



## OUTBREAK SCENARIOS AROUND THE WORLD : UPDATED CASE REPORT OF HUMAN INFECTION WITH CORONAVIRUS DISEASE (COVID-19)

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### ABSTRACT

Coronavirus (CoV) is a family of viruses that cause disease in mammals and birds. Most coronaviruses capable of infecting humans cause mild to moderate respiratory tract infections which are transmitted by respiratory droplets (e.g., coughing, sneezing). Certain notable coronavirus species can cause more virulent infections, including SARS, MERS, and 2019-nCoV. Coronavirus outbreak was first identified in Wuhan City, Hubei Province, China on 7 Jan. 2020. Incubation period ranges between 1-14 days (median 5-6 days). Total 3,048,562 cases are confirmed with 210,471 deaths in 93 countries/territories/areas till 29 April, 2020. An important early victory in the fight against the 2019-nCoV was the sequencing of the viral genome, which led to genetic tests/molecular diagnostics allowing for confirmation of infected individuals. The Covid-19 coronavirus outbreak has been declared a pandemic by the WHO, with confirmed cases in practically every country in the world. The current coronavirus outbreak has led to a surge of interest in coronavirus research and concern about the risks associated with coronaviruses. The Present study conducted to highlights the spreadability and Death/Recovery ratio of World scenarios due to the Covid-19 between March and April month, 2020.

**KEYWORDS :** Covid-19; MERS-CoV; SARS-CoV; Death; Recover; Outbreak .

### INTRODUCTION :

The name 'coronavirus' comes from the crown like projections on their surfaces. Corona in Latin means "halo" or "crown", measures approximately 60 - 140 nm in diameter, has a single long stranded RNA of a genome and a nucleocapsid of helical symmetry (genome size ranging from 27 - 34 kilobases in length). It has spike of glycoproteins on the envelope and is a group of related viruses that causes diseases in mammals and birds and recently is creating a havoc in humans too. Coronavirus are a group of viruses that can cause disease in both animals and humans [1]. Among humans, coronavirus infections most often occur during the winter months and early spring [2]. The severe acute respiratory syndrome (SARS) virus strain known as SARS-CoV is an example of a coronavirus. SARS spread rapidly in 2002-2003. Around 9.6% of SARS cases led to death. The new strain of coronavirus is called severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2). The virus causes coronavirus disease 19 (COVID-19) which is more contagious[3]. According to the World Health Organization, common signs of infection include fever, cough, and respiratory difficulties like shortness of breath. Serious cases can lead to pneumonia, kidney failure and even death[4].

Around 80% of people with COVID-19 recover without specialist treatment. These people may experience mild, flu-like symptoms. However 1 in 6 people may experience severe symptoms, such as trouble breathing[5]. The new coronavirus has spread rapidly in many parts of the world. On March 11, 2020, the World Health Organization (WHO) declared COVID-19 a pandemic. A pandemic occurs when a disease that people are not immune to spread across large regions[6].

The response to the coronavirus outbreak has been extensive, and as the infection is now critical the advice is clear – stay at home where possible, practice social distancing where it is necessary to go outside, frequently wash hands, and self –

quarantine for 14 days if symptomatic [7]. At the governmental level, multiple countries and territories ( including the UK and Munich, where Mewburn Ellis is based) have been put on lockdown in order to establish a quarantine and slow further the spread of the virus in order to prevent overwhelming health services and provide more time for vaccine development.

### World Case Report :

In early December 2019 a patient was diagnosed with an unusual pneumonia in the city of Wuhan, China. By December 31 the World Health Organization (WHO) regional office in Beijing had received notification of a cluster of patients with pneumonia of unknown cause from the same city. 1 Over the next few days, researchers at the Wuhan Institute of Virology performed metagenomics analysis using next-generation sequencing from a sample collected from a bronchi-alveolar lavage and identified a novel corona-virus as the potential aetiology. Prior to the severe acute respiratory syndromeCoV (SARS-CoV) outbreak in 2003, human CoVs were only known to cause mild, self-limiting upper respiratory diseases. Approximately 10 years after the emergence of SARS-CoV in 2012, Middle East respiratory syndrome (MERS)-CoV emerged in the Middle East where it then spread to 27 different countries. As of 07 March, 2020, 1,01,927 cases of COVID-19 have been reported worldwide of which cases from China to be 80,813 that is 79.28%. The outbreak is linked to 3486 deaths (106 new). Since then after the end of month i.e on March 20 and 21st, Italy has reported its highest death toll of 627 and 793 respectively on a single day[8]. Authorities have reported with 8,03,696 positive cases with about 5,92,192 being active and among ongoing cases, there are roughly, 1,72,434 recoveries and 39,070 deaths as per the report on 31st March, 2020 (Worldometers Info, 2020) [9].

It appears that compared with the other 2 zoonotic coronaviruses that occurred in the last 20 years (severe acute respiratory syndrome [SARS] in 2002 and Middle East

respiratory syndrome [MERS] in 2012), 2019-nCoV seems to have greater infectivity (higher Ro) and lower case fatality rate[10].

The incubation period of this virus has been reported to be 5-6 days, although there is suggestion that it may be as long as 14 days. It is unclear when transmission begins. Cases reported stated that transmission during asymptomatic phase, it is likely that majority of secondary cases come from symptomatic individuals.

**CoV-2019 Confirmed Cases Report (Date & Country wise) Spreading History of 2019-nCoV<sup>(11)</sup> :**

On 31 Dec. 2019, China, East Asia, most populated country in world was informed to WHO regarding pneumonia cases with unknown etiology. Till 3 Jan. 2020 a total of 44 pneumonia cases were detected. On 7 Jan2020, Chinese research authorities were announced that they were isolated new virus from sea food market in Wuhan city; Named as 2019-nCoV. On 13 Jan. 2020 Ministry of public health Thailand were reported 01 patient imported from Wuhan, China. On 15 Jan. 2020, the ministry of health, labor and welfare Japan were reported first case imported from Wuhan China. On 20 Jan. 2020, National IHR Focal point from the Korea was reported first case 2019-nCoV in Korea. On 23 Jan. 2020, United State of America were confirmed first case of 2019-nCoV in America. On 24 Jan. 2020, Vietnam has reported First case of 2019-nCoV with not travel history from China, while his family member was the China traveler. So it's the first incidence of human to human transmission of corona virus. On 24 Jan. 2020, the government of Singapore was confirmed First case of 2019-nCoV. On 25 Jan. 2020, the government of Australia, federal democratic republic of Nepal and French republic were confirmed first of 2019-nCoV. Other countries also were detected and reported the cases of 2019-nCoV as On, 26 Jan. 2020 (Malaysia), 27 Jan. 2020 (Canada), 28 Jan. 2020 (Cambodia, Germany, Sri Lanka), 29 Jan. 2020 (United Arab Emirates), 30 Jan. 2020 (Philippines, India , Finland), 31 Jan. 2020 (Italy), 1 Feb. 2020 (Russian Federation, Spain, Sweden, United Kingdom), 5 Feb. 2020 (Belgium), 6 Feb. 2020 (Japan), 15 Feb. 2020 (Egypt).

**Criteria for evaluation of patient under investigation for 2019 novel coronavirus**

**Based on clinical features and epidemiological risk:**

- Fever or signs or symptoms of lower respiratory illness like cough and or shortness of breath with any person, including healthcare workers, who has had contact with a laboratory confirmed coronavirus patient within 14 days of symptoms onset.
- Fever and signs or symptoms of lower respiratory illness like cough and or shortness of breath with history of travel from Hubei Province, China, within 14 days of symptoms onset.
- Fever and signs or symptoms of lower respiratory illness like cough and or shortness of breath requiring hospitalisation with history of travel from mainland China within 14 days of symptoms onset.

If a patient under investigation is confirmed, clinician should notify their health care prevention team as well as local or state health department.

**World Scenarios :**

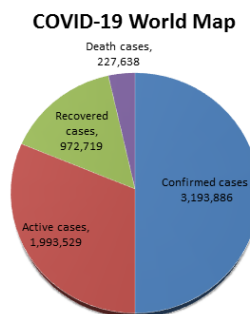
Disease	Coronavirus disease ( COVID-19)
Virus strain	Severe acute respiratory syndrome coronavirus 2 (SARS CoV-2)
Location	World
First outbreak	Wuhan, Hubei, China
Duration	March-April,2020

Confirmed cases	3,193,886
Active	1,993,529
Recovered	972,719
Death	227,638

The coronavirus pandemic has sickened more than 3,193,886 people, according to official counts. As of Thursday morning, 30 April 2020, at least 227,638 people have died, and the virus has been detected in at least 177 countries, as these maps shown below [12].

**WHO risk assessment ?**

- US : Very High
- Regional Level : Very High
- Global Level : Very High



**Figure 1 : Map of the pandemic in World (as of 30 April 2020).**

**Table 1 : Coronavirus Tracking the Global Outbreak among the 15 countries ( Updated chart on 30 April 2020)[13]**

Country	Confirmed	Active	Recovered	Death
US	1,039,909	858,222	120,720	60,967
Spain	236,899	79,695	132,921	24,275
Italy	203,591	104,657	71,252	27,682
France	166,543	93,304	49,118	24,121
United kingdom	166,441	139,418	857	26,166
Germany	161,539	34,672	120,400	6,467
Turkey	117,589	70,468	44,040	3,081
Russia	99,399	88,141	10,286	972
Iran	93,657	13,909	73,791	5,957
China	83,944	833	78,474	4,637
Brazil	79,685	40,040	34,132	5,513
India	33,062	23,546	8,437	1,079
Pakistan	15,759	11,361	4,052	346
Japan	13,965	11,172	2,368	425
Australia	6,749	941	5,715	93

**COVID-19 China update**

China has revised their guidance on case classification for COVID-19, removing the classification of "clinically diagnosed" previously used for Hubei province, and retaining only "suspected" and "confirmed" for all areas, the latter requiring laboratory confirmation. Some previously reported "clinically diagnosed" cases are thus expected to be discarded over the coming days as laboratory testing is conducted and some are found to be COVID-19-negative [14].

**COVID-19 United state at top**

On March 26th, the United States became the country with the most confirmed cases of coronavirus. Confirmed cases are still growing exponentially with more new cases each day. The United States had a slow response to the virus and has had severe shortages of testing. While testing capacity increases, most people can't be tested currently unless they pass through a screening process. There is no surveillance testing to test for coronavirus spread in asymptomatic people. The number of known coronavirus cases in the United States continues to grow quickly. As of Thursday morning, 30 April 2020, at least

1,039,909 people across every state, plus Washington, D.C., and four U.S. territories, have tested positive for the virus, according to a New York Times database, and at least 60,967 patients with the virus have died. And that's why the outbreak began on a horrible note[15].

**COVID-19 Australia at a glance**

The Australian state has been described as the "safest place in the world" after recording no new virus cases for the past week. The total number of new cases initially grew sharply. It then levelled out at about 350 per day around 22 March, and started falling at the beginning of April to about 25 per day by the 13 April.[16] As of 30 April 2020, 6,753 cases had been reported in Australia, with the highest number of cases being in New South Wales, with 3,016. The Doherty Institute estimated that the average national infection rate Reff was about 0.4 on 5 April; a Reff less than one means that the virus will eventually die out [17].

**COVID-19 India Highlights :**

The first case of the 2019- 20 coronavirus pandemic in India was reported on 30 January 2020, originating from China. As of 30 April 2020, the Ministry of Health and Family Welfare have confirmed a total of 33,062 cases, 8437 recoveries (including 1 migration) and 1079 deaths in the India[18]. Experts suggest the number of infections could be much higher as India's testing rates are among the lowest in the world [18]. The infection rate of COVID-19 in India is reported to be 1.7, significantly lower than in the worst affected countries[19,20]. The country has been reporting new cases of the virus every day since March 2, 2020. While the number of new cases has been growing, some patients who tested positive under quarantine have made full recoveries.

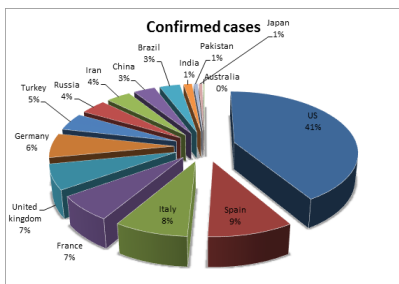


Figure 2: Country wise report of Confirmed Cases

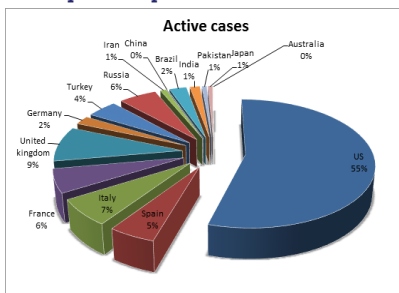


Figure 3: Country wise report of Active Cases

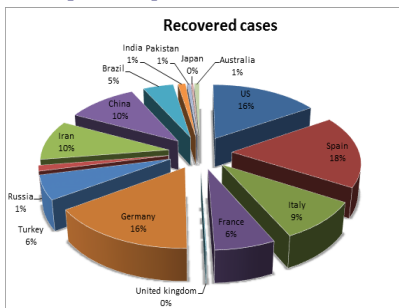


Figure 4: Country wise report of Recovered Cases

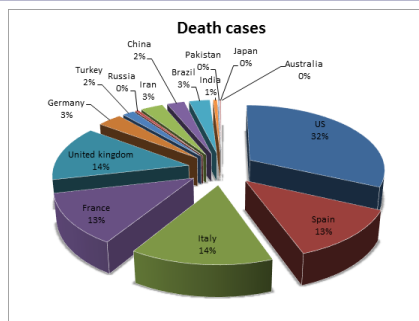


Figure 5: Country wise report of Death Cases

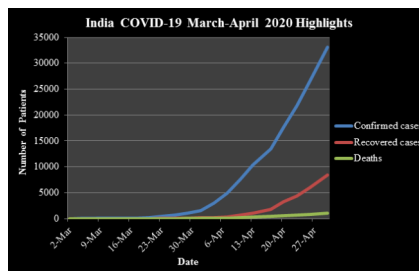


Figure 6: India Updated Report Between March- April, 2020.

**Coronavirus vaccine :**

There's no vaccine, but intense research has been underway around the world since scientists shared the virus' genetic makeup in January 2020. Vaccine testing in humans started with record speed in March 2020. More than 100 vaccine projects are in various phases of development. One vaccine called mRNA-1273 (which was developed by using messenger RNA) would tell our cells to pump out a protein that will kick-start your immune system to fight the virus. It's worked well in animals and is ready to test in humans[21].

**Prevention :**

There is nothing to provide complete guidance to prevent from corona virus but some guidelines were presented by WHO and ECDC. Basically these guidelines are for health profession to set during the caring of infected patient. Because many evidence was presented by studies about human to human transmission of corona from Wuhan, china. Another study reported about airborne transmission of virus while no one was presents the solid evidence. As the lack of transmission evidence health professionals were not able to present prevention guidelines. According to WHO, some general guidelines were published such as separate the infected patient from other family member to single room, implementation of contact and droplet precaution, airborne precaution etc. European Centre for Disease Prevention and Control (ECDC) also published the information leaflet to peoples i.e. Avoid contact with sick people, in particular those with a cough. Avoid visiting markets and places where live or dead animals are handled, Wash your hands with soap and water or use an alcohol based disinfectant solution before eating, after using the toilet and after any contact with animals, Avoid contact with animals, their excretions or droppings[22-23].

**CONCLUSION :**

Despite all the challenges and awaring high risk around the world, the silver linings lies in the fact that the Corona Infection would be short lived and very soon will be taken over by multitudes of humanitarian efforts. Mans indomitable spirit, coupled with science and technology and his great struggle for survival will overcome this difficult challenge very soon. Hope is the only road forward. As per WHO and ECDC guideline avoid the contact with sick person and also avoid the market or public place as per possible. There are no anti-

corona virus vaccine to prevent or treatment but some supporting therapy work. Future research needed to fight with corona virus. Till only 'Distance is rescue'.

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