

# Coronavirus disease of 2019- A brief review of COVID-19 spread

**Shahzaib Ahmad\***Department of Community Medicine,  
King Edward Medical University, Lahore,  
Pakistan.

## Abstract

In the later part of 2019, pneumonia of unknown origin emerged in Wuhan China. Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2), a member of the coronavirus family, was found the causative agent of this strange illness. The World Health Organization declared the Coronavirus Disease of 2019 (COVID-19) public health emergency of international concern. Soon, after the onset of the disease, it spread to various areas in China locally and then spread to neighboring countries through community dissemination. COVID-19 spread to six continents in just six weeks after its onset. Relaxed immigration policies and lack of expertise in epidemic control measures led to accelerated spread to the world. COVID-19 spreads through contact and droplet transmission. Adequate measures must be taken to flatten the epidemiological curve of COVID-19.

**Keywords:** COVID-19, Coronavirus, SARS-CoV-2 spread

**Abbreviations:** Coronavirus Disease of 2019 (COVID-19), Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2), World Health Organization (WHO)

**\*Corresponding author:** Shahzaib Ahmad**Tel:** 0304-9917757 shahzaib.ahmad@kemu.edu.pkDepartment of Community Medicine, King  
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## Introduction

In December 2019, a few cases of pneumonia-related illness were reported in Wuhan district of Hubei province in China, all were related to Huanan Seafood Market. The causative agent of this idiopathic atypical idiopathic pneumonia was identified [1]. It was found to be caused by a new virus, closely related to the previously identified members of the Coronavirus family. At first, it was named novel Coronavirus (nCoV-19). Afterward, the International Committee on Taxonomy of Viruses (ICTV) named it SARS-CoV-2 based on phylogenetics and taxonomy, as the genetic sequence of nCoV-19 was closely related to SARS coronavirus [2].

The origin of novel coronavirus is still unclear. Some evidence suggested that it spread via animals, i.e., bat, thus nCoV is a zoonotic virus, and just like SARS and MERS, this epidemic is also a spillover by an animal virus [3]. Bat coronavirus genome (BatCoV RaTG13), present in *Rhinolophus affinis* bat, showed 96.2% resemblance with SARS-CoV-2 that pointed towards the possible origin of SARS-CoV-2 from *Rhinolophus affinis* bat [4]. Later, the World Health Organization declared COVID-19, an epidemic [5]. After separating viral components, diagnostic kits and RT-PCR techniques were developed to aid the detection of viral infection

In the suspected cases. Previously, CT scans and thermal screening methods were being used [6]. Significant symptoms included fever, shortness of breath, dry cough, fatigue, and flu-like symptoms, etc. Various studies showed that the incubation

period ranged from 1 to 14 days (mean incubation period 5-6 days). The case reproduction number of nCoV-19 is higher as compared to the other coronavirus epidemics [7].

Soon, from Wuhan, it was spread to other regions in China and then globally. Thus, this epidemic was named Coronavirus Disease of 2019 or COVID-19. In January 2020, the WHO declared the COVID-19 public health emergency of international concern [8]. In March 2020, WHO launched a "Solidarity Trial" program – A global collaboration to develop a safe and effective vaccine against SARS-CoV-2 [9]. It was found to be transmitted by respiratory droplets and human contact. Currently, there is no specific treatment and vaccine against SARS-CoV-2. It uses the angiotensin-converting enzyme 2 (ACE2) to enter the host's cells [10]. For prevention of COVID-19 spread, social distancing, and avoiding contact with SARS-CoV-2 with the help of masks and gloves was recommended. Lockdown and isolation immediately ensued in most of the countries of the world [11].

COVID-19 reached globally via community spread. Air travels and cross-country travels were banned from hampering this epidemic. Airport screening was being carried out, and the suspected cases were kept in quarantine [12]. Despite all these steps, the global spread of COVID-19 was very rapid. Till now, 205 countries in the world are affected by COVID-19. 6,748,525 total cases, 394,368 deaths worldwide, and the number of recovered patients is 3,277,374 [13]. These statistics show that the case mortality rate of COVID-19 is less than that of other coronavirus epidemics, MERS (2012), and SARS (2003), but it

is more contagious than these two [14]. 98% of the affected cases developed mild symptoms, while only 2% showed a severe form of the disease, i.e., lung fibrosis, end-organ failure leading to the individual's death. Various studies showed that old age group and patients with chronic conditions like chronic obstructive pulmonary disease, cardiovascular illness, metastasis, immunocompromised state, organ failure, and smokers, etc. are particularly vulnerable to severe COVID symptoms, while young, healthy and immunocompetent individuals mostly develop mild symptoms and certain asymptomatic laboratory-confirmed cases have also been reported [12, 15]. An assessment of COVID patients showed that the approximate time from onset to clinical recovery for mild cases is two weeks, while critical patients recovered in about 3-6 weeks [16]. On the community level, complete lockdown and closure of institutes, offices, industries, and commercial areas had several effects. Millions of the masses were unemployed; the economy collapsed, several sectors, eg. The oil industry crashed [17]; people living in their homes suffered from psychological symptoms like fear, anxiety, stress, and depression, i.e., Psychological implications of COVID-19 [18]. The WHO published guidelines for effective prevention of the disease like contact-free work facilities such as online commerce, e-learning, social distancing, transport restrictions, quarantine measures, personal protective habits like frequent hand washing and cough etiquette [19].

## Origin

In the last months of the year 2019, a few cases of pneumonia-related illness were reported in the vicinity of Wuhan. The clinical characteristics of this pneumonia-like illness closely resembled with viral pneumonia. Those patients were investigated for the causative agent of this illness. It was found not to be caused by previously known general pneumonia-causing viruses. On December 31, 2019, Chinese officials reported the WHO country office dealing with idiopathic pneumonia. Out of 44 cases of this unknown illness, nearly all belonged to Huanan Seafood that dealt with seafood and lived animal trade [20]. Laboratory analysis and sequencing of the causative virus showed that it is a new virus that had not caused any illness in humans before now [21]. Due to the impending risk of the Coronavirus epidemic spread, the market was immediately closed on January 1, 2020 [20].

Moreover, it closely resembles with bat coronavirus. So, it is unknown yet, how this bat coronavirus began to infect humans [3]. Further cases of such illness were reported afterward that were not related to the Huanan Seafood market, which strongly suggested that the bat virus was transmitted from the affected cases. Human to human transmission was further established [22]. Mass transportation in the last week of December 2019 (Chinese New Year) led to the rapid spread of Coronavirus disease. From Hubei Province, the Coronavirus epidemic spread to other parts of China, i.e., Hongkong, Shanghai, Beijing, and so on. COVID-19 soon spread to Thailand, the USA, Taiwan, and so on. On January 25, 2020, a complete lockdown was ordered in Wuhan [23].

## Transmission:

Earlier in the course of the COVID-19 pandemic, the modes of disease transmission were ambiguous. During the identification of the causative agent yet before the transmission of SARS-COV-2 could be established, community spread of the disease is likely to have happened before effective measures could be taken [24]. The WHO stated four levels of COVID-19 transmission [25]. These are territories or local areas with:

1. No cases reported
2. Sporadic cases.
3. Clusters of cases
4. Community transmission.

There are two common routes of transmission of SARS-COV-2 viz *Direct transmission* (viral transfer through coughing, sneezing, and respiratory droplet inhalation transmission) and *Contact transmission* (viral contact with mouth, nose, eye or mucous membranes) [10]. Studies show that the clinical characteristics of COVID-19 mainly affect the respiratory tract, but the conjunctival swabs of confirmed and suspected COVID cases suggest that the SARS-COV-2 transmission can also occur through viral contact to the eyes [26]. Surprisingly, a patient of SARS-COV-2 infection in Germany contracted the virus from an asymptomatic patient or carrier, which shows that viral transmission may take place through contact with asymptomatic patients [27].

## Discussion

COVID-19 originated as a zoonotic illness though the exact origin is not confirmed yet. As the primary site of origin is Huanan Seafood Market that deals in seafood and live animal trade, and the gene sequencing of nCoV- 19 showed remarkable resemblance with bat coronavirus, so it supports the zoonotic origin of SARS-COV-2.

The WHO and health authorities mobilized health units and policies to contain the epidemic. The WHO Situation Reports elaborated certain aspects of COVID-19 epidemic emphasizing on halting the spread of disease. These comprised of the technical details for the healthcare teams and guidelines about detection, management, and tentative treatment of the affected cases. The WHO established IMST (Incident Management Support Team) to control the epidemic and published guidelines about contact & droplet transmission and aerosol-generating medical therapies. Travel restrictions, social distancing, and a ban on public gatherings ensued.

Despite all these steps, COVID-19 reached to all continents except Antarctica in just three months after COVID- 19 onset (**Table 1**). Dominant factors leading to violent spread are earlier inattention to the epidemic, inefficient epidemic control systems, lack of health care expertise in epidemic confinement, and unchecked immigration.

Local spread in China soon followed by the spread of disease to neighboring countries. Thailand, being first to be affected by COVID-19 after China. Taiwan, Singapore, Japan, Hongkong, Vietnam, Nepal, and many other

**Table 1:** Chronological timeline and index cases of COVID-19 in the countries across the world.

Chronological timeline of COVID	Country	Transmission [28]
Dec-19	China	Zoonotic transmission of bat coronavirus virus to humans through the origin is still unclear. The number of cases continued to rise; thus, human to human transmission was strongly evident.
Jan-13	Thailand	The first case reported in the world outside China, visitors from China, caused the COVID spread.
Jan-16	Japan	A resident of Kanagawa Prefecture returned from China, was the first confirmed case
Jan-20	South Korea	A 35-year-old Chinese woman tested positive.
	Taiwan	A 50-year-old woman teaching in Wuhan, China tested positive
Jan-22	Hong Kong	A 39-year-old man traveling from Shenzhen tested positive.
	Macau	Two individuals from Wuhan tested positive
Jan-23	Singapore	A 66-year-old man from Wuhan was the first case in Singapore.
	Vietnam	A Chinese man traveling from Wuhan to Hanoi tested positive
Jan-24	Nepal	A 31-year-old student, returning to Kathmandu from Wuhan tested positive.
	France	The first five confirmed cases had recently arrived from China
Jan-25	Australia	A Chinese citizen arrived from Guangzhou tested positive for COVID
	Canada	A male in his 50s with travel history to Wuhan and Guangzhou tested positive for COVID
	Malaysia	Travelers from China reached in the country via Singapore, tested positive
Jan-27	Cambodia	A 60-years-old man returned from Wuhan tested positive for COVID
	Sri Lanka	A 44-years-old Chinese woman from Hubei tested positive for the disease
Jan-29	Finland	A Chinese tourist from Wuhan tested positive for the virus.
	United Arab Emirates	A 73-year-old Chinese woman came from Wuhan with her family
Jan-30	India	The first case reported was a student returning from Wuhan, China.
	Italy	Two Chinese tourists tested positive for the virus in Rome.
	Philippines	A 38-year-old Chinese women came from Wuhan to Manila tested positive for COVID
Jan-31	Spain	German tourist tested positive for SARS-CoV-2 in La Gomera, Canary Islands.
	Russia	Two Chinese citizens tested positive in Chita and Tyumen.
	Sweden	A woman in Jönköping traveled to Sweden from Wuhan, tested positive
Feb-04	Belgium	Four Belgian nationals returned from Wuhan to Brussels tested positive for COVID
Feb-14	Egypt	The first case was a Chinese citizen who tested positive at Cairo International Airport
Feb-19	Iran	Two persons tested positive in Qom
Feb-21	Bahrain	Transport personnel arriving in Bahrain from Iran via Dubai was symptomatic and found to be infected with nCoV-19.
	Israel	An Israeli woman came from Japan tested positive.
	Lebanon	The first case was a 45-year-old woman traveling back from pilgrimage in Qom tested positive
Feb-24	Iraq	An Iranian student in Najaf tested positive for COVID.
	Oman	The first two cases were two female travelers entering the country from Iran.
	Bahrain	The first case, a school bus driver who came from Iran via Dubai, tested positive.
	Kuwait	Three individuals came from Iran tested positive
Feb-25	Afghanistan	Initial outbreak through an imported case from Iran, almost ten persons tested positive after returning from Iran.
	Algeria	An Italian national arriving in the country caused the outbreak in Algeria.
	Austria	An Italian Couple traveled to Innsbruck tested positive for SARS-CoV-2.
	Brazil	The first case reported in the South American Continent; a 61-year-old man traveled from Lombardy, Italy.
	Croatia	A citizen having travel history to Milan, Italy tested positive for COVID.
	Switzerland	A 70-year-old man living in the canton of Ticino tested positive for SARS-CoV-2, who visited Milan
Feb-26	Georgia	A 50-year-old man traveled from Iran reached Georgia through Azerbaijan, tested positive for COVID
	Greece	A 38-year-old woman traveling back from Northern Italy was tested positive in Thessaloniki.
	North Macedonia	A native returning from Italy in public transport tested positive for COVID.
	Norway	A Norwegian citizen returning from China transport tested positive for COVID.
	Pakistan	One of the two confirmed cases was a 22-year-old male who had a history of travel to Iran.
	Romania	A Romanian citizen contacted the virus from an Italian citizen coming to Romania

Chronological timeline of COVID	Country	Transmission [28]
Feb-27	Denmark	A man returning from Northern Italy Tested positive for COVID.
	Estonia	A 34-year-old man traveled from Iran to Estonia via bus coming from Riga.
	Netherlands	A Dutch National tested positive after coming back from Lombardy, Italy.
	Nigeria	An Italian citizen working in Nigeria, returned from Milan, Italy, to Lagos tested positive for COVID.
	Northern Ireland	An imported case traveled from Italy through Dublin tested positive
Feb-28	Azerbaijan	A Russian national having a travel history to Iran was the first confirmed case.
	Belarus	An Iranian student tested positive for COVID.
	Iceland	A man who returned from Northern Italy was admitted to Landspítali Hospital on confirmation of the disease.
	Lithuania	Thirty-nine years old woman returning from Verona, Italy tested positive.
	Mexico	Two persons coming back from Italy tested positive, were the first cases reported
	New Zealand	The first case, 60-year-old male traveled from Iran to New Zealand
	Feb-29	Ecuador
Ireland		A woman from Belfast who had traveled from Northern Italy through Dublin Airport tested positive for COVID.
Qatar		The patient was a 36-year-old Qatari male who had been evacuated out of Iran on a government-chartered plane.
Luxembourg		A man in his forties who had returned from Italy via Charleroi, Belgium
Mar-01	Armenia	Three cases are reported positive.
	Czech	Three cases are reported positive.
	Republic Dominican	A 62-year-old man from Italy entered the country.
Mar-02	Saint Barthélemy	A resident, his parents on the neighboring island of Saint Martin, also tested positive.
	Saint Martin	A couple from France tested positive
	Andorra	A 20-year-old man coming from Milan tested positive for COVID.
Mar-02	Indonesia	Two women in Depok, West Java were the first cases in the country
	Jordan	The Jordanian had returned from Italy.
	Latvia	A woman coming from Milan to Riga through Munich
	Morocco	Two confirmed cases are reported.
	Saudi Arabia	A Saudi National returning from Iran tested positive.
	Senegal	A 54-year-old man from France was the first confirmed case of COVID-19 in Senegal.
	Tunisia	A 40-year-old Tunisian man from Gafsa returning from Italy tested positive for COVID
	Argentina	A 61-year-old man of Argentine nationality, who was traveling accompanied by his wife tested positive.
Mar-03	Chile	A 56-years-old woman having a travel history to Italy and other European countries tested positive.
	Gibraltar	A person who had traveled from Northern Italy via Málaga Airport tested positive for COVID.
	Liechtenstein	A young man contacted the virus from an infected person in Switzerland.
	Ukraine	The infected person returned from Italy
	Faroe Islands	The infected person returned from Paris.
Mar-04	Hungary	Two students from Iran studying in Hungary tested positive for COVID.
	Poland	A 66-year-old man, returned from Westphalia in Germany by bus to Świecko and from there by private car to Cybinka
	Slovenia	A tourist traveling from Morocco via Italy tested positive for COVID.
	South Africa	A male citizen returned from Italy tested positive for COVID
	Bhutan	A 76-year-old male from the US traveled to the country via India tested positive.
Mar-06	Cameroon	The first case was a French national coming to the country.
	Colombia	A 19-year-old female patient with travel history to Milan, Italy, tested positive.
	Costa Rica	A 54-year-old male Costa Rican citizen arrived from Tocumen International Airport in Panama, tested positive.
	Peru	A 25-year-old man who had a travel history to Spain, France, and the Czech Republic, tested positive.
	Serbia	A man who had been in Hungary and Subotica tested positive for the virus.
	Togo	A 42-year-old Togolese woman who traveled to Germany, France, Turkey, and Benin before returning to Togo

Chronological timeline of COVID	Country	Transmission [28]
Mar-07	Maldives	Two cases contracted the virus from an Italian tourist who left the island and later tested positive in Italy.
	Malta	A 12-year-old Italian girl who lived in Malta was the country's first case of COVID-19.
	Paraguay	An individual tested positive in Asunción.
	Saint Lucia	A 63-year-old female patient coming from the United Kingdom
Mar-08	Albania	The first COVID-19 cases in Alban in a group of six people, including two men who traveled back from Italy
	Bangladesh	Two of the patients came back from a trip to Italy tested positive for COVID.
	Bulgaria	Two men belonging from Pleven and two women from the central city of Gabrovo tested positive.
	Gabon	A 27-year-old man who had come from France tested positive for COVID
Mar-09	Brunei	A 53-year-old male patient who came from Kuala Lumpur, Malaysia, tested positive for COVID.
	Channel Islands	The first case was reported on the island of Guernsey returning from Tenerife in the Canary Islands.
	Cyprus	The 64-year-old heart surgeon returning from the UK tested positive.
	Mongolia	A French national working in Mongolia, a 57-year-old man who traveled from France through Moscow to Mongolia
	Panama	A 64-year-old diabetic male, who also suffered pneumonia, tested positive.
	Moldova	The 48-year-old woman who arrived from Milan, Italy tested positive for COVID
Mar-10	Burkina Faso	The patients were husband and wife, the latter of whom had recently returned from a trip to France.
	Congo	A Belgian national who visited Congo and was later quarantined in a hospital in Kinshasa
Mar-11	Bolivia	Two women, 60 and 64 years old, were confirmed to have the virus after coming from Italy.
	Cote d'Ivoire	A 45-year-old male citizen had traveled to Italy confirmed to have the disease.
	Cuba	Three Italian tourists having tavel history to the town of Trinidad tested positive for COVID.
	Guana	The first case of coronavirus was recorded in Guyana- A 52-year-old woman.
	Honduras	A pregnant woman traveling from Spain & a 37-year-old Honduran woman traveling from Switzerland tested positive
	Jamaica	A British woman visited the island to attend a funeral and later tested positive for the virus.
	Reunion Islands	The first confirmed case was an 80-year-old man who arrived from Paris.
	Saint Vincent	Vincentian female who arrived to the island from the United Kingdom
Turkey	A man who had returned to Turkey from Europe tested positive	
Mar-12	Cayman Islands	A 68-year-old Italian man who was transferred from the cruise ship Costa Luminosa to a hospital in the Cayman Islands due to heart issues was announced as the first confirmed coronavirus case.
	French Polynesia/ Tahiti	French Polynesia's representative in the French National Assembly was diagnosed after returning from Paris.
	Guadeloupe	A 36-year-old female patient had traveled to France, and the ship reportedly had passengers from northern Italy.
	Kenya	A 27-year-old female had returned from the US via London.
	Trinidad and Tobago	A 52-year-old patient traveled from Switzerland tested positive for COVID
Mar-13	Antique and Bermuda	A female patient was diagnosed after arriving from the United Kingdom.
	Aruba	Two cases exported from Europe tested positive for COVID.
	Ethiopia	A Japanese citizen who had traveled from Burkina Faso to the country
	Ghana	Two patients who had returned from Norway and Turkey were diagnosed.
	Guatemala	The Guatemalan man arrived from Italy and had flown with a group of eight people who traveled on to El Salvador.
	Guinea	A Belgian National who, an employee of the European Union delegation in Guinea tested positive for COVID-19
	Kazakhstan	Both cases were Kazakhstan Nationals, who had returned from Germany.
	Kosovo	Both patients had traveled from Italy — a 22-year-old Italian in Klina, and a 77-year-old man from Vitia.
	Sudan	A male patient was in his 50s and visited the United Arab Emirates and died in the country's capital of Khartoum.
	Suriname	A traveler from the Netherlands was confirmed to have the virus.
	Uruguay	Four patients had traveled from Milan tested positive for COVID-19.
	Venezuela	A 41-year-old Venezuelan traveled from the United States, and the second traveled from Spain tested positive

Chronological timeline of COVID	Country	Transmission [28]
Mar-14	The Central African Republic	A 74-year-old Italian man returned to the Central African Republic from Milan, Italy tested positive.
	Congo	A 50-years-old man returned from France tested positive.
	Equatorial Guinea	A 42-year-old woman in Malabo returned to Equatorial Guinea from Madri tested positive.
	Eswatini	A 30-year-old woman who had a travel history to US and Lesotho tested positive.
	Mayotte	A man from France arrived in Mayot tested positive.
	Namibia	A Romanian couple who arrived in Windhoek from Spain via Doha, Qatar
	Seychelles	The first two cases contracted the virus from an Italian individual
Mar-15	Akrotiri and Dhekelia	Two members of UK Armed forces tested positive.
	Uzbekistan	An Uzbek citizen who returned from France tested positive.
	Liberia	A government official upon return to the country from Switzerland tested positive.
	Somalia	A Somali citizen returning from China tested positive.
	Tanzania	A 46-year-old Tanzanian who had come to Arusha from Belgium tested positive.
	Montenegro	The first two cases had a travel history from the US, and Spain tested positive.
Mar-18	Sint Maarten	The first cases returned from the UK via Miami tested positive
	Bermuda	The first two cases had a travel history to the UK and the US.
	Djibouti	A member of the Spanish Special Forces tested positive.
	Kyrgyzstan	The first confirmed cases had a travel history to Saudi Arabia.
	Montserrat	The first confirmed cases had traveled to London and Antigua.
	Nicaragua	A 40-year-old man returned from Panama tested positive.
	Zambia	A couple returning from France tested positive
Mar-19	Angola	The first two cases had a travel history to Portugal.
	Chad	A Moroccan individual traveling from Douala tested positive.
	Fiji	A 27-year-old flight attendant who had a recent travel history to USA and Newzealand
	Isle of Man	The first case had a travel history to Spain via Liverpool.
	Niger	A 36-year-old Nigerian man had a travel history to Lomé, Accra, Abidjan, and Ouagadougou tested positive
Mar-20	Cape Verde	A 62-year-old UK national tested positive
Mar-21	Uganda	The first confirmed case had a travel history to Dubai
Mar-22	Eritrea	An Eritrean National returning from Norway tested positive
	Dominica	A 54-year-old man returned from the UK tested positive.
	Grenada	A 50-year-old woman returned from the UK tested positive.
Mar-23	Mozambique	A 75-year-old man returned from the UK tested positive
Mar-25	Belize	A Belizean woman who returned to San Pedro Town from Los Angeles, California
	Libya	A 73-year-old man returned from Saudi Arabia tested positive
	The British Virgin Islands	The first two confirmed cases had a travel history to Europe and New York.
	Guinea-Bissau	
Mar-26	Saint Kitts and Nevis	The first two cases had a travel history from New York
Mar-28	Anguilla	One of the first two cases was an American woman
Mar-28	Northern Mariana Island	The first two cases were confirmed
Mar-30	Botswana	The first three cases were confirmed
Mar-31	Burundi	The first two cases had a travel history from Dubai and Rwanda.
	Sierra Leone	A 37-years-old man returning from France was the first case in the country.
	Sint Eustatius	The first two cases were from the Netherlands.
	Somaliland	The first two cases were reported in a village
Apr-02	Malawi	The first three cases had a travel history to India
Apr-03	Falkland Islands	A British service person tested positive
Apr-04	Western Sahara	The first four cases were confirmed in Boulder
Apr-05	South Sudan	A 29-year-old United Nations worker returned from the Netherlands tested positive.
Apr-06	Saint Pierre and Miquelon	The small island territory of Saint Pierre and Miquelon reported its first cases of COVID-19
Apr-07	Sao Tome and Principe	The first four cases in the country were confirmed
	Abkhazia	Index case from Moscow, Russia was the first case in the country.
	Artsakh	One of the three confirmed cases was from Armenia
Apr-10	Yemen	A 60-year-old man tested positive in Hadhramaut

Chronological timeline of COVID	Country	Transmission [28]
Apr-11	Saba	Local infection caused spread locally
Apr-16	Bonaire	A patient coming from Aruba was confirmed positive
Apr-30	Tajikistan	Fifteen confirmed cases were reported in Khujand and Dushanbe.
	Comoros	A 50-year-old man was admitted to the El-Maarouf hospital in Moroni
May-06	South Ossetia	The first three cases were reported, and two were from Vladikavkaz.

Asian countries soon reported first COVID cases, all of which were exported cases from neighboring countries, especially China (Table 1). The epidemic surge in Italy was rapid, and soon it became the hub of COVID-19 spread to the nearby territories. Denmark, Germany, Croatia, Austria, Israel, Nigeria, Canary Islands, Spain, France, Netherlands, Derbyshire, and Wales reported their first cases with exposure to Italy. Iran, Italy, and the US, as hotspots to COVID-19, contributed to the global spread of COVID-19. Iraq, Syria, United Arab Emirates, Dubai, Canada, Lebanon, Turkey, and Azerbaijan had COVID-19 epidemic onset tied to Iran [Table 1]. A study shows the effect of air travel to and from Iran caused International COVID-19 spread to countries like Lebanon, Canada, and the United Arab Emirates despite their low Infectious Disease Vulnerability Index (IDVI) scores [29]. International Air and ground travel continued the dissemination of exported cases across the globe.

Travel restrictions proved to be a useful step in containing the COVID-19 pandemic. Various community gatherings, trade expos, international seminars, tourism, and community activities like funerals, wedding ceremonies were banned in compliance with the guidelines of the World Health Organization. Most of the countries showed serious concern about the pandemic. Vigorous steps like complete lockdown were observed in most of the countries of the world. Most countries responded effectively, against COVID-19 threat and optimized their healthcare facilities. In China, the number of new cases began to decline after a steep rise in the Epidemiological curve due to efficacious confinement of local transmission and proper management of the existing cases.

## Conclusion

COVID-19 is a public health emergency of international concern, affecting almost 211 countries of the world, and it is probably the biggest pandemic in the last 50 years. More than 6,748,525 cases and 394,368 deaths worldwide. As compared to the other Coronaviruses (SARS and MERS), there are more people affected by COVID-19. Transmission of the virus to countries and regions led to a "coronavirus crisis." Mass transport and International travel resulted in rapid COVID-19 spread. Due to the variation in healthcare resources and epidemic control designs, many countries in the world are suffering from an enormous burden of the disease.

Global integration and coordination are required to dampen the flow of the disease. Effective immigration strategies, global aid, greater adherence to the WHO guidelines, and health policies are the key measures that can help in flattening of the epidemiological curve, and effective control of COVID-19.

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