

COVID 19 Pandemic: Updates!! Index Cases And Their Rising Trends In The State Of Jharkhand And Preventive Strategies

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Abstracts: In Wuhan city China , a case of pneumonia of unknown etiology was detected on 31st December 2019 . WHO renamed the virus as SARS - CoV - 2 and the disease caused by it as COVID - 19 . The disease now spread to over 200 countries . In India as on 30th April 2020 , More than 30,000 cases has been reported . Here the first set of index cases in Jharkhand and preventive strategies on the emergence of COVID 19 were reviewed .

Key Words: Coronavirus , COVID 19 , Jharkhand , SARS CoV - 2

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I. Introduction

Corona Virus is single stranded RNA virus which cause respiratory infection mostly among humans and animal species.

A outbreak called SARS (Severe Acute Respiratory Syndrome) occurred in 2002 - 2003 in Southern China . It eventually resulted in 8096 recognized cases in 28 countries in Asia , Europe , and North and South America ~ 90 % of cases occurred in China and Hongkong ^[1].

Another outbreak occurred in 2012 . It occurred in Middle East Countries after which they named MERSCoV . It is also known as camel viral fever . 536 cases were reported and 145 were dead^[1] .

The wrath of Coronavirus started in Wuhan China in december 2019 which killed millions of people WHO announced pandemic on 11th March 2020. As of 30 April 2020 , there has been more than 30 million reported cases and 2 lacs deaths in more than 200 countries ^[2] . After hearing such dreadful situation , India and many other South Asian countries have been alerted . India has reported its first confirmed case of novel Coronavirus in Thrissur District of Kerala on 30th January 2020 . ^[3] In India as of 30th April 2020 , more than 30000 cases and 1078 deaths have been reported . ^[4]

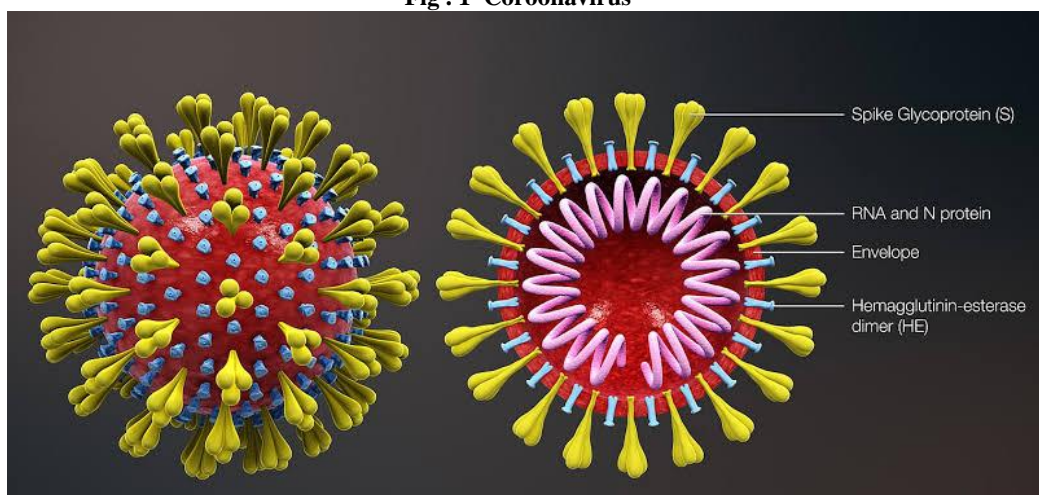
Jharkhand has been untouched from Covid 19 outbreak , on 31st March 2020 reported its first positive CoronaVirus case . The person who tested positive from the dreadful virus is a Malaysian woman in the Ranchi District . ^[5]

This article summarized records of index cases in the state of Jharkhand , India and focus on rising trends and the preventive strategies on the emergence of COVID 19 .

Pathogen

Coronavirus is a single stranded RNA virus which is belongs to coronaviridae family . It is pleomorphic enveloped viruse around 100 nm in size with unique club shaped peplomers projecting as a fringe from the surface , resembling the solar corona (hence the name) ^[6] . There are two genera which attacks humans : Alphacoronavirus and Betacoronavirus . Most of the respiratory infections belongs to Betacoronavirus .

Fig .1 Coroonavirus^[7]



S - Protein : Spike glycoprotein forms the bulky glycosylated peplomers that are feature of coronaviruses. HE - protein : Hemagglutinin - esterase which forms smaller spikes on virus . RNA - protein : nucleocapsid enclosed by an envelope containing viral glycoproteins . N - protein : is a phosphoprotein that is complexed with genome RNA to form the nucleocapsid .

Table . 1 Taxonomy of Human Coronavirus

Genus	Type
Alphacoronavirus	HCoV - 229E , HCoV - NL63
Betacoronavirus	HCoV - HKU 1 , SARS - CoV , MERS - CoV , HCoV - OC43
Gammacoronavirus	-
Deltacoronavirus	-

HCoV : Human coronavirus , **SARS - CoV** : Severe AcuteRespiratory Syndrome , **MERS - CoV** : Middle East Respiratory Syndrome coronavirus

Mode Of Transmission

Coronavirus infection is primarily transmitted between human through respiratory droplets and contact routes . The respiratory droplet particles are more than 5 - 10 micrometer in diameter . Till now there is no airborne transmission is reported . In an analysis of 75,465 COVID - 19 cases in China , airborne transmission was not reported^[9] .

When a person is in close contact within one meter with someone who has respiratory symptoms like coughing or sneezing are risk of expose to potentially infective respiratory droplets . Transmission may also occur through fomites in the immediate environment around the infected person

SARS - CoV - 2 : Its Own Identity

International committee on taxonomy of viruses announced severe acute respiratory syndrome Coronavirus 2 [SAR - CoV - 2] as the name of the new virus on 11th february 2020 . This name was chosen because the virus is genetically related to the coronavirus responsible for the SARS outbreak of 2003^[10] .

Clinical Features :

The current estimate of the incubation period of COVID 19 range from 2 to 14 days . The most common symptoms of COVID 19 infected person are fever , dry cough , shortness of breath and fatigue . Following signs such as chest discomfort , chest pain , severe breathlessness or hypotension are present .

Collection Of Specimen For Lab Diagnosis

Points To Remember :

- * Collect specimen of nasopharyngeal and oropharyngeal swab for RT - PCR .
- * Use appropriate PPE for specimen collection . When collecting upper respiratory tract samples use viral swabs and viral transport media .
- * In a patient with suspected COVID 19 , especially with pneumonia or severe illness , a single URT sample does not exclude the diagnosis , and additional URT and LRT samples are recommended .

In hospitalized patients with confirmed COVID 19 infection , repeat URT samples should be collected to demonstrate viral clearance .

The frequency of specimen collection should be done atleast every 2 - 4 days until there are two consecutive negative results of URT samples in a clinically recovered patients atleast 24 hours apart .

Testing Criteria

Laboratory will undertake testing of :

1. All symptomatic individuals who have undertaken international travel in the last 14 days .
2. All symptomatic contacts of laboratory confirmed cases .
3. All symptomatic health care workers .
4. All hospitalized patients with severe acute respiratory infection
5. Asymptomatic direct and high risk contacts of a confirmed case should tested once between day 5 and day 14 of coming in his or her contact .

Phonebooth For Sample Collection : A Unique Idea ^[15]

Jharkhand has begun using the Phonebooth testing method to tackle this novel Coronavirus . This testing method involves collection of sample from inside a box of aluminium and glass .

Fig 2. Phonebooth



Advantages

- * It needs fewer healthcare workers and strictly adhere to the norms of social distancing .
- * The booth is of low cost and is also portable .

Table 2. Testing Capacity In Jharkhand^[11] :

Colleges & Hospitals	District	Sample Tested Per Day
RIMS	Ranchi	84
MGM	Jamshedpur	40
PMCH	Dhanbad	24
TMH	Jamshedpur	84

Currently there are only four testing center are present in the State .

As of 27th April, Jharkhand tested 9,922 samples at a rate of 261 per milion . Till 29th April 2020 , 103 positive cases and 3 deaths of COVID 19 reported in Jharkhand^[12] . In Jharkhand total sample collected are 11,381 , of which 10,161 cases are negative and 107 cases are positive . Results of more than 700 samples are still awaited^[13] .

Index cases In Jharkhand

As the outbreak of COVID 19 continues , the pandemic had its first case on 31st March 2020 in Ranchi district of Jharkhand . Currently , 10 out of 24 districts of Jharkhand are affected .

In Jharkhand , till 30th April 2020 , 110 total confirmed cases is reported of which 19 patients are cured and death of three patients are reported

Ranchi is the only district in Jharkhand to fall in Corona Red zone . While 9 other district of Jharkhand are in the Orange zone of Coronavirus . The rest 14 districts are in the Green zone .

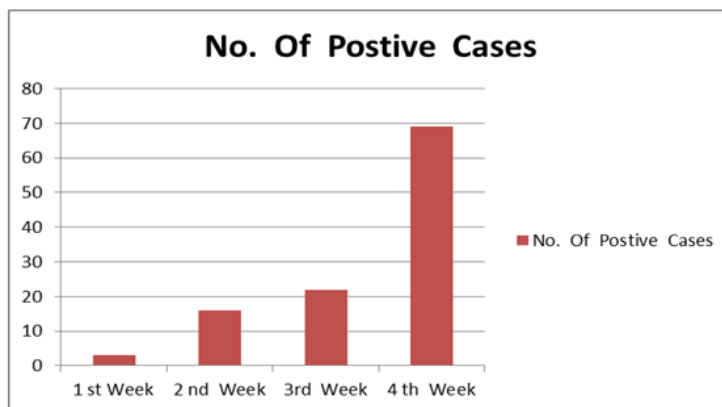
Table 3. Zonal Classification in India^[13]

Zone	Description	No. Of Districts
Red	High Load Of Coronavirus cases	1
Orange	Fewer Cases Of The Respiratory Infection	9
Green	No Coronavirus Cases	14

Table 4. Confirmed Cases Of COVID 19 In Various Districts Of Jharkhand

SR No.	District	No. of Cases	No. Of Death	No. Of Recovered Cases
1	Bokaro	10	01	05
2	Deogarh	02		00
3	Dhanbad	02		02
4	Giridih	02		00
5	Hazaribagh	03		02
6	Garwah	03		00
7	Ranchi	81	02	10
8	Simdega	02		01
9	Palamu	03		00
10	Jamtara	02		00

Graph 1. No. Of Positive Cases Vs Weeks In The Month Of April In Jharkhand



Comment : By observing the rising trend of COVID 19 cases , we found that in the first week there are only 3 confirmed cases . Then in 2nd week there are 16 confirmed cases which is almost three

times to the cases found in the 1st week , then in the 3rd week 22 confirmed cases found . In the fourth week , the maximum number of confirmed cases which are about 69 , reported and it is three times to the previous week .

Preventive Strategy^[14]

1. Protect Yourself And Your Family

- * Regularly and thoroughly clean your hands with an alcohol based hand rub or wash them with soap and water after coming from outside .
- * Maintain atleast 1 meter distance between yourself and anyone who is coughing or sneezing .
- * Avoid touching eyes , nose and mouth .

2. Who Should Wear Mask

- * Persons having no symptoms are not to use mask . Medical mask should not be used by healthy persons who are not having any symptoms because it creates a false sense of security that can lead to neglecting other essential measures such as washing of hands .
- * When a person develops cough or fever . Use of medical three layer masks when ill , will prevent your infection from spreading to others .
- * We should also wear masks while nursing a ill patient and visiting a health care facility .

3. Role Of Sanitizers

- * Hand sanitizers are to be used when you are caring for the patients infected with Corona Virus .
- * In general , washing hands frequently with soap and water for 20 seconds is the recommended option

Treatment^[14]

There is no specific treatment for Coronavirus infection . It consist of symptomatic treatment . Since it is a viral infection , so in more than 80 % of cases it recovers in few days . Those who are having symptoms of severe disease may need admission in hospital or ICU .

The Loop Holes ???

Limited numbers of testing centers in Jharkhand

II. Conclusion

There are currently 3 deaths out of 110 cases from 10 districts of Jharkhand with Ranchi having highest number of confirmed cases till 30th April 2020 . As Ranchi became the Red zone , we have to focus in this area urgently and take important steps to cut the spread of the COVID 19 .

According to data more than 700 samples are pending due to lack of sufficient number of testing centers . Such delay in testing causes further spread of the infection in the community . So it is necessary to increase the sufficient numbers of testing centers in all districts of Jharkhand .

In our study , by following weekly trends of COVID 19 cases , we observed that in the last week there is tripling of cases as compared to the previous week .

As coronavirus mainly transmitted through infected person having sneezing and coughing , so as per the WHO guidelines social distancing is the primary and most important measure to break the chain of spread of coronavirus infection . Potential research needed to prevent future outbreak of zoonotic origin .

Declaration Of Patient Consent

Patient's consent not required as there are no patients in this study

Financial Support And Sponsorship

Nil

Conflict Of Interest

There are no conflict of interest

Abbreviation

1. COVID 19 - CoronaVirus Infectious Disease 2019
2. SARS - Severe Acute Respiratory Syndrome
3. SARS - Cov - 2 - Severe Acute Respiratory Syndrome Coronavirus 2 Of The Genus Betacoronavirus
4. WHO - World Health Organization
5. RIMS - Rajendra Institute Of Medical Sciences , Ranchi
6. MGM - Mahatma Gandhi Medical College , Jamshedpur
7. PMCH - Patliputra Medical College And Hospital , Dhanbad
8. TMH - Tata Main Hospital , Jamshedpur
9. ICU - Intensive Care Unit
10. URT - Upper Respiratory Tract
11. LRT - Lower Respiratory Tract
12. RT PCR - Reverse Transcriptase Polymerase Chain Reaction

Bibliography

- [1]. 19th Edition Harrison Internal Medicine P1204
- [2]. www.who.int 11th March 2020
- [3]. <https://www.indiatoday.in/india/story/kerala-reports-first-confirmed-novel-coronavirus-case-in-india-1641593-2020-01-30>
- [4]. <https://www.mohfw.gov.in/>
- [5]. <https://economictimes.indiatimes.com/news/politics-and-nation/jharkhand-reports-1st-covid-19-case-as-malaysian-woman-tested-positive-admitted-to-rims/videoshow/74920451.cms>
- [6]. Ananthnarayan and paniker's text book microbiology 10th edition. P447
- [7]. https://commons.wikimedia.org/wiki/file:3D_medical_animation_corona_virus.jpg
- [8]. Ananthnarayan and paniker's text book microbiology 10th edition. P563
- [9]. <https://www.who.int/news-room/commentaries/detail/modes-of-transmission-of-virus-causing-covid-19-implications-for-ipc-precaution-recommendations>
- [10]. <https://talk.ictvonline.org/>
- [11]. <https://www.telegraphindia.com/states/jharkhand/coronavirus-pandemic-tata-main-hospital-to-be-fourth-covid-19-test-centre/cid/1766906>
- [12]. <https://theprint.in/india/mamatas-bengal-ranks-in-bottom-3-among-all-indian-states-on-per-million-coronavirus-tests/411151/>
- [13]. <https://www.jharkhand.gov.in/Home/Covid19Dashboard>
- [14]. [Dhemajjudiciary.gov.in-AIIMS guideline](https://www.dhemajjudiciary.gov.in/AIIMS/guideline)
- [15]. <https://m.economictimes.com/industry/healthcare/biotech/healthcare/the-phone-booths-that-are-making-covid-tests-in-india-easier-quicker-and-safer/articleshow/75040280.cms>

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