



Scientific Research Monitoring on COVID-19

27 February 2020

Reported by: *(Public Health Research Section)*

WHAT WE KNOW SO FAR



1. The virus have been sequenced and found to be similar to MERS-CoV and SARS-CoV. Research revealed 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 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 have 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 human are ongoing.**



WHAT WE KNOW SO FAR

6. WHO forum held 11-12 Feb 2020 to mobilize research on COVID19 vaccinations and therapies.
7. WHO issued a response budget for three month starting from February 2020.
8. 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.
9. 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.
10. Isolation is the best measure to control transmission. The epidemic is expected to peak in early March 2020.
11. 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.



WHAT WE KNOW SO FAR:

12. Children have mild symptoms compared with adults. **Further studies of this population is needed.**
13. 80% of infected patients have mild symptoms and 1.2% may present without symptoms.
14. People with **mild disease, recovery time is about two weeks**, while people with **severe or critical disease recover within 3 to 6 weeks** .



NEW UPDATES FROM TODAY'S REPORT:

Epidemiology section: For the first time the countries outside china report more new cases than china

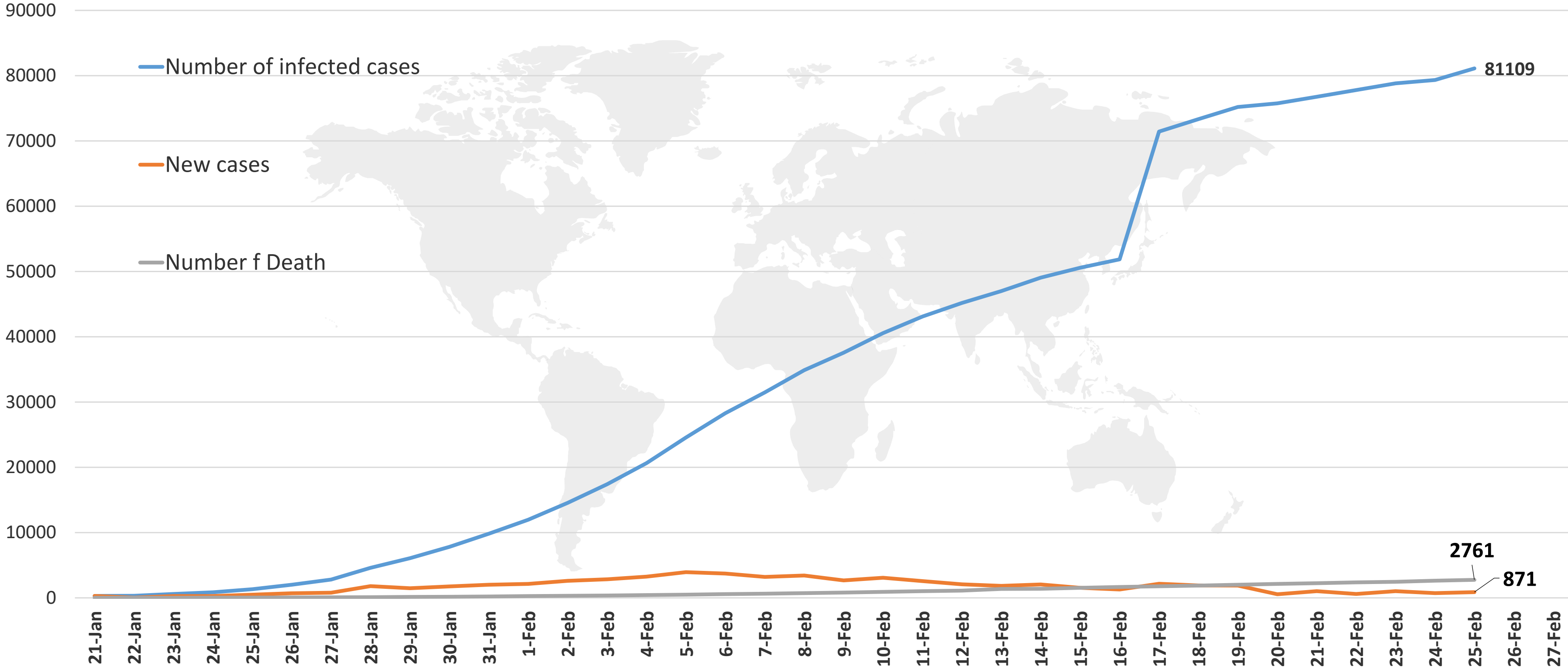
Treatment section: clinical trials showed chloroquine to be effective in treating COVID19.

Molecular drug designing method showed high potential for Indinavir and Remdesivir to treat COVID19.



EPIDEMIOLOGY:

Figure 1: Total number of infected, new, and death cases (January 24st to February 26th, 2020)



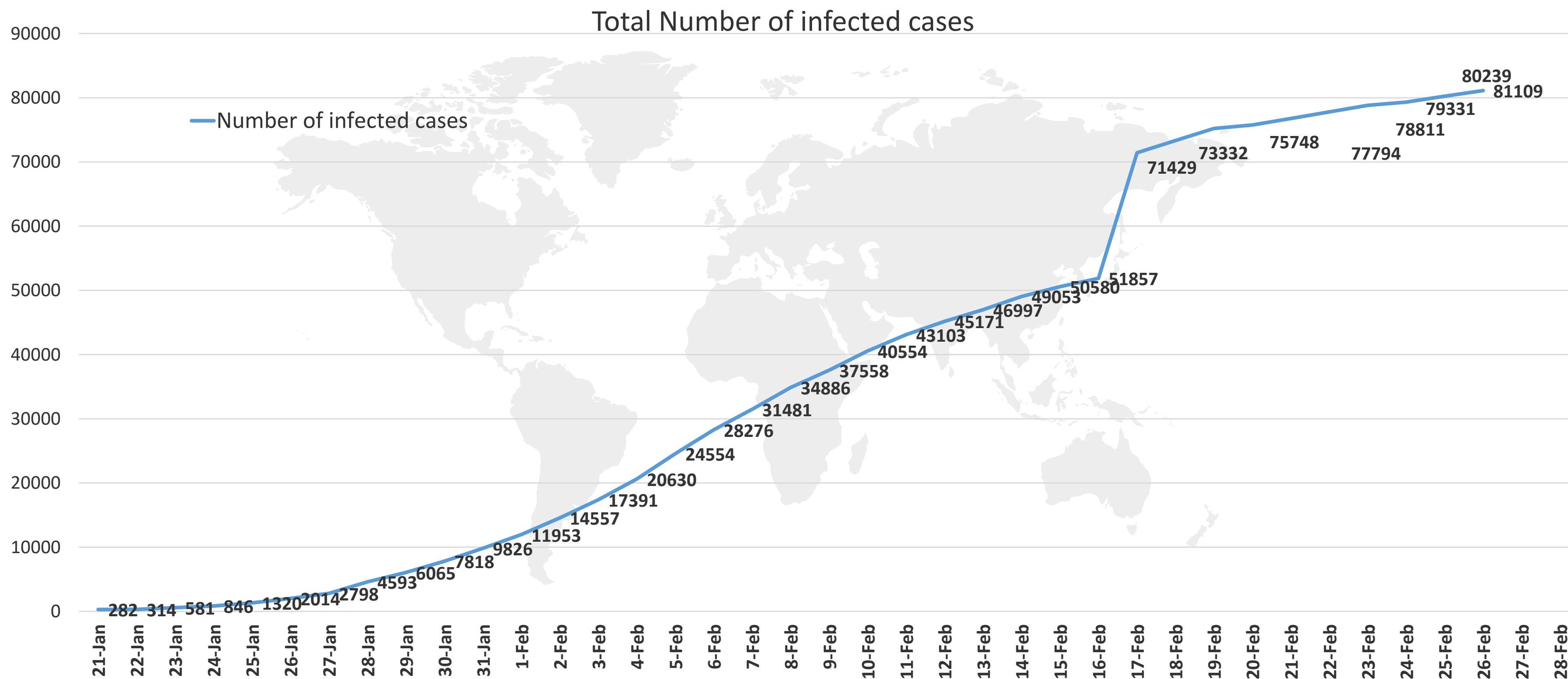
Line graph published by Abu Dhabi Public Health Center 2020.

Data resources: [WHO](#)



EPIDEMIOLOGY:

Figure 2: Number of infected cases (January 22st to February 26th, 2020)



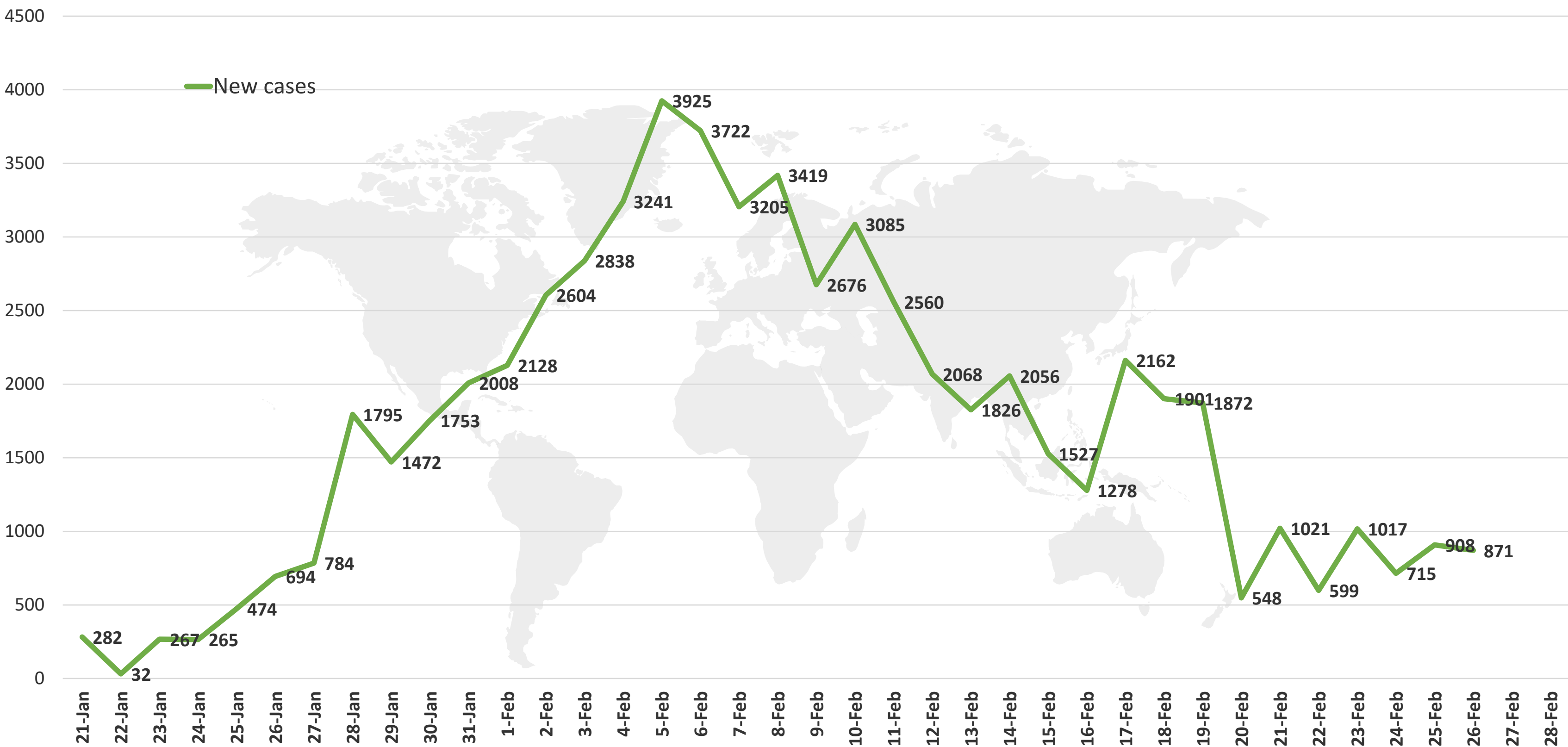
Line graph published by Abu Dhabi Public Health Center 2020.

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



EPIDEMIOLOGY:

Figure 3: Number of new cases (January 21st to February 26th , 2020)



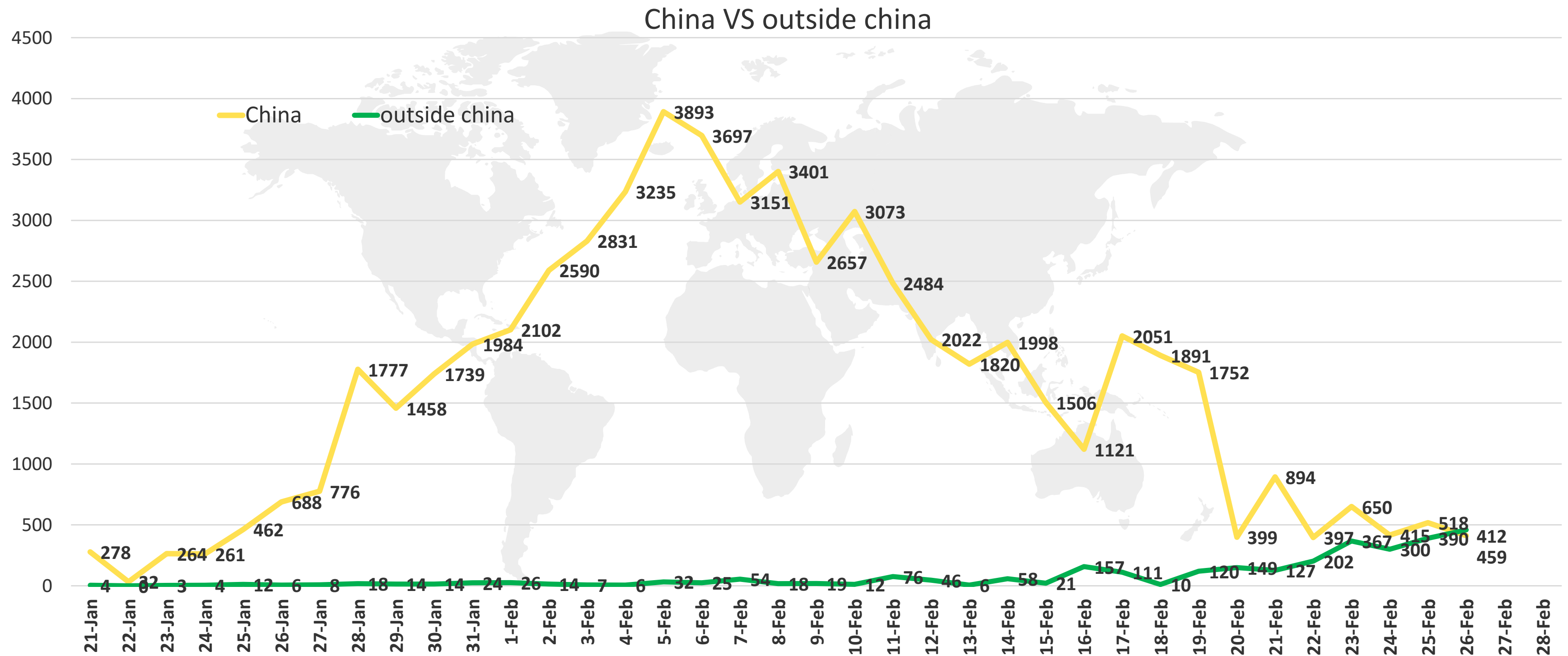
Line graph published by Abu Dhabi Public Health Center 2020.

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



EPIDEMIOLOGY:

Figure 4: Number of new cases in China versus outside China (January 22st to February 26th , 2020)



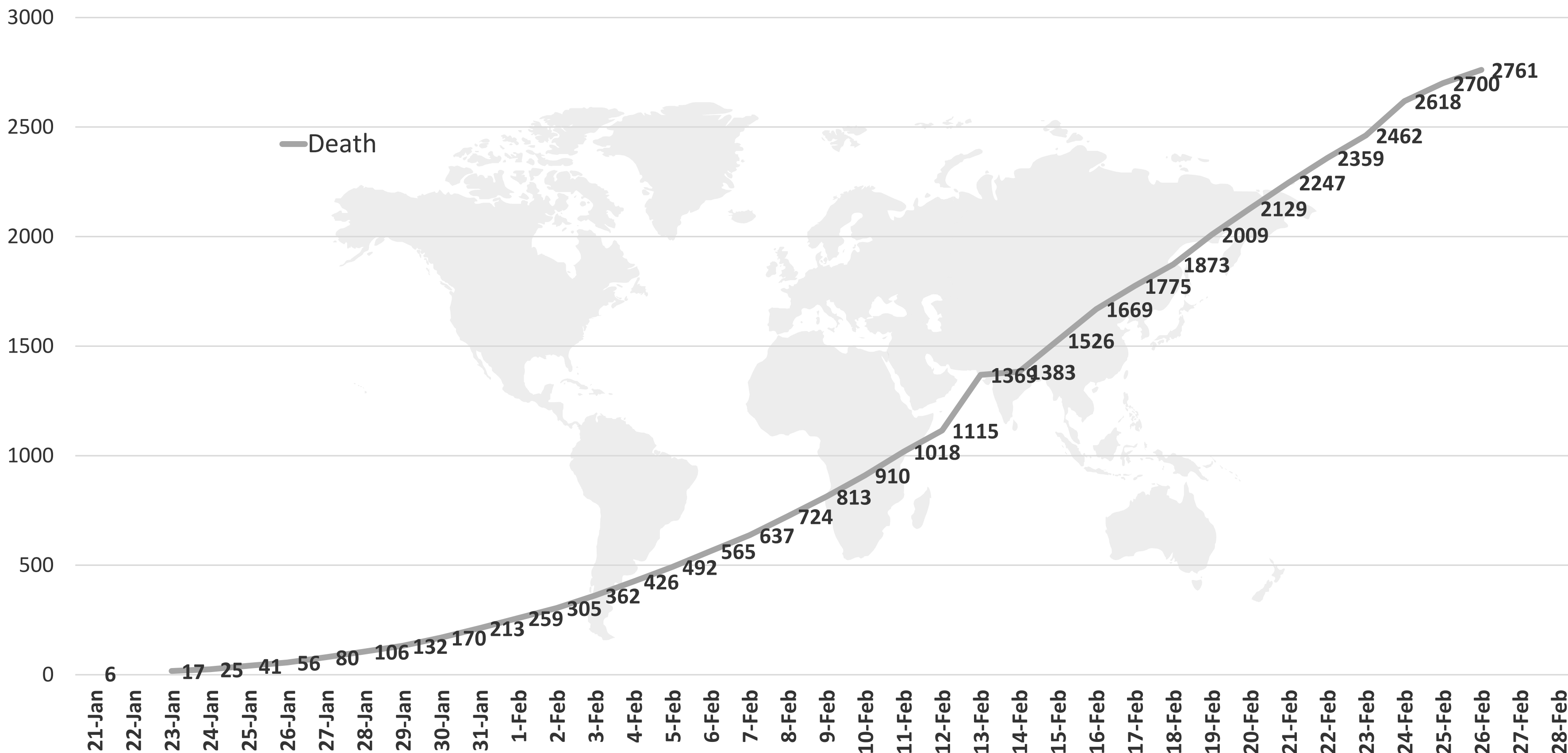
Line graph published by Abu Dhabi Public Health Center 2020.

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



EPIDEMIOLOGY:

Figure 5: Number of total deaths (January 21st to February 26, 2020)



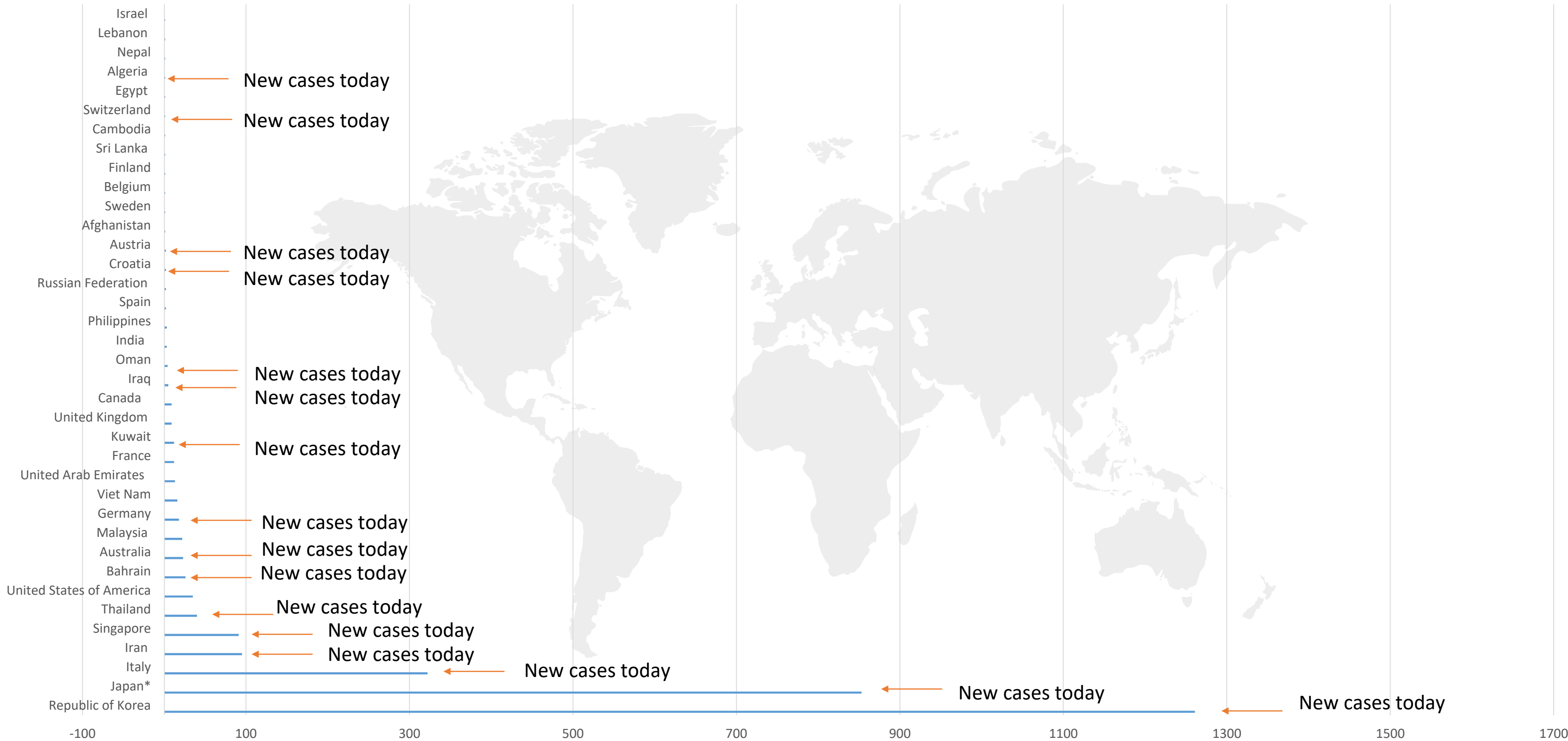
Line graph published by Abu Dhabi Public Health Center 2020.

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



EPIDEMIOLOGY:

Figure 6: Total number of cases outside China per country (January 21st to February 26th, 2020)



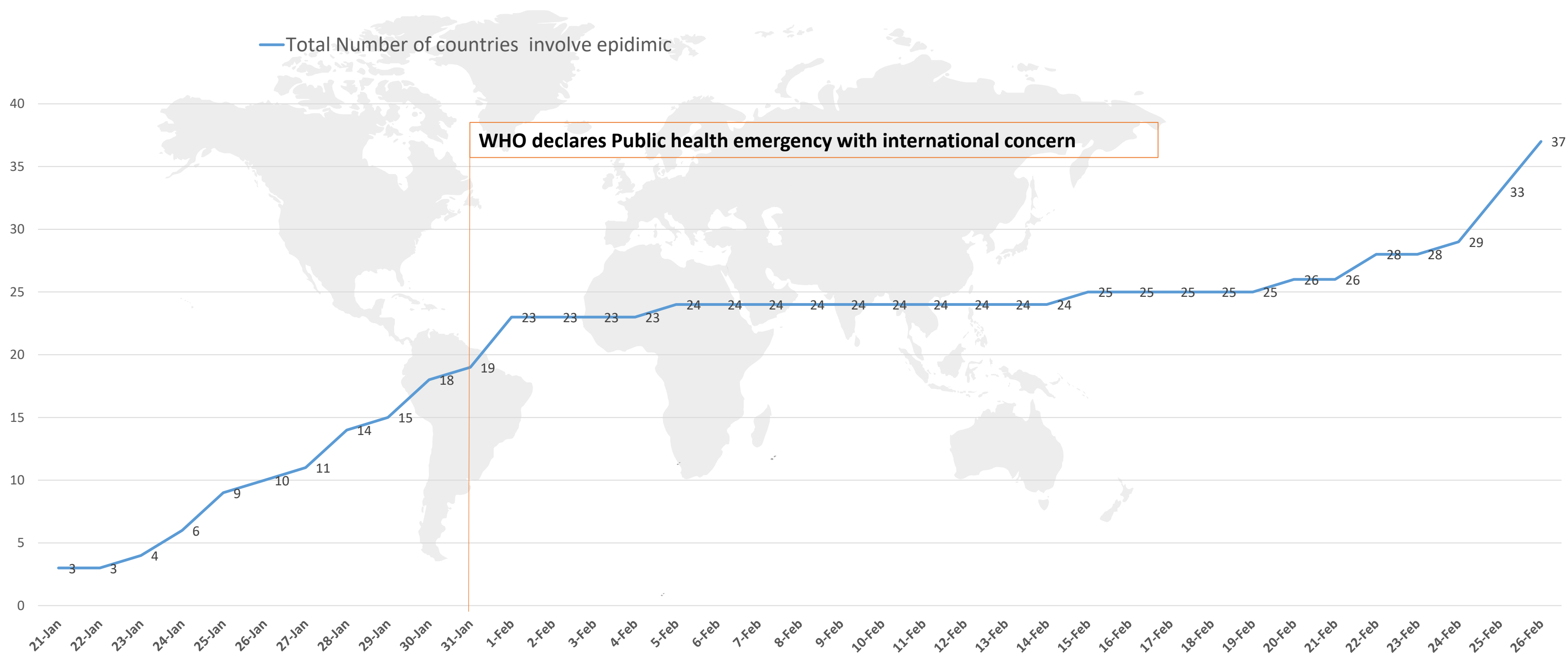
Line graph published by Abu Dhabi Public Health Center 2020.

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



EPIDEMIOLOGY:

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.

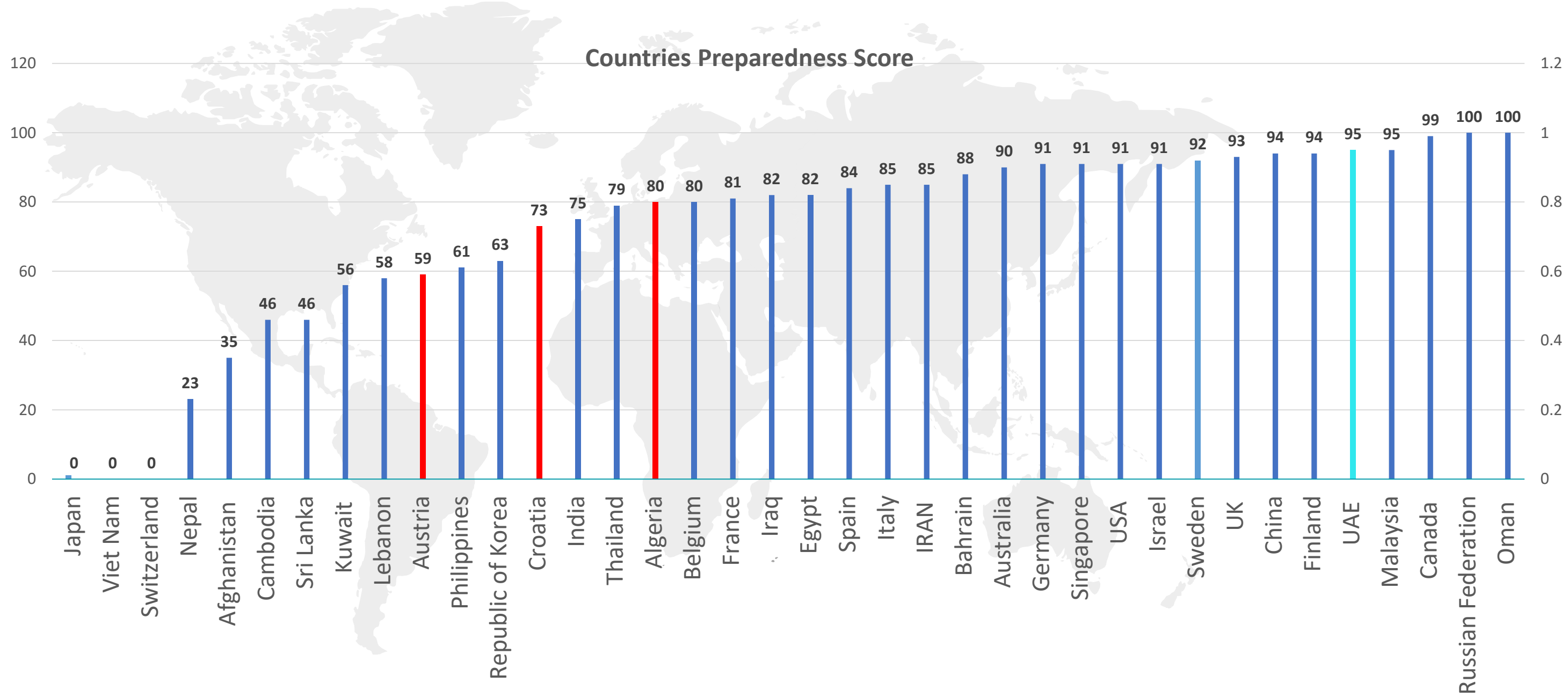
Data resources: [WHO](https://www.who.int/)



EPIDEMIOLOGY:

Figure 9 : Capacities of countries reporting COVID19 cases

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



Line graph published by Abu Dhabi Public Health Center 2020.

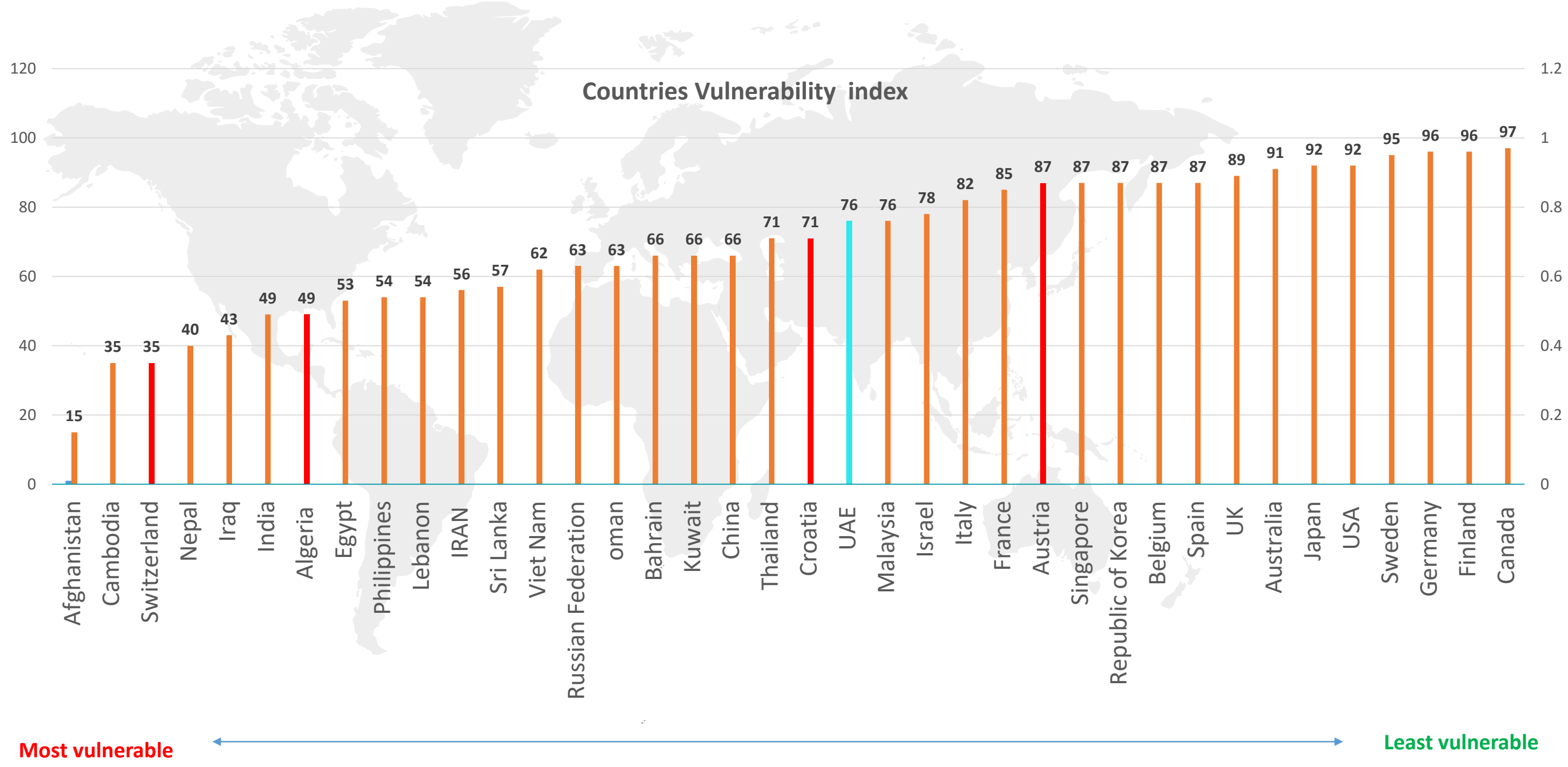
Data resources : [SPAR score](#) , [IDVI score](#)



EPIDEMIOLOGY:

Figure 9 : Capacities of countries reporting COVID19 cases

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



Line graph published by Abu Dhabi Public Health Center 2020.

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

EPIDEMIOLOGY:

WHO report 26 /2/2020 important points

ABU DHABI PUBLIC
HEALTH CENTRE

مركز أبوظبي
للصحة العامة



- Four new Member States (**Algeria, Austria, Croatia, and Switzerland**) reported cases of COVID-19 in the past 24 hours. **Algeria is the first** Member State of the AFRO Region to report a case of COVID-19.
- For the first time, since the onset of symptoms of the first identified case of COVID-19 on 8 December 2019, there have **been more new cases reported from countries outside of China** than from China.
- The WHO Director-General provided opening remarks at the weekly Member State briefing on **COVID-19 regarding ongoing and future WHO missions** along with priorities for control of the outbreak.

EPIDEMIOLOGY:

WHO report 26 /2/2020 important points

ABU DHABI PUBLIC
HEALTH CENTRE

مركز أبوظبي
للصحة العامة

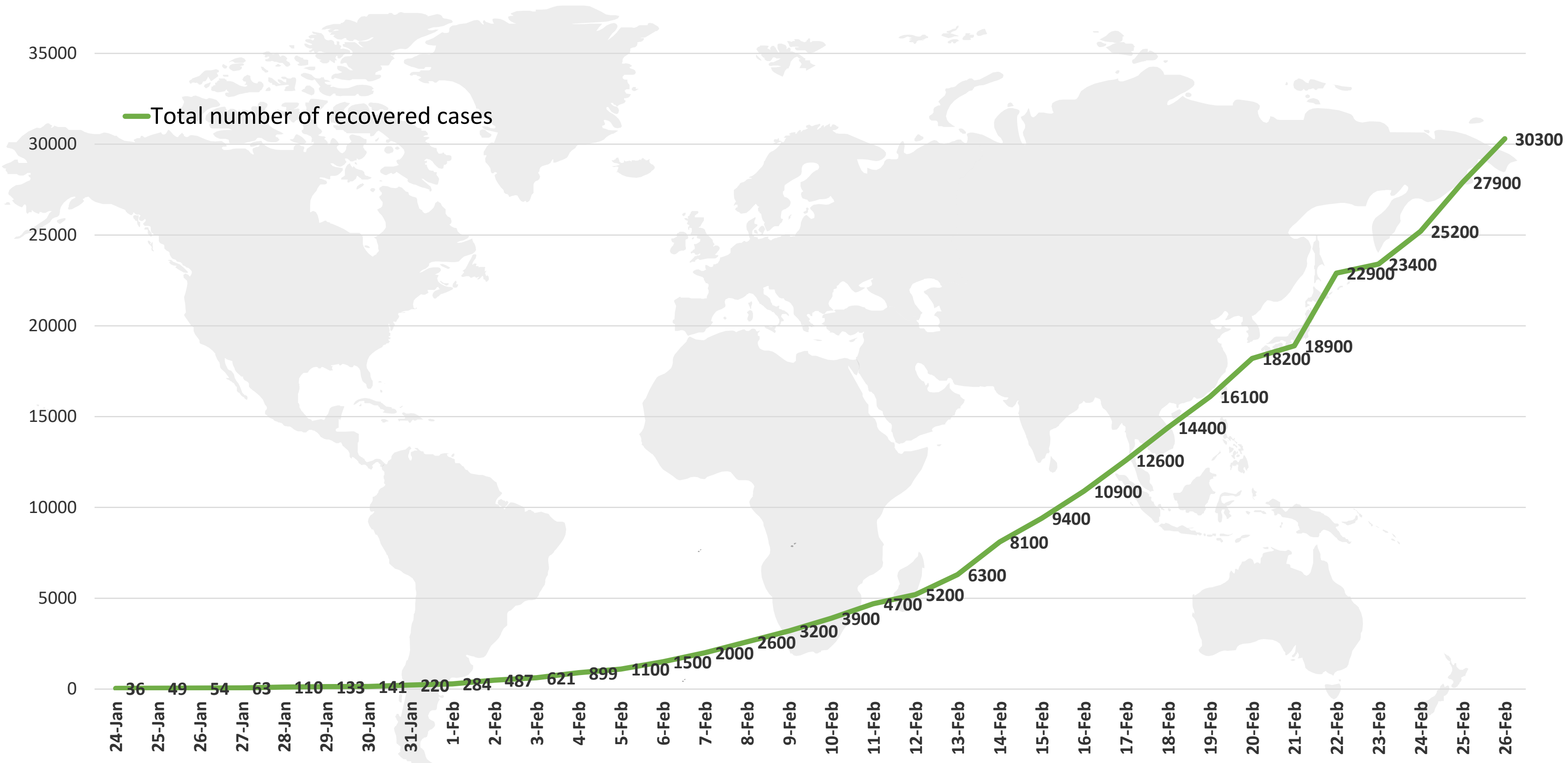


- Four new Member States (**Algeria, Austria, Croatia, and Switzerland**) reported cases of COVID-19 in the past 24 hours. **Algeria is the first** Member State of the AFRO Region to report a case of COVID-19.
- For the first time, since the onset of symptoms of the first identified case of COVID-19 on 8 December 2019, there have **been more new cases reported from countries outside of China** than from China.
- The WHO Director-General provided opening remarks at the weekly Member State briefing on **COVID-19 regarding ongoing and future WHO missions** along with priorities for control of the outbreak.



EPIDEMIOLOGY:

Figure 9: Total recovered cases of COVID-19. (January 24st to February 25th, 2020)



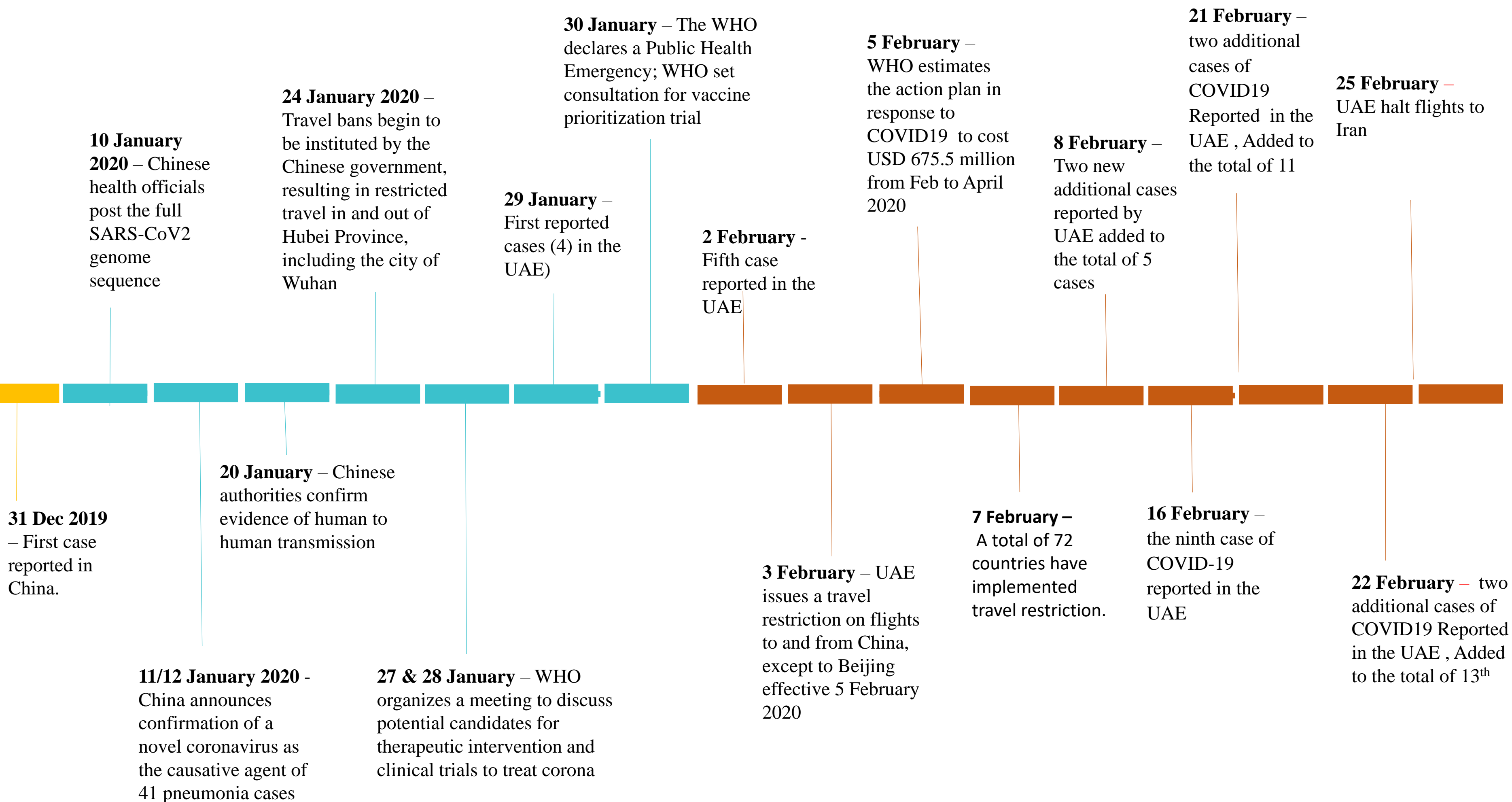
Line graph published by Abu Dhabi Public Health Center 2020.

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

TIMELINE

ABU DHABI PUBLIC
HEALTH CENTRE

مركز أبوظبي
للصحة العامة





CLINICAL FEATURES AND TRANSMISSION



NO UPDATE

Article 1: Presumed Asymptomatic Carrier

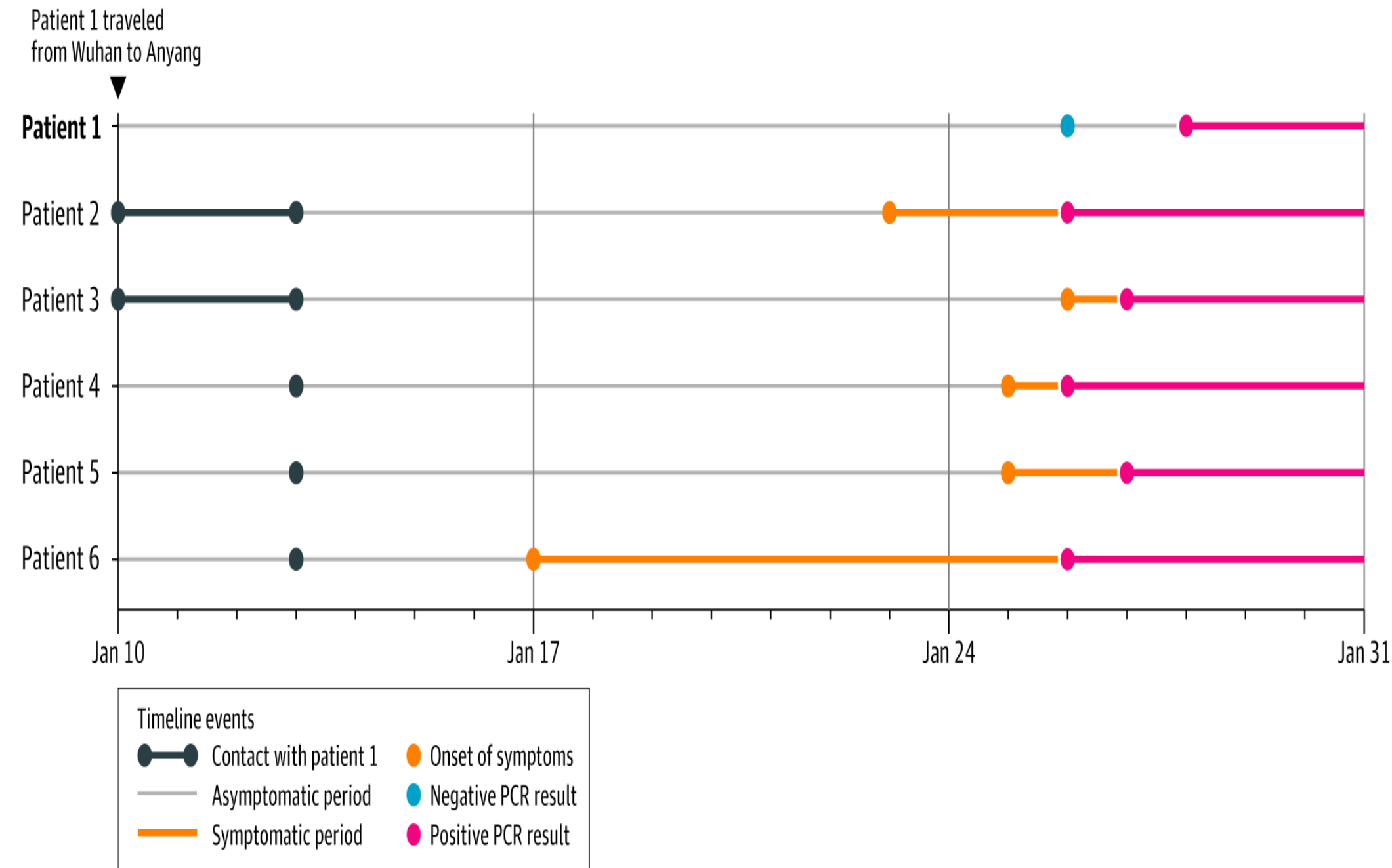
Transmission of COVID-19

Published: 21 February 2020

Summery finding: Presumed asymptomatic patient came from Wahun in 10th Jan . Infected 5 other patients in another city (no h/o of positive sick contact) . Repeated tests for the asymptomatic patient were negative until 28th Jan it become positive. Patient continues to have no symptoms and in in 5th and 8th of February PCR swab was negative.

Incubation period was 19 days.

Laboratory and CT chest x ray **were negative** for the asymptomatic patient.



<https://academic.oup.com/jid/advance-article/doi/10.1093/infdis/jiaa077/5739751>



TREATMENT: *NEW UPDATE*

Title: Breakthrough: Chloroquine phosphate has shown apparent efficacy in treatment of COVID-19 associated pneumonia in clinical studies

Published: 19 February 2020

Summery:

- **Multiple clinical trial was conducted in more than 10 hospitals** to test the efficacy of chloroquine in treatment of COVID19 in Wuhan, Jingzhou, Guangzhou, Beijing, Shanghai, Chongqing, and Ningbo.
- The results so far for **more than 100 patients** have demonstrated that chloroquine phosphate is superior to the control treatment in inhibiting the **exacerbation of pneumonia**, improving **lung imaging findings**, promoting a **virus- negative conversion**, and **shortening the disease course** according to the news briefing.
- Severe adverse reactions to chloroquine phosphate were **not** noted.
- The drug is recommended **for inclusion in the next version of the Guidelines for the Prevention, Diagnosis, and Treatment of Pneumonia Caused by COVID-19** issued by the National Health Commission of the People's Republic of China.
- Chloroquine is a cheap and safe drug that has been used for more than 70 years to treat malaria.

Links: https://www.jstage.jst.go.jp/article/bst/advpub/0/advpub_2020.01047/pdf/-char/en



TREATMENT: *NEW UPDATE*

Title: Potential therapeutic agents for COVID-19 based on the analysis of protease and RNA polymerase docking

Published: 17 February 2020

Summery:

- Study used something called molecular docking strategy which is used to design drugs. Asses molecules of the drug that can bind to the receptor in COVID19 virus.
- Indinavir and Remdesivir showed high potential to treat COVID19 based on this method. The other tested drugs which were tested in the study and have lower potential are mprenavir, Atazanavir, Darunavir, Fosamprenavir, Lopinavir, Nelfinavir, Ritonavir, Saquinavir, and Tipranavir, Favipiravir, Galidesivir, and Ribavirin1

Links: <https://www.preprints.org/manuscript/202002.0242/v1>



TREATMENT:

NO UPDATE

Latest article on February 18, 2020

The WHO developed COVID19 therapeutic trial synopsis (for Multicenter clinical trial studies on investigational therapeutic agent for COVID19). ***NEW***

https://www.who.int/blueprint/priority-diseases/key-action/COVID-19_Treatment_Trial_Design_Master_Protocol_synopsis_Final_18022020.pdf?ua=1

Current trial: (Source: WHO, January 20, 2020)

- SAG members noted that a **randomized controlled trial was initiated in Wuhan** to assess the effect of **lopinavir/ritonavir with IFN-β1b**, and that trial material from the MIRACLE trial — which aimed to assess the same treatment for **MERS-CoV in Saudi Arabia** — was shared to support the initiation of the trial.

<https://apps.who.int/iris/bitstream/handle/10665/330692/WHO-HEO-RDBlueprintnCoV-2020.2-eng.pdf?sequence=1&isAllowed=y&ua=1>

- **Potential candidates for therapeutic treatment released 24 January 2020**

<https://www.who.int/blueprint/priority-diseases/key-action/overview-ncov-therapeutics.pdf?ua=1>



VACCINATION: *NO UPDATE*

Latest article on February 18, 2020

- The WHO released **COVID-19 Phase IIb/III Vaccine Trial Synopsis**. *NEW*
- <https://www.who.int/blueprint/priority-diseases/key-action/COVID-19-vaccine-trial-synopsis.pdf?ua=1>
- Updated draft design for therapeutic trial published in **27 January 2020**. **Promote the use of information on MERS-COV and SARS-Cov to develop a vaccine**
- <https://apps.who.int/iris/bitstream/handle/10665/330695/WHO-HEO-RDBlueprintnCoV-2020.5-eng.pdf?sequence=1&isAllowed=y&ua=1>
- **List of suggested vaccines:**
- <https://www.who.int/blueprint/priority-diseases/key-action/list-of-candidate-vaccines-developed-against-ncov.pdf>