# COVID-19 INFECTION IDENTIFICATION BY RETRIEVAL METHOD

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**INFORMATION RETRIEVAL AND ORGANIZATION**


## ABSTRACT:

The coronavirus disease 19 (COVID-19) is a highly transmittable and pathogenic viral infection caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), which caused global pandemic that led to a dramatic loss of human life worldwide. Genomic analysis revealed that SARS-CoV-2 is phylogenetically related to severe acute respiratory syndrome-like (SARS-like) bat viruses, therefore bats could be the possible primary reservoir. The intermediate source of origin and transfer to humans is not known,
however, the rapid human to human transfer has been confirmed widely. There is no clinically approved antiviral drug or vaccine available to be used against COVID-19. However, few broad-spectrum antiviral drugs have been evaluated against COVID-19 in clinical trials, resulted in clinical recovery. In the current review, we summarize and comparatively analyze the emergence and pathogenicity of COVID-19 infectionand previous human coronaviruses including severe ascute respiratory syndrome coronavirus (SARSCoV) and middle east respiratory syndrome coronavirus (MERS-CoV). We also discuss the approaches for developing effective vaccines and therapeutic combinations to cope with this viral outbreak.

## INTRODUCTION:

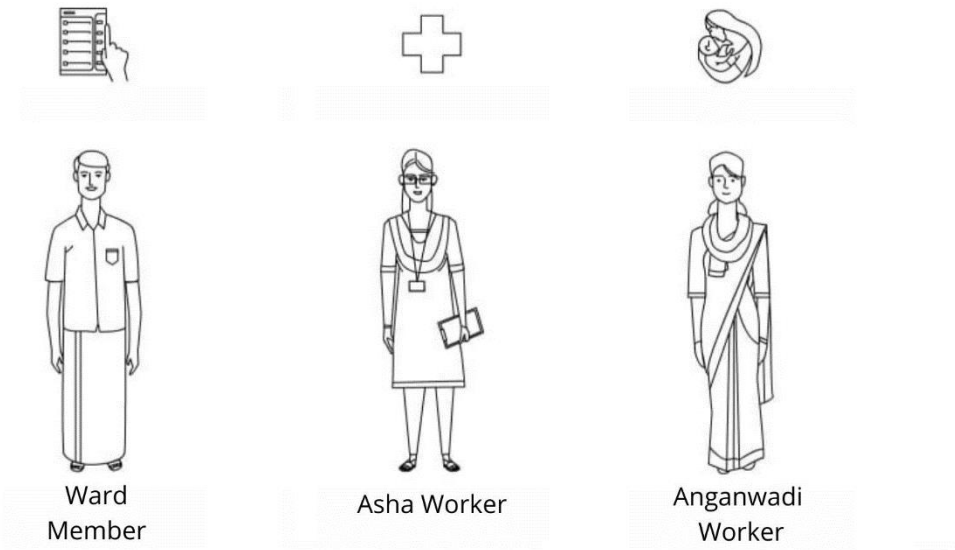
The evolution of the SARS-CoV-2 virus, with its unique balance of virulence and contagiousness, has resulted in the COVID-19 pandemic. Since December 2019, the disease threatens exponential spread across our society, catalyzed by a modern air and road transportation system, along with dense urban centers where close contact amongst people yielded hubs of viral spread.
The health impacts of this crisis have been matched only by the economic backlash to society. Hundreds of thousands of small businesses have shut down, entire industrial sectors have been negatively impacted, and tens of millions of workers have been laid off or furloughed. Even after our global society succeeds at controlling the virus's spread, we will be faced with many challenges, including re-opening our societies, lifting stay-at-home orders, deploying better testing, developing vaccines and therapeutics, aiding the unemployed and out-of-business, etc.

The global response to COVID-19 has yielded a growing corpus of scientific publications—increasing at a rate of thousands per week—about COVID-19, SARS-CoV-2, other coronaviruses, and related topics. The individuals on the front lines of the fight—healthcare practitioners, policy makers, medical researchers, etc.—will require specialized tools to keep up with the literature.

**How does the government system deal with Coronavirus spread within a Ward? (Management of suspects):**

The CoronaVirus has not just affected our health as a population but has also managed to alter the behaviour of our whole community. It is important to learn how the community has evolved to deal with the CoronaVirus. While public gatherings are restricted, travelling is also discouraged.

It is the **Ward level Team** which at the face of this calamity is acting as the **Rapid Response Team(RRT)** that is given the responsibility to enforce this quarantine. The RRT is expected to maintain a line list (a list of all such persons with their necessary information and relevant dates). Because the RRT is part of the community there, they are expected to know the individuals or families living there. The team has to have surveillance over the 400 odd families in that community. If this job is done with care and precision, half the battle against Corona is won. The RRT is expected to take daily updates from the people staying in home isolation and make sure that they are healthy and also that they have all facilities required for a comfortable stay. If the person has any health issues, the **ASHA worker** must take action, report the same to higher authorities and get the person health support.Because the people who form RRT are from the local area, they can call the persons in quarantine and have candid conversations about his well beIng. If there is any problem faced by a mother and child in quarantine, the **Anganwadi worker** is the person to tend to it.If a person does not follow the rules laid out by the government, the RRT may report the same to the Panchayat. The panchayat has the support of the police and is empowered to enforce the quarantine.



**COVID-19: Origin and how it became a Pandemic:**

COVID-19 is an infection caused by the family of viruses known as Coronaviruses. Coronaviruses are known to cause infections in both humans and animals.

Coronavirus infections range from common cold to severe respiratory or lung infection. COVID-19 is caused by infection with the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) virus strain. SARS-CoV2 was unknown before the outbreak that started in Wuhan, China in December 2019.On 11/03/2020, the WHO declared COVID-19 a Pandemic. A pandemic is defined as "an epidemic occurring worldwide, or over a very wide area, crossing international boundaries and usually affecting a large number of people".

**COVID-19 Infection**

COVID-19 infection is most commonly associated with symptoms like fever, dry cough and lethargy/ tiredness.Other symptoms include ache/pain, sore throat, nasal congestion, conjunctivitis, loss of taste or smell, headache , breathing difficulties and diarrhoea in some patients.Anyone can be infected with COVID-19 irrespective of age or sex or religion or nationality.The elderly and people with underlying health conditions such as diabetes, lung/heart problems, high blood pressure or cancer are at higher risk of developing more symptoms and worsening. These are called co-morbid conditions, the presence of these will make an individual more susceptible to get infected by the virus.But that does not rule out the possibility of the younger population getting infected. Anyone who develops breathing difficulty/chest pain or loss of speech or movement should be considered as a severe case of infection.

**Testing of COVID-19**

It is recommended that people with symptoms undergo testing. We have an antigen and RT PCR test currently available in our medical field of expertise. The RT PCR test is a global standard system, it is costly(varies from Rs.500-1500 in various states) and the result is accurate ,but time-consuming (approx. 24 hours). It tests for viral RNA presence and Virus genetic material may be detected.

The Antigen tests (cost varies from Rs.150 to Rs.300) check the presence of protein, the accuracy is lesser as compared to RT PCR. It is an easily accessible test. The virus particle is detected. For checking antibodies present, a blood sample is taken and if the virus enters a person's body, it will take around 7 – 8 days to get this antibody test back positive.

**Vaccines**

A vaccine is a biological preparation that provides active acquired immunity to a particular infectious disease. A vaccine typically contains an agent that resembles a disease-causing microorganism and is often made from weakened or killed forms of the microbe, its toxins, or one of its surface proteins. The agent stimulates the body's immune system to recognize the agent as a threat, destroy it, and to further recognize and destroy any of the microorganisms associated with that agent that it may encounter in the future.


**First Principle**

**Separating COVID and Non COVID by creating a parallel COVID Healthcare System & utilizing existing Healthcare system for Non COVID patients**

A clear demarcation between a non-COVID Patient and a COVID Patient has to be made.

When the existing healthcare systems are overburdened as the COVID-19 cases rise, we need to create an alternative parallel healthcare system exclusively for COVID-19 patients.

This way, other patients, like cardiac patients, antenatal cases, orthopedic patients etc. can easily avail the mainstream healthcare systems.

**Second Principle**

**Decentralization of the existing system to the panchayat and ward level**

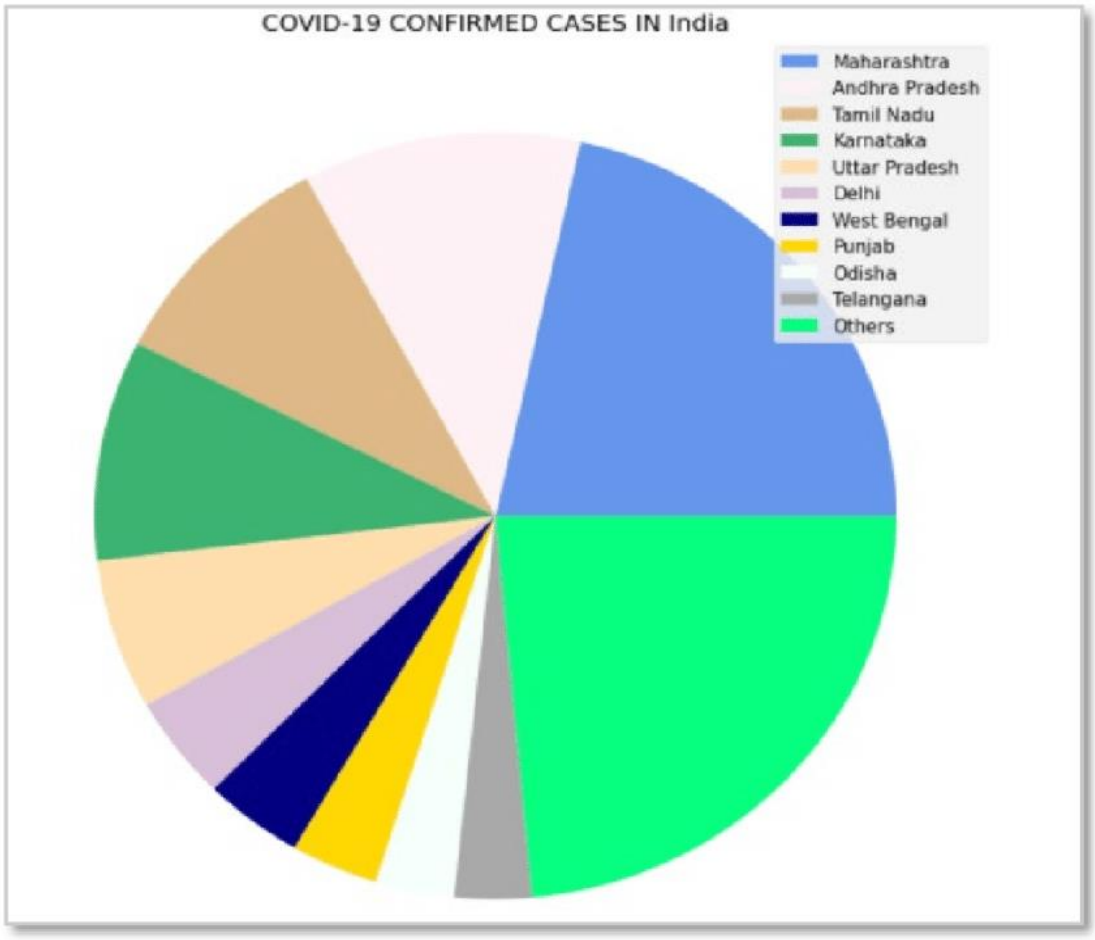
We cannot build hospitals overnight and thus have to protect the existing healthcare system from crashing due to an overload of patients.

This is done by decentralizing the treatment through a three-tier system under the direct supervision of the district administration.

**Our Immediate future with COVID-19.**

In the current scenario, COVID-19 cases are increasing which has raised red flags across general public and government officials. It is also essential for us to understand the possibility of the disease persisting for a longer duration than expected.

Moreover, the COVID infection has long-term health effects which needs to be studied and managed. To know more about the research done on the same.




CThe million dollar question is **'When will this pandemic end?'** but it still remains a question unanswered by all major world bodies or governments across the world, even when multiple vaccines are available and all governments across the globe are engaged in aggressive public vaccination drives.

Keeping this uncertainty in mind, the general public has to make the conscious effort to start living their normal life while fighting this pandemic as just another added task that we face in our daily life.

## CONCLUSION:

The coronavirus disease continues to spread across the world following a trajectory that is difficult to predict. The health, humanitarian and socio-economic policies adopted by countries will determine the speed and strength of the recovery.

We can use retrieval method for identifying the number of cases in the world.

## REFERENCES:

**https://www.ilo.org/global/topics/coronavirus/impacts-and-responses/WCMS_739051/lang--en/index.htm**

**https://www.who.int/emergencies/diseases/novel-coronavirus-2019/question-and-answers-hub/q-a-detail/coronavirus-disease-%28covid-19%29-variants-of-sars-cov-2?gclid=Cj0KCQjwwJuVBhCAARIsAOPwGAQ8TqrzfJ7EaJf92tUEY7ikuhOac7DV1qBbipORbg3dtf_MUSfddqQaApbnEALw_wcB**