ISSN: 2278-4632
Vol-10 Issue-5 No. 14 May 2020

Environmental Effect on COVID-19 and Current Status in Rajasthan.

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Abstract: -The large arid region in the western part of the Indian subcontinent, covering an area 200,000 km square (77,000 square mi), is known as Thar Desert (Great Indian Desert). It makes a natural boundary between India and Pakistan. In the Indian state of Rajasthan more than 60% of the desert lies. Rajasthan is situated on the north western side of India. Temperature is found fluctuation in Rajasthan. The maximum temperature goes around 50° c due to desert geography in the summer season. The minimum temperature goes below 0° c in the winter season. Sub microscopic infectious agents of the virus replicate only inside in the living cells of an organism. Corona virus is a family of Coronaviridae, which is also named as a novel corona virus 2019 (n coV-SARS-CoV-2) [7]. The outbreak of this virus was rapidly spread from Dec 2019, Wuhan, Hubei province, China. 3,45,166 deaths recorded worldwide, in which 4634 death in china, 3,025 deaths in India, and 126 deaths in Rajasthan till 17 May 2020. Corona virus is a respiratory disease, in which humans die due to choking. Accumulation of cough in the respiratory organ causes problems in breathing and eventually becomes the reason for human death. Environmental changes affect the spread of the corona virus. In high summer spreading is slow but it spreads fast in winter. India and other countries are trying to develop different types of vaccines and medicine.

Keyword – Corona virus disease 2019, epidemic, environmental survival, SARS-CoV-2.

I. INTRODUCTION

SARS-CoV-2 is a virus strain that causes corona virus disease. It is also named as COVID-19. SARS originated from the bat. This disease spread in people by the civet cat. This type of outbreak in humans has happened twice before the corona virus 2019, such as SARS 2002 and MERS 2012. The outbreak of SARS first started in November 2002 at Foshan, Guangdong, China. More than 8000 people were affected in 29 different countries and 774 people died all over the world. SARS cases were reported until May 2004. The main symptoms of SARS were fever, dry cough, sore throat, headache, and diarrhoea [1].

MERS was also known as camel flu. MERS too originated from the bat. Humans were typically infected from the camel. Its first case was seen in Saudi Arabia in 2012. In this 35% of infected people died. More than 2500 case was reported till 2020. The main symptoms of

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MERS were fatigue, fever, chills, loss of appetite, body ache, diarrhoea, vomiting, sneezing, coughing, headache, and shortness of breath. The first COVID-19 case was identified in Wuhan, China in 2019, after which it has been spreading in the whole world. On 11th March 2020, the World Health Organization declared a pandemic. 4,799,266 confirmed cases were reported worldwide until 17 May 2020. The USA reported the most 1,706,226 number of cases. This count stood at 55878 at the same time in India. Rajasthan was having to 4960 cases till this date [2].

Due to the crown shape of this virus, it was named the Novel corona virus. Multiple proteins are found in it. Spike and M protein are found on its outer surface. Genetic material RNA is found in it. It is found to have a positive sense of single-strand RNA [8]. This virus attacks the human immunity system. Fever, tiredness, and dry cough etc. are the main symptoms of COVID-19. This virus infects kids and old age people faster as their immune system is weak. The first case in India was reported on 31st Jan 2020, in Kerala.

He was a student who returned from Wuhan, China. The first case in Rajasthan was reported in Jaipur on 2nd March, 2020. This virus spreads from person to person through close communities. Different countries imposed lock-down to contain the spread [9]. Janata curfew was imposed in India on 22 March. Lockdown in India has been observed since 24th March 2020 and it may continue for the next few weeks.

II. METHODS AND MATERIAL

In Rajasthan, India, COVID-19 infection cases were monitored. It was observed that virus spreading was slower in relatively warmer and lightly populated areas. Due to this, all state schools, colleges, industries, and public places were closed. This helped in containing virus spread from human to human contact.

Rajasthan health department declared corona virus an epidemic in the state and issued the Rajasthan Epidemic Disease, Covid-19 Regulations (REDCR), 2020.

2.1 Sample and Sampling Technique: The cross sectional survey was conducted between 23th March 2020 and 17th May 2020.Since the data were collected during the lockdown period in India, the investigators used online survey. Snow-ball sampling technique which is a type of non probability sampling technique was used to collect the response from the participants.

2.2 Data Collection Method: The cross sectional online survey contains a questionnaire regarding awareness on COVID-19 was carried out. An online semi-structured questionnaire was developed by using Google forms. Participants voluntarily participated in the study and were thus considered exempt from written informed consent.

2.3 Study selection: The result of the initial research has been provided in the title and abstract. Observational studies that reported symptoms, characteristics, environmental effects, and factors. [3]Country, state, year, date, confirm case the, active case, recovered case, age,

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sex, symptoms (pleuropneumonia-like complication), outer environmental effects (like-temperature, weather, and air) and outcome (death) to check the researcher and various type of discrepancy were resolved.

2.4 Statistical approach: On the basis of research, it was found that kids and old age people suffer the most from this disease. In the middle-aged people, this disease is less fatal because their immune system is strong.

2.5 Different type of information source: The systematic review by using PUMED and web articles were referred. Web search was based on keywords: Novel corona virus, Novel corona virus 2019, 2019 n cov2, COVID 2019, Wuhan corona virus, Wuhan pneumonia, and SARS-cov2, etc [5].

III. Result

Rajasthan Lock down

3.1 LOCK DOWN FIRST (23 March to 31 March):-

Rajasthan Chief Minister Ashok Gehlot on Saturday directed a "complete lockdown" in the state, except for essential services, till March 31. There will be a "complete lockdown", barring essential and medical services, in the state from March 22-March 31 to contain the spread of novel corona virus and keep people safe, he said in a statement. In a late-night decision, the Rajasthan government on March 21 announced a complete lockdown of the State till March 31 to contain the spread of corona virus. All government and private offices, malls, shops, factories, and public transport across the State will remain closed in the duration, while Rajasthan's borders with other States will be sealed.

Only essential and medical services will be exempted from the lockdown, according to the orders issued after the decision was taken at a high-level meeting presided over by Chief Minister Ashok Gehlot at his residence. Mr. Gehlot said it was necessary for people to “stay indoors” to fight the pandemic [4].

Table 1: - Lock down first data corona case

LOCK DOWN	District no. of corona	Total Sampling	TOTAL positive	Positive to Negative	Total Discharge	DEATH
1.O	11	9628	93	03	00	3

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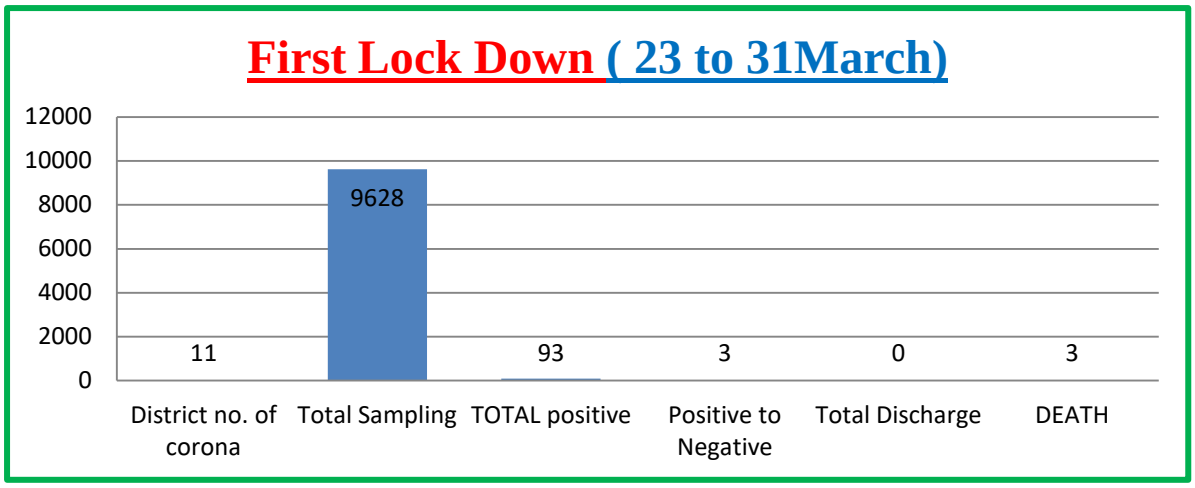
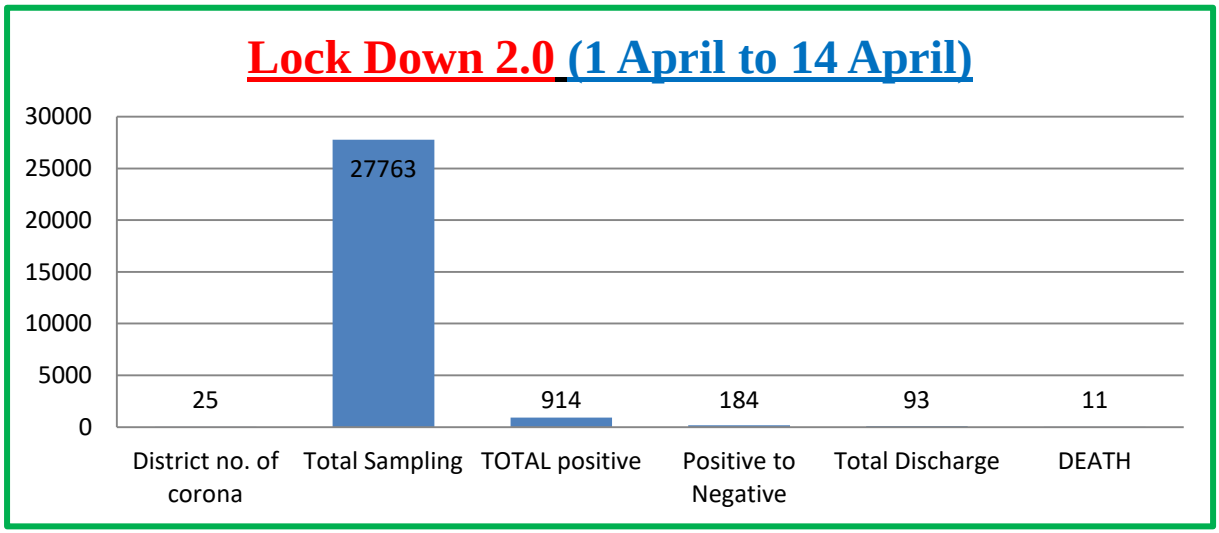


Graph:- 1 Lock down first COVID-19 data

3.2 LOCK DOWN 2.0 (1 April to 14 April):-

Table 2: - Lock down 2.0 corona case data

LOCK DOWN	District no. of corona	Total Sampling	TOTAL positive	Positive to Negative	Total Discharge	DEATH
2.0	25	27763	914	184	93	11



Graph:- 2 Lock down 2.0 COVID-19 Data

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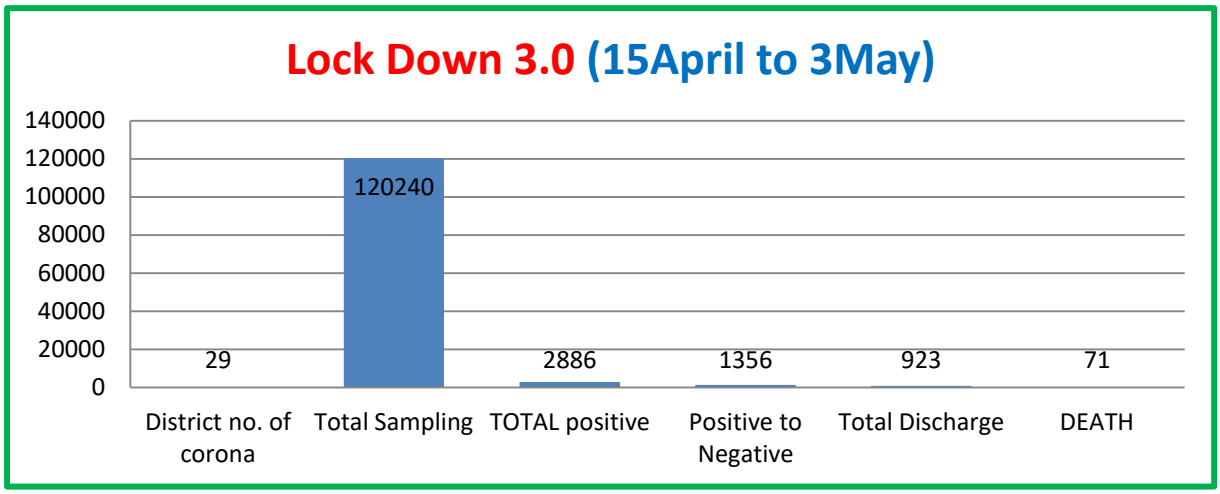
3.3 LOCK DOWN 3.0 (15 April to 3 May):-

Table 3: - Lock Down 3.0 corona case

LOCK DOWN	District no. of corona	Total Sampling	TOTAL positive	Positive to Negative	Total Discharge	DEATH
3.0	29	120240	2886	1356	923	71



Graph:- 3 lock Down 3.0 COVID-19 Data

3.4 LOCK DOWN 4.0 (4 May to 17 May):-

Lock down 4.0 in Rajasthan Different Distract is divided into – Red Zone, Organ Zone, and Green Zone.

First day On 4 May, 175 cases and 6 deaths were reported. 89 tested positive in Jodhpur, 29 in Jaipur, 23 in Chittorgarh and 15 in Pali. In Chittorgarh's Nimbahera town over 100 people tested positive after first case from the town was reported on 25 April of a men with travel history to Indore, who was belived to be spreader of the infection. The area became an hotspot and a curfew was imposed.

Last day On 17 May, 242 cases and 5 deaths were reported, which took state tally to 5202. 60 tested positive in Jaipur, 43 in Jodhpur, 18 in Dungarpur and 14 in Pali. According to State health minister, random sampling in jails were started to prevent spread of the COVID-19. The Rajasthan High Court directed state government to form committees in each district to check if guidelines to prevent the infection were followed in the jails.

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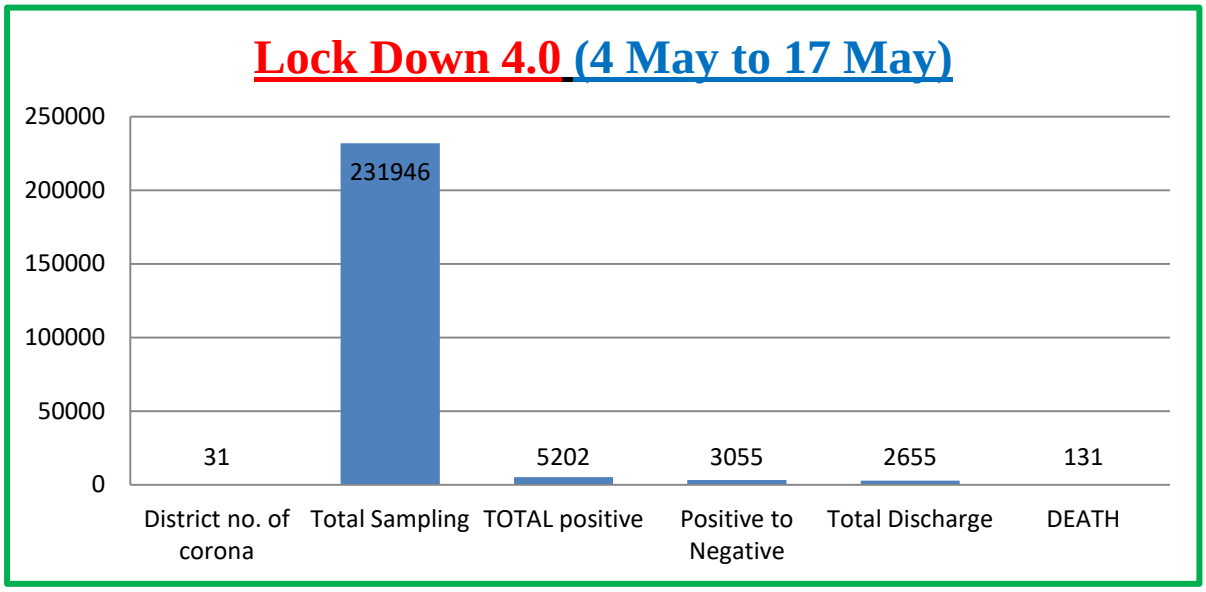
Table 4: - Lock Down 4.0 corona case

LOCK DOWN	District no. of corona	Total Sampling	TOTAL positive	Positive to Negative	Total Discharge	DEATH
4.0	31	231946	5202	3055	2655	131



Graph:- 4 Lock Down 4.0 COVID-19 Data

Table 5 - All Lock Down (First to Four) Comparison

LOCK DOWN	District no. of corona	Total Sampling	TOTAL positive	Positive to Negative	Total Discharge	DEATH
1.O	11	9628	93	03	00	3
2.0	25	27763	914	184	93	11
3.0	29	120240	2886	1356	923	71
4.0	31	231946	5202	3055	2655	131

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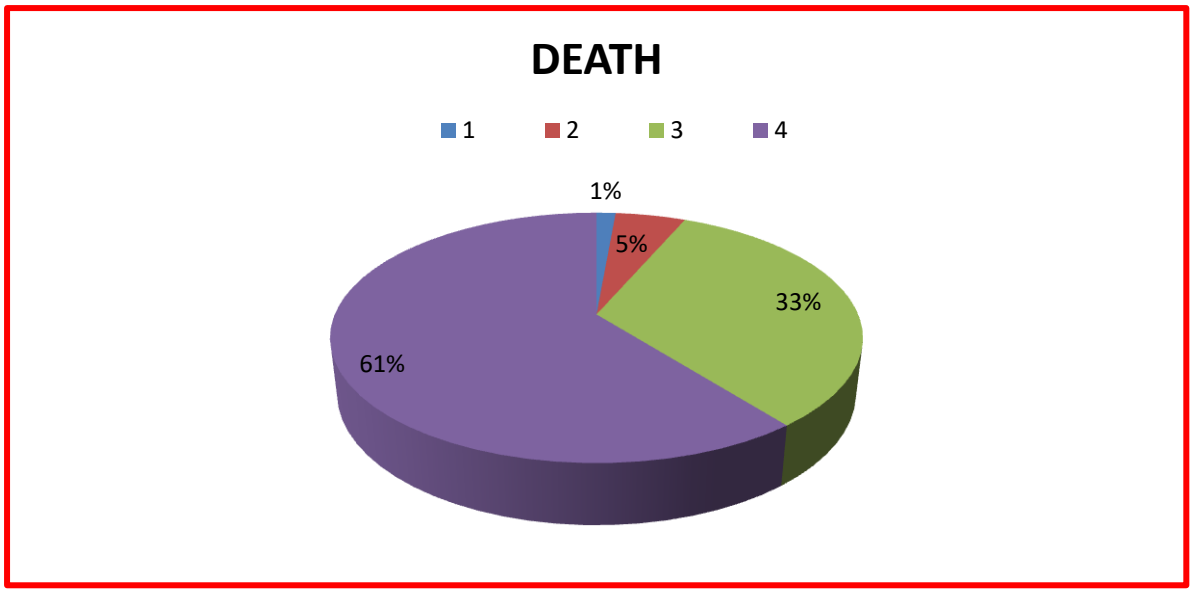

Graph 5:- All Lock down Comparison Death Ratio:-

Characteristics:

After analysing various facts, it was concluded that this disease can be avoided by social distancing. To achieve this, institutions were closed and works from home strategies were adopted.

Table 6:- Table and Graphical representation:

This Table basely show the Different district of Rajasthan found COVID-19 total case, death and Recovery case.

17 May 2020

Sr. No.	Hot spot district	Total case	Death	Recovery
1	Jaipur	1576	66	916
2	Jodhpur	1036	17	749
3	Kota	230	11	230
4	Udaipur	380	0	12
5	Ajmer	255	5	169
6	Nagaur	172	3	115
7	chittorgarh	154	2	53
8	Tonk	147	1	134
9	Pali	128	3	33
10	Bharatpur	123	3	114
11	Jalore	72	1	0
12	Banswara	68	1	65
13	Dungarpur	60	0	5
14	Jhunjhunu	56	0	42
15	Bhilwara	55	2	37
16	Jhalawar	49	0	45

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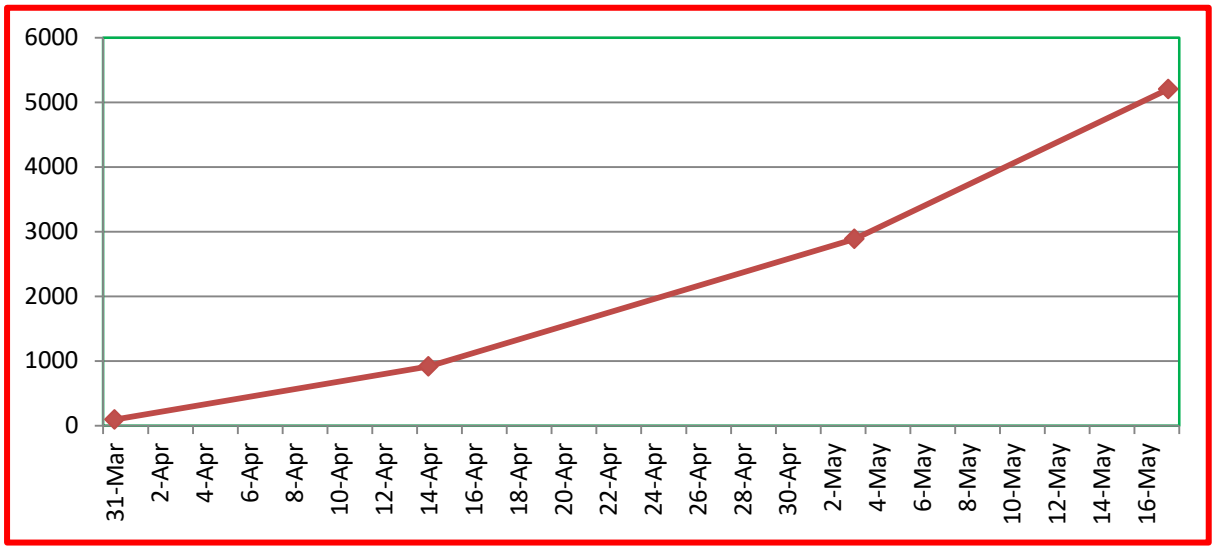
17	Bikaner	47	3	37
18	Jaisalmer	47	0	35
19	Churu	46	1	12
20	Rajsamand	43	0	8
21	Sirohi	42	0	0
22	Sikar	39	2	3
23	Alwar	35	2	12
24	Dausa	33	0	20
25	Dholpur	24	0	9
26	Barmer	22	0	1
27	Sawaimadhopur	17	1	6
28	Hanumangarh	14	0	11
29	Karauli	10	2	3
30	Pratapgarh	5	1	3
31	Baran	4	0	0
Total	**TOTAL**	**5202**	**131**	**3035**



Graph 6: Cases are positive increasing continuously with time.

Case report- 17 May 2020

Arrival date = 2 March 2020

Confirmed case = 5202

Death case = 131

Recovery = 3035

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Summary of case result-

Data medical, health and family welfare department, the government of Rajasthan as of 25 May 2020 (current data) [4].

Table 7:- Latest Current data (25 may 2020)

Sample collected	**327,836**
Positive	7,300
Test per million	4,243
Percentage Test per million	2.2%

IV. Discussion

COVID-19 is a transmissible infectious disease, is spreading the population via direct contact between individuals. COVID-19 affects different people in a different way. Most infected humans will develop mild to average symptoms.

Common symptoms- These symptoms are generally shown in the patient. Like Fever, Tiredness Dry coughs, etc. Some people may experience like Aches and pain, Nasal congestion, Runny nose, Sore throat, Diarrhoea, etc [6].

Prevention of COVID-19 –

- Clean your hands often soap and water or alcohol-based hand rubs.
- Maintain a secure distance from anyone who is cough and sneezing.
- Don’t touch your eyes, nose, or mouth.
- Cover your nose and mouth together with your bent elbow or a tissue once you cough and sneezing.
- Stay home if you feel unwell.
- If you've got a fever, cough, difficulty breathing, seek medical attention beforehand.
- Follow the direction of your local health authority.
- Avoiding unnecessary visits to medical facilities. It allows the health care system to operate more effectively, therefore protecting you and others.

Control of COVID-19 –

- All hospitals (govt. and private) should have flu corners for the screening of suspected cases of COVID -19.
- Just in case of human has any such history within the last 14 days and therefore the person is asymptomatic, then the person must be kept in home quarantine for 14 days from the date of exposure.

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- within the person has any such history within the last 14 days and so the person may be a symptom as per the case definition of COVID -19, this person must be isolated in the hospital as per protocol and should be tested for COVID -19 as per protocol.

All information about the case should be given to the office of CMHO of the district immediately.

Treatment of COVID-19-

1. RT-PCR
2. Blood test
3. Monoclonal antibody hybridoma technology
4. ACE2 (Angiotensin-converting enzyme 2) inhibitor and angiotensin
5. High dose chloroquine
6. Nasal NP/OP swab
7. Convalescent plasma therapy
8. Remdesivir mechanism

V. Conclusion

This new virus outbreak challenged the economic, medical, and public health in Rajasthan. The role of modern laboratories and dutiful medical staff is vital to control this pandemic as quickly as possible.

Acknowledge

Gratitude to all health care workers involved in the diagnosis and treatment of patients all around Rajasthan. We thank the state health commission of Rajasthan for coordinating data collection of patients. These data are taken by the Medical, health, and family welfare department, the government of Rajasthan.

Financial support

This work is not supported by any funding.

Conflicts of interest

They have no conflict of interest in this work.

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