

Конфликт интересов. Все авторы заявляют об отсутствии потенциального конфликта интересов, требующего раскрытия в данной статье.

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INDIA'S RESPONSE TO COVID-19: AN ANALYSIS OF DIAGNOSIS, TREATMENT, AND MANAGEMENT STRATEGIES

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Summary

The emergence of pandemics highlights the fallibility of humans and underscores the need for communities to be prepared. In late 2019, the first reports of the coronavirus outbreak surfaced, and it has since been declared a global pandemic by the World Health Organization. Countries worldwide have responded to the virus outbreak in varying ways. Unfortunately, China and other major countries experienced delays in detection and response, resulting in an overwhelming burden on local health systems.

Key words: COVID-19, RT-PCR, virus, vaccine, cases, India's response.

Introduction. In contrast, other nations have implemented effective strategies to contain the infection, resulting in a low number of cases. Effective measures such as social distancing, lockdowns, case detection, isolation, contact tracing, and quarantine have proven to be the most successful actions in controlling the spread of the disease. This analysis aims to help readers understand how different countries responded and the resulting outcomes. India responded to the pandemic based on the experiences of these countries, and only time will reveal its success in managing the outbreak. We also suggest future global community directions to manage and mitigate future emergencies [1].

The first case of COVID-19 in India was reported on January 30, 2020, in the state of Kerala. The patient, a student who had returned from Wuhan, China, was diagnosed with the virus and was promptly hospitalized and isolated. This

article is a literature review of the relevant science content, based on infection diseases control [1].

Aim: The review focuses on analyzing medical literature and scientific reports (including published on the Internet) on finding the way India dealt with the pandemic of COVID-19. The Development of Vaccines, all the actions that the government took are being discussed here.

Containment measures. According to statistical models on the spread of SARS-CoV-2, it is predicted that without sufficient herd immunity in the population and considering the high contagiousness of the virus, 40-70% of the population could become infected unless robust containment measures are implemented in a timely manner [2].

Drawing on previous experiences with various epidemics and pandemics, as well as current understanding of SARS-CoV-2, the World Health Organization (WHO) rec-

ommended frequent hand washing with an alcohol-based hand rub or soap and water, avoiding touching one's eyes, nose, and mouth, and practicing respiratory hygiene [2]. The use of face masks by everyone remains a controversial topic, although the WHO does not currently recommend it for everyone [3].

The Indian government has launched a nationwide vaccination drive, which has administered over 19 crore doses of COVID-19 vaccine to the citizens. The government has been providing the vaccine free of cost to the citizens and has also been vaccinating front-line workers and other priority groups.

Another major issue that has arisen during this pandemic has been the economic impact. The lockdowns and travel restrictions have had a significant impact on the country's economy, with many businesses shutting down and people losing their jobs. To mitigate the economic impact, the government has announced a number of economic relief measures, including cash transfers and food assistance to vulnerable groups [4].

Some of the key strategies implemented by India to control the spread of COVID - 19 include:

1. Lockdowns: India implemented several nationwide lockdowns in an effort to slow the spread of the virus. These lockdowns restricted the movement of people and shut down non-essential businesses.

2. Testing: India significantly ramped up its testing capacity to identify and isolate infected individuals. This helped to slow the spread of the virus. In India, there are several methods for testing for COVID-19, including RT-PCR, Rapid Antigen Test and TrueNat. RT-PCR, or reverse transcription polymerase chain reaction, is considered the gold standard for COVID - 19 testing and is used to detect the presence of the virus in an individual's nasal or throat swab sample. Rapid Antigen Test is a less sensitive but quicker method of testing that can produce results within 15-30 minutes. TrueNat is a molecular diagnostic test that can detect the virus in a sample. The Indian government has been ramping up testing efforts to curb the spread of the virus and as of 2021, India has been conducting more than a million tests per day [5].

3. Treatment [6]: India also increased its healthcare capacity to treat infected individuals, including setting up dedicated COVID-19 hospitals.

- Oxygen therapy: for patients with low oxygen levels
- Antiviral drugs: such as remdesivir, which may shorten the duration of hospital stays
- Steroids: such as dexamethasone, which can help reduce inflammation in the lungs and improve outcomes in critically ill patients
- Monoclonal antibodies: these are lab-made proteins that can help boost the immune system's response to the virus and are given to people who are at high risk of severe illness.

Some of the Ayurvedic remedies that have been popularized in India for dealing with COVID-19 include [7]:

1) Immune-boosting herbs: Ayurvedic practitioners have recommended various herbs like ashwagandha, tulsi, giloy (*Tinospora Cordifolia*), and licorice to boost the immune system and help fight off the virus.

2) Ayurvedic immunity boosters: Ayurvedic practitioners have also recommended various immunity boosters like chyavanprash, amla, and triphala to strengthen the immune system and protect against the virus.

3) Ayurvedic decoctions: Ayurvedic decoctions made from herbs like turmeric, ginger, and black pepper have been recommended as a way to improve respiratory health and reduce inflammation.

4) Ayurvedic diet: Ayurvedic practitioners have recommended an Ayurvedic diet that includes foods that are easy to digest, rich in antioxidants, and anti-inflammatory, such as turmeric, ginger, and garlic.

5) Yoga and meditation: Ayurvedic practitioners have recommended yoga and meditation to reduce stress and anxiety, which can have a negative impact on the immune system.

4. Vaccination: India has implemented a massive vaccination campaign since January 2021, which has been able to vaccinate a large percentage of its population [8].

India has been a major player in the global effort to develop and distribute COVID - 19 vaccines. The country is home to several of the world's leading vaccine manufacturers and has been able to produce large quantities of vaccines for its own population as well as for other countries.

One of the major achievements of India is the development of COVAXIN by Bharat Biotech and Indian Council of Medical Research (ICMR). COVAXIN is an inactivated virus vaccine, which has been approved for emergency use in India and has been exported to several other countries.

India has also been a major supplier of the AstraZeneca-Oxford vaccine, which is being manufactured by the Serum Institute of India (SII). SII has been able to produce large quantities of the vaccine, and has supplied it to several countries in need, including low- and middle-income countries under the COVAX facility.

India has also been actively involved in the global effort to make vaccines more accessible and affordable for low - and middle-income countries. The country has supported the World Health Organization's (WHO) COVAX facility, which is working to ensure that all countries have access to COVID-19 vaccines [8].

Furthermore, India has also been exporting COVID - 19 vaccines to various countries. India has supplied vaccines to more than 100 countries as of January 2021. India has also played a key role in the distribution of vaccines globally, through its Vaccine Maitri initiative, where India has been providing vaccines to neighboring countries as a goodwill gesture.

5. Long-Term Care: During the first wave of the COVID - 19 pandemic in India, many people who were infected with the virus had to self-isolate and quarantine at home due to a shortage of beds in hospitals. The Indian government, along with healthcare professionals, provided guidance and advice on how to manage COVID-19 symptoms at home [9].

Some of the measures that people took to deal with COVID-19 at home during the first wave included [8; 9]:

1) Isolation: People who were infected with the virus or who had been in close contact with an infected person were advised to self-isolate at home. This helped to prevent the spread of the virus to others.

2) Symptom management: People were advised to manage their symptoms at home with the help of over-the-counter medication and home remedies. They were also advised to stay hydrated and get plenty of rest.

3) Telemedicine: Many people used telemedicine services to consult with doctors remotely. This allowed them to get medical advice and treatment without having to leave their homes.

4) Support networks: Many people formed support net-

works with family members, friends, and community organizations to help them manage the isolation and stress of being ill.

5) Mental Health: People were advised to take care of their mental health during this time, people were advised to meditate, practice yoga and engage in activities they enjoy.

6) Home care: People who were infected with the virus were advised to take care of their hygiene and cleanliness at home to prevent the spread of the virus.

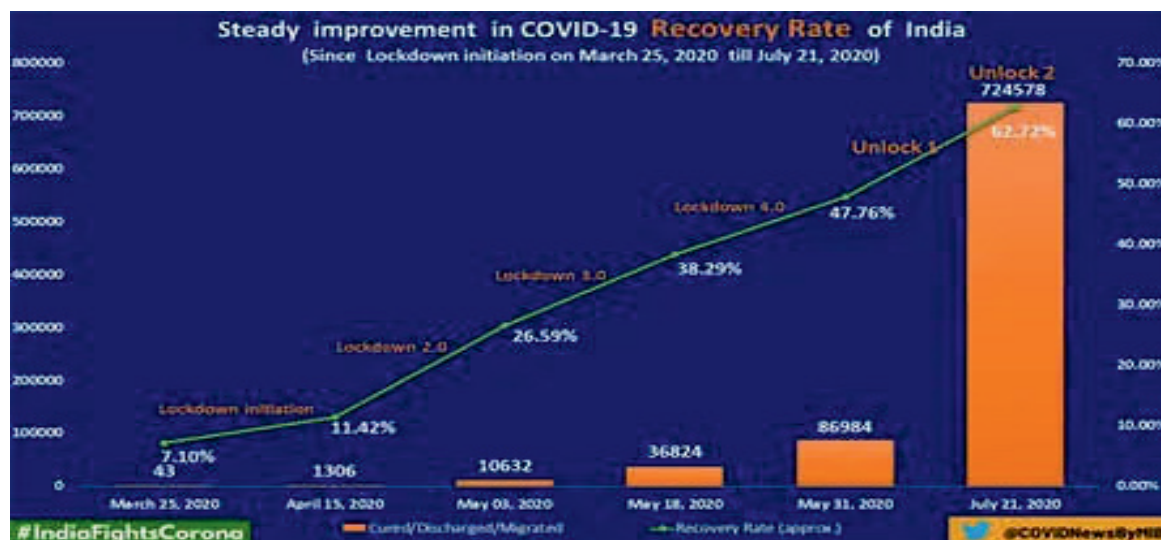


Figure 1. Steady improvement in COVID-19 recovery rate of India.

[Made by Authors: Source: <https://www.mohfw.gov.in/>]

In conclusion, the COVID-19 pandemic has had a significant impact on India, with over 11 million confirmed cases and 156,000 deaths. The Indian government has implemented several measures to control the spread of the virus, including nationwide lockdowns and travel restrictions. The healthcare system has been strained by the influx of COVID-19 patients, but the government has set up dedicated COVID-19 hospitals and care centers and has also recruited retired healthcare workers to help with the response. The government has also launched a nationwide vaccination drive and has implemented economic relief measures to mitigate the impact of the pandemic on the economy [1; 4; 8; 9].

To sum up, India and the world have a rich history of effectively preventing and treating widespread infections. The successful smallpox eradication campaign in the 1970s is a powerful reminder of the critical role that strong leadership and effective management play in stopping deadly diseases [10]. Therefore, India can reverse the predicted disease outcomes by implementing strict containment measures such as social distancing, increased case detection, isolation, and quarantine of contacts. Efforts must also be made to garner community support and participation to ensure that containment measures do not solely rely on administrative actions. In addition, critical situations like the mass migration of laborers from major cities to rural areas, as well as large gatherings like the recent Nizamuddin Markaz event, should be avoided.

References:

1. Li B., Yang J., Zhao F., et al. Prevalence and impact of cardiovascular metabolic diseases on COVID – 19 in China. *Clin Res Cardiol.* 2020; 109 (5):531-538. doi: 10.1007/s00392-020-01626-9.
2. Chen N., Zhou M., Dong X., et al. Epidemiological and clinical characteristics of 99 cases of 2019 novel coronavirus pneumonia in Wuhan, China: a descriptive study. *Lancet.* 2020; 395 (10223): 507-513. doi: 10.1016/S0140-6736 (20)30211-7.
3. Yang X., Yu Y., Xu J., et al. Clinical course and outcomes of critically ill patients with SARS-CoV-2 pneumonia in Wuhan, China: a single-centered, retrospective, observational study. *Lancet Respir Med.* 2020; 8 (5):475 – 481. doi: 10.1016/S2213-2600 (20) 30079-5.
4. Guan W.J., Ni Z.Y., Hu Y., et al. Clinical characteristics of coronavirus disease 2019 in China. *N Engl J Med.* 2020; 382 (18): 1708-1720. doi: 10.1056/NEJMoa2002032.
5. Mahase E. Coronavirus covid-19 has killed more people than SARS and MERS combined, despite lower case fatality rate *BMJ (Clinical research ed).* 2020; 368:m641 doi: 10.1136/bmj.
6. <https://www.who.int/emergencies/disease/novel-coronavirus-2019>.
7. <https://www.cdc.gov/coronavirus/2019-ncov/index.html>.
8. <https://www.ecdc.europa.eu/en/covid-19-pandemic>.
9. <https://coronavirus.jhu.edu/>.

ҮНДІСТАНДАҒЫ COVID-19: ДИАГНОСТИКАЛАУ, ЕМДЕУ ЖӘНЕ БАСҚАРУ СТРАТЕГИЯЛАРЫН ТАЛДАУ

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Түйінді

Пандемияның пайда болуы адамдардың қателіктерге бейімділігін және қауымдастықтардың оларға дайын болу қажеттілігін көрсетеді. 2019 жылдың соңында коронавирустың өршуі туралы алғашқы есептер пайда болды, содан бері Дүниежүзілік денсаулық сақтау ұйымы оны жаһандық пандемия деп жариялады. Дүние жүзіндегі елдер вирустың өршуіне әртүрлі жолдармен жауап берді. Өкінішке орай, Қытай мен басқа да ірі елдер анықтау мен жауап беруде кідірістерге тап болды, бұл жергілікті денсаулық сақтау жүйелеріне үлкен ауыртпалық түсірді.

Кілт сөздер: COVID-19, RT-ПТР, вирус, вакцина, жағдайлар, Үндістанның жауаптары.

РЕАКЦИЯ ИНДИИ НА COVID-19: АНАЛИЗ ДИАГНОСТИКИ, ЛЕЧЕНИЯ И СТРАТЕГИЙ ВЕДЕНИЯ

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Аннотация

Возникновение пандемий подчеркивает подверженность людей ошибкам и необходимость того, чтобы сообщества были готовы к ним. В конце 2019 года появились первые сообщения о вспышке коронавируса, и с тех пор Всемирная организация здравоохранения объявила его глобальной пандемией. Страны по всему миру отреагировали на вспышку вируса по-разному. К сожалению, Китай и другие крупные страны столкнулись с задержками в выявлении и реагировании, что легло непосильным бременем на местные системы здравоохранения.

Ключевые слова: COVID-19, ОТ-ПЦР, вирус, вакцина, случаи заболевания, ответные меры Индии.

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