

## COVID-19 Pandemic - Clinical Features, Recent Investigations, Diagnosis, Modes of Transmission, and Role of WHO

### ABSTRACT:

In 2019 December, a bunch of respiratory disorder cases associated with city's South China seller spot for sea food of unknown pathology was identified by the health authorities of Wuhan, China. And has been designated a public health emergency of international concern. Consequently, it was concluded that the virus spreads from individual-to-individual, and carriers are the most common source of Coronavirus growth. Novel Coronavirus, SARS-COV-2, was revealed by subsequent investigations and that was the initiative agent now at the core of a major outburst. To prevent or to reduce transmission, special focus and efforts were applied to vulnerable population including elderly people, children and health workers. And large scale measures were taken to lower communicable spread of COVID-19 from surveying a relation of (SARS) Severe Acute Respiratory Syndrome and (MERS) Middle East Respiratory Syndrome, where beta corona virus, which strike the lower respiratory tract and shows pneumonia in human being, was the causative agent. WHO announced outbreak of COVID-19 in the early First light of January 31, 2020 (Korea Standard Time) as "Public Health Emergency of International Concern" (PHEIC). An important collective goal was to reduce the outbreak and to flatten the peak of the outbreak curve. Delays result in significantly higher death tolls. In this review, we are trying to highlight the clinical features, investigations, WHO declaration of PHEIC, mode of transmission, effective Infection protocol to prevent this virulent infection from expansion and WHO 5 Movements because Hand Washing is a way of disinfecting a person's hands that considerably decreases likely pathogens (deadly germs) on the palms.

**KEYWORDS:** Coronavirus disease 2019 (COVID-19), SARS-CoV-2, Severe Acute Respiratory Syndrome (SARS), Middle East Respiratory Syndrome (MARS).

### BACKGROUND:

Novel coronavirus which aims firstly the human respiratory system is one of the significant pathogens. Outbreaks of coronavirus comprised Acute Severe Respiratory Syndrome and Middle East Respiratory Syndrome previously identified as a remarkable threat for human health. Various groups of cases associated with public health to a large-scale seafood seller point and moist animals in China, Hubei province, Wuhan; had shifted to hospital for initial identification of an unexplained pathology of respiratory disease previously in 2019 December.

Some cases of infection was reported with COVID-19(Coronaviruses is a vast group and type of viruses which are able to infect humans varying from common flu, fever, sore throat and headache to more dreadful disease similar to Middle East Respiratory Syndrome and Acute severe Respiratory Syndrome) is as follows; The Commission for National Health in China had

announced total 571 patients of Novel coronavirus which was confirmed in few states (locality and towns) of China and on 22 January 2020 the reports of the first 17 deaths were documented. And at China 7734 patients was diagnosed on January 30 2020, and 90 patients covering from countries including India, Thailand, The Republic of Korea, France, Vietnam, Malaysia, Germany, Nepal, Japan, Cambodia, The United Arab Emirates, The United States, The Philippines, Singapore, Taiwan, Australia, Finland, and Sri Lanka were also reported.<sup>1</sup> A study published in nature described that authorities of Chinese health care found that 630 patients died of the coronavirus and more than 31, 161 cases who reported the infection in China on February 7 2020.<sup>2</sup>

A first case of COVID-19 pandemic originating from China was identified in India on 30 January 2020. The total number of 31,332 cases, 7696 recoveries (including 1 migration) and 1007 deaths in the country on 29 April 2020 was reported by Health and Family Welfare Ministry. The Oxford COVID-19 Government Response Tracker (OxCGRT) conducted a study found a details from 73 nations and reported that the Government of India had reacted to the pandemic more stringently than other countries.<sup>3</sup>

In 2019 December, a group of respiratory disorder cases associated with city's South China seller spot for sea food of unknown pathology was identified by the health authorities of Wuhan, China. And since then has been designated a public health emergency of international concern. Thus, it was determined that the virus must also be passing on from individual-to-individual, Novel Coronavirus, SARS-COV-2, was revealed by subsequent investigations and was the agent now at the core of a major outburst. To prevent or to reduce transmission, special focus and efforts had applied to vulnerable population including elderly people, children and health workers. Large large-scale measures were taken to lower communicable spread of COVID-19 from surveying a relation of (SARS) Severe Acute Respiratory Syndrome and (MERS) Middle East Respiratory Syndrome, beta corona virus, the causative agent which strike the lower respiratory tract and presents as pneumonia in human being,. WHO announced outbreak of COVID-19 in the early first light of January 31, 2020 (Korea Standard Time) as "Public Health Emergency of International Concern" (PHEIC). An important collective goal was to reduce the outbreak and to flatten the peak of the outbreak curve. Delays result in significantly higher death tolls. In this review, we are trying to highlight the clinical features, investigations, WHO declaration of PHEIC, Mode of transmission, Effective Infection Protocol to prevent this virulent infection from expansion and WHO 5 Movements because Hand Washing is the best way of disinfecting a person's hands that considerably decreases likely pathogens (toxic germs) on the palms.

Amid the crucial tools that administrators had utilized to artistry their reaction to Coronavirus has been public health analysis of data. WHO aid, educate the epidemiologists in various nations that are piloting this information gathering and assisting the global leaders to battle this epidemic. The epidemic has revealed the significance of financing in Manpower resource progress, mostly in the dominion of study of the distribution of disease and public health. Health care workers caring of patients in health centers, while epidemiologists assure that preventive medicine measures are placed on obtainable proof, aids to halt disease breakout by upgrading health care service assets organization and public health deal care with emergencies.<sup>4</sup>

## **CLINICAL FEATURES**

Based on the most public health information, incubation period is 1 - 14 days, commonly 3-5 days and COVID-19 is communicable in its dormancy. Patient's age and patient's immune system this are the two factors on which time depends. For patients > 70-year old it was lesser compared to those under age of 70.<sup>1</sup> High temperature (98 %), Whooping (76 %), Breathlessness (55 %) and Myodynia or Weakness (44 %) was the most common features at an onset of illness. Multiple clinical symptoms included sputum development (25 %), headache (5 %). Intensive Treatment Unit (ITU), varying from high output nasal cannula to intensive ventilation were required by 32 % of respiratory support admission and 32 % had pre-existing comorbidities such as diabetes mellitus (20 %), high blood pressure (15 %) and heart diseases (15 %).<sup>5</sup> A recent study evaluated 2143 children which was characterized by a union of clinical features and exposure history through laboratory testing of these laboratory established infection is seen in 34.1 %, while the remainder had clinically diagnosed symptoms such as fever, cough, sore throat, sneezing, myodynia and exhaustion, characteristic of acute respiratory infections. Hence it is seen that COVID-19 symptoms tend to be less worsen in children than in adults.

## **INVESTIGATIONS**

Neutropenia (25 %), Lymphocytopenia(25 %), and Elevated aspartate aminotransferase (37 % involving non ITU patients). ITU patients had elevated levels of prothrombin and D-dimer relative to non-ICU patients on admission.<sup>4</sup> In some cases, the body defence mechanism is reduce that tends to increase pain, redness, swelling and loss of function induced by increased lung opacities in a sub-pleural areas of bronchi. Unfortunately, remedy of few patients with difficulty in breathing showed no physical effects and rather seem too critical state by developing lung opacity.<sup>1</sup>Computerized Tomography inspection is of considerable importance in detecting Coronavirus as well as in observing pathological progress and assess curative success. Scattering on both sides of lungs of ground glass opacities (GGO) with or without agglomeration in posterior and outermost lungs is the foremost indicator of Coronavirus<sup>6</sup>

## **WHO DECLARATION OF PHEIC**

The World Health Organization (WHO) International Health Regulations (IHR) and Emergency Committee (EC) had conducted two teleconferences to analyze the current position of coronavirus outbreak, the meetings were conducted on 22-23 January and 30 January, 2020 to discuss whether World Health Organization should announce a "Public Health Emergency of International Concern" (PHEIC). On 31<sup>st</sup> January, 2020 (Korea Standard Time) WHO announced the COVID-19 outbreak a PHEIC as specified by paper 12 of IHR in the. The Novel Flu Pandemic in 2009, Wild Polio in 2014, West African Ebola in 2014, Zika Virus in 2016 and Ebola outburst in 2018 this has been the sixth occasion of announcing PHEICs by WHO till date This time dealing with the present novel coronavirus outburst.<sup>7</sup>

## **DIAGNOSIS**

Cases who meet epidemiological and clinical requirements as set out in [www.gov.uk / government / collections / Wuhan-novel-Coronavirus](http://www.gov.uk/government/collections/Wuhan-novel-Coronavirus) were classified as a potential case. Clinicians were advised, they should consult the latest guidance from their public health authority if a patient meets the case Definition.<sup>7</sup> Only with proper infection control precautions and facing with local infectious diseases and public health teams, and diagnostic sampling must be conducted. Following the biological protection level 3, testing of any samples should take place in the laboratory with all precautions. Proper personal protective equipment (PPE) as decided by a detailed risk assessment, must be donned throughout by entire laboratory personnel managing these specimens.<sup>4</sup>

## **MODE OF TRANSMISSION**

Spread of Coronavirus has been reported to take place from individual-to-individual, and is observed to be spread by airborne droplets, from Coughing or Sneezing.<sup>8</sup> MERS is frequently transmitted from individual-to-individual through direct exposure (basically during symptomatic process of disease). The transmission occurs through airway secretions by airborne droplets. Through respiratory droplets triggered by rapid coughing or sneezing, SARS transmission occurs during close person-to-person communication.<sup>9</sup> A study conducted on females who were reported to be infected with the coronavirus, in their third trimester. There was no proof that there is transmission from mother to child.

As such no indication was found of vertical transmission from mother to child. There is relevant given that conceived mothers are generally at higher risk to airway and serious lung infections. Therefore, all the pregnant mothers have undergone caesarean sections, so it's less predictable that transmission can happen during vaginal delivery.<sup>1</sup> Nosocomial spread is also a significant concern. A distribution at 12.5 days and 5.2 days, with 95<sup>th</sup> percentile (95 % confidence interval 9.2-15) the mean incubation period has been reported briefly.<sup>4</sup> The medical practice and hospital care organization are at higher risk during the current epidemic of infectious diseases.<sup>10</sup>

## **EFFECTIVE INFECTION CONTROL PROTOCOL**

Hand washing is seen as most significant first step to lower the risk of microorganism transmission to patients.<sup>11</sup> Based on the surface nature, temperature or environmental moisture SARS-CoV-2 will survive on the counter for couple of periods to many days (WHO 2020c). To lower the chance of microbial transmission to infected person, hand washing is seen as most significant first step and as an effective procedure to control the spreading. Hence effective hand washing and the prominence of thorough sterilization of counters in hospitals can control the infection. In oral practice to secure the dermis and mucosal layer from contaminated body fluids or secretions, it is recommended that personal safety gear as well as masks, gloves, aprons, goggles and facial covers should be used<sup>12</sup>.

The key route of transmission for SARS-CoV-2, is respiratory droplets; particularly inhalators (e.g. N-95 for Health and safety in workplace, or respiratory protection masks by the approval of National Institute of Union's for European) is suggested for daily procedure.<sup>13</sup>

## **PURPOSE OF HAND HYGIENE**

Microbes such as bacilli, viruses, and fungi are spread along numerous paths in the health-care system. When not washed at the right times, the Palms of Health Care Workers play a significant character in spreading microbes between cases..

The 5 Moments is an easy approach planned to make sure that palms are washed as required for patient and Health Care Workers well-being. Which may reduce the possibility of transmission of infection. That's why it is significant to wash hands at the appropriate moment, applying the correct approach.

Medical staff should carry out hand washing as per guided by the World Health Organization's (WHO) 5 Moments for Hand sanitization. The WHO 5 Moments focus on contact occurring within the patients surrounding at the time of nursing. It suggests a perception for every instructors, HCWs and learners for better understanding of when to wash hands. It unites all hand disinfection course of action instructions proposed on hand washing hygiene by the WHO and CDC's in Health management Settings into five moments when hygiene practice of hand cleaning is mandatory.

The patient zone covers the patient and some work surfaces and objects that are there for the time being and primarily committed to him/her. Objects such as the bed frame, side table, bed sheets, administration sets and supplemental therapeutic appliances are the all close inanimate surfaces that directly or indirectly comes in physical contact with patient.

### **Moment 1 - Prior Examination of Patient**

Prior to the examination of case wash your hands to remove toxic microbes sustained on your palms to safeguard the patient

### **Moment 2 - Prior Scrub/Germfree Approach**

Washing hands prior to operating a dangerous area with high pathological threat to patient from toxic microbes, together with the patient's surroundings.

### **Moment 3 - Following Exposure to Patients' Blood, Urine, Semen, Saliva or Other Fluids**

Sanitization of hands promptly after a potential exposure to body fluids (after removal of gloves). That will prevent equally patients and the medical management surroundings from microbes in blood and bio fluids.

#### **Moment 4- Following Contact with a Patient**

Wash your hands while contacting a patient and his/her surrounding environment, and while checking out the patient's side, to prevent oneself and the health care surroundings from toxic germs.

#### **Moment 5 - Following Contact with Patient's Immediate Environment**

Washing hands following being in contact with any surfaces or appliances in the prompt environment of patient when checking out-even if the sick person hasn't come into contact to stop the transmission of toxic microbes within the sick persons zone to the rest of the medical management surroundings.<sup>14</sup>

A number of related literature was published on COVID-19 (15-18). Spoorthy reported on mental health problems faced by healthcare workers due to the COVID-19 (19). Sonone et. al. reflected on the mystery of low covid-19 mortality rate in India(20). Somashekhar et. al reviewed ASI's Consensus Guidelines(21). Sinha et. al reported about effectiveness of structured exercise protocol on functional performance in subjects with COVID-19 (22). Singh et. al. reported on Convalescent Plasma Therapy (23). Shaik et. al. focused attention on Depression in Teachers Due to Cyberbullying(24-26). Gaps in diabetes care facilities in this region have threatened the proneness of Covid related morbidities(27-30).

#### **CONCLUSIONS**

There's been a quick rush in investigations in reaction to the outburst of novel coronavirus. Throughout this initial phase, publicized research firstly surveyed the community health, aetiology, clinical features and detection, as well as precautionary measures and management of the COVID-19. With novel pathogens emerging and spreading, the international response has slowly become more sophisticated and far reaching. Initially identified by surveillance systems introduced following the 2002-2003 outbreak of SARS-CoV, the discovery of SARS-CoV-2 has followed by a remarkable response from public health bodies and the scientific community. Scientists have made progress in characterizing the novel coronavirus, and they work intensely on the virus therapies and vaccines. It is very obvious that quarantine alone might not be strong enough to stop proliferation of Coronavirus, and one of a growing concerns is a global effect of this viral infection. Currently no particular line of treatment has been found for COVID-19, and the only strategic thinking is supportive treatment. While there are several experimental trials on the way, the most we can do to prevent a widespread outbreak is stringent operation to manage infection. Clinicians should consider the possibility of 2019-nCoV virus infection with compatible incubation period and symptoms in people with travel or exposure history. First-line

healthcare providers should be very aware of appropriate measures for the prevention of infections from suspicious patients.

Investigators all over the globe are rushing against time to evolve an immunization for novel coronavirus. Although, currently trials are ongoing for ongoing vaccine preparation for COVID-19. A combine approach by Modern and the research laboratory for vaccine at the National Institutes of Health (NIH) has shown to the blueprint of a messenger Ribonucleic Acid (mRNA) established vaccination. Science and Humanity together will surely win this battle.

## REFERENCES:

1. Rothan HA, ByareddySN. The epidemiology and pathogenesis of coronavirus disease (COVID-19) outbreak. *J Autoimmun* 2020;109:102433.
2. Coronavirus: the first three months as it happened. *Nature*: Apr 22, 2020. <https://doi.org/10.1038/d41586-020-00154-w>.
3. <https://www.worldometers.info/coronavirus/country/india/>.
4. <https://www.who.int/news-room/feature-stories/detail/moldova-who-trains-epidemiologists-to-inform-decision-makers-to-fight-covid-19>
5. Jr, B. F. P. ., & Federico R. Tewes. (2021). What attorneys should understand about Medicare set-aside allocations: How Medicare Set-Aside Allocation Is Going to Be Used to Accelerate Settlement Claims in Catastrophic Personal Injury Cases. *Clinical Medicine and Medical Research*, 2(1), 61-64. <https://doi.org/10.52845/CMMR/2021v1i1a1>
6. Lake MA. What we know so far: COVID-19 current clinical knowledge and research. *Clinical Medicine (London)* 2020;20(2):124-7.
7. Zheng Ye, Yun Z, Yi W, et al. Chest CT manifestations of new coronavirus disease 2019 (COVID-19): a pictorial review. *EurRadiol* 2020;19:1-9.
8. LudvigssonJF. Systematic review of COVID-19 in children shows milder cases and a better prognosis than adults. *ActaPaediatr* 2020;109(6):1088-95.
9. Youngmee J. WHO International Health Regulations Emergency Committee for COVID-19 outbreak. *Epidemiol Health* 2020;42:e2020013.
10. Daniel, V. ., & Daniel, K. (2020). Diabetic neuropathy: new perspectives on early diagnosis and treatments. *Journal of Current Diabetes Reports*, 1(1), 12–14. <https://doi.org/10.52845/JCDR/2020v1i1a3>
11. [www.gov.uk/government/collections/wuhan-novel-coronavirus](http://www.gov.uk/government/collections/wuhan-novel-coronavirus)
12. Ningthoujan R. COVID-19 can spread through breathing, talking, study estimates. *Curr Med Res Pract* 2020;10(3):132-3.
13. Joungha W, Solji L, Myungsun P, et al. Development of laboratory-safe and low-cost detection protocol for SARS-CoV-2 of the Coronavirus Disease 2019 (COVID-19). *ExpNeurobiol* 2020;29(2):107-19.
14. ReuskenCB, Buiting A, Bleeker-Rovers C, et al. Rapid assessment of regional SARS-CoV-2 community transmission through a convenience sample of healthcare workers, the Netherlands, March 2020. *Euro Surveill* 2020;25(12):2000334.

15. Purva M. Hand hygiene: back to the basics of infection control. *Indian J Med Res* 2011;134(5):611-20.  
<https://dx.doi.org/10.4103%2F0971-5916.90985>.
16. [www.who.int/COVID-19/](http://www.who.int/COVID-19/).
17. Wajpeyi, S.M. "Ayush Ministry's Health Advisory in Covid-19-a Critical Review." *International Journal of Research in Pharmaceutical Sciences* 11, no. Special Issue 1 (2020): 201–7. <https://doi.org/10.26452/ijrps.v11iSPL1.2700>.
18. Daniel, V., & Daniel, K. (2020). Perception of Nurses' Work in Psychiatric Clinic. *Clinical Medicine Insights*, 1(1), 27-33. [https://doi.org/10.52845/CMI/20\\_20v1i1a5](https://doi.org/10.52845/CMI/20_20v1i1a5)
19. Waghmare, A., S. Shrivastava, and S. Date. "Effect of Covid-19 Lockdown in Trauma Cases of Rural India." *International Journal of Research in Pharmaceutical Sciences* 11, no. Special Issue 1 (2020): 365–68. <https://doi.org/10.26452/ijrps.v11iSPL1.2727>.
20. Thute, P.P., and B.C. Bakane. "Challenges in Embalming in Covid-19 Pandemic." *International Journal of Research in Pharmaceutical Sciences* 11, no. Special Issue 1 (2020): 942–45. <https://doi.org/10.26452/ijrps.v11iSPL1.3241>.
21. Thomas, S., A. Jain, D.P. Mohan, A.R. Alagh, S. Pandey, and A. Bhake. "The Medical Laboratory Prosecution of COVID – 19: Pathogenesis and Diagnosis." *International Journal of Research in Pharmaceutical Sciences* 11, no. Special Issue 1 (2020): 1089–98. <https://doi.org/10.26452/ijrps.v11iSPL1.3540>.
22. Spoorthy, M.S. "Mental Health Problems Faced by Healthcare Workers Due to the COVID-19 Pandemic–A Review." *Asian Journal of Psychiatry* 51 (2020). <https://doi.org/10.1016/j.ajp.2020.102119>.
23. Sonone, A., A. Hande, M. Gawande, and S. Patil. "The Mystery of Low COVID-19 Mortality Rate in India." *International Journal of Research in Pharmaceutical Sciences* 11, no. Special Issue 1 (2020): 1180–82. <https://doi.org/10.26452/ijrps.v11iSPL1.3586>.
24. Somashekhar, S.P., H.V. Shivaram, S.J. Abhaham, A. Dalvi, A. Kumar, D. Gode, S. Misra, S.K. Jain, C.R.K. Prasad, and R.R. Pillarisetti. "ASI's Consensus Guidelines: ABCs of What to Do and What Not During the COVID-19 Pandemic." *Indian Journal of Surgery* 82, no. 3 (2020): 240–50. <https://doi.org/10.1007/s12262-020-02452-z>.
25. Daniel, V., & Daniel, K. (2020). Exercises training program: It's Effect on Muscle strength and Activity of daily living among elderly people. *Nursing and Midwifery*, 1(01), 19-23. <https://doi.org/10.52845/NM/2020v1i1a5>
26. Sinha, R.K., S. Sinha, and G. Varadharajulu. "Effectiveness of Structured Exercise Protocol on Functional Performance in Subjects with COVID-19." *International Journal of Research in Pharmaceutical Sciences* 11, no. Special Issue 1 (2020): 1244–49. <https://doi.org/10.26452/ijrps.v11iSPL1.3608>.
27. Singh, A.K., M. Yeola, and N. Singh. "A Review of Convalescent Plasma Therapy an Immediately Available Therapeutic Option for Covid19 in Light of the Available Data." *Journal of Datta Meghe Institute of Medical Sciences University* 15, no. 1 (2020): 149–52. [https://doi.org/10.4103/jdmimsu.jdmimsu\\_149\\_20](https://doi.org/10.4103/jdmimsu.jdmimsu_149_20).
28. Sheikh, M.K., N. Chaudahry, and A. Ghogare. "Depression in Teachers Due to Cyberbullying Who Are Working in Covid-19 Pandemic: A Cross-Sectional Study."



International Journal of Current Research and Review 12, no. 20 (2020): 98–102.  
<https://doi.org/10.31782/IJCRR.2020.122015>.

29. Gaidhane, S., N. Khatib, Q.S. Zahiruddin, A. Gaidhane, S. Kukade, and S. Zodpey. “Perceptions of Primary Care Doctors towards Type 2 Diabetes Mellitus and Challenges for Care at Primary Care Level in India.” *International Journal of Diabetes in Developing Countries* 35, no. 1 (2015): 14–18. <https://doi.org/10.1007/s13410-014-0199-6>.
30. Khatib, N.M., Z.S. Quazi, A.M. Gaidhane, T.S. Waghmare, and R.C. Goyal. “Risk Factors of Type-2 Diabetes Mellitus in Rural Wardha: A Community Based Study.” *International Journal of Diabetes in Developing Countries* 28, no. 3 (2008): 79–82. <https://doi.org/10.4103/0973-3930.44077>.

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