



Scientific Research Monitoring on COVID-19

26 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:

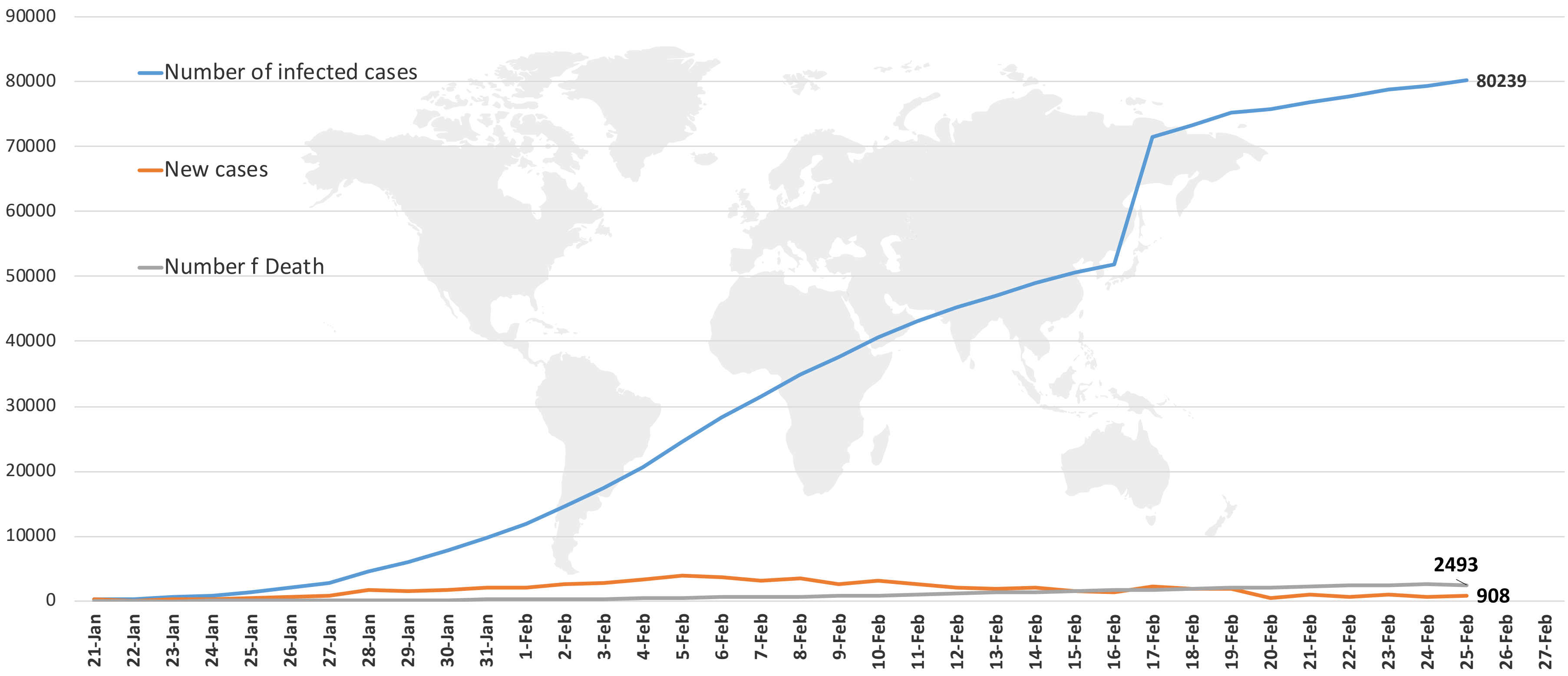
Epidemiology section: the Joint mission in china concluded information about the disease transmission , severity , ..etc. the mission next distention is Italy.

Clinical feature and transmission: article suggests that the coronavirus may have been transmitted by the asymptomatic **carrier**.



EPIDEMIOLOGY:

Figure 1: Total number of infected, new, and death cases (January 24st to February 25th , 2020)



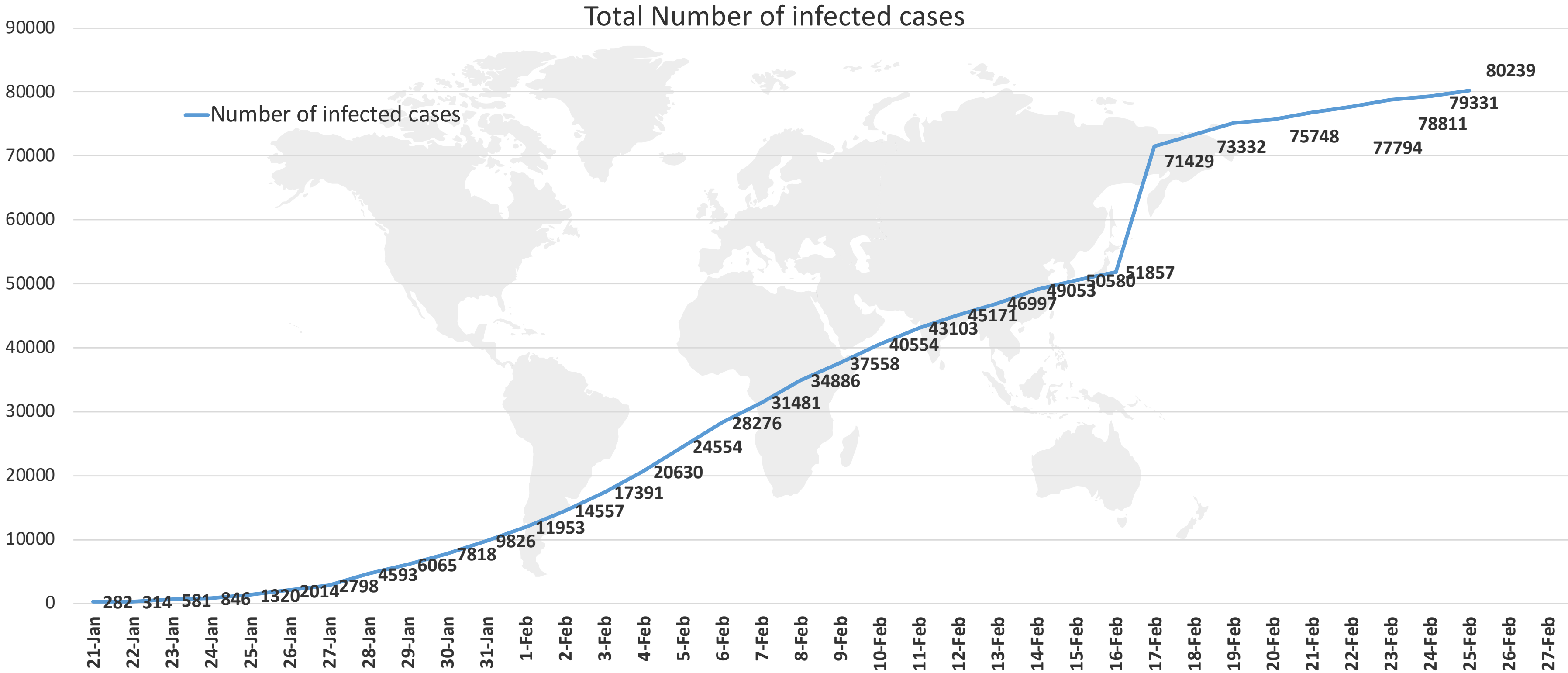
Line graph published by Abu Dhabi Public Health Center 2020.

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



EPIDEMIOLOGY:

Figure 2: Number of infected cases (January 22st to February 25th, 2020)



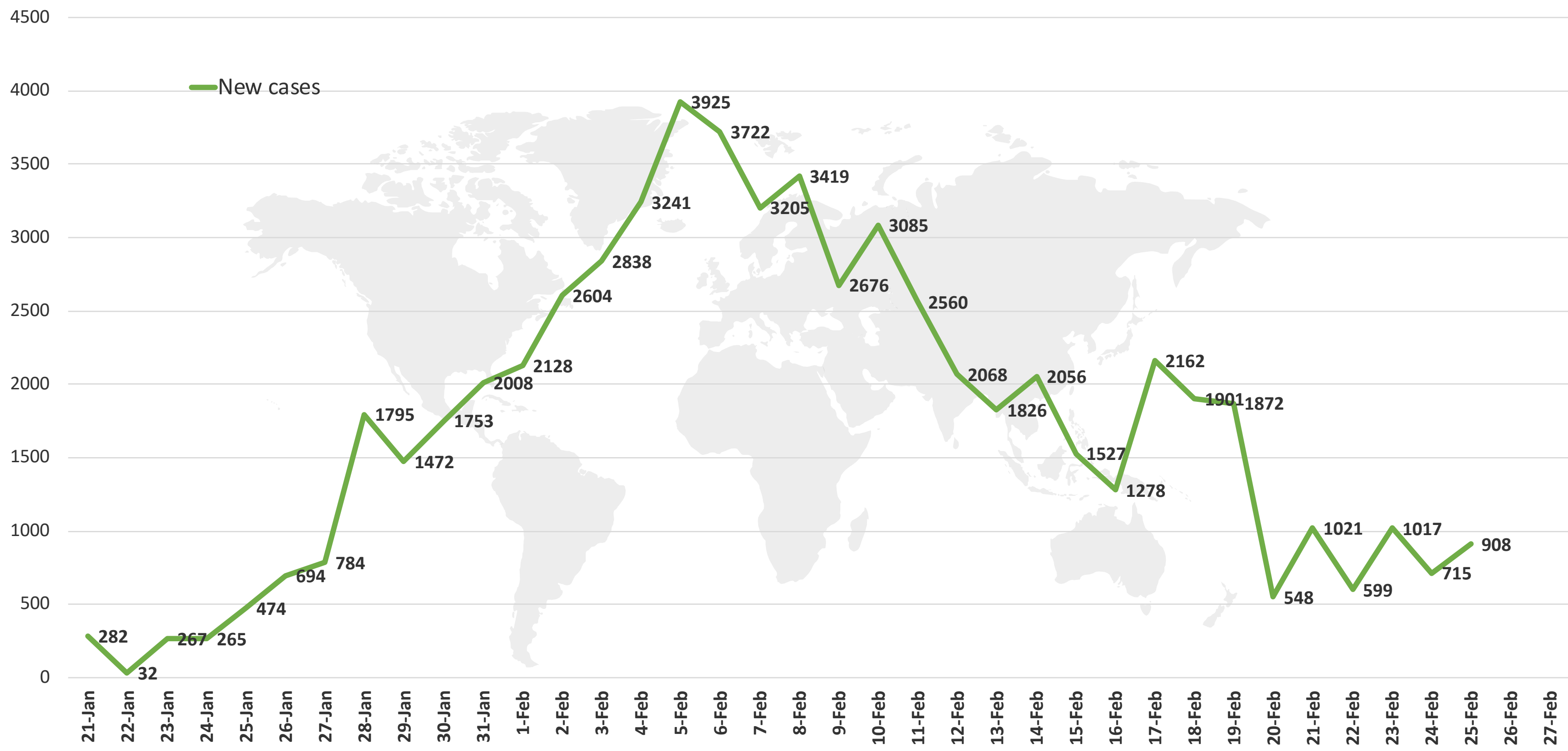
Line graph published by Abu Dhabi Public Health Center 2020.

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



EPIDEMIOLOGY:

Figure 3: Number of new cases (January 21st to February 25th , 2020)



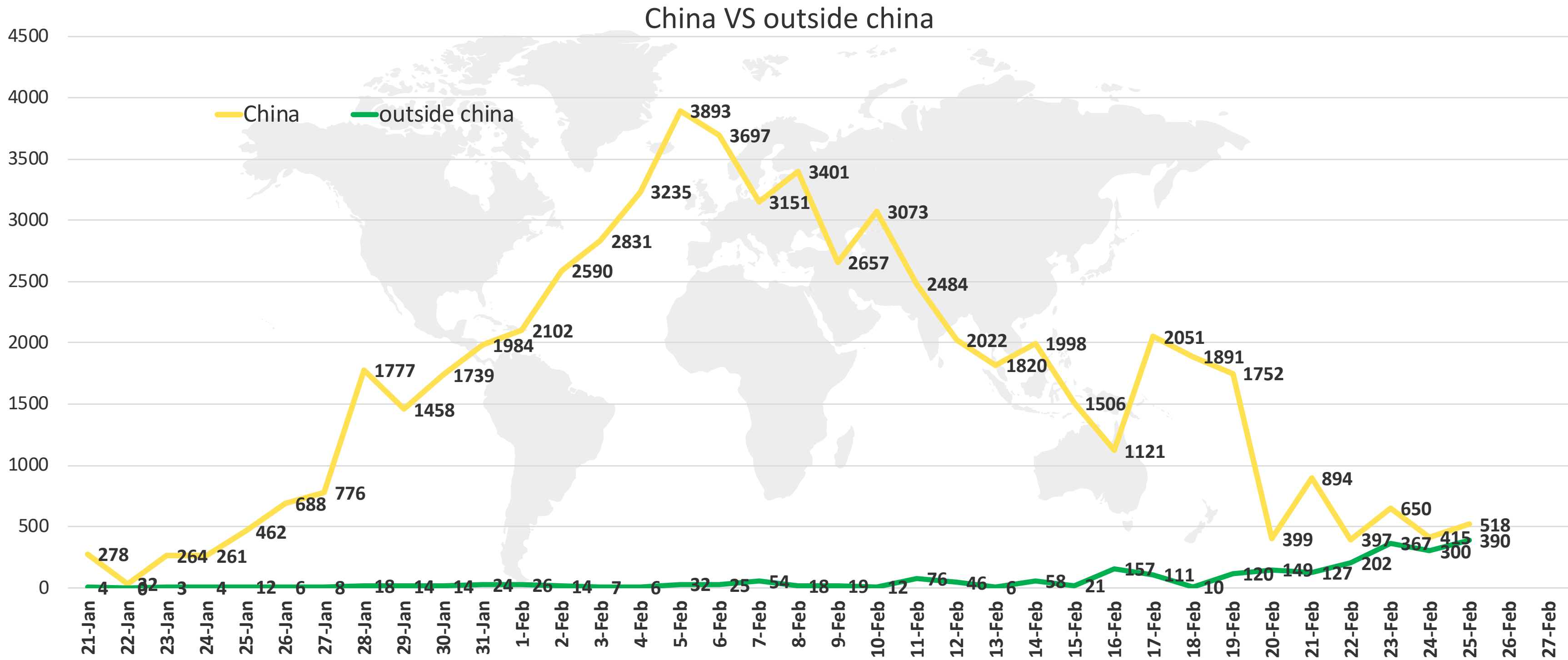
Line graph published by Abu Dhabi Public Health Center 2020.

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



EPIDEMIOLOGY:

Figure 4: Number of new cases in China versus outside China (January 22st to February 25th , 2020)



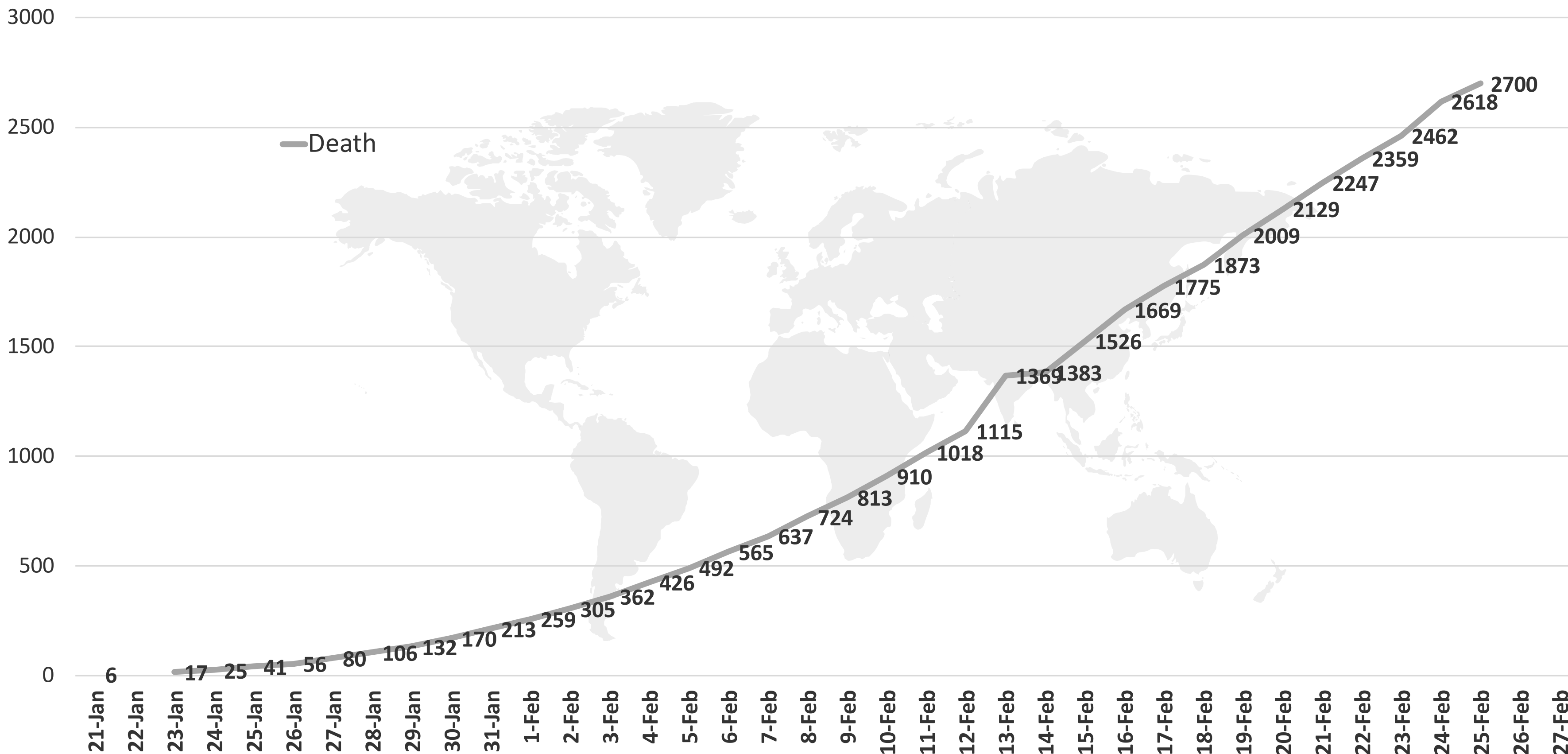
Line graph published by Abu Dhabi Public Health Center 2020.

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



EPIDEMIOLOGY:

Figure 5: Number of total deaths (January 21st to February 25, 2020)



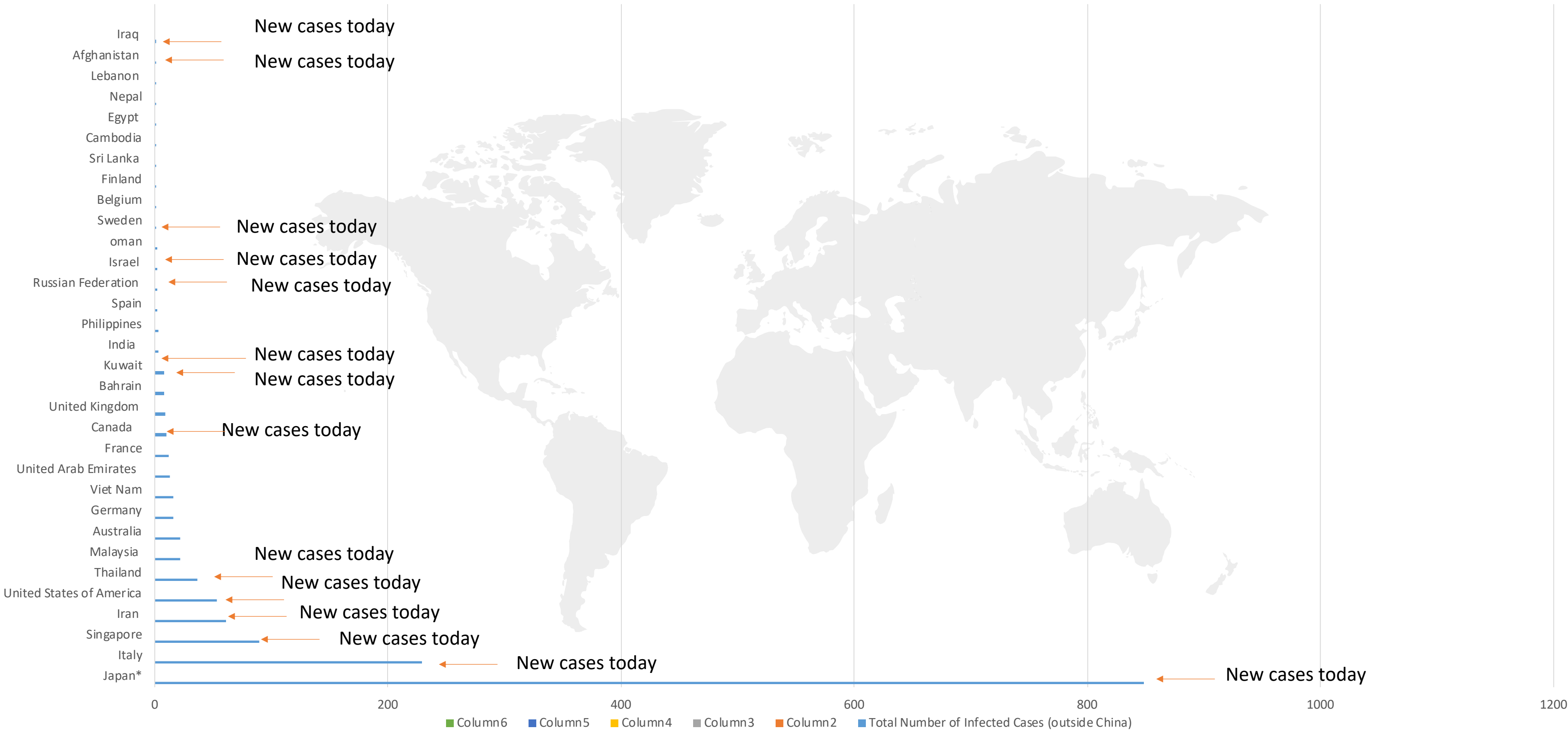
Line graph published by Abu Dhabi Public Health Center 2020.

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



EPIDEMIOLOGY:

Figure 6: Total number of cases outside China per country (January 21st to February 25th , 2020)



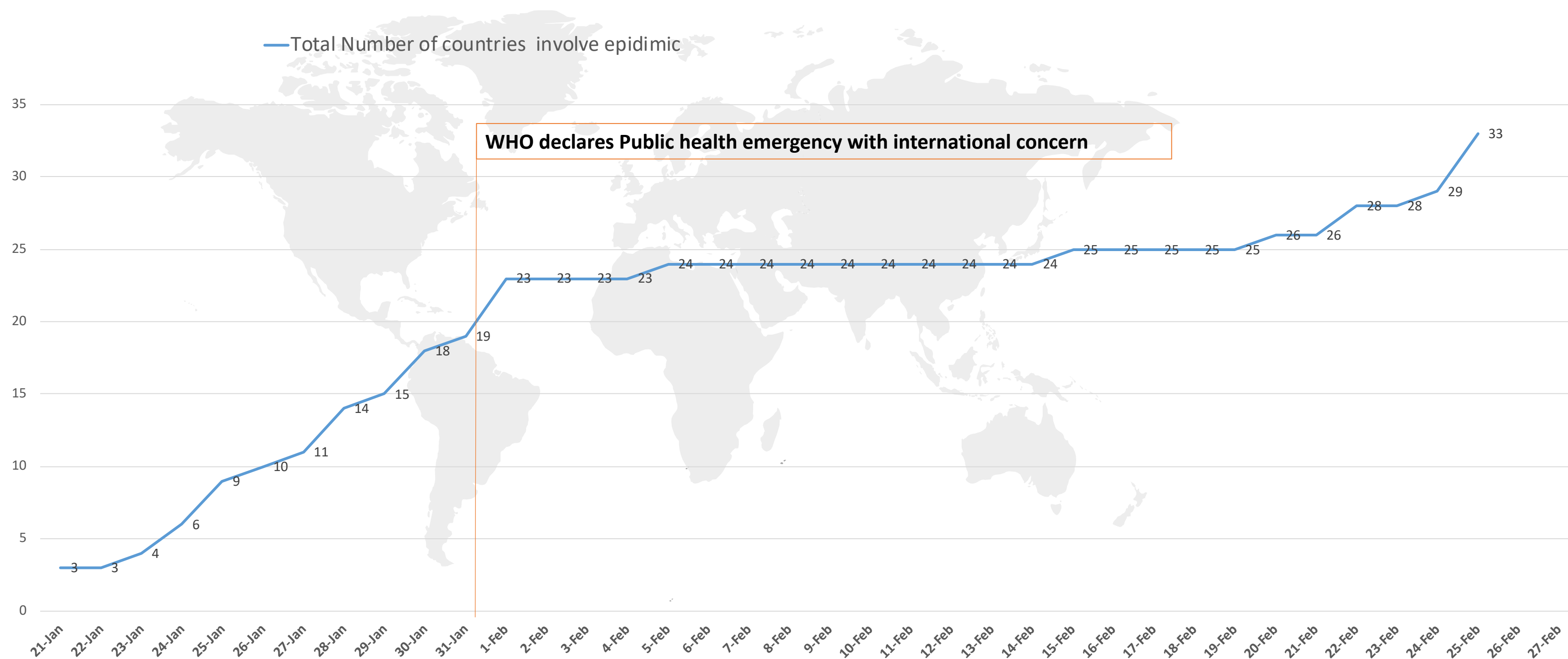
Line graph published by Abu Dhabi Public Health Center 2020.

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.

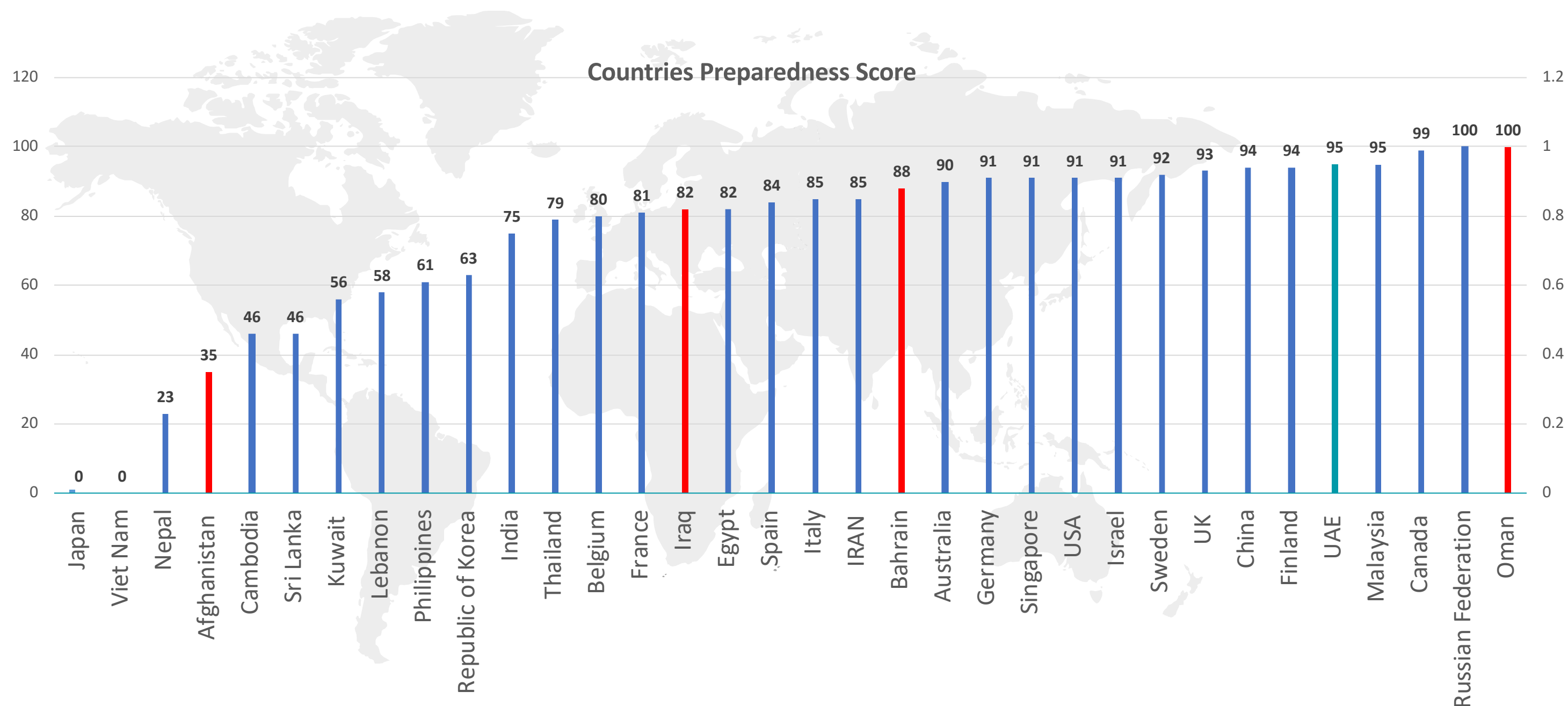
Data resources: [WHO](https://www.who.int/)



EPIDEMIOLOGY:

Figure 9 : Capacities of countries reporting COVID19 cases

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



Line graph published by Abu Dhabi Public Health Center 2020.

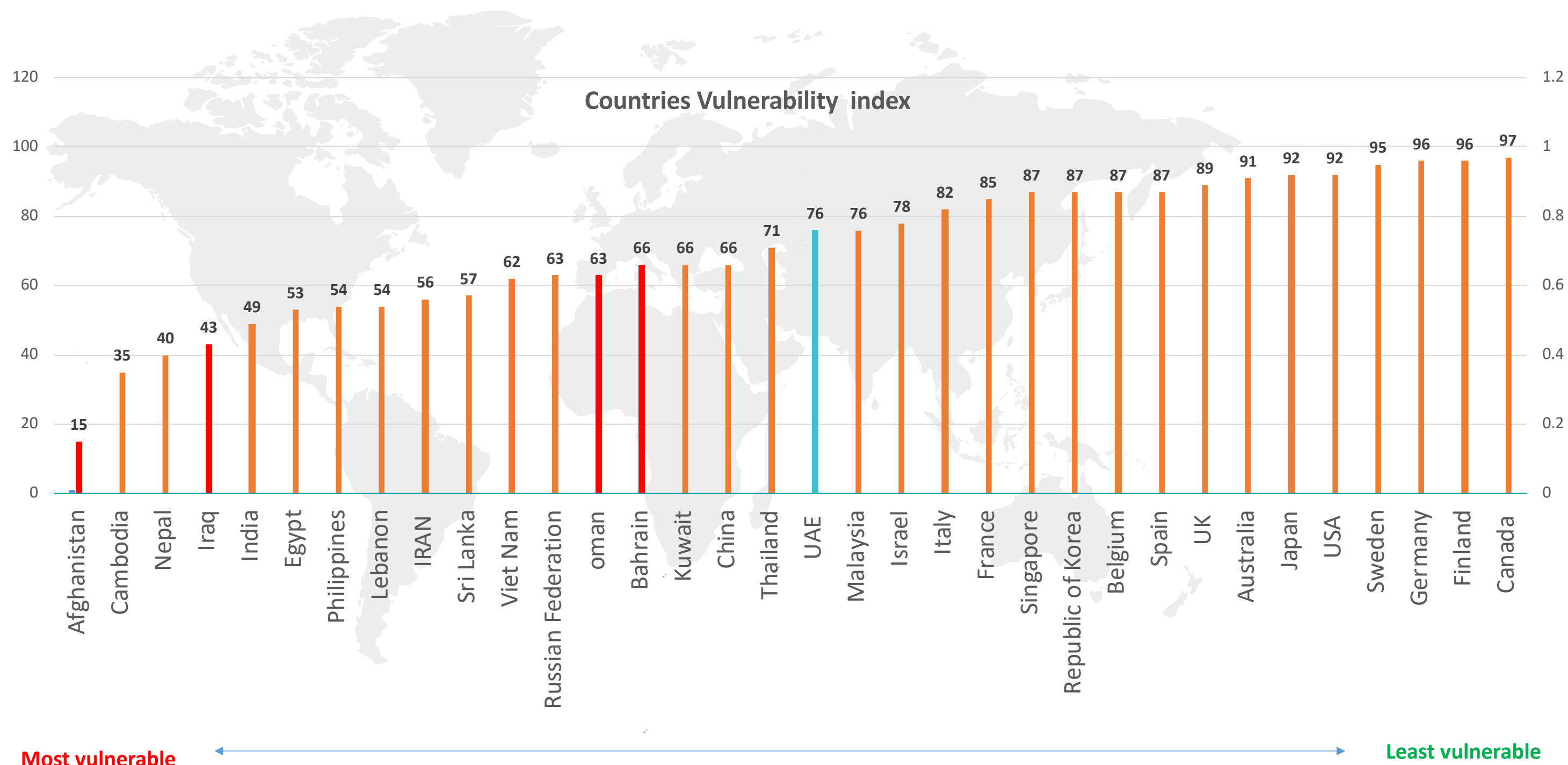
Data resources : [SPAR score](#) , [IDVI score](#)



EPIDEMIOLOGY:

Figure 9 : Capacities of countries reporting COVID19 cases

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



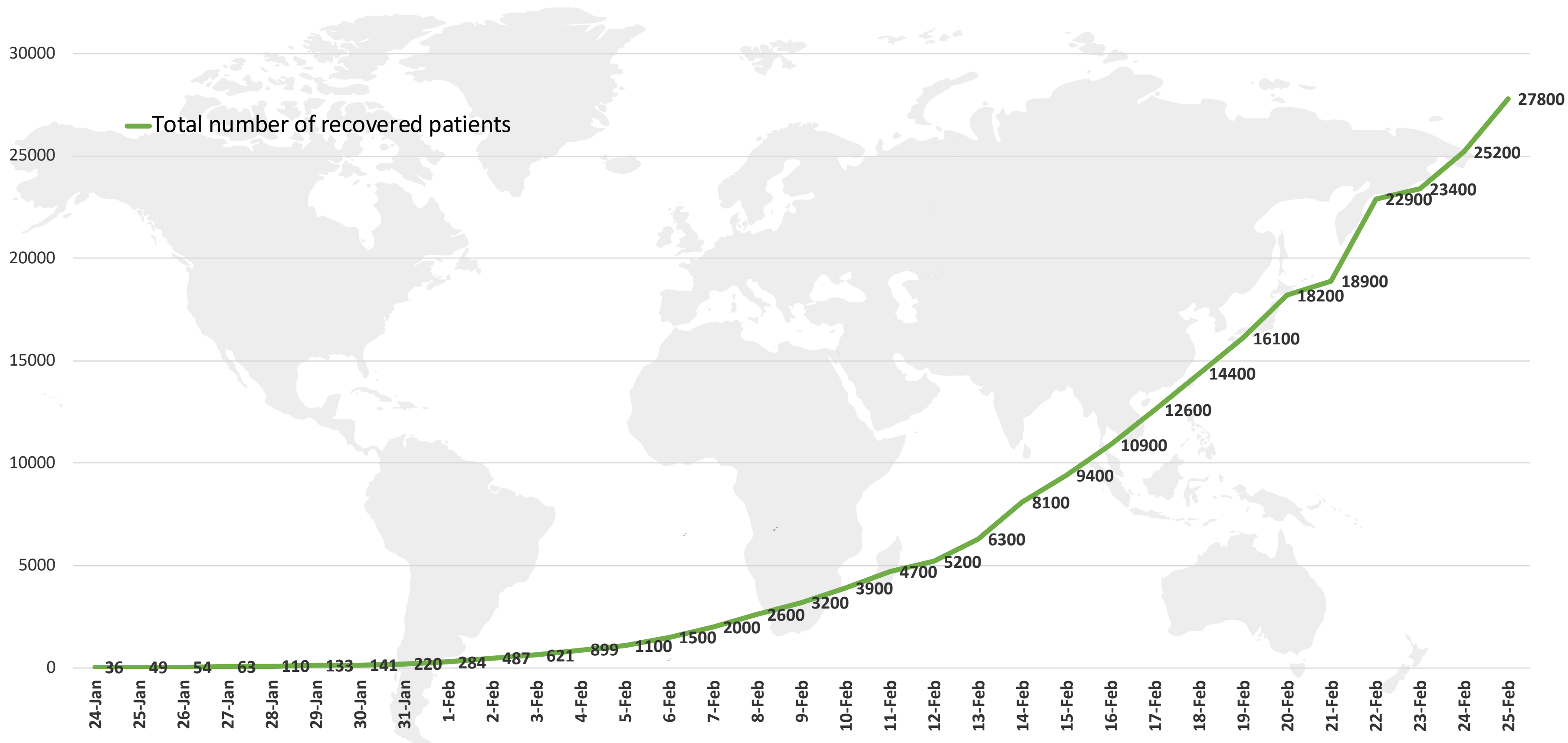
Line graph published by Abu Dhabi Public Health Center 2020.

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



EPIDEMIOLOGY:

Figure 10 : 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/)

EPIDEMIOLOGY:

WHO report 25 /2/2020 important points

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- Four new Member States (Afghanistan, Bahrain, Iraq, and Oman) reported cases of COVID-19 in the past 24 hours.
- For healthcare workers and public health professionals, WHO has an online course titled *Infection Prevention and Control (IPC) for Novel Coronavirus (COVID-19)*. **Provides information** on what **facilities** should be **doing to prepare to respond to a case of an emerging respiratory virus** such as the novel coronavirus.
- The WHO-China joint **mission** concluded on 24 February. The team has made a range of findings about the transmissibility of the virus, the severity of disease and the impact of the measures taken.
- A joint WHO and European Centre for Disease Prevention and Control (ECDC) **mission arrived in Italy on 24 February to support** Italian authorities on the COVID-19 situation.



The WHO-China joint mission concluded on 24 February the following

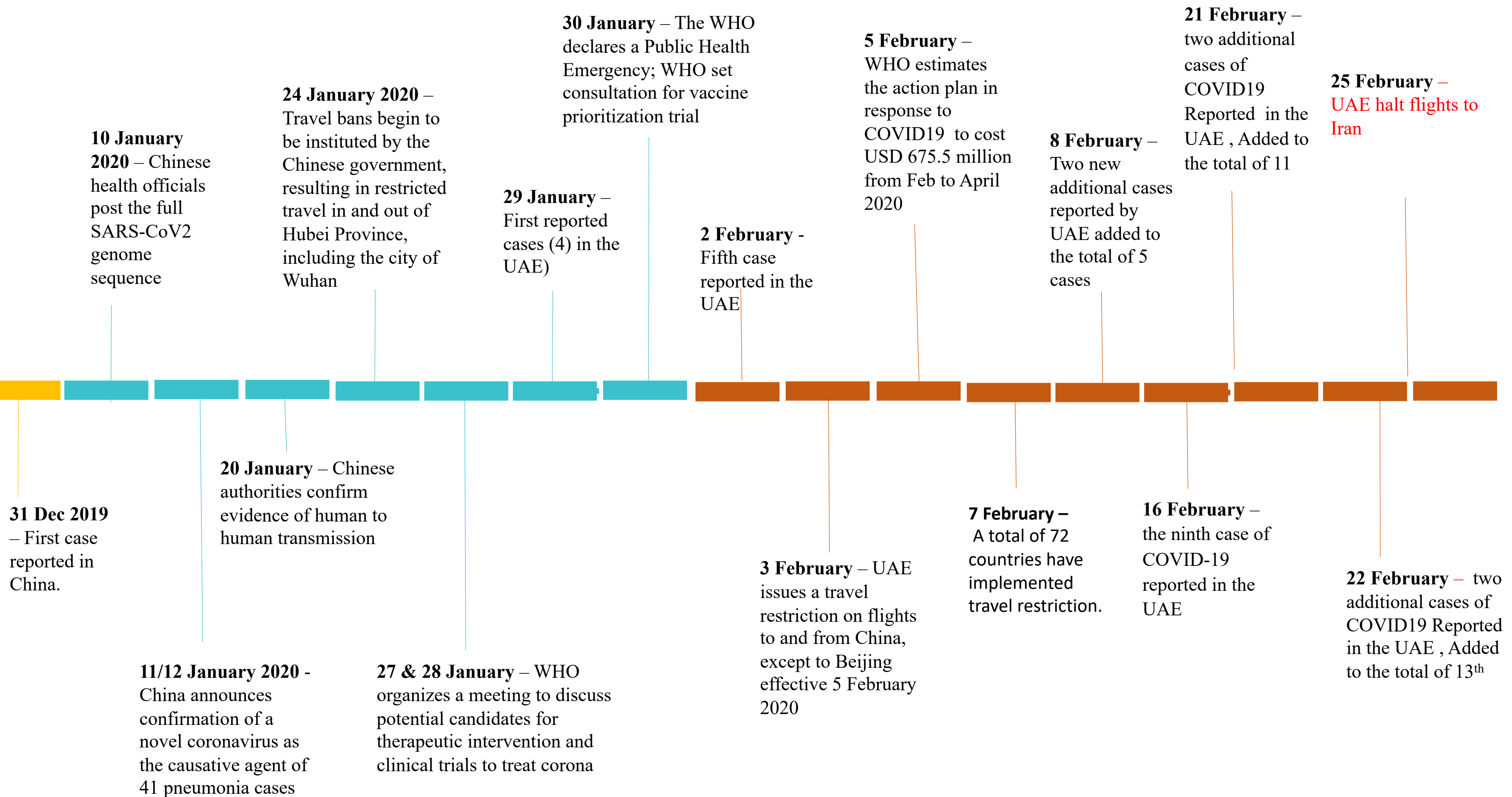
WHO Director-General's opening remarks at the media briefing on COVID-19 - 24 February 2020:

- the team has traveled to several different provinces, including Wuhan.
- They found that the epidemic **peaked and plateaued between the 23rd of January and the 2nd of February**, and has been **declining steadily** since then.
- **No significant change in the DNA of the virus.**
- **Fatality rate is between 2% and 4% in Wuhan, and 0.7% outside Wuhan.**
- People with **mild disease, recovery time is about two weeks**, while people with **severe or critical disease recover within 3 to 6 weeks.**
- **Measures taken in China have averted** a significant number of cases.
- Concern about **the situation in Italy, Iran and South Korea.**
- Does this virus have pandemic potential? Absolutely, it has. Are we there yet? From our assessment, **not yet.**
- **Priorities:**
- First, all countries must **prioritize protecting health workers.**
- Second, we must **engage communities to protect people** who are most at risk of severe disease, particularly the **elderly** and people with underlying **health** conditions.
- Third, we must **protect countries** that are the **most vulnerable**, by doing our utmost to contain epidemics in countries with the capacity to do it.
- **Thank the European Commission** for its contribution of **232 million euros**, which demonstrates the kind of global solidarity that gives me hope. **France, Germany and Sweden** have also announced **additional** contributions.

TIMELINE

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CLINICAL FEATURES AND TRANSMISSION

NEW UPDATE

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Article 1: Presumed Asymptomatic Carrier

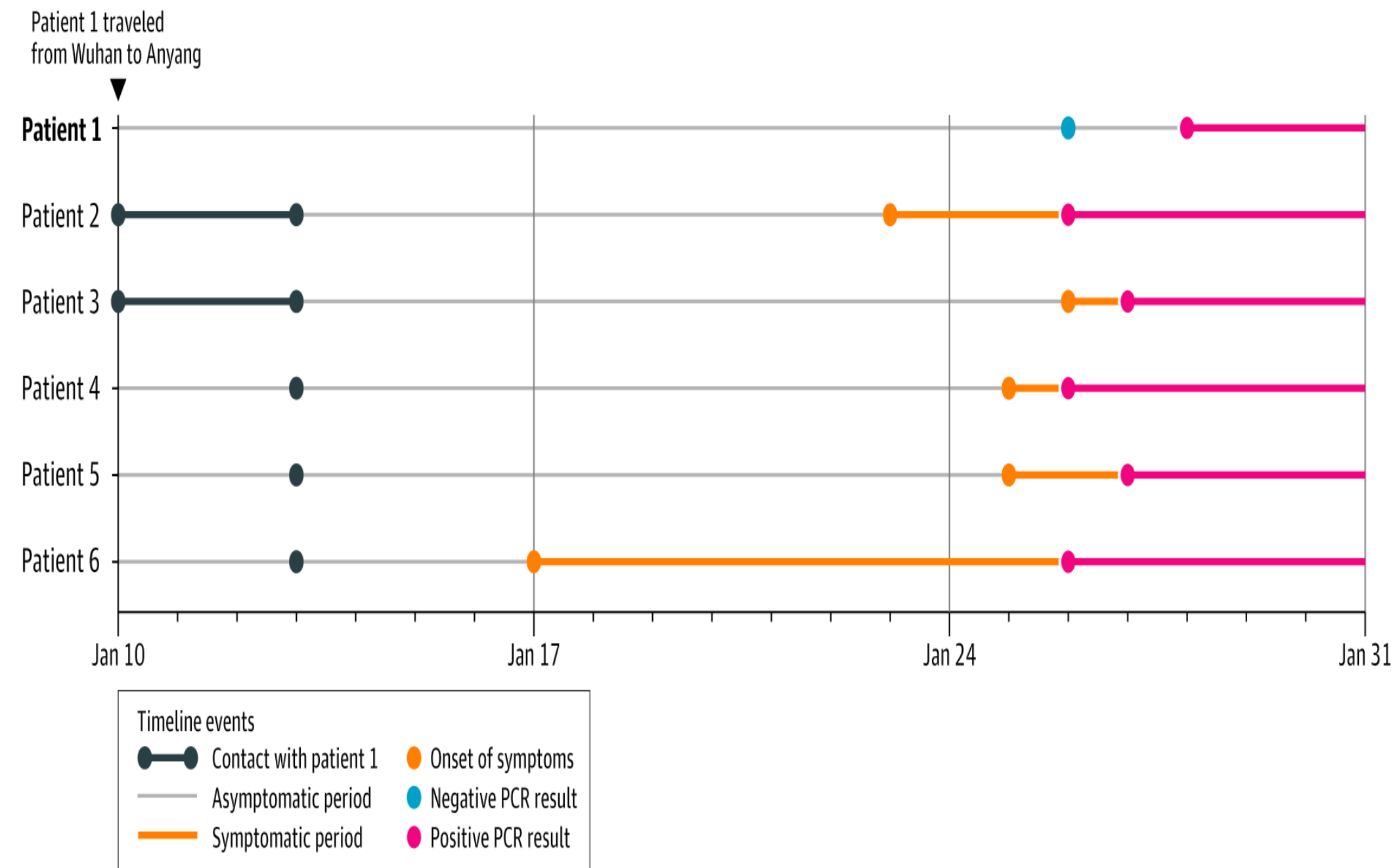
Transmission of COVID-19

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.

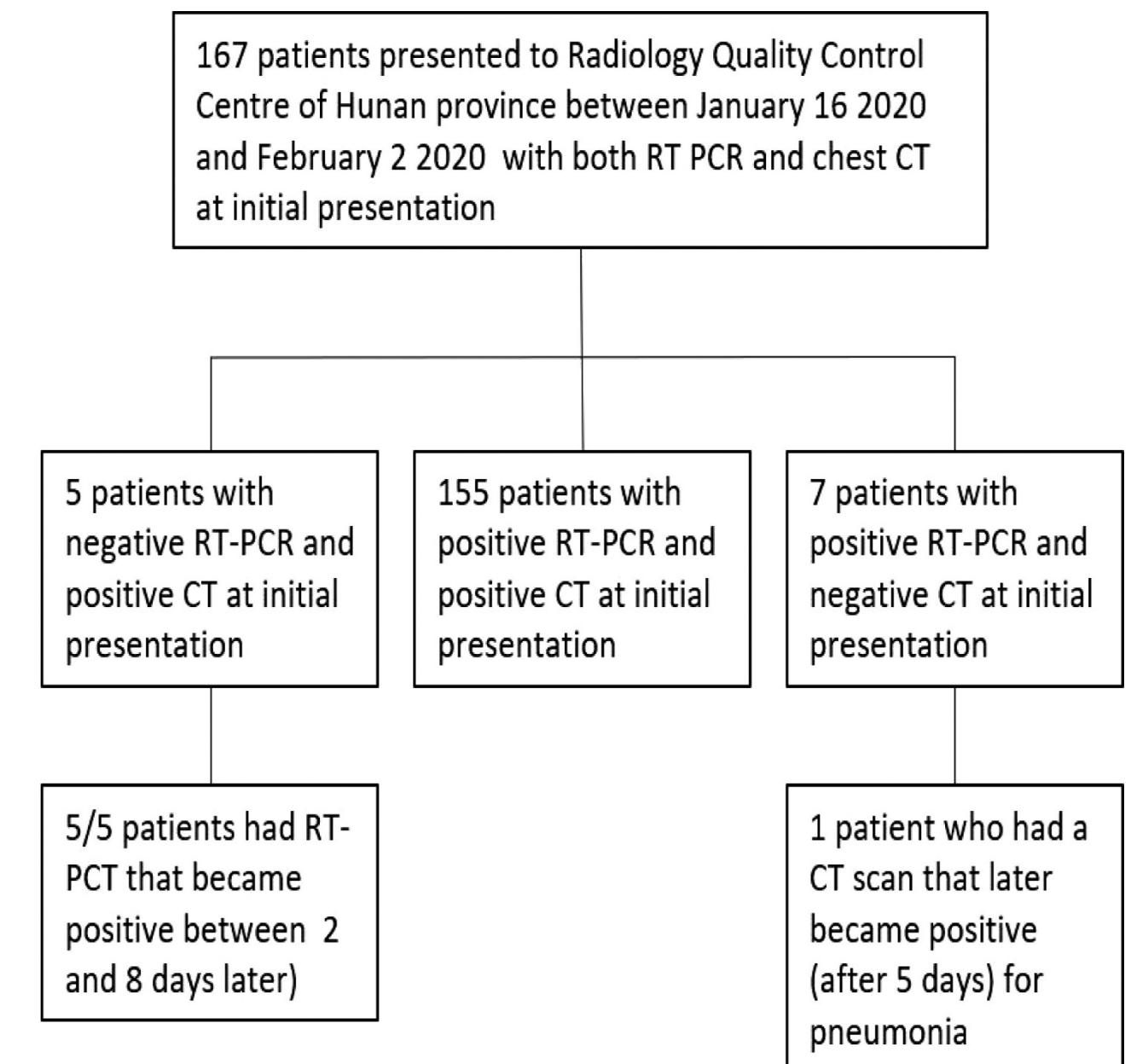


<https://academic.oup.com/jid/advance-article/doi/10.1093/infdis/jiaa077/5739751>



DIAGNOSIS: *NO UPDATE*

- **Article 1: Published: 12 February 2020***
- **Summery finding:** Two radiologists with 10 years of experience interpreted the CT scans.
 - 5 patients initially **tested positive** by **CT** and **negative** by **RT-PCR** but after consecutive testing with RT-PCR became positive.
 - 7 patients tested **negative** by **CT** but **positive** by **RT-PCR**.
 - The **five cases** who were **negative** by **RT-PCR** and **positive** by **CT** at initial are discussed.
 - All cases were had either h/o visiting Wahun or contact with positive cases.
 - All had symptom (some had mild symptoms).
 - After isolation for presumed 2019-nCoV pneumonia, all patients were eventually confirmed with 2019-nCoV infection by **repeated swab tests**.
 - **Conclusion from the study:**
A combination of repeated swab tests and CT scanning may be helpful for individuals at **high clinical suspicion of nCoV infection** but who test **negative in RT-PCR screening**



Link : <https://pubs.rsna.org/doi/10.1148/radiol.2020200343>



TREATMENT: ***NO UPDATE***

Title: Therapeutic options for the 2019 novel coronavirus (2019-nCoV)

Published 10 Feb 2020 , updated 19 Feb 2020

Links: <https://www.nature.com/articles/d41573-020-00016-0>

- 1-Ribavirin** is approved for treating Hepatitis C Virus and respiratory syncytial virus (RSV), but its side effects such as anaemia may be severe at high doses.
 - 2-Remdesivir** an **approved HIV medication**. has been tested in a clinical trial for Ebola. Clinical trial on COVID19 2019 ([NCT04252664](#) and [NCT04257656](#)), with **estimated completion dates in April 2020**. Also **galidesivir** may have potential against 2019-nCoV.
 - 3-Favipiravir** approved for influenza treatment. Patients with 2019-nCoV are being recruited in randomized trials to evaluate the efficacy of favipiravir plus interferon- α ([ChiCTR2000029600](#))
 - 4-Pegylated interferon alfa-2a and -2b**, approved for the treatment of **HBV and HCV**, could be used for the treatment of COVID19 , **multiple adverse effects** associated with these drugs. Their evaluation should be closely monitored and dose reduction or discontinuation of therapy may be required.
 - 5- Chloroquine** (Antimalarial drug) , is being evaluated in an open-label trial , further information : ([ChiCTR2000029609](#)).
- There are more than 50 drugs being testing for the treatment COVID19.



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>