



Corona Virus - An Updated Review

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ABSTRACT

Emerging of infectious diseases such as severe acute respiratory syndrome (SARS) which is a present major menace to public health, although intense research efforts, how, when, and where new diseases are appearing which still a source of considerable uncertainty is. A serious respiratory disease was recently reported in Wuhan, Hubei province, china. At least 1,975 cases had been reported till 25 January 2020, since the patient was hospitalized on 12 December 2019. Epidemiology research has suggested that the beginning of the virus was associated with seafood contact in Wuhan. Here we considered a single patient who was one of the workers in the market and was admitted to Central Hospital of Wuhan on 26 December of 2019. He was experiencing severe respiratory syndrome which is included with dizziness and cough. After analysis, it was identified as a new RNA virus strain, from the family Coronaviridae, which is generally designated as WH-Human 1¹. Corona virus is also referred to 2019-nCoV. The phylogenetic analysis started that this virus was mostly closely selected to a group of SARS and MERS like corona virus these are previously been found in bats in China.

Keywords: Corona virus infection, SARS, 2019-nCoV, Preventive measures.

INTRODUCTION

Corona virus is an exceeding cause of cold and upper respiratory infections. Coronavirus 2019 is shortly known has COVID-19 which is given by the World Health Organisation. In addition to COVID-19, other human viruses have been including.¹

- Middle East Respiratory Syndrome (MERS)
- Severe Acute Respiratory Syndrome (SARS)

Origin of COVID-19

The outbreak of the corona virus (2019-2020) is an ongoing public health emergency. It was caused by SARS CoV-2. Which was first identified in Wuhan, Hubei, China. As of now i.e 21 March 2020 more than 290,421 cases have been confirmed, in which 8,226 cases are classified into serious, almost 85 countries and territories have been affected. More than 11,972 people have died, and 3,255 people are from China, and around 8,717 people in other countries. And many people like more than 93,640 people had recovered.^{2,3}

First case of Corona virus -2019 in United States:⁵

Summary

The outbreak of novel corona virus CoV-2019 which has begun in Wuhan, China and spread rapidly. But of now multiple cases were reported throughout the countries. The very first case of CoV-2019 was reported and confirmed in the United States. On day 9 of illness, they described the identification, diagnosis clinical course and also the management of a case, including the initial mild

symptoms. Although cases were originally has been reported which is associated with exposure to seafood marked in Wuhan current epidemiological data indicate that transmission includes person-to-person is occurring.^{5,6}

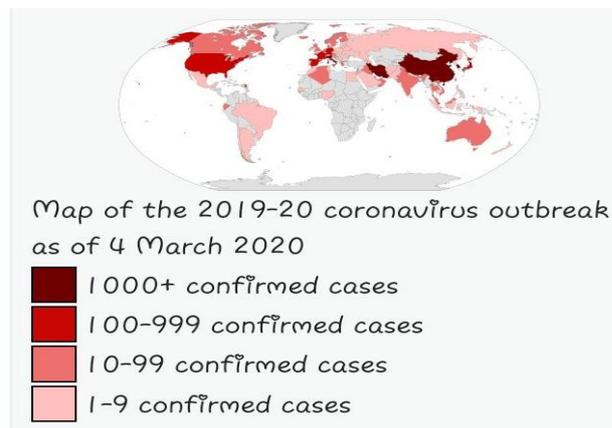


Figure 1: Map of confirmed COVID-19 cases.⁴

Case Report:

On 19 January 2020, a 35-year-old man conferred to an immediate care clinic in the country of Snohomish, Washington with a history of cough and subjected fever within 4 days. On analysis, the patient was isolated in a room with a mask on his mouth. After a few minutes he was taken into an examination room and evaluation was done by the physician. He finally disclosed that he had returned to Washington State on 15 January after traveling to visit a family in Wuhan, China. He also stated that he had come across a health alert in the outbreak of corona virus



in China, because of the symptoms he has been facing he rushed to the hospital to see a health care provider.^{5, 6}

Apart from the history of hypertriglyceridemia, the patient was a healthy and a non-smoker. The physical examination revealed that he had a body temperature of 37.2°C with a blood pressure of 134/87 mmHg, pulse 110 beats per min, and oxygen saturation of 96% while the patient was breathing ambient air. NAAT test for influenza A and B was negative and also performed many other tests.

Although the patient reported that he has not spent time at the seafood market and has reported no known contact with ill person during travel. As China, the CDC staff concerned that the patient should be tested with CoV-2019 on the bases of the current CDC person under investigation. After specimen collection, the patient was discharged home isolated with active monitoring by the local health department. On 20 January 2020, the CDC had confirmed that the patient’s nasopharyngeal and oropharyngeal swats tested positive for CoV-2019 by a real-

time reverse-transcriptase-polymerase-chain-reaction (Rrt-PCR) assay. In coordination with the CDC subject and other health experts, the patient was admitted to an air-bone isolation unit. On admission, the patient was reported with persistent dry cough and a history of nausea and vomiting on day-2. There was no shortness of breath or chest pain vital signal are within normal ranges.⁵⁻⁸

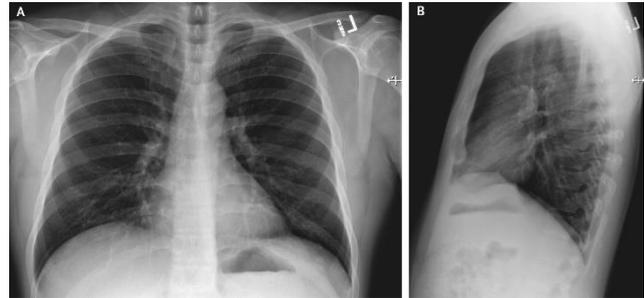


Figure 2: Posteroanterior and Lateral Chest Radiographs, January 19, 2020 (Illness Day 4).⁵

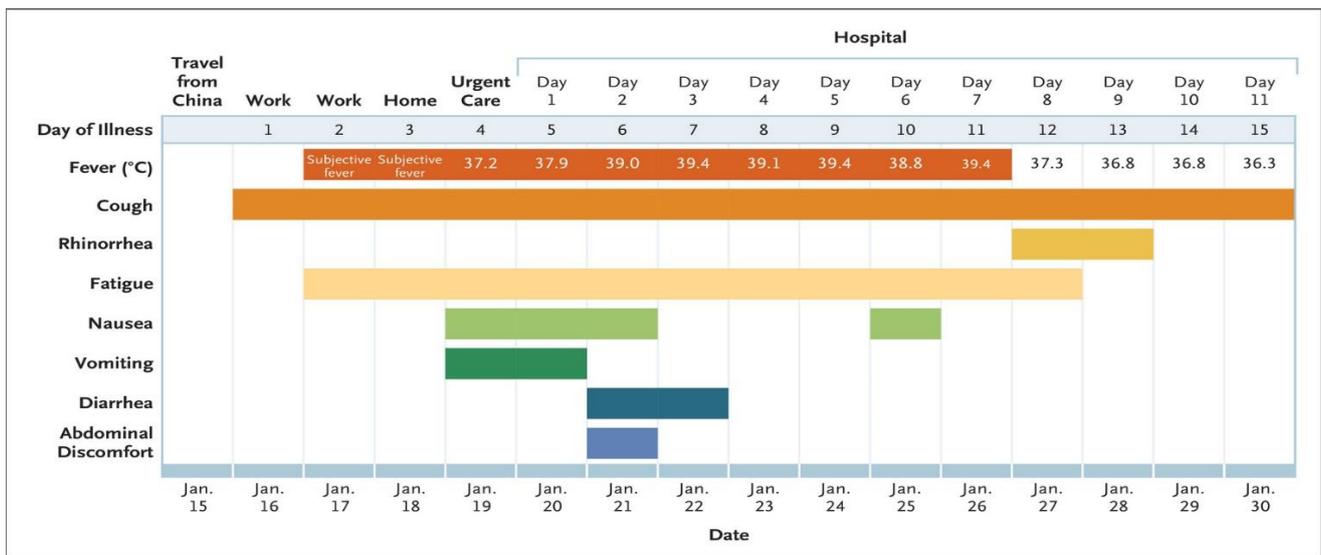
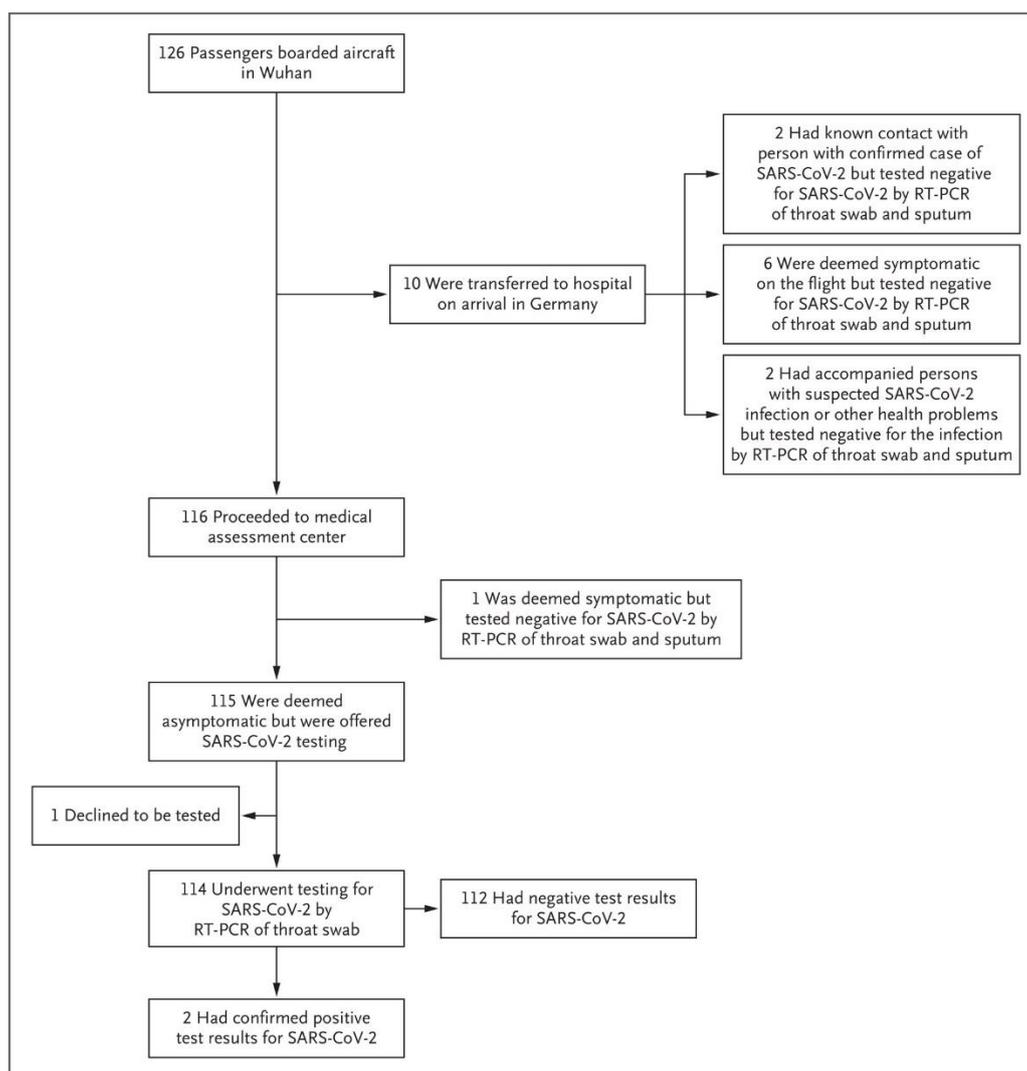


Figure 3: Symptoms and Maximum Body Temperatures According to Day of Illness and Day of Hospitalization, January 16 to January 30, 2020.⁵

Specimen	Illness Day 4	Illness Day 7	Illness Day 11	Illness Day 12
Nasopharyngeal swab	Positive (Ct, 18–20)	Positive (Ct, 23–24)	Positive (Ct, 33–34)	Positive (Ct, 37–40)
Oropharyngeal swab	Positive (Ct, 21–22)	Positive (Ct, 32–33)	Positive (Ct, 36–40)	Negative
Serum	Negative	Negative	Pending	Pending
Urine	NT	Negative	NT	NT
Stool	NT	Positive (Ct, 36–38)	NT	NT

* Lower cycle threshold (Ct) values indicate higher viral loads. NT denotes not tested.

Figure 4: Results of Real-Time Reverse-Transcriptase–Polymerase-Chain-Reaction Testing for the 2019 Novel Coronavirus (2019-nCoV).⁵

Returning travelers from Wuhan, ChinaEvaluation and testing of passengers.¹⁰**Figure 5: Evaluation and Testing of Passengers.****Break down of COVID-19 risk by Demographic factors:**

The corona virus is not an equal- opportunity killer. Elderly persons and having many other illnesses. Greatly increases the risk of dying from the diseases, virus causes, COVID-19. There is also a possibility in a male who puts an increase in risk.

- **Old and young:**

The majority of cases in China about 87%, were in people ages 30 to 79, the china center for disease control reported last month. Based on data from all 72,314 of those diagnosed with COVID-19 as of February 11. The people who are in their 20 also prove to the virus at school and also workplace and on public transport. About 8.1% of cases 1.2% were teens and 0.9% were younger.

- **Men and Women:**

The effect of sex on sensitivity to COVID-19 is less clean rather than the age effect, but preliminary data suggest men might be more susceptible or affected. CDC also found

that 106 men had the disease for every 100 women, at the same time WHO mission disease found that men make up to 51% of cases.

- **Pregnancy:**

Early February, China media reported that women infected with COVID-19 gave birth to a baby who later on tested for a positive report. Newborn might become infected because of proximity to a patient like anyone else, but the case build's fear that pregnant women can transmit the virus to the foetus via the placenta.⁵

Mortality

World Health Organisation has mentioned the mortality rate is 2% in a press conference. However, WHO specified the mortality rate might be changed. Globally about 3.4% of COVID-19 cases have been reported to death by comparing the flu which is generally caused during season kills far less than 1% of the infected people.¹⁴

• COVID-19 Fatality Rate by SEX

Sex	DEATH RATE confirmed cases	DEATH RATE all cases
Male	4.7%	2.8%
Female	2.8%	1.7%

• COVID-19 Fatality Rate by AGE:

Age	DEATH RATE confirmed cases	DEATH RATE all cases
80+ years old	21.9%	14.8%
70-79 years old		8.0%
60-69 years old		3.6%
50-59 years old		1.3%
40-49 years old		0.4%
30-39 years old		0.2%
20-29 years old		0.2%
10-19 years old		0.2%
0-9 years old		no fatalities

How it spread:

COVID-19 is a new disease and they still learning how it spreads. The virus mainly spread from person to person.

1. Between people who are close enough with one another i.e within about 6 feet.
2. Though respiratory droplets produced by infected person i.e via cough or sneeze. These droplets can go

through mouth or nose of other people who are close enough or nearby or possibly inhaled into lungs.

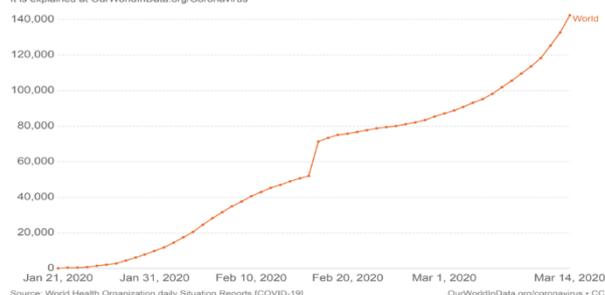
3. It may also possible that a person can get COVID-19 by touching a surface or an object that has the virus on it and then touching by their mouth or other sense organ, but this is not to be the main way to spread the virus.¹²

• Pre-existing medical conditions (comorbidities)

Pre-existing Condition	DEATH RATE confirmed cases	DEATH RATE all cases
Cardiovascular disease	13.2%	10.5%
Diabetes	9.2%	7.3%
Chronic respiratory disease	8.0%	6.3%
Hypertension	8.4%	6.0%
Cancer	7.6%	5.6%
<i>no pre-existing conditions</i>		0.9%

Total confirmed COVID-19 cases

The large increase in the number of cases globally and in China on Feb 17 is the result of a change in reporting methodology. It is explained at [OurWorldInData.org/Coronavirus](https://ourworldindata.org/coronavirus)



Source: World Health Organization daily Situation Reports (COVID-19) [OurWorldInData.org/coronavirus](https://ourworldindata.org/coronavirus) - CC BY

Primers and probes, real-time RT-PCR for 2019 novel corona virus

Assay/use	Oligonucleotide	Sequence ^a	Concentration ^b
RdRP gene	RdRp_SARSr-F	GTGARATGGTCATGTGTGGCGG	Use 600 nM per reaction
	RdRp_SARSr-P2	FAM-CAGGTGGAACCTCATCAGGAGATGC-BBQ	Specific for 2019-nCoV, will not detect SARS-CoV. Use 100 nM per reaction and mix with P1
	RdRp_SARSr-P1	FAM-CCAGGTGGWACRTCATCMGGTGATGC-BBQ	Pan Sarbeco-Probe will detect 2019-nCoV, SARS-CoV and bat-SARS-related CoVs. Use 100 nM per reaction and mix with P2
	RdRp_SARSr-R	CARATGTTAAASACACTATTAGCATA	Use 800 nM per reaction
E gene	E_Sarbeco_F	ACAGGTACGTTAATAGTTAATAGCGT	Use 400 nm per reaction
	E_Sarbeco_P1	FAM-ACACTAGCCATCCTTACTGCGCTTCG-BBQ	Use 200 nm per reaction
	E_Sarbeco_R	ATATTGCAGCAGTACGCACACA	Use 400 nm per reaction
N gene	N_Sarbeco_F	CACATTGGCACCCGCAATC	Use 600 nm per reaction



Symptoms:

Signs and symptoms of COVID-19 may appear 2 to 14 days after the exposure which mainly includes

1. Fever
2. Cough
3. Shorten of breath
4. Sometimes difficulty in breathing

The severity of COVID-19 symptoms can range from least mild cases to severe cases. Elderly people or having existing medical condition, such as heart diseases may be at higher risk of serious illness. This is also seen with people who are suffering with respiratory illness such as influenza.¹²

**CORONA VIRUS is sensitive to a higher temperature**

Pathogen exposes and spreads the disease very fast approx. at 8.72 degrees Celsius, some of the countries in colder climate should 'endorse the severe control measures', according to researchers from Sun Yat-sen University in Guangzhou province

The head of WHO's health program conveys that it is 'a dishonest belief' to think Covid-19 will just abandon like the normal flu. The virus that causes Covid-19 may show certain temperatures at which it spreads so fast, as per new studies, but experts say to maintain and avoid falling into the deception of thinking it will react to seasonal changes, exactly the same as other pathogens, like those that cause the common cold or influenza.

Sun Yat-sen University in Guangzhou study says that the capital of south China's Guangdong province sought to determine how the spread of the new corona virus might be afflicted by changes in season and temperature.

"Temperature could accordingly change. A new study suggests the spread of the corona virus slows down in warmer weather conditions. "And there is potency at the best temperature for viral transmission."

The "virus is extremely sensitive to high temperature", which could prevent it from spreading the virus in warmer countries, while the opposite appeared to be true in colder climates, the study said.

Many governments and health authorities are funding on the corona virus losing some of its efficacy as the weather warms up, as is generally the case with viruses that cause the common cold and influenza. Covid-19 transmission,"^{14, 15}

Corona virus Incubation Period:

The incubation period (from the time of accountability to the evolution of symptoms) of the corona virus is predicted between 2 and 14 days based on these

1. The World health organization reported that the incubation period is almost between 2 and 10 days.
2. The incubation period is between 10 to 14 days as per China's National Health Commission (NHC).
3. The United States' CDC predicts that the incubation period for COVID-19 is between 2 and 14 days.
4. The incubation period is between 3 to 7 days or up to 14 days, as per DXY.cn, a leading Chinese online community for physicians and health care professionals, had reported that cause the common cold and influenza. Covid-19 transmission,"

Preventive Measures:

1. To protect yourself one should take certain preventive measures i.e wash your hands often with soap and water for at-least 20 seconds. If soap and water are not available, use an alcohol based hand sanitizer with at least of 60% of alcohol in it.
2. Avoid eating raw or undercooked meat or animal organs.
3. Should take plenty of water and should increase fluid intake.
4. As you touch people surface and many objects throughout the day you accumulate lot of germs by touching your eyes, nose or mouth.
5. Though there is no vaccine at present to prevent infection of corona virus, but you can take steps to reduce the risk of infection. WHO and CDC recommended the following the standard precautions for avoiding respiratory illness.
6. Cover your mouth and nose with your elbow or tissue when you cough or sneeze.

7. Should avoid touching eyes, nose and mouth if your hands aren't clean.
8. Avoid close contact with anyone who are sick
9. Avoid sharing dishes, glasses, bedding and other household items if you are sick.
10. Clean and disinfect surfaces your often touches.
11. Stay home isolated either from work, school and public areas if you are sick.
12. Avoid contact with living animals and surfaces that may have touched if you are visiting markets in areas that have any symptoms regarding corona virus.
13. If you are planning to travel internationally, first meet any health care adviser in case if you have any health conditions that make you susceptible to respiratory infections and complications.
14. By taking citrus fruits, green vegetables which contain vitamin-c help to improve immune system.¹²

Treatment and diagnosis:

• Diagnosis:

If you face symptoms of COVID-19 contact your doctor. Tell him or her about your recent travel if any international travel. This would help them for the treatment as early as possible. Also let your doctor know if you are had close contact with anyone who has been diagnosed with COVID-19. Your doctor may take samples, including a sample of saliva (sputum), a nasal and throat which are tested.

• Treatment:

1. Currently there is no antiviral medication is recommended to test COVID-19. Treatment is directed at relieving symptoms and many includes. Pain relievers Cough syrup or medications, Rest, Fluid intake.
2. If your doctor thinks you can be treated at home he or she may ask you to take at-most care and to isolate yourself as much as possible from family members while you are sick. If you are very ill you may need to treat in hospital.¹³

Corona virus myths busted by science

- Myth: You can infect if you buy goods manufactured in China.

According to the WHO Trusted Source, it's highly unlikely that the virus would remain the surface of a product made in China and shipped to the United States or elsewhere. If you're concerned, you can clean the items on the surface with a disinfectant wipe before using it.

- Myth: You can get the 2019 corona virus from your pet.

Again, there's no evidence rested Source at this point to indicate that your cat or dog can contract this particular virus and transmit it to you

- Myth: Eating garlic can prevent you from getting COVID-19.

Unfortunately for garlic bread lovers everywhere, boosting the amount of garlic in your diet will not protect you.

CONCLUSION

During the first two months of current commencement there is a rapid spreading of COVID-19 throughout China, Wuhan and unstable degrees of illness. Patients generally conferred without fever and many of them didn't have abnormal radiologic conclusions.

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