

ABU DHABI PUBLIC
HEALTH CENTRE

مركز أبوظبي
للصحة العامة



Scientific Research Monitoring on COVID-19

07 March 2020

SUMMARY ABOUT COVID19 (1/2)



1. 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.
2. New designation for the disease and the virus: **COVID-19** and **SARS-COV2** .
3. Transmission from human to human has been confirmed. Incubation period ranges from 3–7 days and can reach up to 14 days. Transmission during the incubation period is not yet confirmed (further studies are required).
4. Suggested human-to-human transmission occurs through droplets, contact and fomites, similar to Severe Acute Respiratory Syndrome (SARS).
5. Efforts currently in developing therapies for this virus focus on previously known medications and vaccination for MERS-CoV and SARS-CoV.
6. Most studies mention multiple antiviral medications are involved but treatment outcomes are yet to be published. One study in the US reported recovery after 1 day of treatment with Remdesivir.
Trial on animals have shown multiple drug candidates to be effective. Trials in humans are ongoing.



SUMMARY ABOUT COVID19 (2/2)

7. WHO forum held 11-12 Feb 2020 to mobilize research on COVID19 vaccinations and therapies.
8. WHO issued a response budget for three month starting from February 2020.
9. 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.
10. 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.
11. Isolation is the best measure to control transmission. The epidemic is expected to peak in early March 2020.
12. Transmission of SARS occurs most often when a patient develops sever symptoms, which make it easier to contain an outbreak. But with COVID-19/ SARS-CoV2, a patient can present with mild symptoms and still have the potential to spread the disease.

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:** the faecal-oral route should be considered as potential route of transmission in COVID19.
- **Virology:** discovery that the SAR-COV2 have identified two strains (L type and S type). L type is more prevalent and aggressive.
- **Treatment:** 5 patients in Singapore received **lopinavir-ritonavir and had variable clinical outcomes.**

*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

- Article title :**Hematologic parameters in patients with COVID-19 infection.** [Link](#)
- Article title: **Response to COVID-19 in Taiwan.** [Link](#)



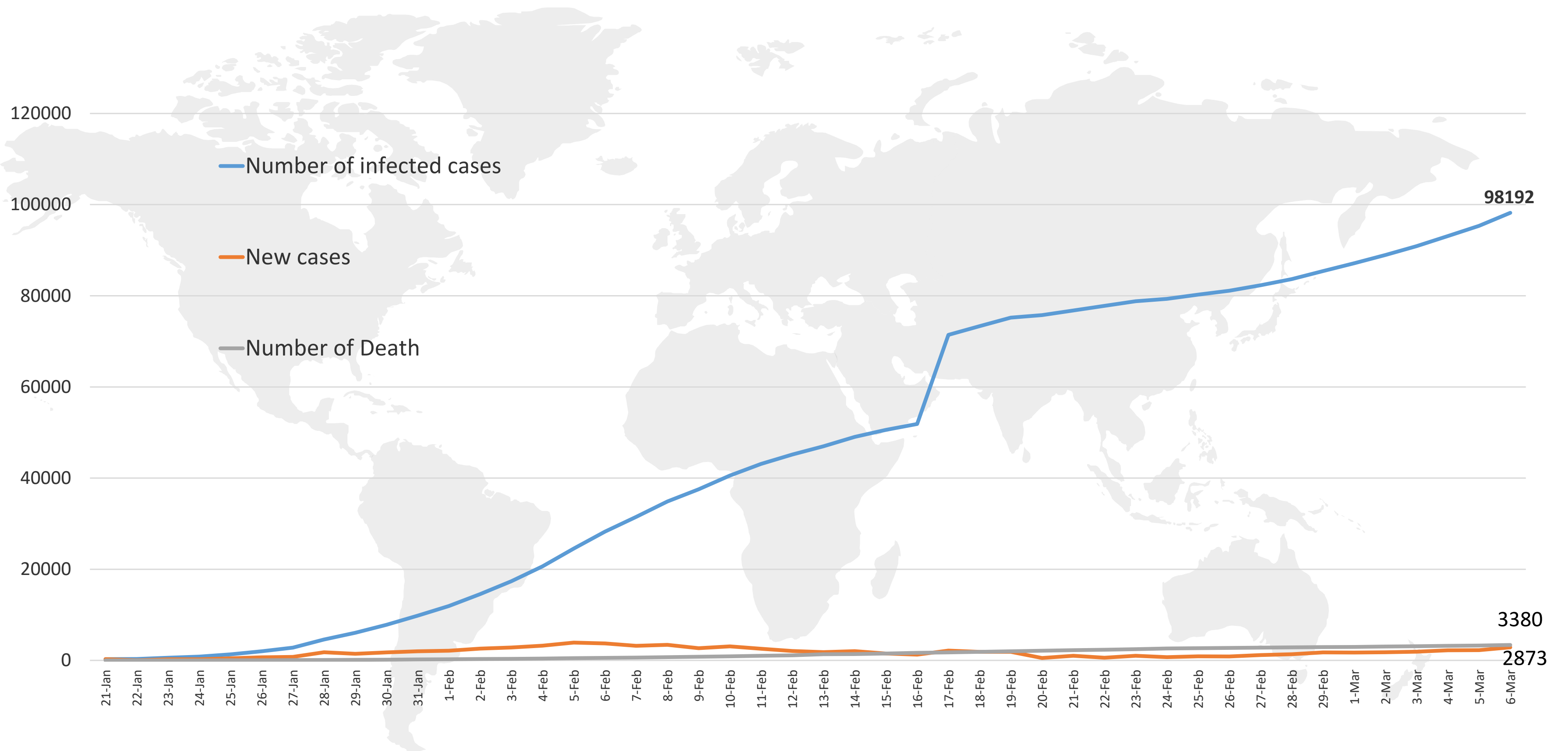
6th March 2020

- 4 new countries/territories/areas (Bhutan, Cameroon, Serbia, and South Africa) have reported cases of COVID-19 in the past 24 hours.
- As the COVID-19 outbreak continues to evolve, comparisons have been drawn to influenza. WHO has provided a Q&A regarding the similarities and differences between the two diseases.
 - Mortality rate is higher in COVID19 compared to influenza but still not yet confirmed.
 - Both have wide range of symptoms from mild to sever , both transmitted through fomite.
 - Influenza can spread faster than COVID19
 - Children are important driver of transmission in influenza and it is not the same in COVID19.
 - High risk in influenza are children ,pregnant , elderly and patient with underlying condition. In covid19 its so far elderly and with patient with underling condition
 - These fractions of severe and critical infection in COVID19 would be higher than what is observed for influenza infection.
 - Treatment and vaccination for influenza is available while in COVID19 they are still under clinical trial. There are 20 vaccinations under trials now

Epidemiology



Figure 1: Total number of infected, new, and death cases (January 21st to March 6th, 2020)

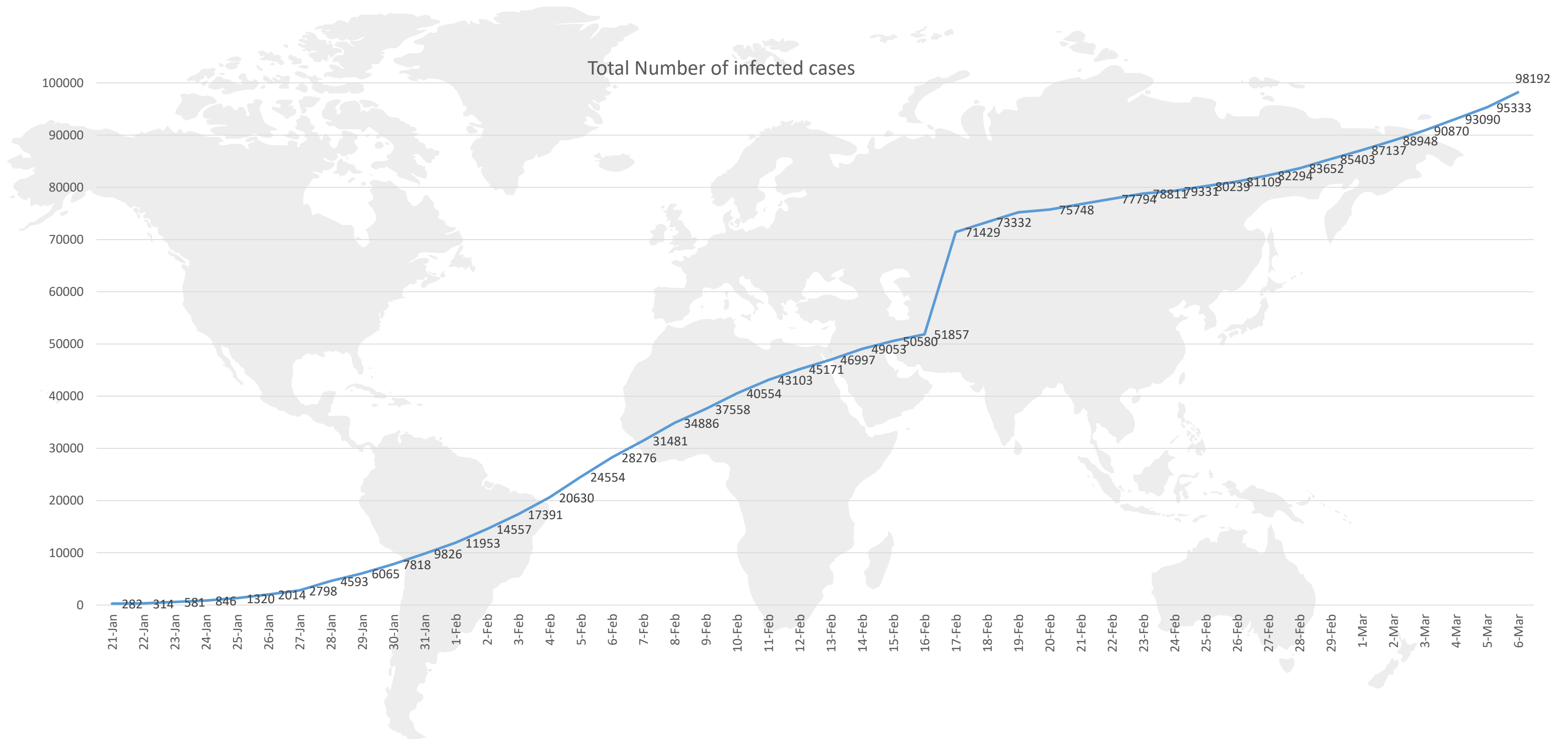


Line graph published by Abu Dhabi Public Health Center 2020.

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



Figure 2: Number of infected cases (January 21st to March 6th, 2020)



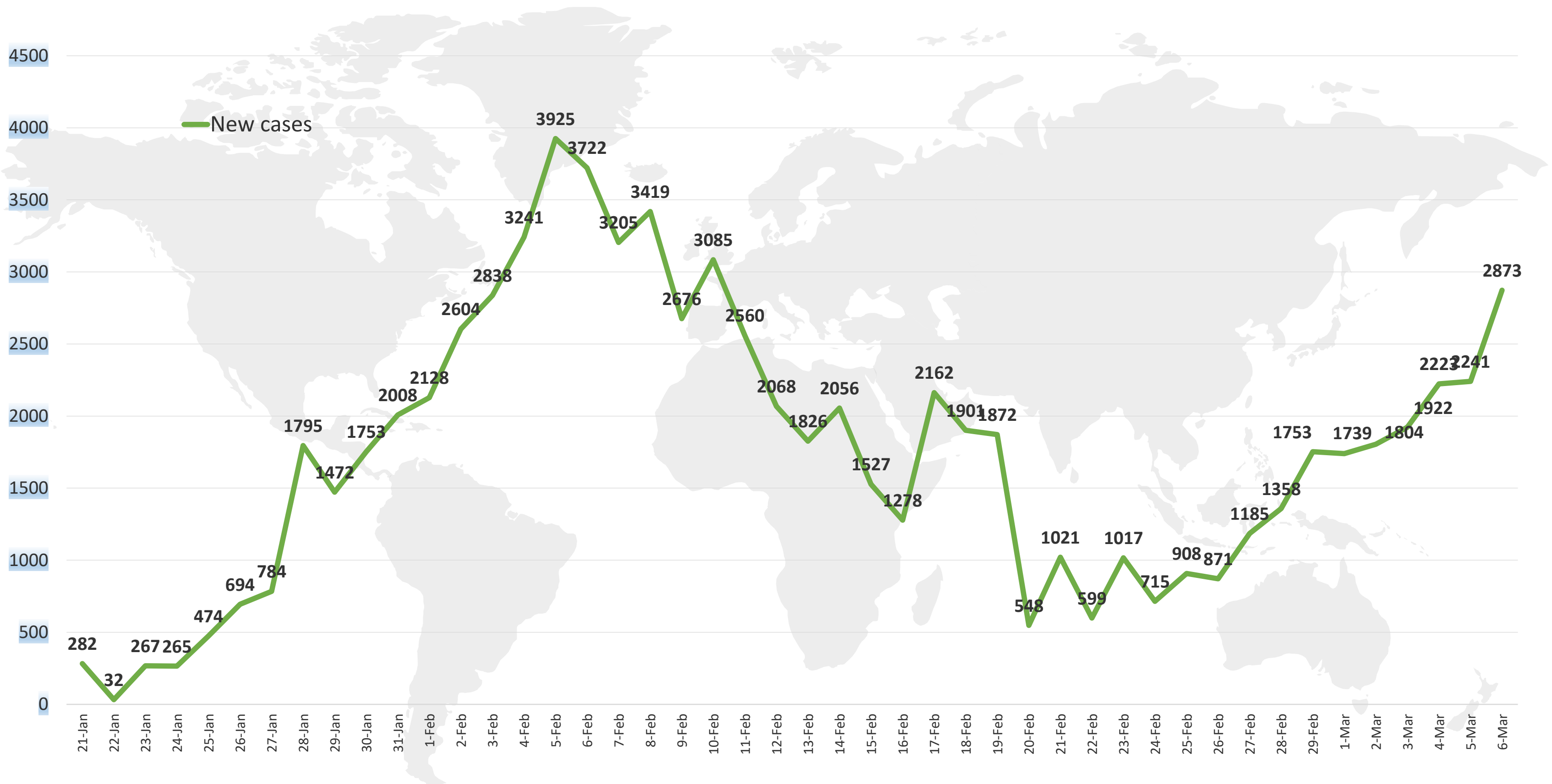
Line graph published by Abu Dhabi Public Health Center 2020.

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

Epidemiology



Figure 3: Number of new cases (January 21st to March 6th, 2020)

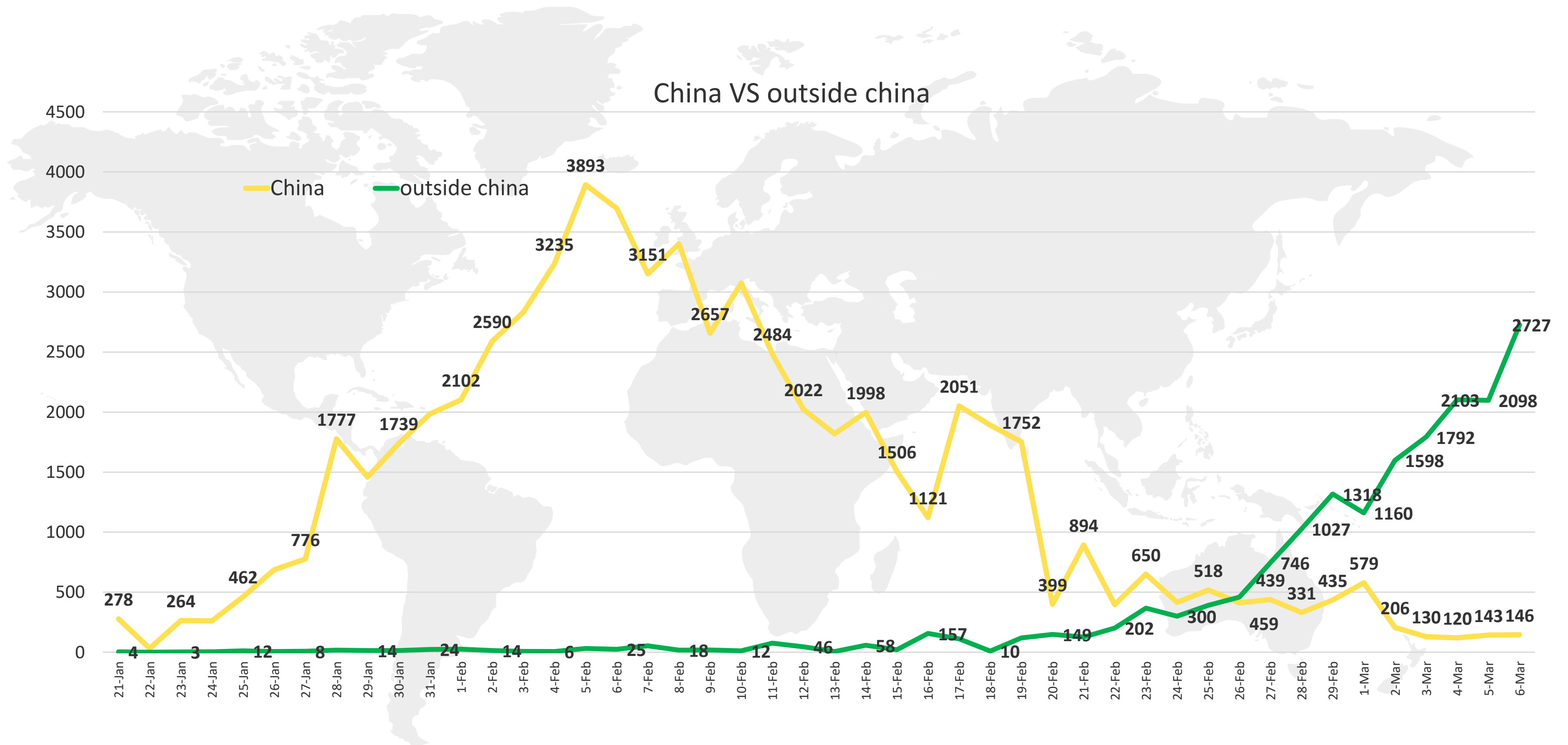


Line graph published by Abu Dhabi Public Health Center 2020.

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



Figure 4: Number of new cases in China versus outside China (January 21st to March 6th , 2020)

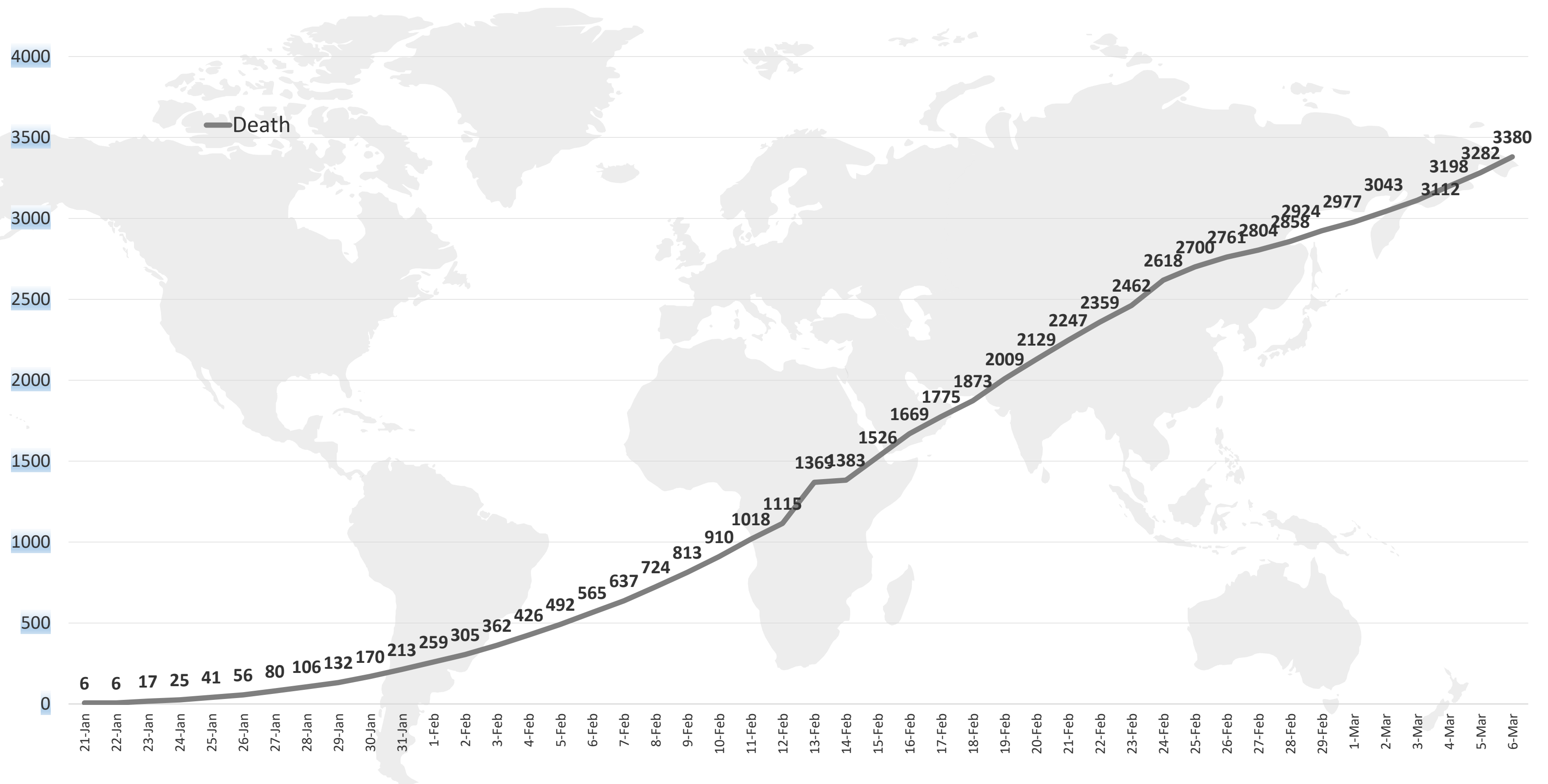


Line graph published by Abu Dhabi Public Health Center 2020.

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



Figure 5: Number of total deaths (January 21st to March 6th, 2020)

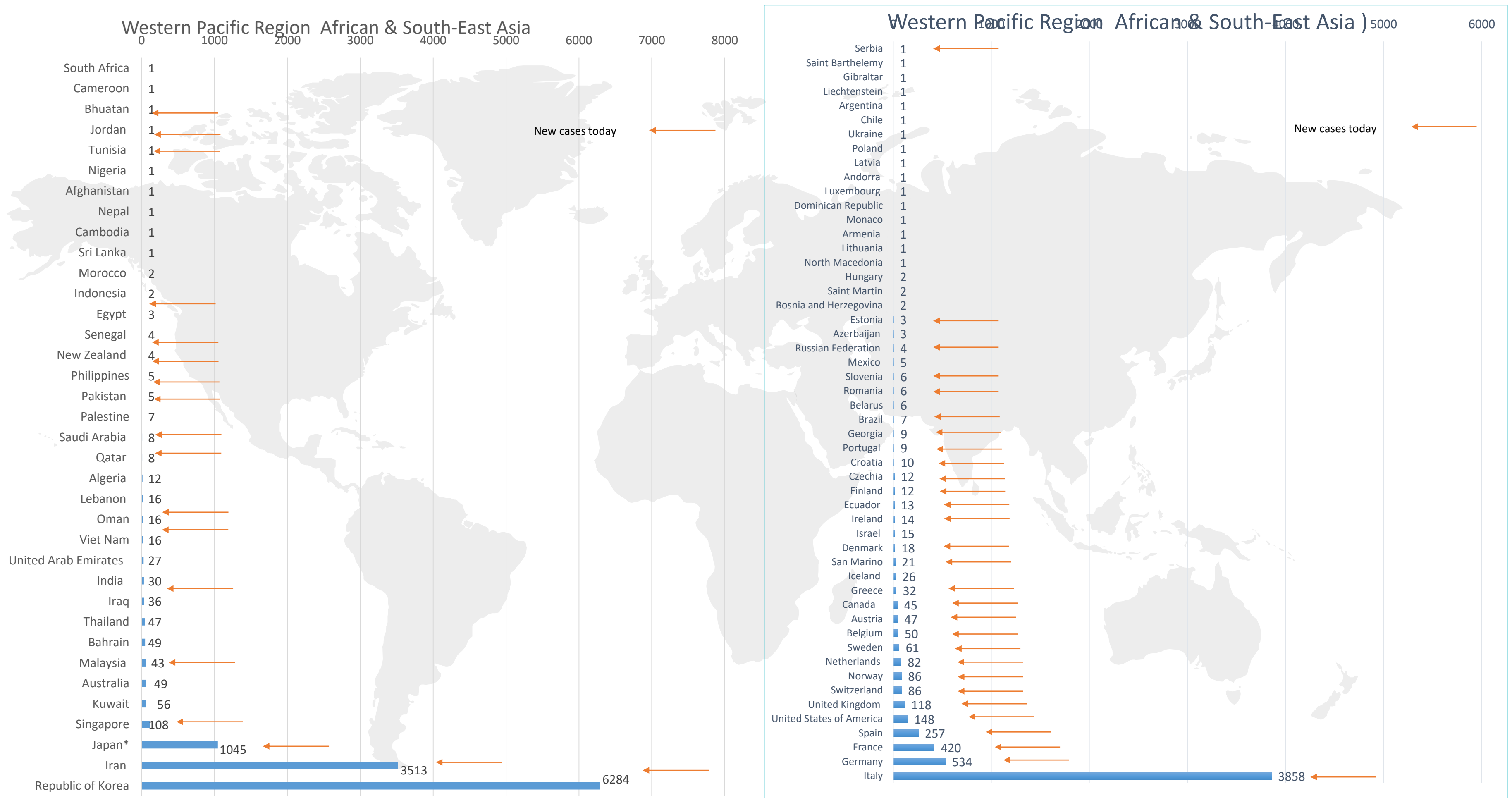


Line graph published by Abu Dhabi Public Health Center 2020.

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



Figure 6: Total number of cases outside China per country (January 21st to March 6th, 2020)



Line graph published by Abu Dhabi Public Health Center 2020.

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

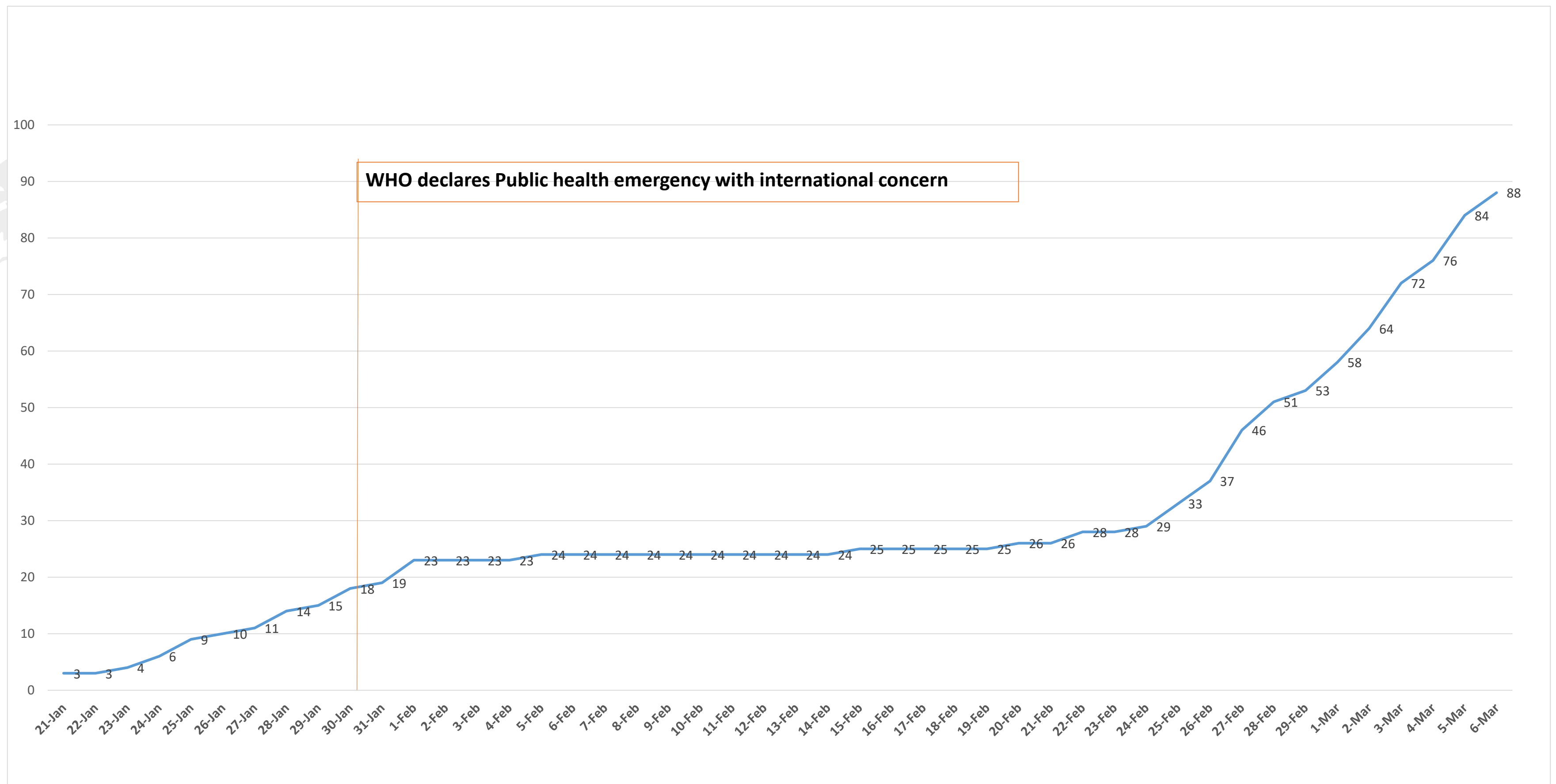
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Figure 7: Total number of countries reporting cases of COVID-19 outside China over time



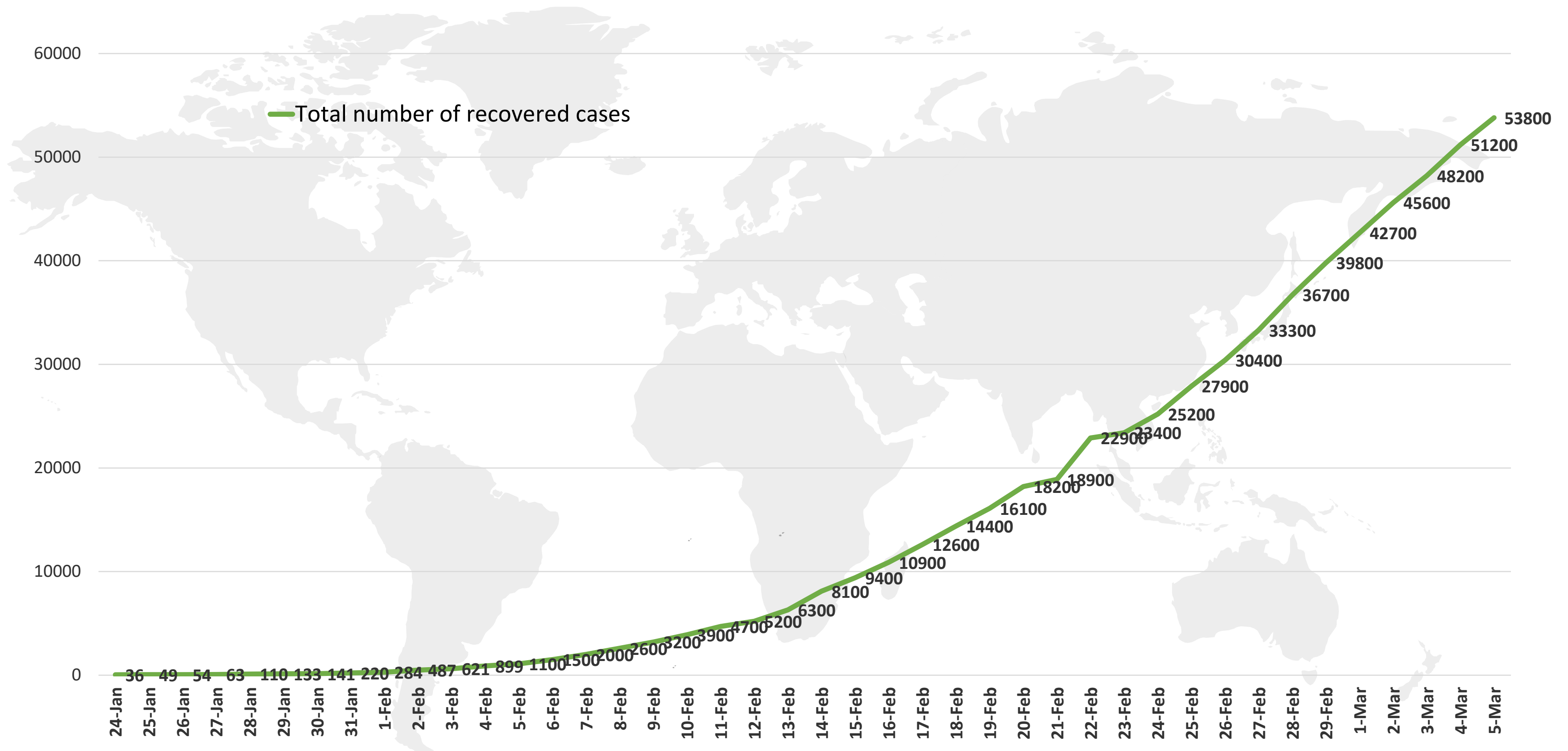
Line graph published by Abu Dhabi Public Health Center 2020.

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

Epidemiology



Figure 8: Total recovered cases of COVID-19. (January 21st to March 6th, 2020)



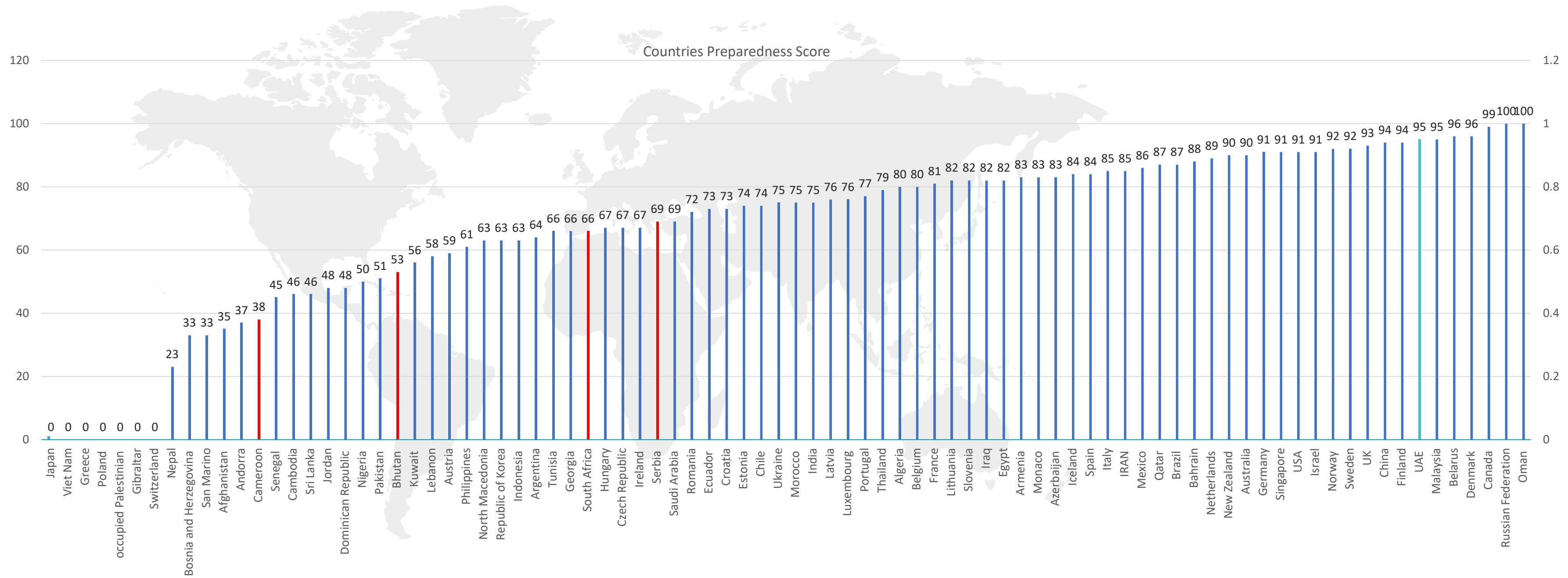
Line graph published by Abu Dhabi Public Health Center 2020.

Data resources: [John Hopkins University](https://www.jhu.edu/)



Figure 9 : Capacities of countries reporting COVID19 cases

Figure 9A: Countries' preparedness score in responding to Public health risks and acute events. Published in 2018



Line graph published by Abu Dhabi Public Health Center 2020.

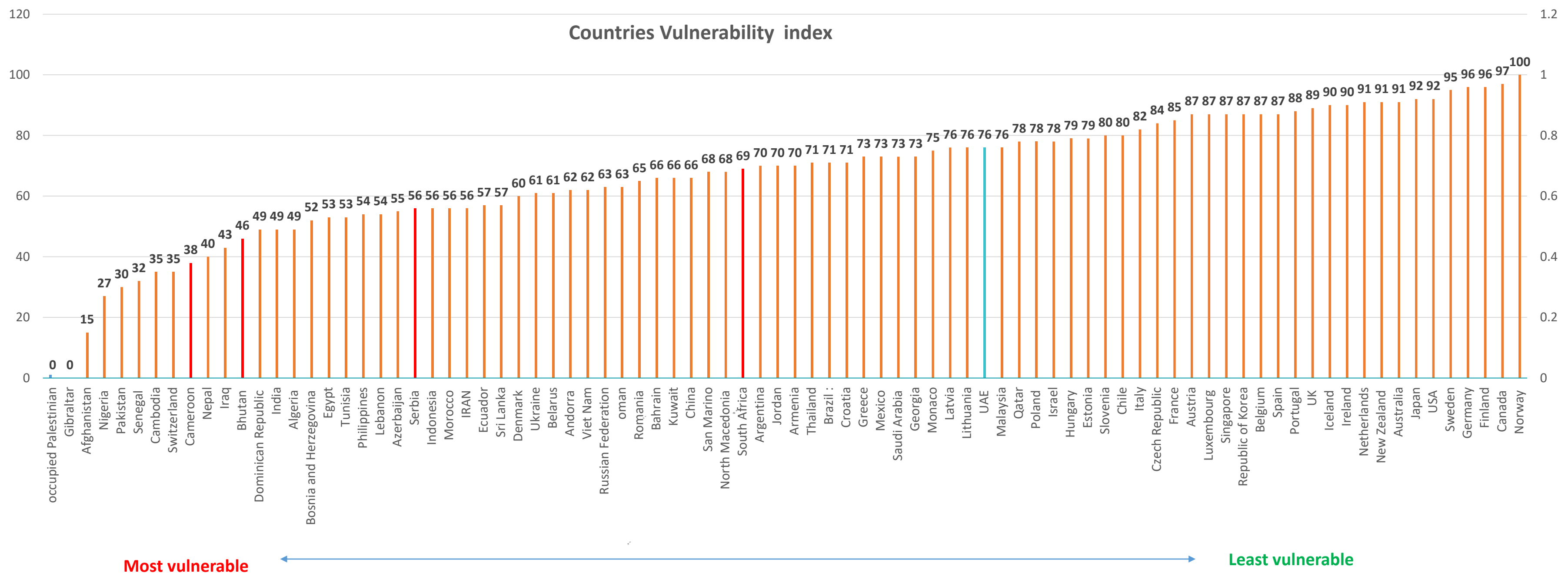
Data resources : [SPAR score](#), [IDVI score](#)

Epidemiology



Figure 10 : Capacities of countries reporting COVID19 cases

Figure 9B: Countries' vulnerability index to spread infectious disease. Published in 2016



Line graph published by Abu Dhabi Public Health Center 2020.

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



Article : On the origin and continuing evolution of SARS-CoV-2

Published: 03 March 2020

Summery:

- **SARS-CoV-2 samples were collected from 103 patient** indicated that there are two major types (L type and S type)
- **L type (~70%) is more prevalent might be more aggressive and spread more quickly than the S type (~30%).**
- **S type is** ancestral strain from other corona viruses (SARS-COV and others)
- **L type was more prevalent in the early stages of the outbreak** in Wuhan.
- It is thought the L type evolved from S type, however, they are not sure that the evolution happened because of a median host.
- Frequency of the **L type decreased after early January 2020**, possibly human intervention may have placed more severe selective pressure on the L type. As mentioned in the article :

(if the L type is more aggressive than the S type, why did the relative frequency of the L type decrease compared to the S type in other places after the initial breakout in Wuhan? One possible explanation is that, since January 2020, the Chinese central and local governments have taken rapid and comprehensive prevention and control measures. These human intervention efforts might have caused severe selective pressure against the L type, which might be more aggressive and spread more quickly.)

[Link: Here](#)

Clinical feature and transmission



Article : Fecal specimen diagnosis 2019 Novel Coronavirus–Infected Pneumonia

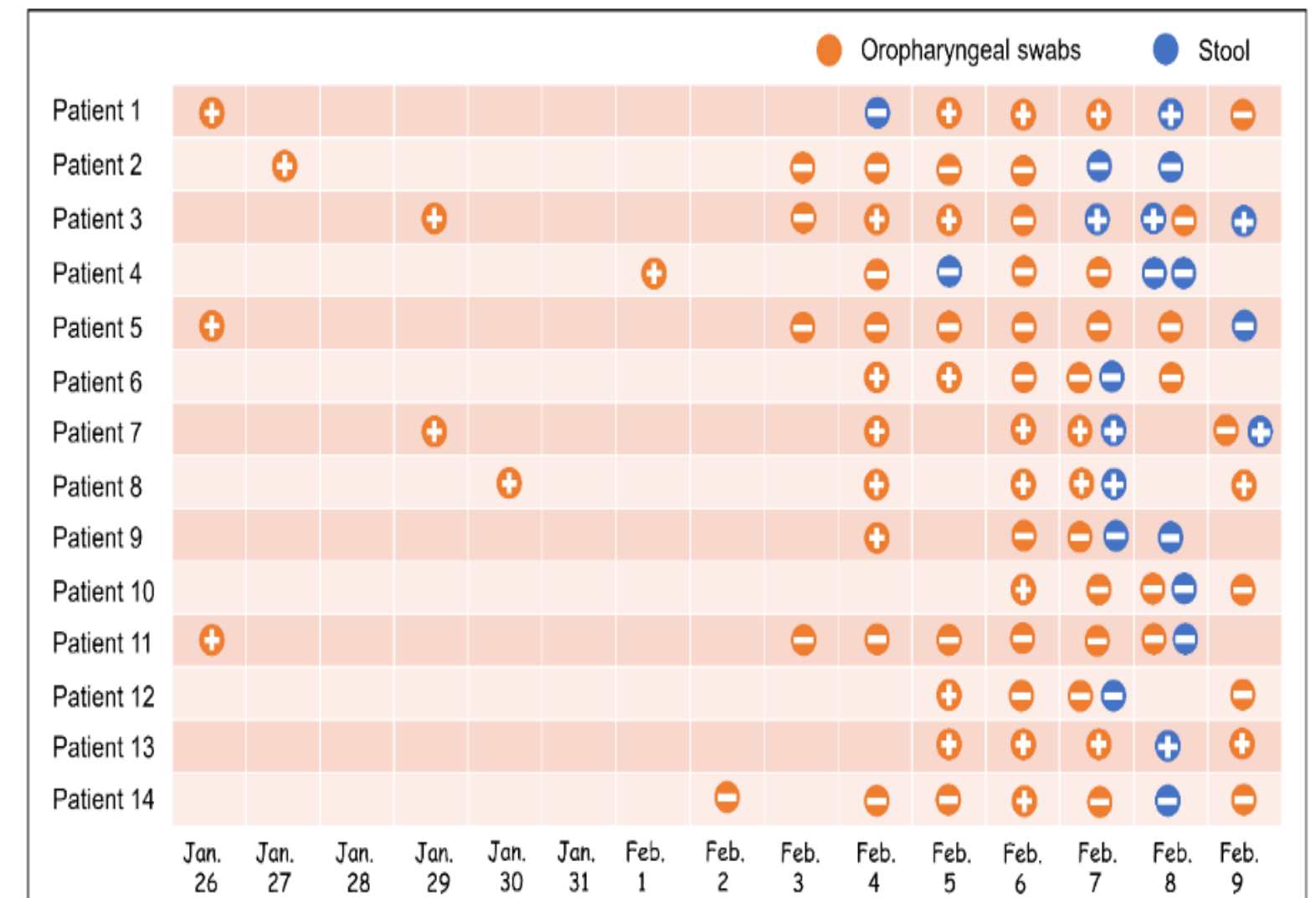
Published: 03 March 2020

Summery:

- The study collected data for 14 patients admitted for COVID19 from 27 January to 9 February 2020.
- The patient had a confirmed COVID19 through RT-PCR of pharyngeal swabs collected by experience infectious physician and additional stool samples test for COVID19 was collected too.
- Out of the 14 cases only 4 cases were positive
- The study found that cases with positive stool test did not have gastrointestinal symptoms.
- The author believe the stool testing will reduce the infection among medical staff in case of reduction in PPE supplies in China.
- The study highlight the need for health protection which should be considered for transmission through stool.

[Link: here](#)

Figure 1. Viral nucleic acid test results in 14 patients with COVID-19.





Clinical feature and Treatment

Article: Epidemiologic Features and Clinical Course of Patients Infected With SARS-CoV-2 in Singapore

Published: 3rd March 2020

Summery:

Study on the first 18 patients diagnosed with (PCR)–confirmed SARS-CoV-2 infection at 4 hospitals in Singapore. The case reports the clinical and epidemiological features and clinical course in detail of the patients.

Study duration (January 23 to February 3, 2020).

Finding:

- Median duration of viral shedding from first to last positive nasopharyngeal swab collected as part of clinical care was 12 days (range, 1-24), and 15 patients (83%) had viral shedding from the nasopharynx detected for 7 days or longer.
 - Virus was detectable in the stool in 4 out of 8 patients and blood in 1 in 12 by PCR but not in urine.
 - **5 patients received lopinavir-ritonavir, 3 of them have improvement within 3 days. Two had deteriorated and 1 need mechanical ventilation. 4 out of the 5 patients developed Adverse events . One patient was able to complete the 14 days treatment course.**

- [Link: here](#)