



Scientific Research Monitoring on COVID-19

19 February 2020

Reported by: *(Public Health Research Section)*

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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.



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:

13. Children have mild symptoms compared with adults. **Further studies of this population is needed.**



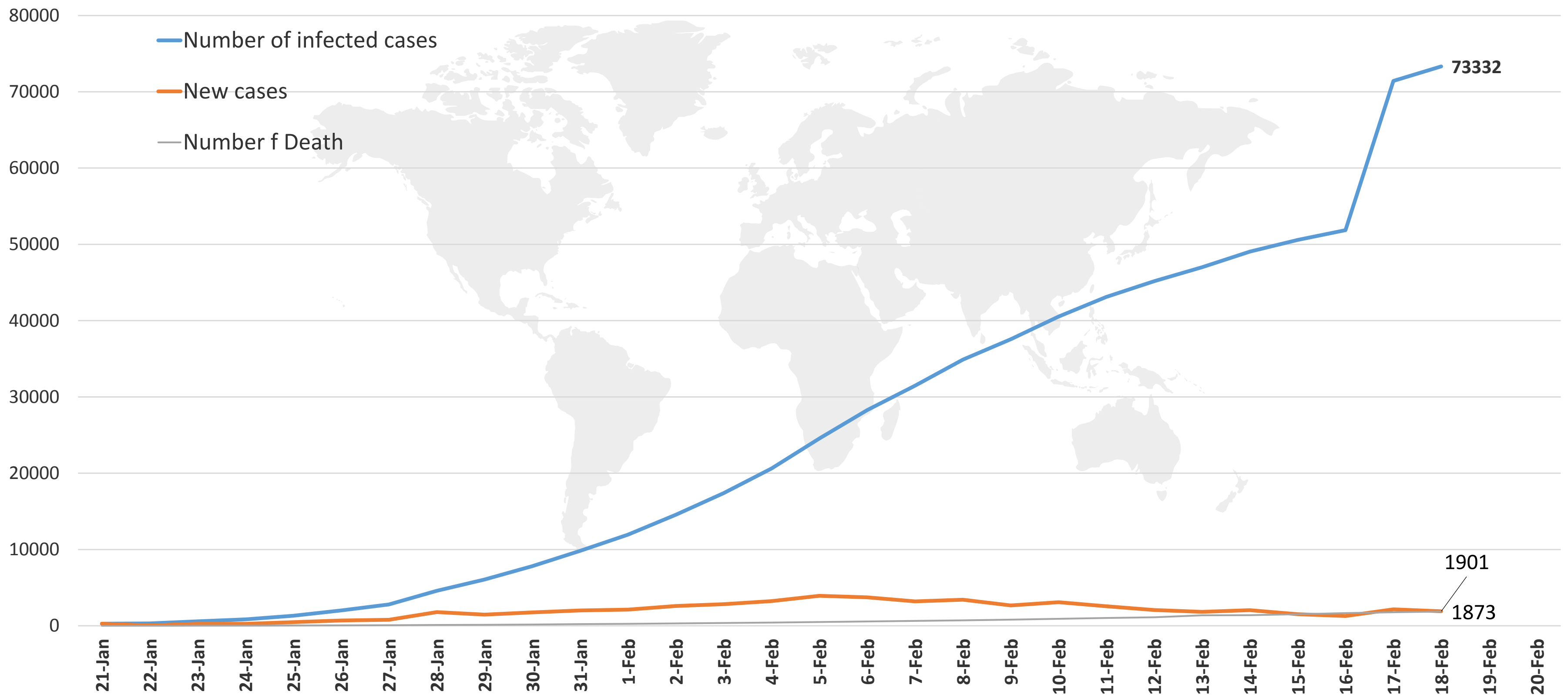
NEW UPDATES FROM TODAY'S REPORT:

- **Epidemiology section:** WHO developed a guidance in safety and protection among health care worker.
- **Epidemiology section:** WHO enhance the supply of PPEs to most needed countries.
- **Clinical feature and transmissibility:** Cases with poor prognosis are older, have comorbidities, have dyspnea, anorexia and abdominal pain.



EPIDEMIOLOGY:

Figure 1: Total number of infected, new, and death cases (January 21st to February 18th, 2020)



Line graph published by Abu Dhabi Public Health Center 2020.

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

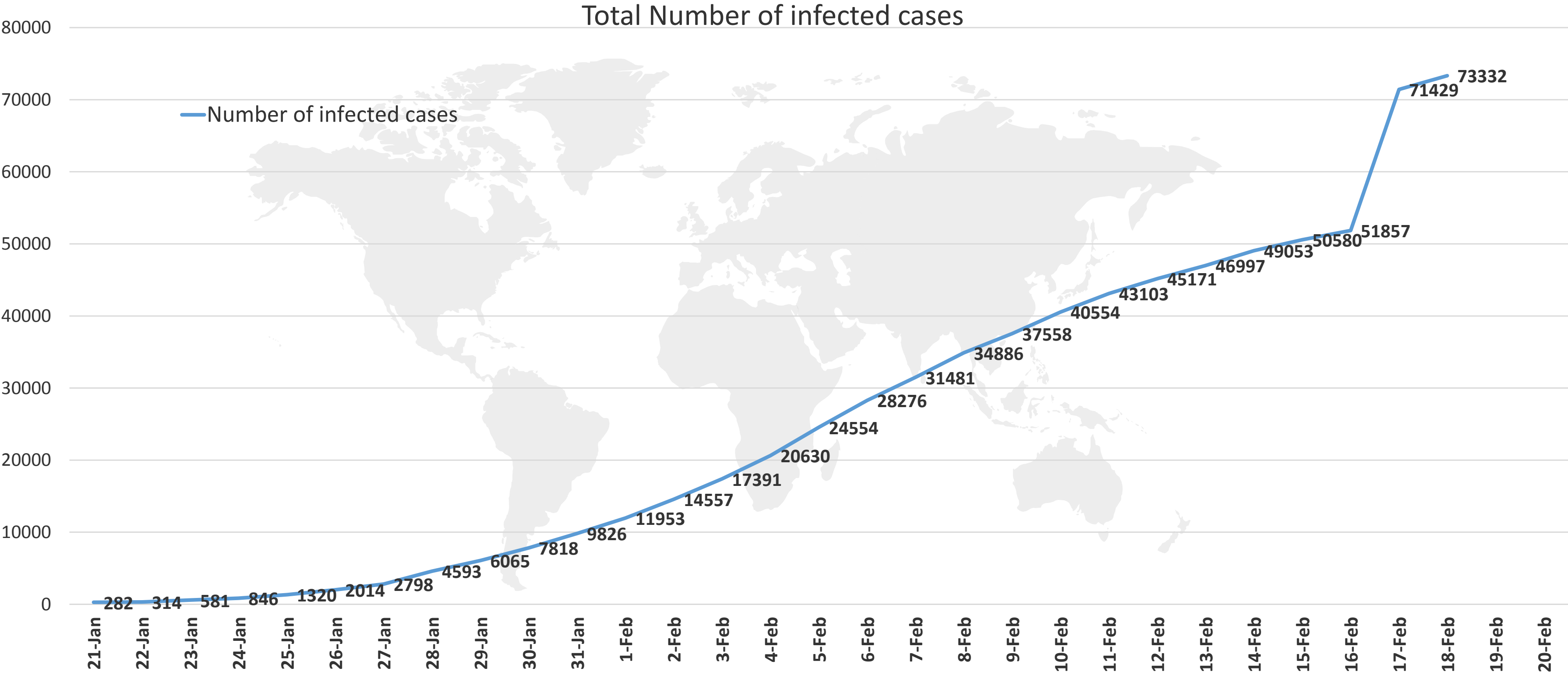
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EPIDEMIOLOGY:

Figure 2: Number of infected cases (January 21st to February 18th , 2020)



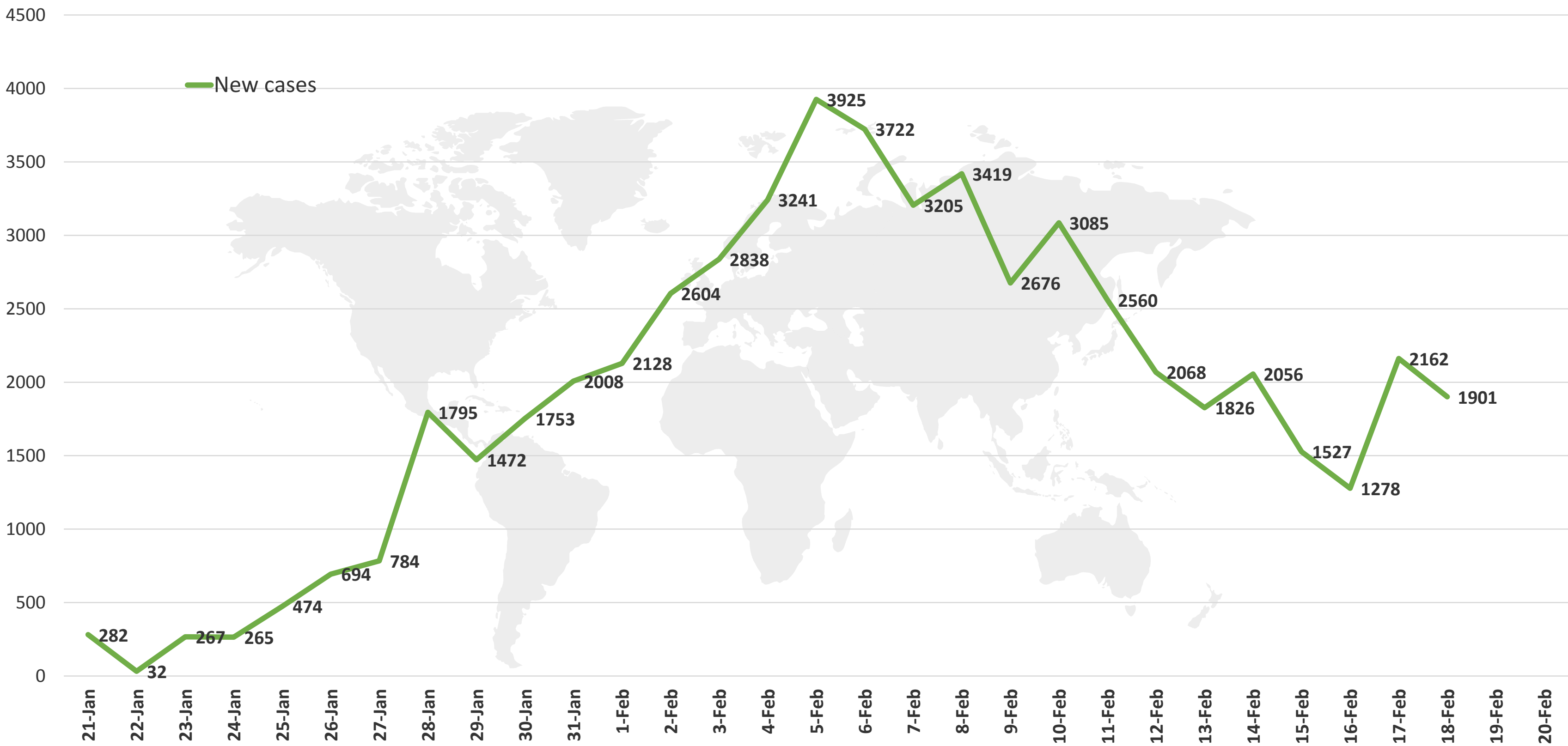
Line graph published by Abu Dhabi Public Health Center 2020.

Data resource : [WHO](#)



EPIDEMIOLOGY:

Figure 3: Number of new cases (January 21st to February 18th , 2020)



Line graph published by Abu Dhabi Public Health Center 2020.

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

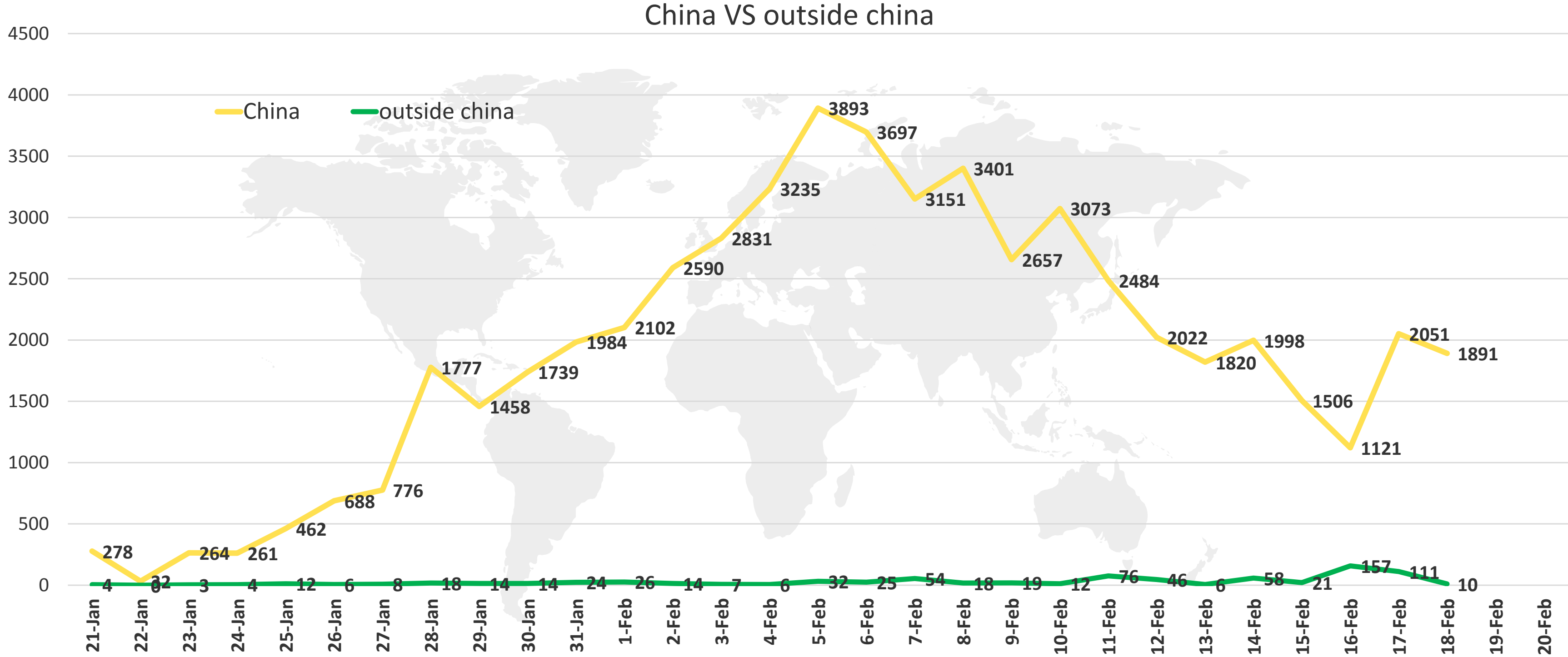
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EPIDEMIOLOGY:

Figure 4: Number of new cases in China versus outside China (January 21st to February 18th, 2020)



Line graph published by Abu Dhabi Public Health Center 2020.

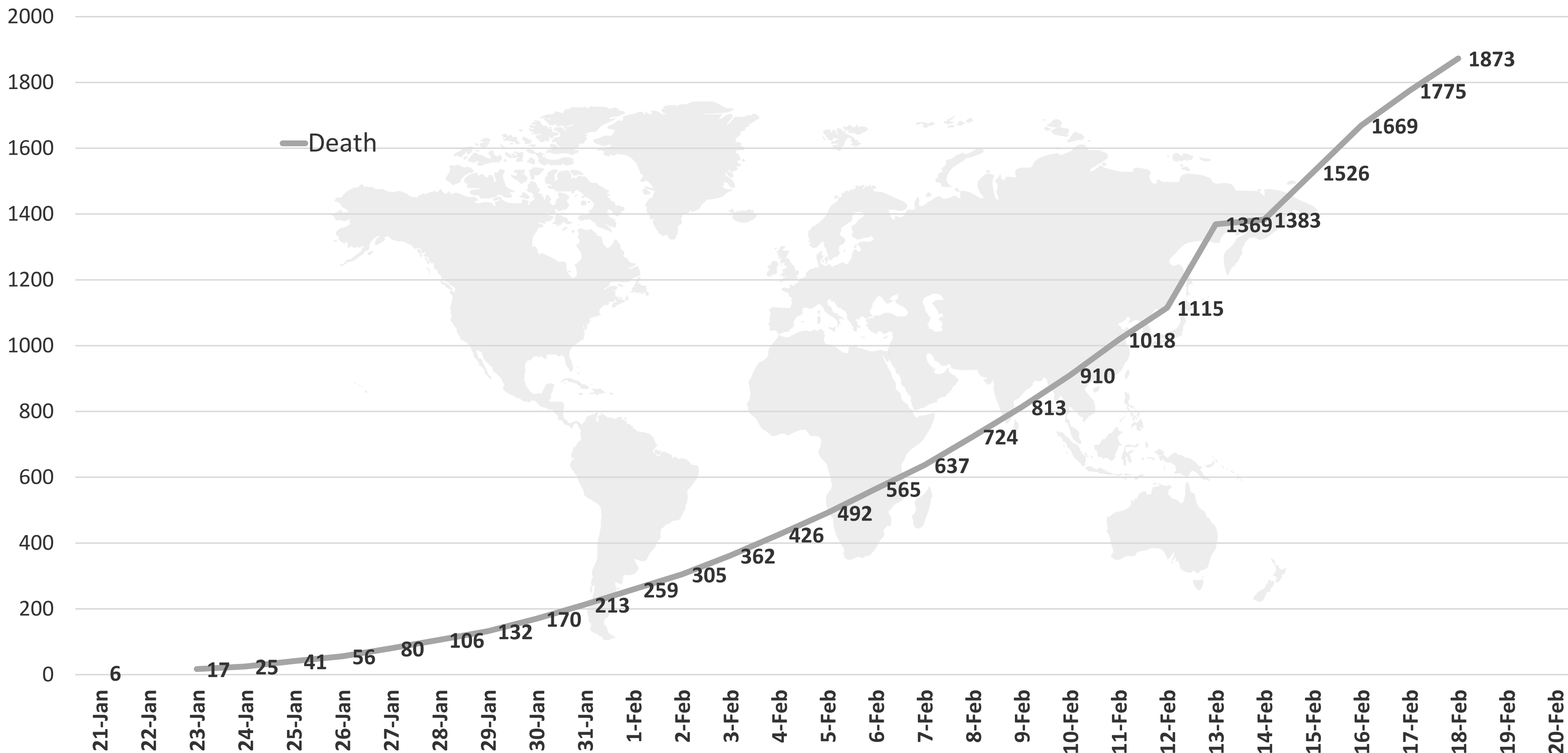
Data resource : [WHO](https://www.who.int)

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EPIDEMIOLOGY:

Figure 5: Number of total deaths (January 21st to February 18th , 2020)



Line graph published by Abu Dhabi Public Health Center 2020.

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

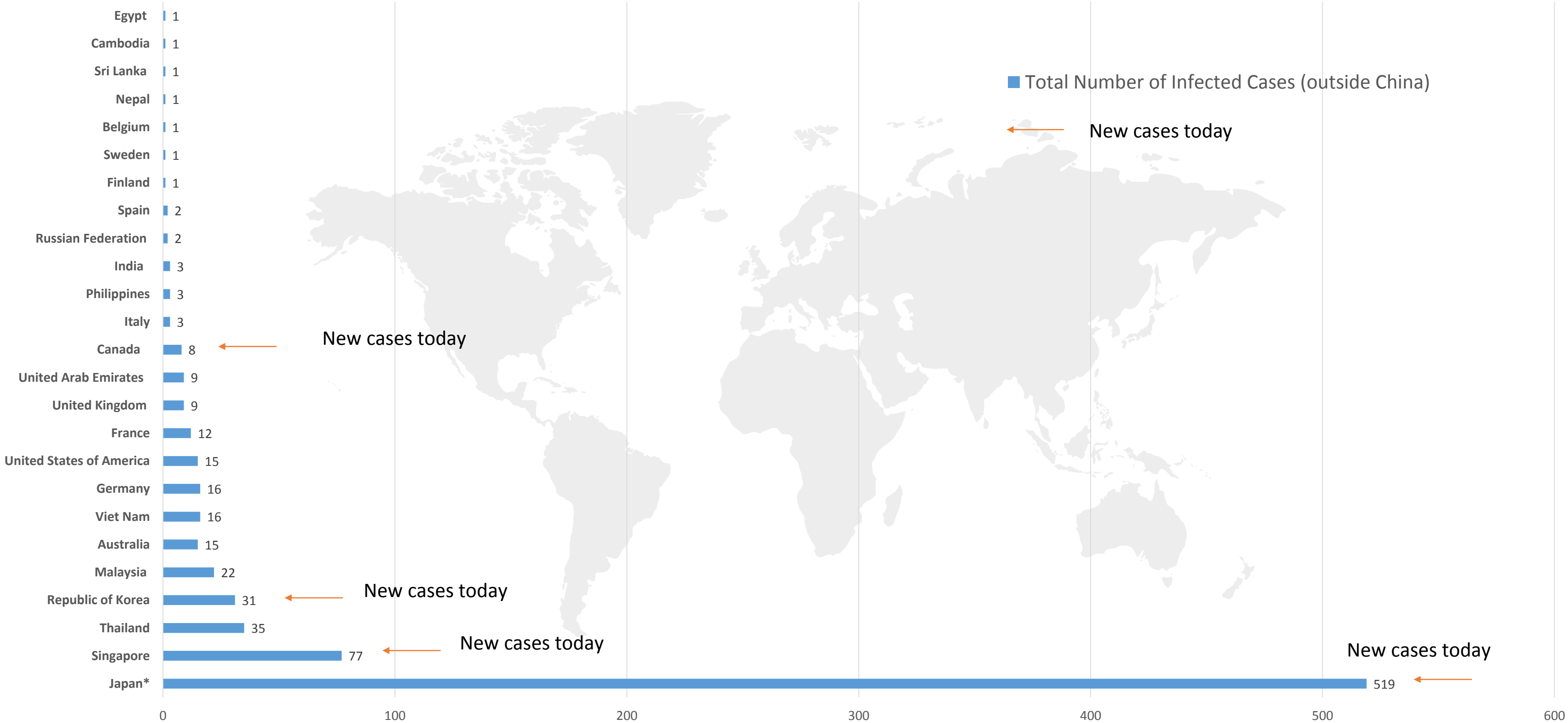
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EPIDEMIOLOGY:

Figure 6: Total number of cases outside China per country (January 21st to February 18th, 2020)



Bar chart published by Abu Dhabi Public Health Center 2020.

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

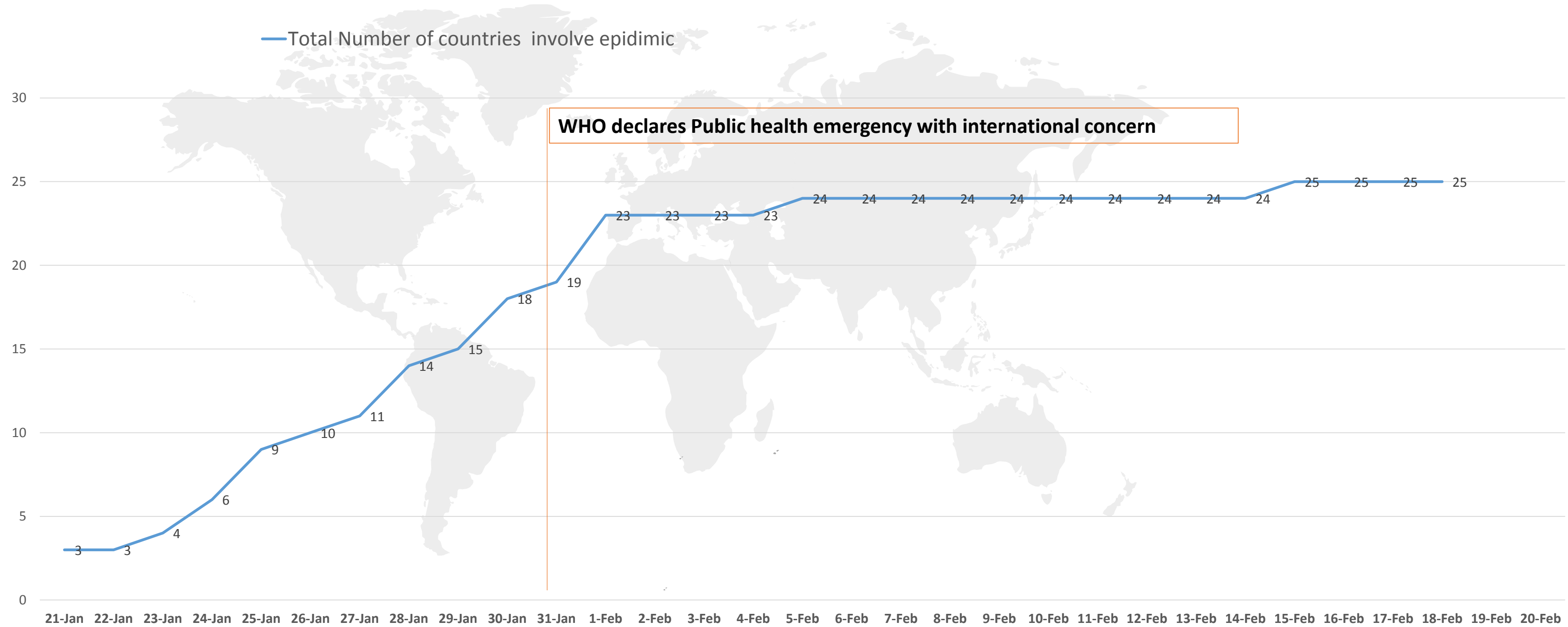
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EPIDEMIOLOGY:

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 resource : [WHO](#)

EPIDEMIOLOGY:

WHO report 18/2/2020 important points



- No new countries reported cases of COVID-19 in the past 24 hours.
- WHO Operations Support and Logistics (OSL) continues to gather and assess the needs of Member States for critical items such as **Personal Protective Equipment (PPE)**. On **14 February**, OSL started the dispatch of **laboratory COVID-19 testing kits** for **56 countries**. As of 17 February, **37 shipments have been dispatched to 34 countries** and **three regional offices**. **28 PPE** shipments dispatched totaling more than **12 000 kg** to priority countries in the Western Pacific, South-East Asia and African regions. **Another 24 shipments** are being processed this week to cover other priority countries.
- Health care workers are on the front line of the response to the COVID-19 outbreak. WHO has developed **guidance on the Rights, Roles and Responsibilities Of Health Workers, Including Key Considerations For Occupational Safety And Health**.



EPIDEMIOLOGY:

Figure 6: Comparison of three viruses

Virus	SARS COV2	SARS-COV	MERS-COV
Date of epidemic	2019	2002	2012
Countries	25	37	27
Infected cases	73 332	8000	2494
Death cases	1873	800	858
Mortality rate	Per WHO 2-4% (unconfirmed)	10%	> 35 %

* Data until February 18, 2020

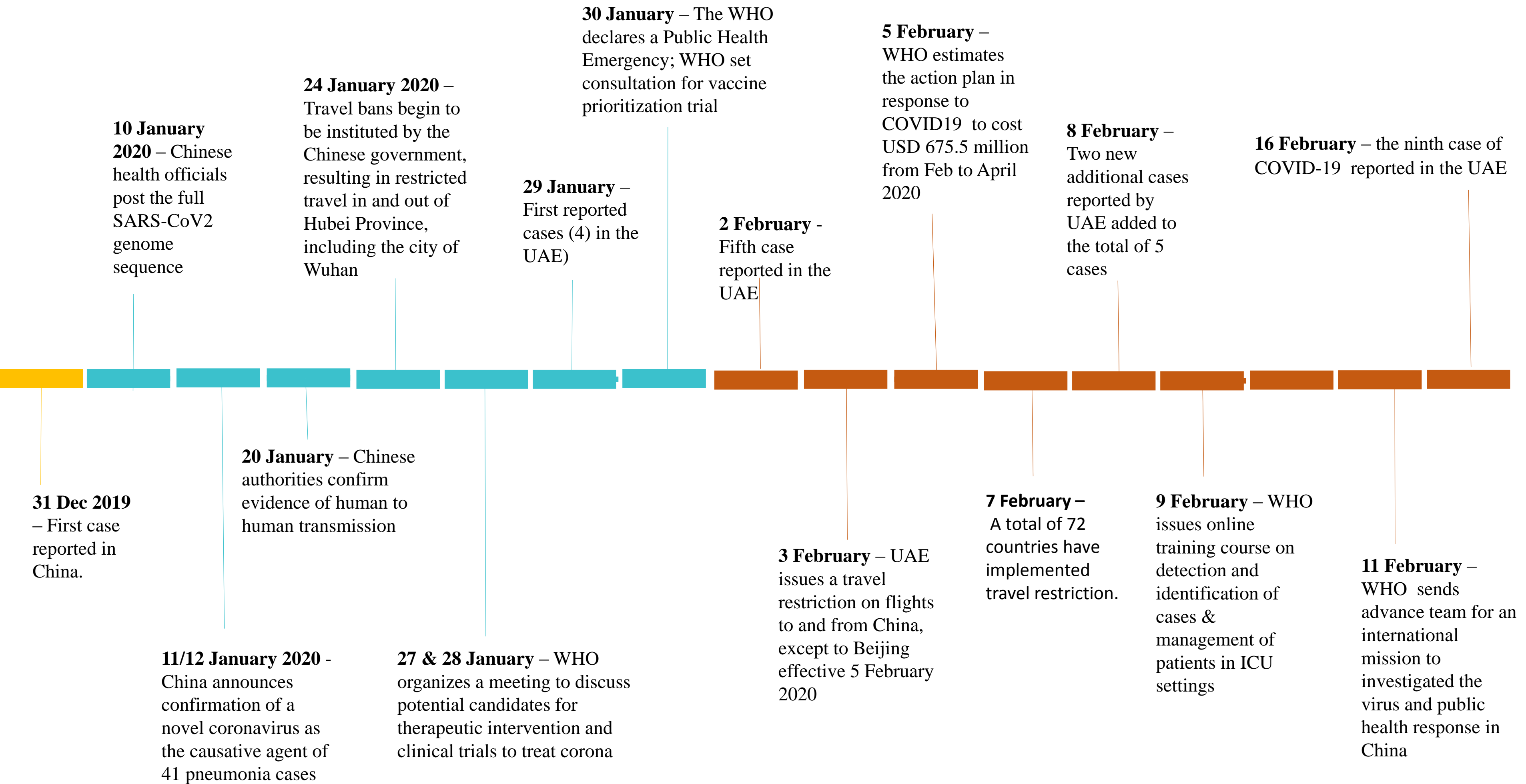
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TIMELINE

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PUBLIC HEALTH RESPONSE **NO UPDATE**

Article 1: Title: Economic Impacts of Wuhan 2019-nCoV on China and the World.

Published: 12 February 2020

Summery finding: without urgent global actions to curtail the Wuhan 2019-nCoV within the shortest possible time, China is expected to lose up to \$62 billion in the first quarter of the year, while the world is likely to lose over \$280 billion within the same period.

Link: [https://www.thelancet.com/journals/lancet/article/PIIS0140-6736\(20\)30374-3/fulltext](https://www.thelancet.com/journals/lancet/article/PIIS0140-6736(20)30374-3/fulltext)

Article 2: Title: An updated estimation of the risk of transmission of the novel coronavirus (2019-nCov).

Published: 11th February 2020.

Summery finding: The author findings suggest that **the best measure to control the disease is persistent and strict self-isolation.**

Link: <http://www.sciencedirect.com/science/article/pii/S246804272030004X>

Article 3 : Title: : 2019-nCoV Pneumonia: Relationship to Negative RT-PCR Testing.

Published: 12th February 2020.

Summery finding: one nasal swap might not be enough to detect cases (Swab missed 5 cases out 176, and became positive after repetitive swab between 2-8 days later)

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

** Note the article is still under peer-review. However, the article is indexed by the WHO research database*



PUBLIC HEALTH RESPONSE

NO UPDATE

Article 4 : Title: Effectiveness of airport screening at detecting travelers infected with novel coronavirus (2019-nCoV)

Published: 6 Feb 2020.

Summery finding: Under generally conservative assumptions on sensitivity, it was found that **46 out of 100 infected travelers will enter undetected.** As well it was found that exit or entry screening at **airports** for initial symptoms, via **thermal scanners or similar**, is **unlikely to prevent passage of infected travelers into new countries or regions where they may seed local transmission**

Link: <https://www.eurosurveillance.org/content/10.2807/1560-7917.ES.2020.25.5.2000080#r11>

**** Note the article is still under peer-review. However, the article is indexed by the WHO research database***



CLINICAL FEATURES AND TRANSMISSION *NEW UPDATE*

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Clinical features:

Article 5: Title: Clinical Characteristics of 138 Hospitalized Patients With 2019 Novel Coronavirus–Infected Pneumonia in Wuhan, China

Published: 7 February 2020*

Summery finding: 138 hospitalized COVID19 cases were studied in this article.

Age (22-92 years). **Outcome:** 26% transferred to ICU, 34% discharged, overall mortality is 4.3%. Median hospital stay 10 days (from the discharged cases). The Median from first symptoms to admission 7 days. **Cases with poor prognosis** have **dyspnea, abdominal pain, and anorexia** (loss of appetite), the study shows that there was no relation between male gender and poor prognosis (as previously mentioned in earlier studies). In addition, they were older (median 66years) and more likely to have underlying comorbidities **Treatment:** 90% received antiviral therapy (oseltamivir-Tamiflu), however, **no effective outcomes were observed.**

Link: <https://jamanetwork.com/journals/jama/fullarticle/2761044>



CLINICAL FEATURES AND TRANSMISSION

NO UPDATE

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Collection of articles discuss children population :

Article 1: Title: First case of severe childhood novel coronavirus pneumonia in China

Published: after 7 February 2020*

Summery finding: 13-month-old male presenting with diarrhea and progressed to respiratory symptoms, shock and kidney failure. No positive contact. Two negative PCRs; third was positive. Treatment failed with Tamiflu but improved with continuous blood purification (dialysis). Sever symptoms may be attributable to a congenital abnormality in the kidney which was not diagnosed. Previously.

Link: <http://rs.yiigle.com/yufabiao/1180144.htm>

Article 2: Title: A familial cluster of pneumonia associated with the 2019 novel coronavirus indicating person-to-person transmission: a study of a family cluster

Published: 24 January 2020.

Summery finding: 10-year-old male with positive contact. Without symptoms. Lung imaging found to be positive and PCR was positive.

Link: <https://www.cdc.gov/coronavirus/2019-ncov/downloads/Chan-study-of-a-family-cluster-Lancet-1-20-2020.pdf>

Article 3 : Title: Facing a major outbreak of new coronavirus infections in 2019: reflections from pediatricians

Published: 6 February 2020. *

Summery finding: reported 38 confirmed cases of children. Cough was the main manifestation, some children showed weakness, myalgia, nausea, vomiting, or diarrhea. Among them, 1.5-month-old infant only had frequent vomiting.

link : <http://www.365heart.com/show/143317.shtml>

*** Articles were translated from Chinese language.**

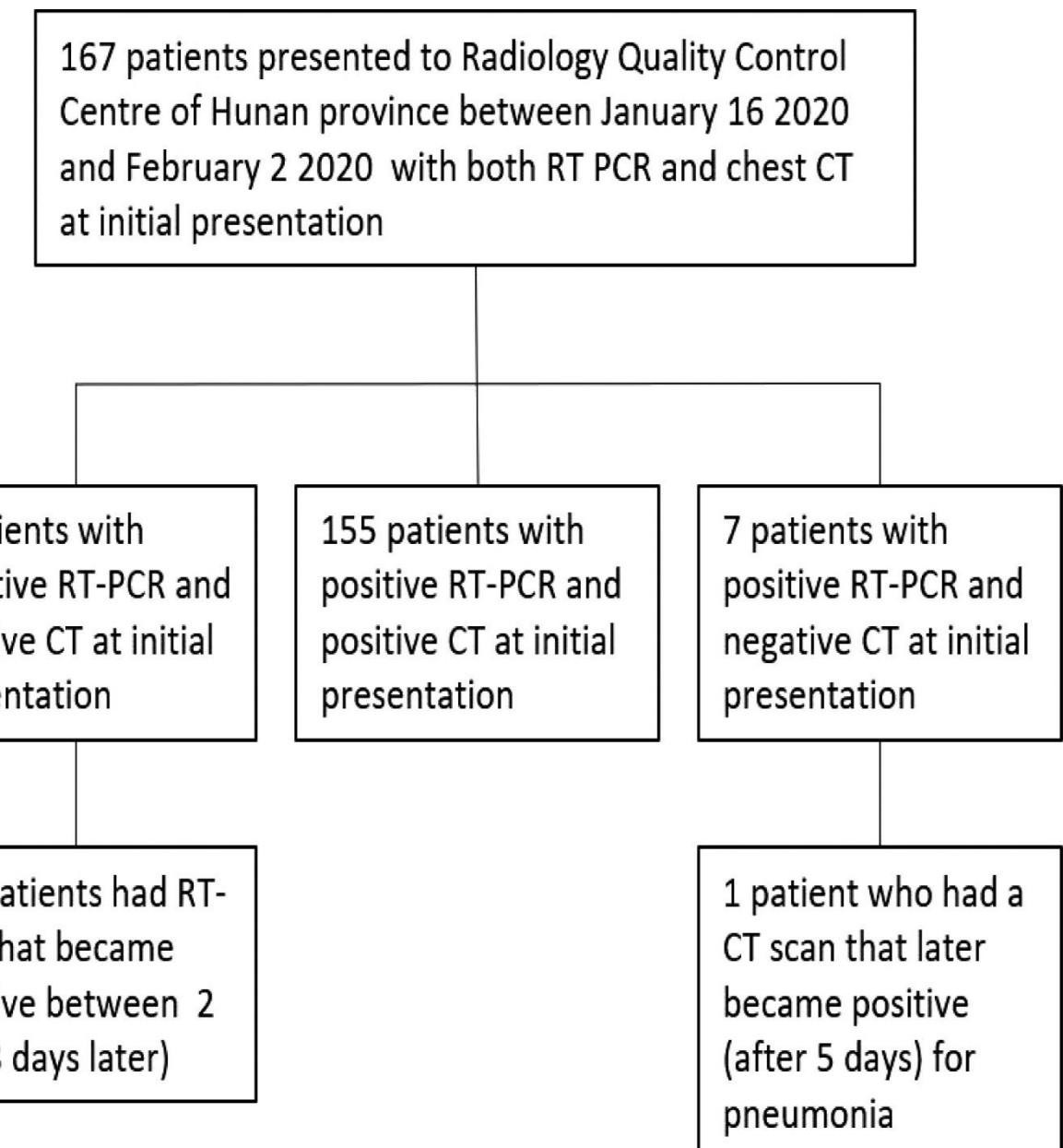


DIAGNOSIS: **NO UPDATE**

- **Article 1: Title: 2019-nCoV Pneumonia: Relationship to negative RT-PCR testing.**

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*

Latest article on January 27, 2020

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- β 1b**, 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>

- **Update draft design for therapeutic trial published 27 January 2020**

- **Promote the use of information on MERS-COV and SARS-Cov to develop vaccine**

<https://apps.who.int/iris/bitstream/handle/10665/330695/WHO-HEO-RDBlueprintnCoV-2020.5-eng.pdf?sequence=1&isAllowed=y&ua=1>



VACCINATION: ***NO UPDATE***

Latest article on 27 of Jan 2020

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>