Electronic Journal of General Medicine
2020, 17(4), em208
e-ISSN: 2516-3507
https://www.ejgm.co.uk/

Perspective Article

MODESTUM
OPEN ACCESS

From First COVID-19 Case to Current Outbreak: A Vietnamese Report

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Citation: Minh Duc N, Duc Ha H, Anh Tuan T, Lien Bang MT, Hong Duc P, Minh Thong P. From First COVID-19 Case to Current Outbreak: A Vietnamese Report. Electron J Gen Med. 2020;17(4):em208. https://doi.org/10.29333/ejgm/7867

ARTICLE INFO

Received: 29 Mar. 2020

Accepted: 29 Mar. 2020

ABSTRACT

The 2019 novel coronavirus outbreak (now recognized as SARS-CoV-2, triggering the COVID-19 disease) has spread from Wuhan throughout China and has been distributed to an increasing range of countries. Early activity has concentrated on explaining the course of the disease, reporting critical incidents, and handling the ill. Currently, Vietnam, an Association of Southeast Asian Nations (ASEAN) country that shares a long border with China, has successfully controlled COVID-19. In this article, we aimed to provide updated information regarding COVID-19 in Vietnam, from the first case to the current outbreak. We hope the information in this article will help the world understand more about the surveillance and prevention policies of Vietnam's COVID-19. The numerous lessons learned will serve as a guide for handling possible pandemics, but a permanently new global framework is expected in the immediate future.

Keywords: COVID-19, pandemic, SARS-CoV-2, Vietnam

BACKGROUND

The first cases of pneumonia of uncertain origin were identified in Wuhan, the capital city of Hubei province, China, in early December 2019. The pathogen has been established to be a novel, enveloped, RNA betacoronavirus, commonly referred to as severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), which phylogenetically resembles SARS-CoV. Hospitals and social facilities have reported the identification of infected patients. Recently, the World Health Organization (WHO) declared the coronavirus disease 2019 (COVID-19) to be an international public health emergency. Efficient human-to-human communication appears to be a prerequisite for the widespread dissemination of this new virus (1-4). Currently, COVID-19 has appeared in 190 nations, negatively affecting over 500,000 patients and threatening the remaining world population (**Figure 1**).

Infected individuals can present with no symptoms or with moderate to serious symptoms, such as fever, cough, and shortness of breath. Other symptoms can include coughing or symptoms associated with upper respiratory tract disorders, including sneezing, runny nose, and sore throat. Under severe conditions, pneumonia, organ failure, and death can occur. WHO has reported that the incubation time ranges from 2–10 days, and the US Centers for Disease Control and Prevention (CDC) has reported an incubation time ranging from 2–14 days (4).

The simplest testing procedure for SARS-CoV2 is real-time reverse-transcriptase polymerase chain reaction (rRT-PCR). The test can be conducted on either respiratory fluid or blood samples, and typically reports are accessible within a few hours to several days. Chinese scientists have identified at least 1 coronavirus strain and have released the gene sequence to allow laboratories across the world to establish independent PCR research methods for the detection of viral infection (5–7). Early activity has concentrated on explaining the course of the disease, reporting critical incidents, building the predictive models, and handling the ill (6-9).

Currently, COVID-19 has been quite successfully regulated by Vietnam, a Southeast Asian Nations Association (ASEAN) country which shares a long frontier with China. We intended to include updated information regarding COVID-19 in Vietnam in this report, from the first case to the latest outbreak.

CURRENT VIETNAMESE COVID-19 OUTBREAK

A 65-year-old Chinese man was admitted to the emergency department of Cho Ray Hospital in Ho Chi Minh City on January 22, 2020, suffering from low-grade fever and exhaustion, with a history of type 2 diabetes, lung cancer, and coronary heart disease, requiring the insertion of a stent. He became sick with fever, on January 17, a total of 4 days after he and his wife traveled to Hanoi from the Wuchang district in Wuhan, where 2019-nCoV outbreaks occurred in December. He reported that he had not been exposed to a wet market, which supplies both

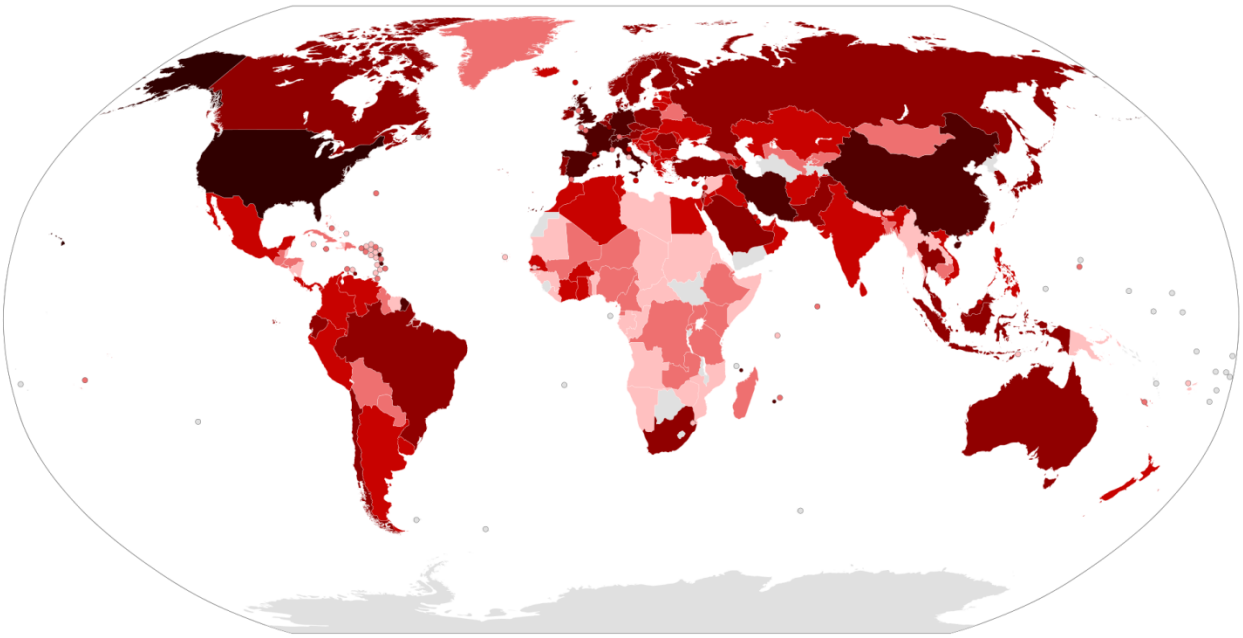

Figure 1. A global map displaying the nations in which COVID-19 has been confirmed

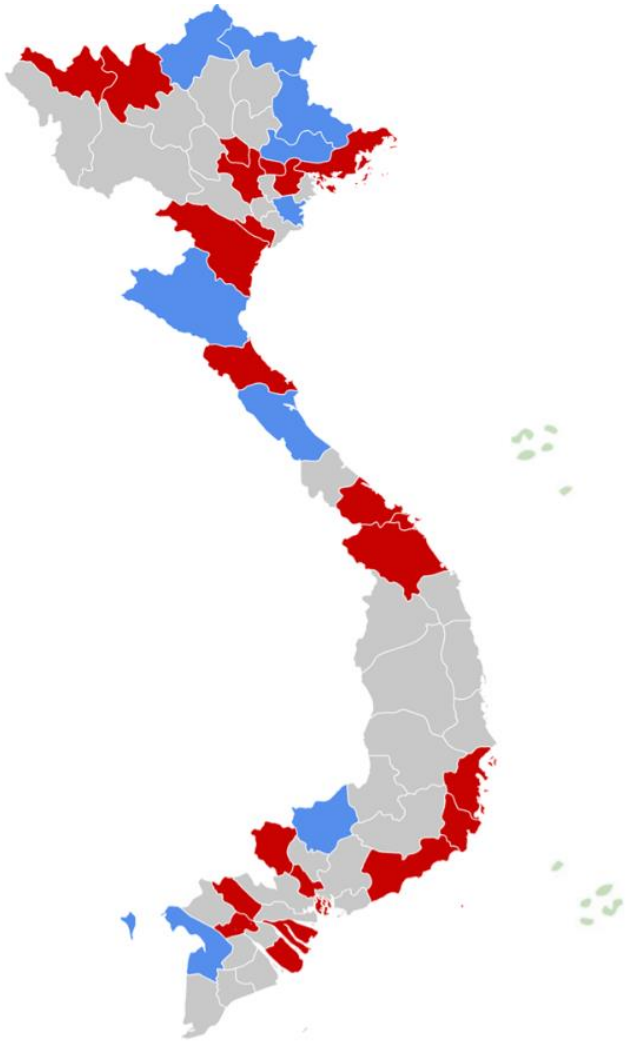

Figure 2. A geographical map of Vietnam, in which red regions indicate provinces with confirmed COVID-19 cases and blue regions indicate provinces with suspected COVID-19 cases

dead and live animals in Wuhan. This patient was the first confirmed COVID-19 patient in Vietnam (2,3).

From January 22 to March 28 2020, Vietnam identified 169 COVID-19 patients. Currently, COVID-19 has been identified in 24 Vietnamese provinces, with especially negative influences in Hanoi and Ho Chi Minh City (**Figure 2**).

As of the time of this report, no COVID-19-associated deaths have been reported in Vietnam. In addition, of the 169 patients with confirmed COVID-19, 21 patients have completely recovered (**Figure 3**). Unfortunately, Bach Mai Hospital, one of the largest health centers in Vietnam, has recently become a suspiciously endemic location.

According to the Vietnamese Ministry of Health, symptoms of COVID-19 in Vietnam most often include fever, dry cough, weakness, and body aches. Other reported symptoms include sore throat, stuffy nose, runny nose, fever, phlegm-producing cough, vomiting, and diarrhea. Most patients experience moderate fever, tiredness, and pneumonia, and patients typically improve within approximately 1 week. Less than 20% of patients experience serious events, such as extreme influenza, requiring hospitalization, and approximately less than 5% of patients require admission to intensive care units, with acute respiratory failure symptoms (rapid coughing, shortness of breath, and cyanosis), acute respiratory distress syndrome (ARDS), septic shock, kidney injury, myocardial injury, and even death. The estimated duration from the initial detection of symptoms to the occurrence of serious illness usually ranges from 7 to 8 days. Deaths occur most often in older individuals and those with immunodeficiencies and chronic disorders. The prognostic variables associated with increased risk of death in adults include old age, elevated sequential organ failure assessment (SOFA) scores, and multiple organ failure after entry. Coagulation conditions, electrolyte conditions, and alkaline acidosis can occur during extreme cases, indicating kidney failure. Currently, no particular treatments or antidotes exist for COVID-19, according to the Ministry of Health. Early identification and the exclusion of incidents have been identified as key prevention steps. Vietnamese management is completely consistent with previous reports (4,10-12).

The average rehabilitation time after a full-onset COVID-19, without ARDS, appears to be 7-10 days, during which the

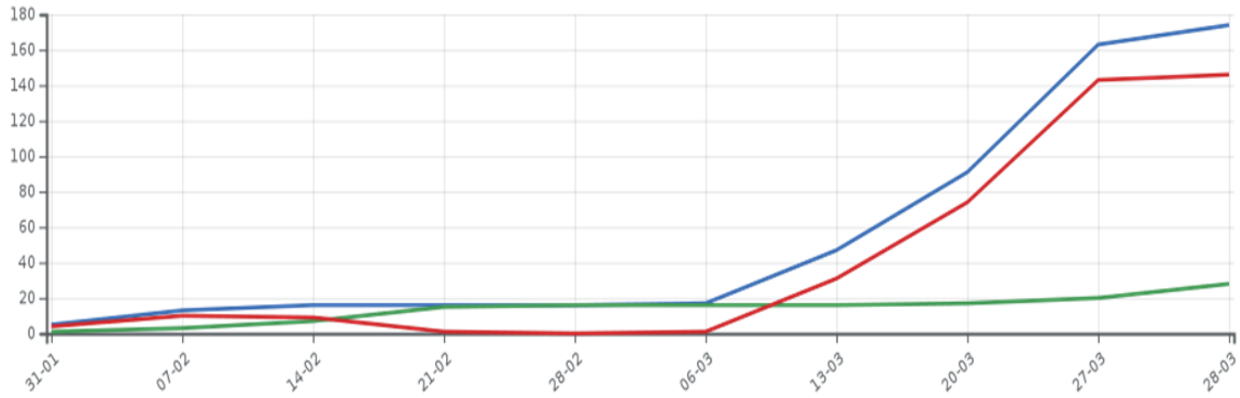

Figure 3. The line graph displays the total numbers of infected patients (blue line), treated patients (red line), and recovered patients (green line)

individual will experience a cough and health will slowly return to normal. Currently, no evidence suggests that COVID-19 has distinct clinical effects in pregnant women. Symptoms in children, particularly in infants, are often milder than those in adults, and many children will be asymptomatic. Uncommon symptoms in children include manifestations of fever, cough, and pneumonia. Moreover, serious disorders in infants occur less frequently than in adults.

The basic theory behind the care of COVID-19 is to prioritize the tracking of potentially exposed individuals and to treat confirmed cases in complete isolation. Minor cases (infection of the upper respiratory tract, moderate pneumonia) are treated in a negative-pressure room. Critically sick patients will be treated in intensive care units, including those with severe respiratory failure, ARDS, septic shock, and multiple organ failure. In few significantly severe COVID-19 patients, extracorporeal membrane oxygenation (ECMO) will be exploited. Because no effective medication exists, symptomatic and compassionate care is necessary.

In Vietnam, COVID-19 patients are released from the hospital 3 days after the fever has diminished, when the patient appears to be in better health, with safe vital signs, proper organ activity, normal blood pressure, and an enhanced chest X-ray. At least two consecutive respiratory tract fluid (oropharynx and pharynx) samples, collected approximately 24 hours apart, must return a negative SARS-CoV-2 rRT-PCR test. The patient is then confined at home for the following 14 days, despite being released from the hospital. Patients stay in a well-ventilated room, wearing a mask, feeding separately and avoiding interaction with other family members. Patients are then asked to track their body temperatures 2 times a day and are rapidly admitted to the hospital again if a fever or other suspicious symptoms appear (12).

GOVERNMENT DIRECTION

The rising number of patients has created tremendous community concerns. On January 24, Vietnam's Civil Aviation Administration directed the cancellation of all flights to and from Wuhan. When a major outbreak arose in the Vinh Phuc province, the government strengthened monitoring protocols and established control points to deter the epidemic. Operations dependent on human interactions in certain localities were restricted, and initiatives, such as body temperature monitoring, disinfectant use, and the provision of masks, free of charge, in public areas were announced. Controls designed to minimize the infection risks in the city were implemented, such as traffic checkpoints at each province's gateway, closing shops, and establishing disinfection chambers (5).

The Ministry of Education and Training halted all school activities, nationwide, in February and March 2020, as part of quarantine steps to prevent virus transmission. Additionally, the Ministry of Education and Training also altered the time period for national high school examinations, due to the closure of schools.

Starting on March 7, 2020, all visitors are expected to declare their health upon entry into Vietnam. Vietnam released a public safety resolution to monitor the epidemic on March 10, 2020. On March 11, 2020, Vietnam officially revoked visa exemptions for residents of 8 European countries: Denmark, Norway, Finland, Sweden, the United Kingdom, Germany, France, and Spain and encouraged the use of air-travel masks. On March 14, Vietnam's Ministry of Foreign Affairs announced the Vietnam government's decision to suspend entry for 30 days, starting March 15, 2020, for any citizens traveling from or who have passed through countries, including Schengen, the United Kingdom, and Northern Ireland, within 14 days of their planned arrival date in Vietnam and to temporarily halt the granting of border gate visas. To proactively deter and monitor the dissemination of COVID-19 among the population, starting on March 16, 2020, citizens are required to wear masks in public places (12).

The indefinite suspension of visas for foreigners entering Vietnam began to be enforced, for a maximum of 30 days, beginning on March 18, 2020. Passengers traveling by domestic rail, airplanes, and buses are expected to make electronic medical declarations, starting on March 21, 2020. Because of possible disease threats, on March 25, 2020, the Hanoi City People's Committee Chairman announced the closing of all shops, until April 5, 2020, except for critical products, such as fuel, fruits, and food. On March 24, 2020, Ho Chi Minh City had placed an immediate call to close all company outlets, beauty centers, and gyms. On March 26, 2020, the Prime Minister demanded that religious gatherings should be halted, stating "If there is an accumulation of more than 20 people in each event that will be prosecuted by the administrative municipal government". The Ministry of Transport later limited all domestic flights from Hanoi and Ho Chi Minh City. Starting March 28, 2020, all localities are responsible for handling

residents in the towns and regions where outbreaks occur, such as commuting from disease zones (12).

CONCLUSION

Vietnam continues to implement measures to restrict the spread of this dangerously infectious disease, with the help of all people on the control and personal security initiatives. COVID-19 will eventually be eradicated from Vietnam and, hopefully, from the world. We believe that the knowledge in this report can help the world know more about Vietnam's COVID-19 control and preventive policy. The several lessons gained will act as a roadmap to tackle potential pandemics, but the near future needs a permanently new global reference.

ACKNOWLEDGEMENTS

We are very thankful to the Vietnamese government for all efforts, and all health care workers who are on the front lines of the pandemic. Data in this article is publicly available online, as such, requested permission was waived. It is noted that this report will not depict the whole picture of Vietnam's COVID-19 later than March 28, 2020.

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