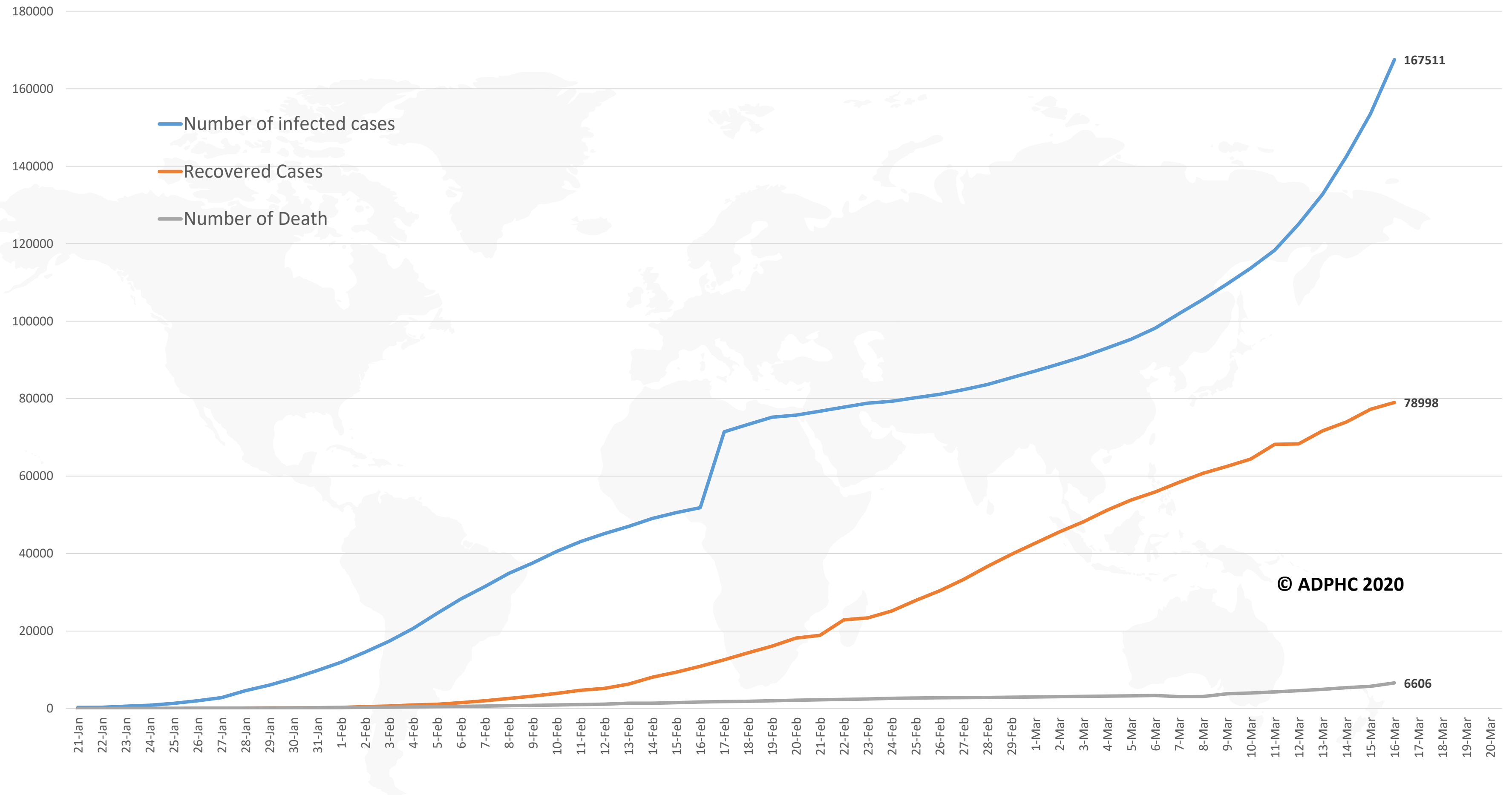
16th March 2020

- WHO and The international chamber of Commerce ICC will send regular advice to over 45 million businesses to **protect their workers, customers and local communities** and **contribute to the production and distribution of essential supplies.**
  - Setting up a reporting system for any **cases and contacts; preparing essentials; limiting travel and physical connectivity;** and planning for measures such as **teleworking** when necessary
- **Calls to Action:**
  - ICC strongly endorses WHO's call on national governments everywhere to adopt a **whole-of- government** and **whole-of-society approach** in responding to the COVID-19 pandemic.
  - **Governments** should commit to **making available all necessary resources** to combat COVID-19 with the minimum delay and to ensure that **cross-border medical** and other essential goods supply chains are able to function effectively and efficiently
  - ICC and the WHO encourage national chambers of commerce to work closely with UN country teams, to designate mutual focal points to coordinate this collaboration.
  - ICC encourages its members to support their country's national response efforts and to contribute to the global response efforts.

# Epidemiology



**Figure 1: Total number of infected, recovered, and death cases (January 21<sup>st</sup> to March 16<sup>th</sup>, 2020)**



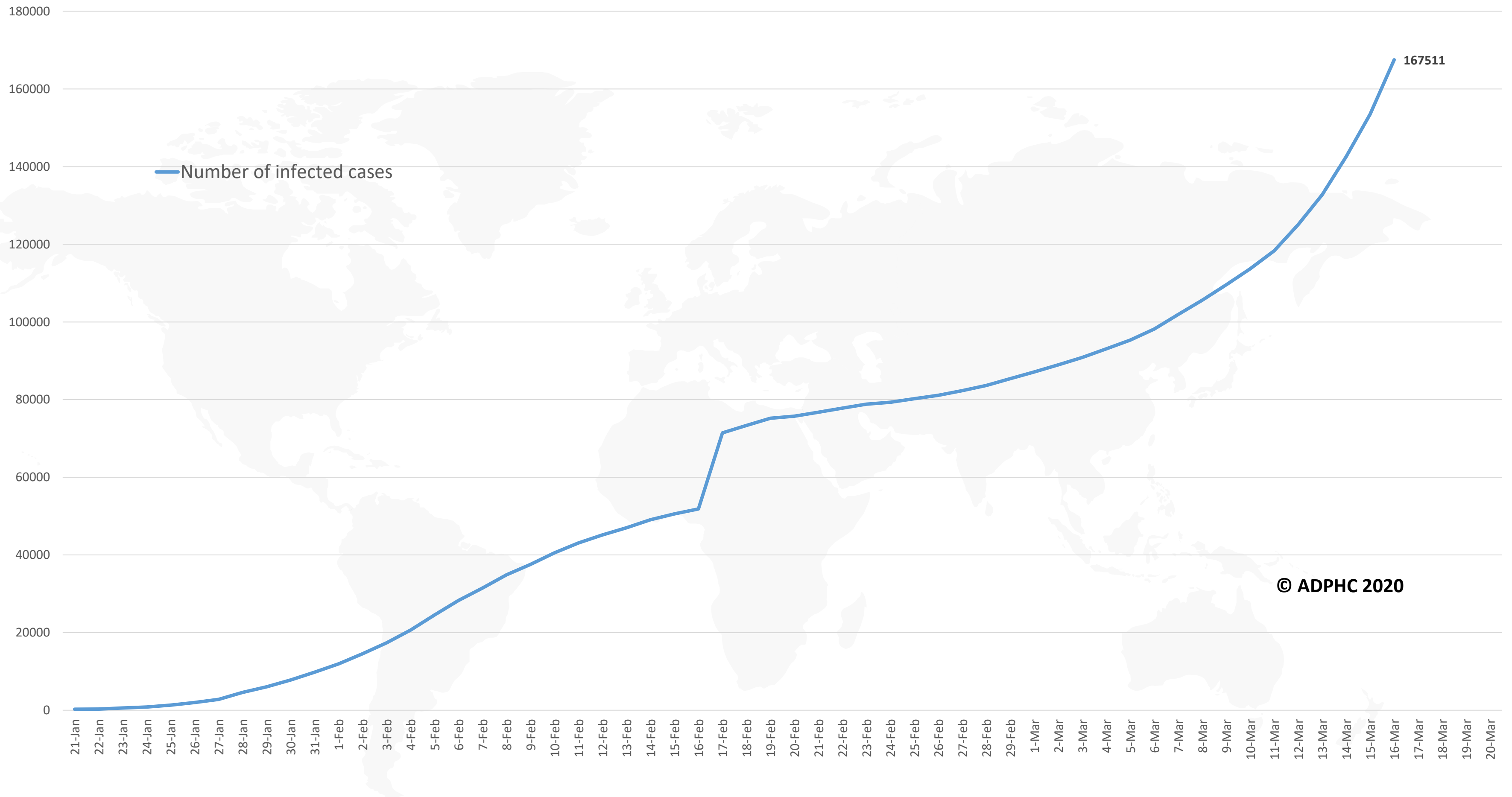
Line graph published by Abu Dhabi Public Health Center 2020.

Data resources: [WHO](#), [John Hopkins University](#)

# Epidemiology



Figure 2: Number of infected COVID-19 cases worldwide (January 21 to March 16, 2020).



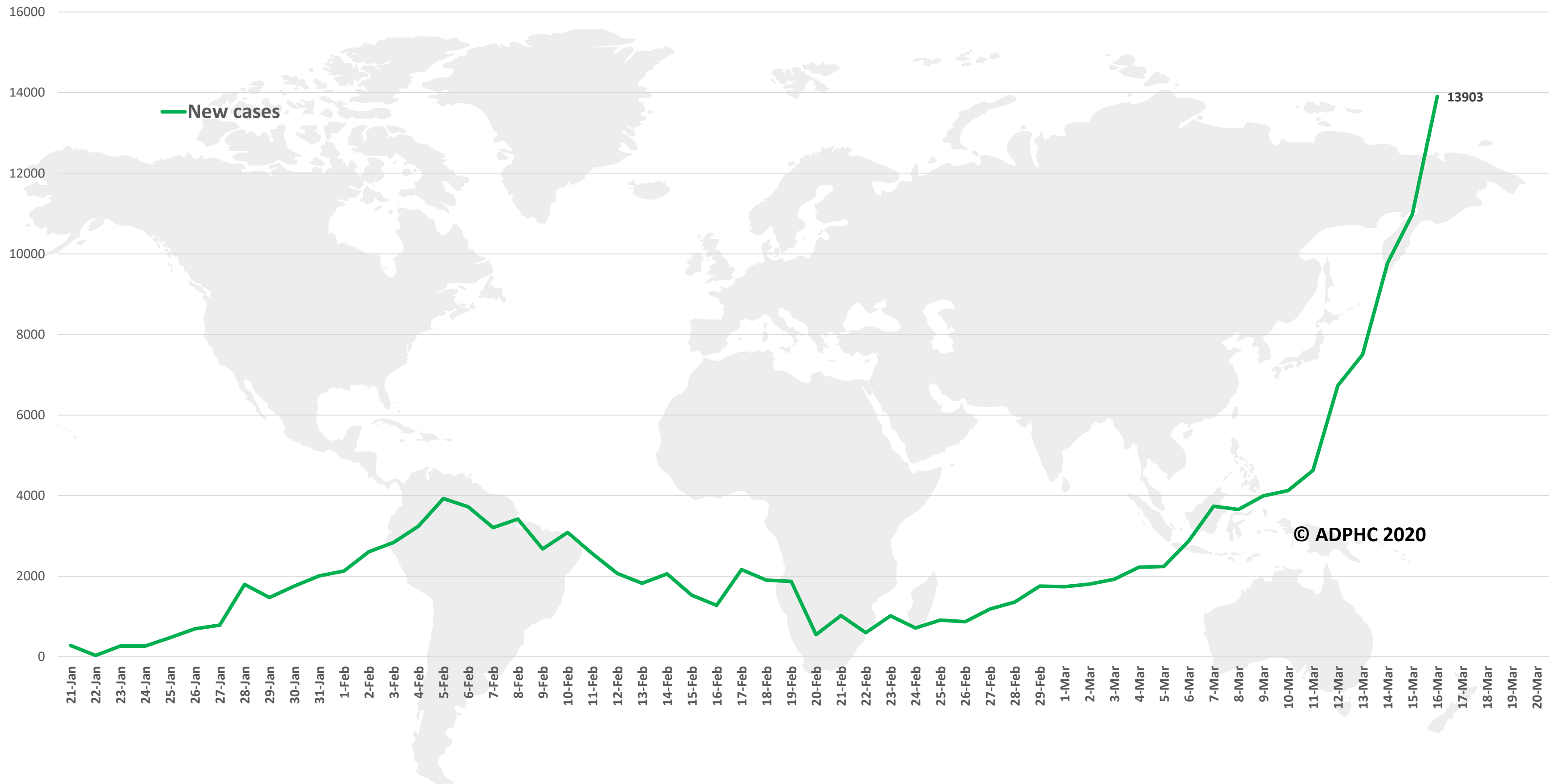
Line graph published by Abu Dhabi Public Health Center 2020.

Data resources: [WHO](#)





Figure 3: Daily new infected COVID-19 cases worldwide (January 21 to March 16, 2020).

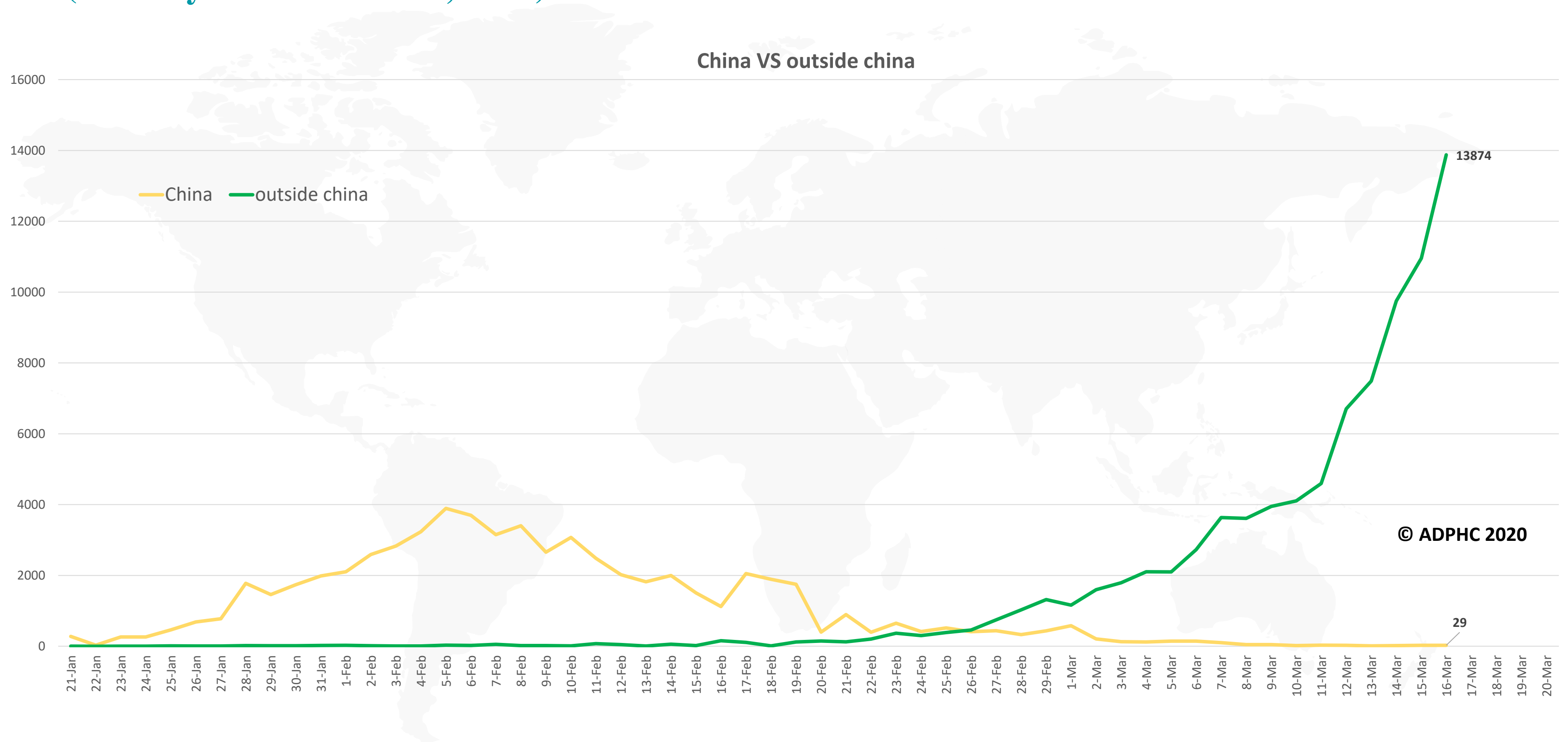


Line graph published by Abu Dhabi Public Health Center 2020.

Data resources: [WHO](#)



**Figure 4: Daily new infected COVID-19 cases reported by China and the rest of the world (January 21 to March 16, 2020).**



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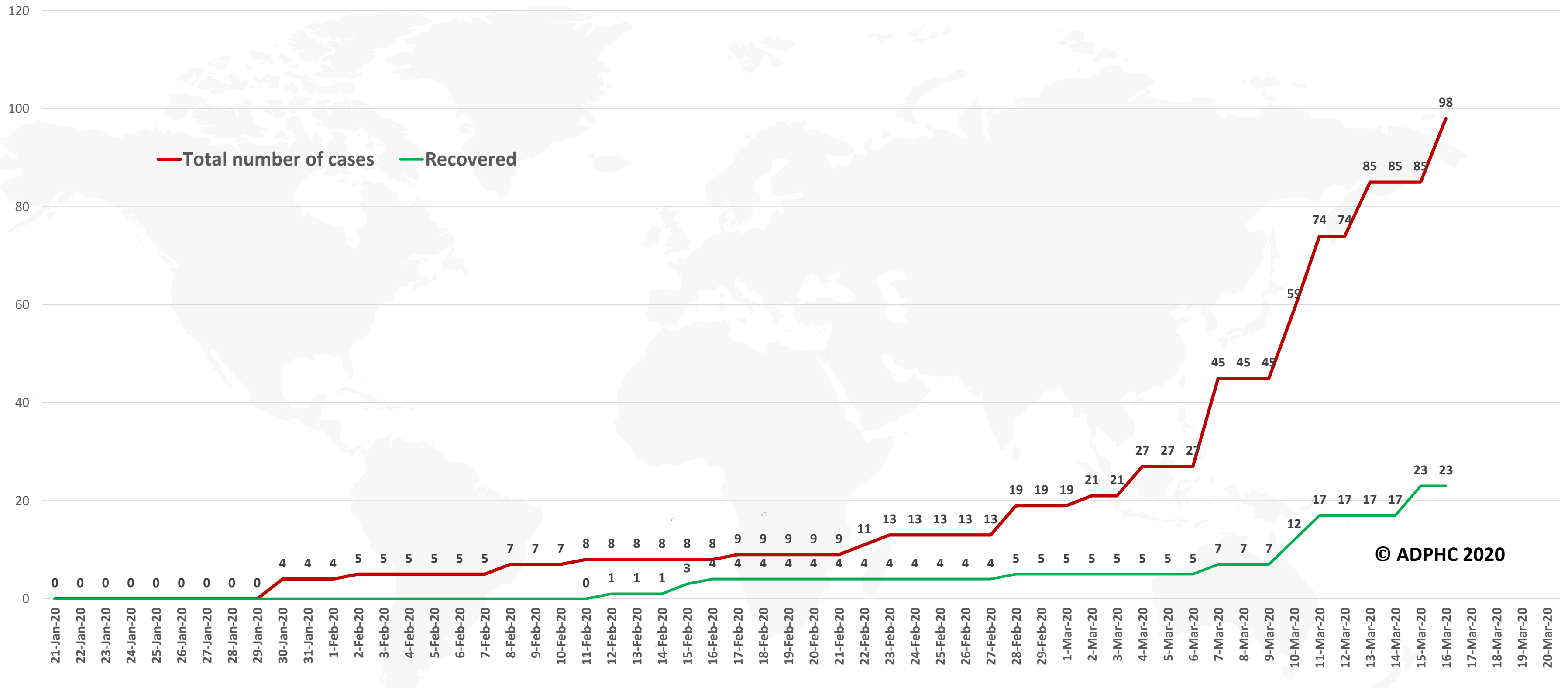
Line graph published by Abu Dhabi Public Health Center 2020.

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

# Epidemiology



**Figure 5: Total number of COVID-19 infected and recovered cases in UAE over time**



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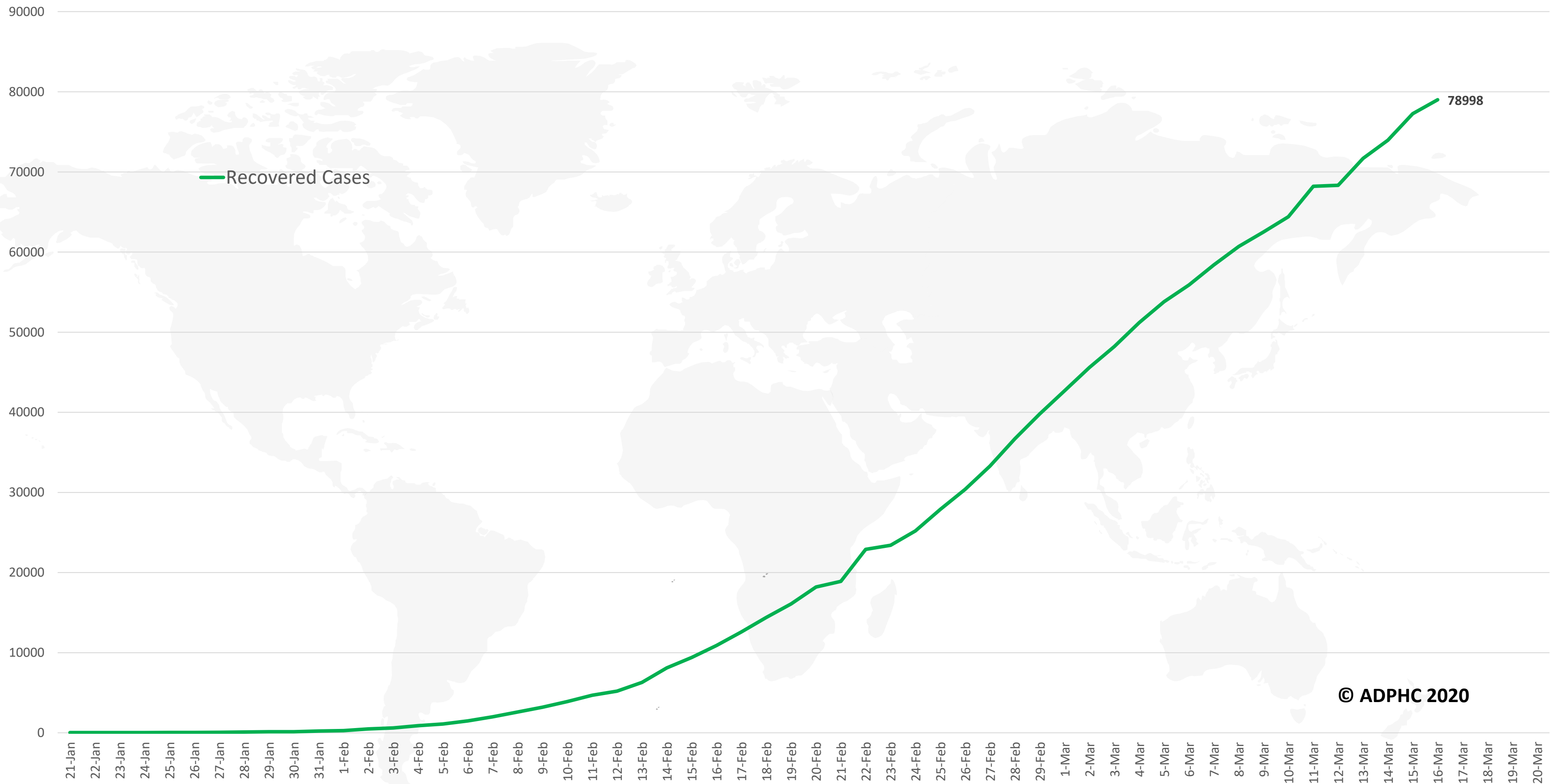
Line graph published by Abu Dhabi Public Health Center 2020.

Data resources: [WHO](#), [John Hopkins University](#)

# Epidemiology



**Figure 6: Number of recovered COVID-19 cases worldwide (January 21 to March 16, 2020).**

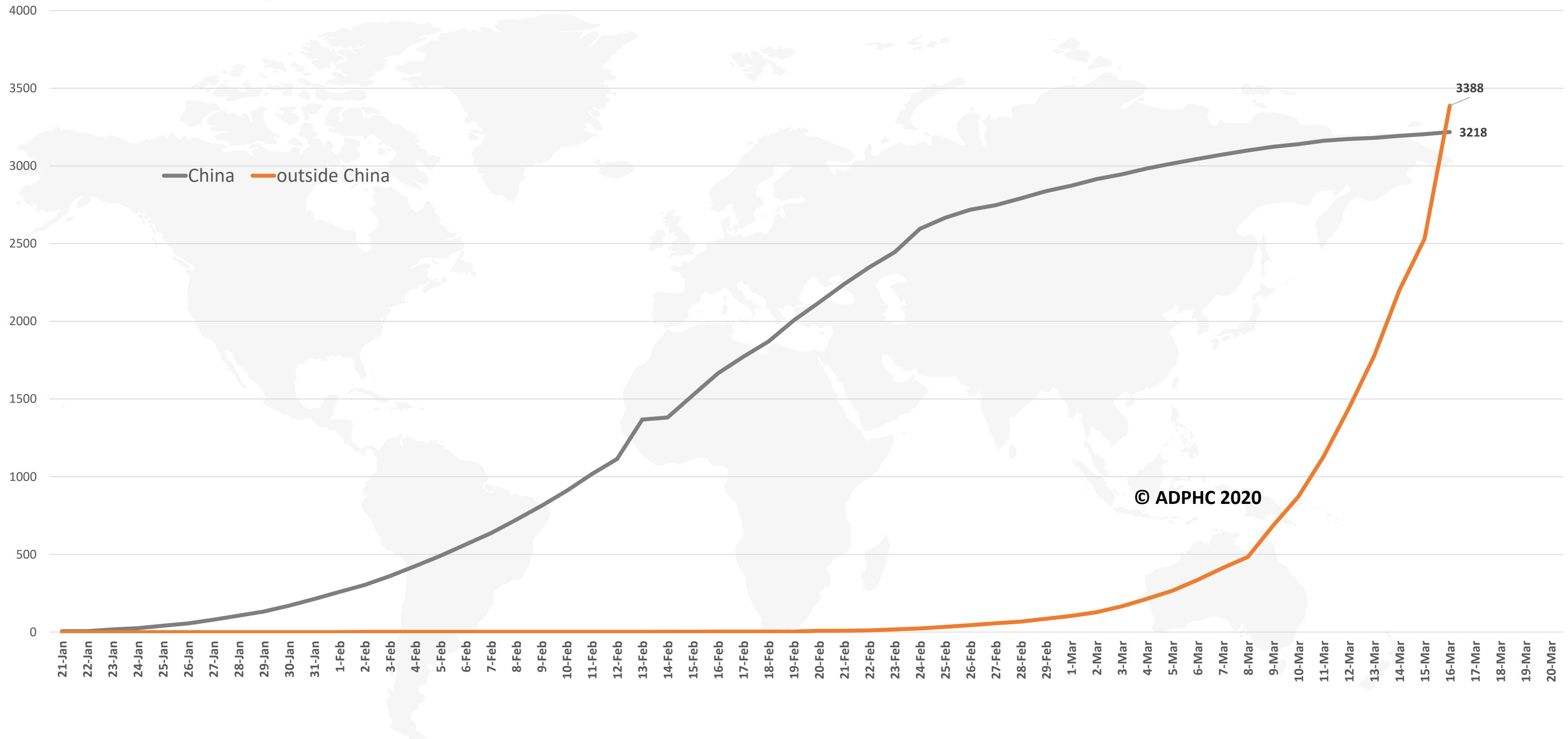


Line graph published by Abu Dhabi Public Health Center 2020.

Data resources: [John Hopkins University](#)



**Figure 7: Daily number of death due to COVID-19 reported by China and the rest of the world (January 21 to March 16, 2020).**



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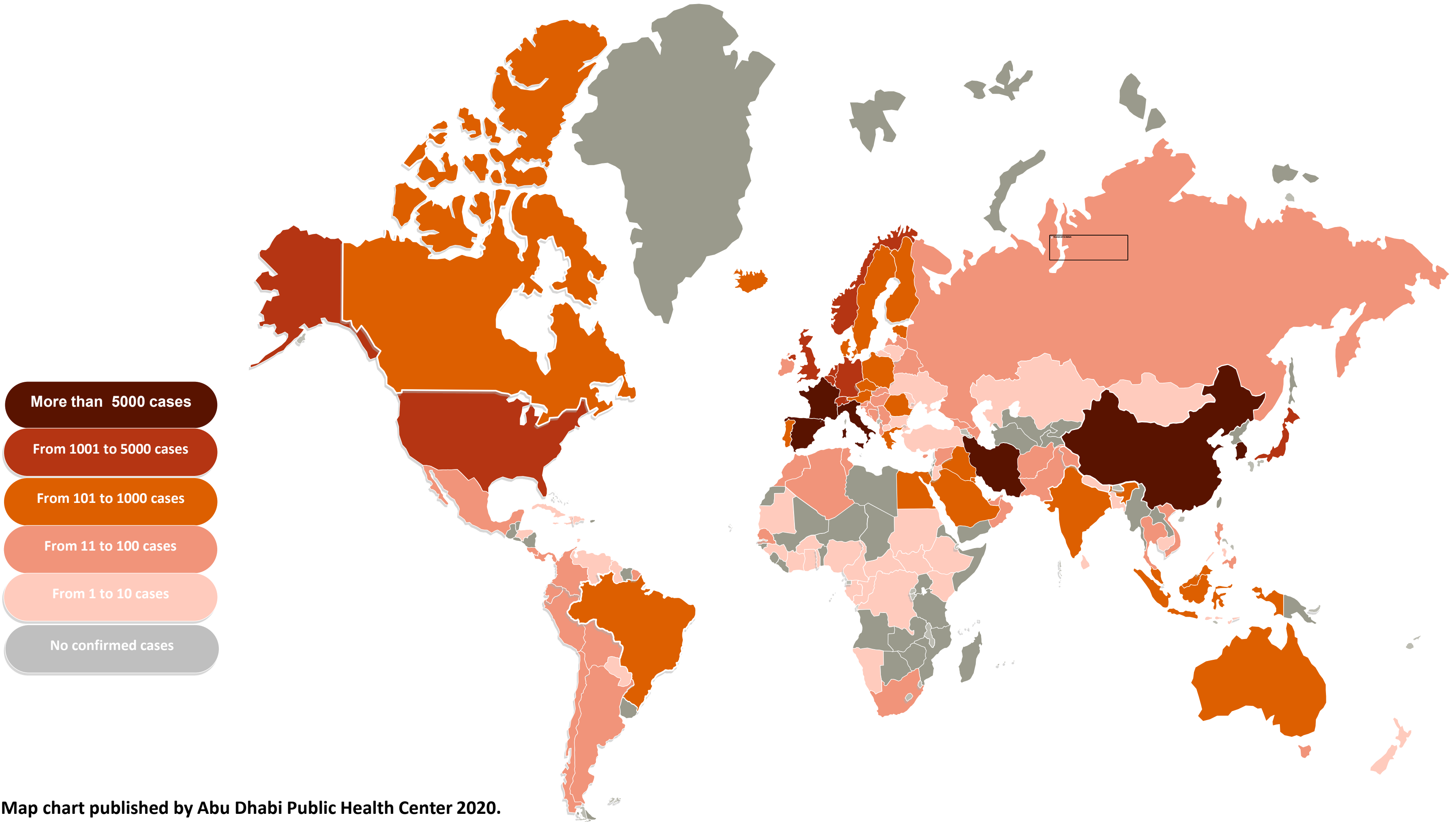
Line graph published by Abu Dhabi Public Health Center 2020.

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

# Epidemiology



Figure 8A: Global distribution of COVID-19 cases (January 21 to March 16, 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 16<sup>th</sup>, 2020)



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Map chart published by Abu Dhabi Public Health Center 2020.

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



# Clinical feature and transmission

**Article:** Are patients with hypertension and diabetes mellitus at increased risk for COVID-19 infection?

**Published:** 11 March 2020

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

## Summary:

- SARS- CoV-2 bind to an enzyme called angiotensin-converting enzyme 2 (**ACE2**), which is expressed by cells of the lung, intestine, kidney, and blood vessels.
- This enzymes is highly expressed in patients with hypertension or Diabetes who are taking medications called ACE inhibitors and ARB. This enzymes is also increased by another hypertensive medication called thiazolidinediones and also **ibuprofen** (an NSAID medication ).
- **Consequently, the increased expression of ACE2 would facilitate infection with COVID-19**
- The author of the article **hypothesize** that diabetes and hypertension treatment with ACE2-stimulating drugs **increases the risk of developing severe and fatal COVID-19**
- **The author suggest patient taking this medication should be monitored or can use another anti-hypertensive alternative.**





# Clinical feature and transmission

**Article:** First known person-to-person transmission of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) in the USA. (1/3)

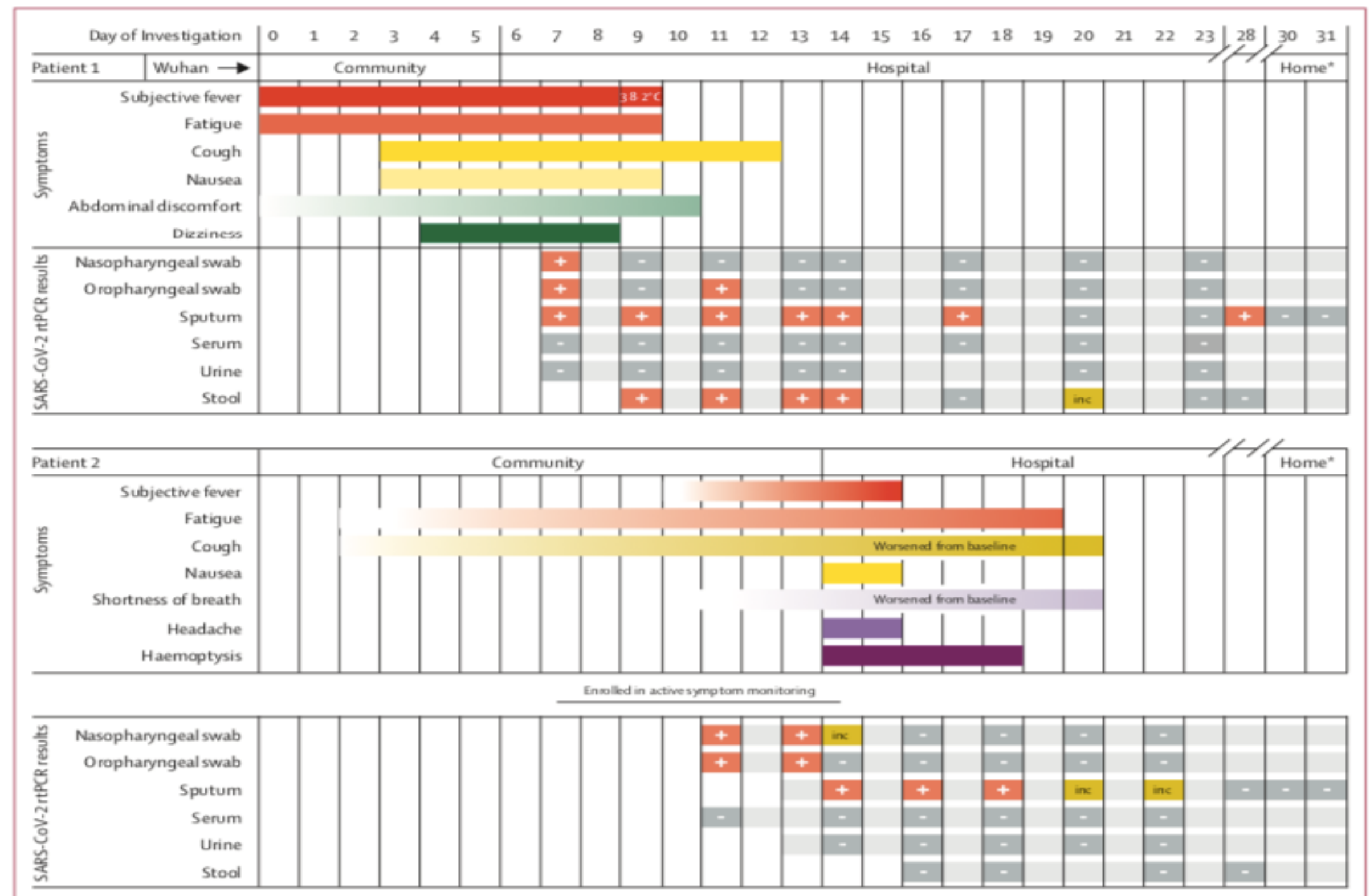
**Published:** March 12, 2020

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

## Summary:

The Article describes the first person-to-person transmission of COVID-19 in the USA, including the clinical and laboratory features of both patients and the assessment and monitoring of several hundred individuals with potential exposure to SARS-CoV-2.

- Patient 1 index case (60-year female ) with h/o travel to wuhan, and patient 2 is the husband , developed symptom 8 days later and tested positive.



**Figure: Symptoms and results of rtPCR testing for SARS-CoV-2 by day of investigation**  
 Gradient shading indicates unclear period of symptom onset from patient report. inc= inconclusive result. rtPCR= real-time RT-PCR. SARS-CoV-2=severe acute respiratory syndrome coronavirus 2. \*Patient 1 and Patient 2 in home isolation.



# Clinical feature and transmission

**Article:** First known person-to-person transmission of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) in the USA. (2/3)

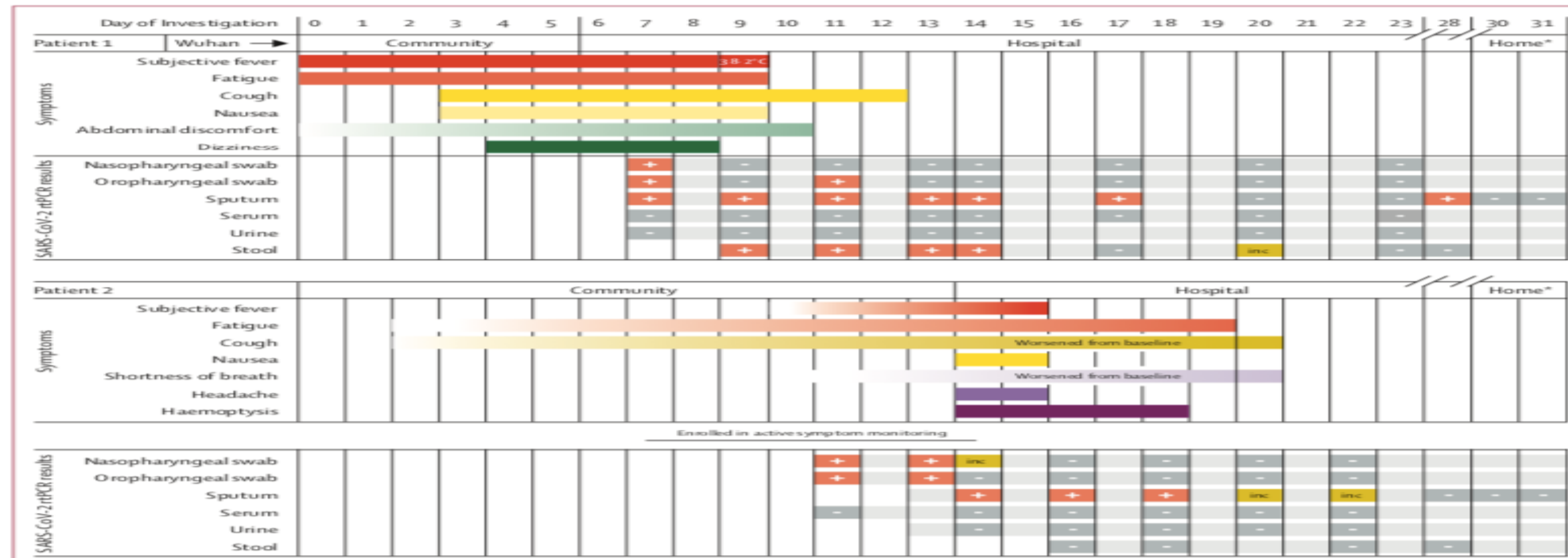


Figure: Symptoms and results of rtPCR testing for SARS-CoV-2 by day of investigation. Gradient shading indicates unclear period of symptom onset from patient report. inc=inconclusive result. rtPCR=real-time RT-PCR. SARS-CoV-2=severe acute respiratory syndrome coronavirus 2. \*Patient 1 and Patient 2 in home isolation.

## A. Finding from Assessment of Case 1 & 2:

- P2 has chronic obstructive pulmonary disease, with a chronic, productive cough and baseline dyspnea; therefore, the timing of symptom onset related to COVID-19 was difficult to identify
  - Patient 2's baseline cough and dyspnea made identifying new symptoms challenging. These factors have implications for detection of future cases.
  - (Clinicians and public health officials should maintain a low threshold for testing in patients with comorbidities that might obscure obvious signs and symptoms of COVID-19.)
- Viral shedding found to be prolonged, further studies are needed to understand how viral shedding and detection are associated with transmission and will allow for more focused and targeted contact tracing and testing of appropriate specimens based on duration of illness.



# Clinical feature and transmission

## B. Finding from contact tracing: (3/3)

- Public health investigators were able to assess exposure risk and actively monitor symptoms for (93%) of the 372 contacts.
- 56% were health-care personnel
- The majority of contacts [87%] did **not develop symptoms consistent with PUI criteria**

### Finding :

No additional cases of COVID-19 were identified through active symptom monitoring of several hundred community and health-care personnel contacts.

These data suggest that **person- to-person transmission of COVID-19 might** be most likely to occur through **unprotected, prolonged** exposure to a patient with symptomatic COVID-19. This limited transmission seems different from that documented in Wuhan, where transmission **has been reported to occur across the wider community and in health-care personnel**

	Since first reported date of symptom onset				On or after date of first positive specimen			
	Total contacts	Did not become a PUI	Met PUI criteria*	PUIs positive for COVID-19†	Total contacts	Did not become a PUI	Met PUI criteria*	PUIs positive for COVID-19†
<b>Community contacts</b>								
High risk	1	0	1	1/1	1	0	1	1/1
Medium high	7	5	2	0/2	1	1	0	..
Medium	28	24	4	0/4	0	0	0	..
Low	116	111	5	0/5	65	61	4	0/4
Total	152	140	12	1/12	67	62	5	1/5
<b>Health-care personnel contacts</b>								
High risk	32	28	4	0/4	22	20	2	0/2
Medium high	39	30	9	0/9	29	24	5	0/5
Medium	12	6	6	0/6	9	5	4	0/4
Low	112	99	13	0/13	95	84	11	0/11
Total	195	163	32	0/32	155	133	22	0/22
Total contacts	347	303	44	1‡	222	195	27	1‡

Data are n or n/N. PUI=person under investigation. COVID-19=coronavirus disease 2019. \*US Centers for Disease Control and Prevention PUI criteria for contacts of a confirmed case: fever (subjective or objective) or signs or symptoms of lower respiratory illness (eg, cough or shortness of breath). †PUIs were tested for COVID-19 using real-time RT-PCR for severe acute respiratory syndrome coronavirus 2. Only results from PUIs tested for COVID-19 in this investigation are presented here. ‡The index patient, Patient 1, is excluded from this total

Table 2: Actively monitored contacts and PUIs owing to contact with a patient with COVID-19, Illinois, USA, 2020

### Study limitation:

Only one case studied that can not be generalized.

Most of the contact where health care worker who used Ineffective control measures.

infection control measures within the hospital setting and an aggressive public health response might also have prevented further exposures.

The risk classification is different than the published guideline.

Only one negative test used to exclude contact which does not detect asymptomatic carrier.

# Public Health Response



## Article: COVID-19 and Italy: what next?

Published: March 12, 2020

Link: [Click Here](#)

### Summary:

- The article addresses the growing concern regarding the Italian National Health System's capacity to effectively respond to the needs of patients who are infected and require intensive care for SARS-CoV-2 pneumonia as the number of infected people is increasing exponentially.
- The article describes some demographic data on Italian infected patient with COVID19.
- As the number of infected people is predicted to peak by April 11th; the government is preparing to pass legislation that will enable the health service to hire 20000 more doctors and nurses and to provide 5000 more ventilators to Italian hospitals.
- According to the article prediction, few weeks to preparedness; procuring personnel, technical equipment, and material and the author urge speedy actions.

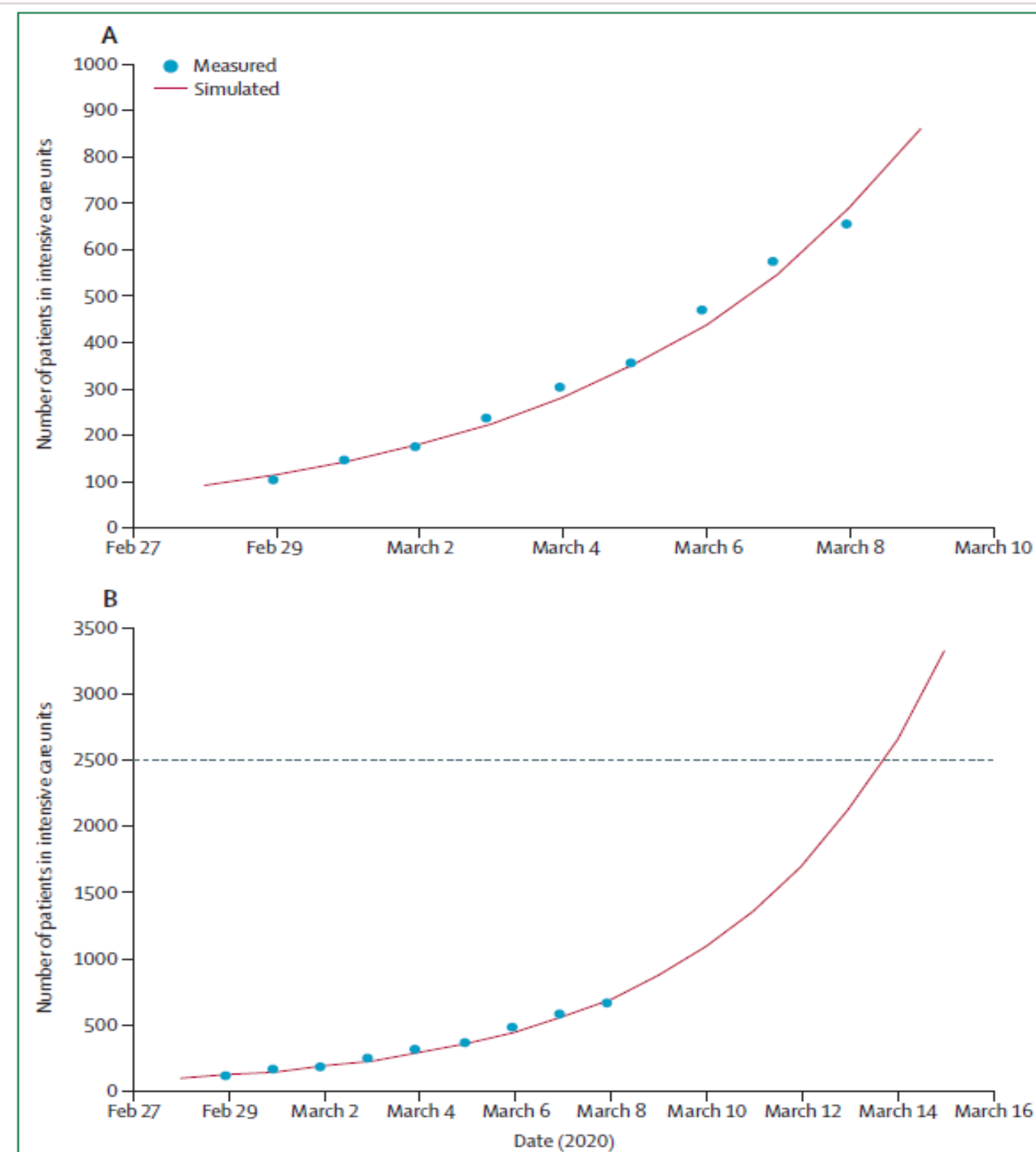


Figure 2: Measured and predicted number of patients in intensive care units in Italy using an exponential curve. Panel A shows number of patients in intensive care units in previous days and B shows projections for the coming days. The dotted line represents the estimated capacity of intensive care beds in Italy.

Similar article have been reviewed and posted previously by ADPHC's 16.3.2020 report under the title: [Critical Care Utilization for the COVID-19 Outbreak in Lombardy, Italy](#)