

COVID-19 Pandemic Trend vis-à-vis Best Practices: A Case Study from Kerala, India

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Abstract

In India, the first case of the COVID-19 pandemic was reported in Kerala in Thrissur on 30 January 2020 which by 6 April peaked at 266 numbers. As of 26 May, there are a total of 963 confirmed cases of COVID-19 in the state with 542 cases that been recovered with a recovery rate of 47.6 per cent. Among all the states in India, the mortality rate of Kerala is the lowest at about 0.75 per cent. Kerala has implemented several timely steps such as voluntary service, contact tracing, break the Chain, repatriating Keralites etc in containing COVID-19 has been widely praised both nationally and internationally.

Introduction

The new decade started out as any other but rapidly unfolded into a scenario that the world will remember for decades to come. In the health policy world, we often use the phrase “diseases know no borders” and COVID-19 can attest to this. The virus spread, through the inevitable consequences of globalisation, from Asia to Europe and beyond at a rapid pace and within three months the world neared 1 million cases as healthcare systems struggled to carry the sudden burden. Coronaviruses are a large family of viruses which may cause illness in animals or humans. In humans, several coronaviruses are known to cause respiratory infections ranging from the common cold to more severe diseases such as Middle East Respiratory Syndrome (MERS) and Severe Acute Respiratory Syndrome (SARS). The most recently discovered coronavirus causes coronavirus disease COVID-19. COVID-19 is an infectious disease caused by the most recently discovered coronavirus. This new virus and disease were unknown before the outbreak began in Wuhan, China, in December 2019. The most common symptoms of COVID-19 are fever, tiredness, and dry cough. Some patients may have

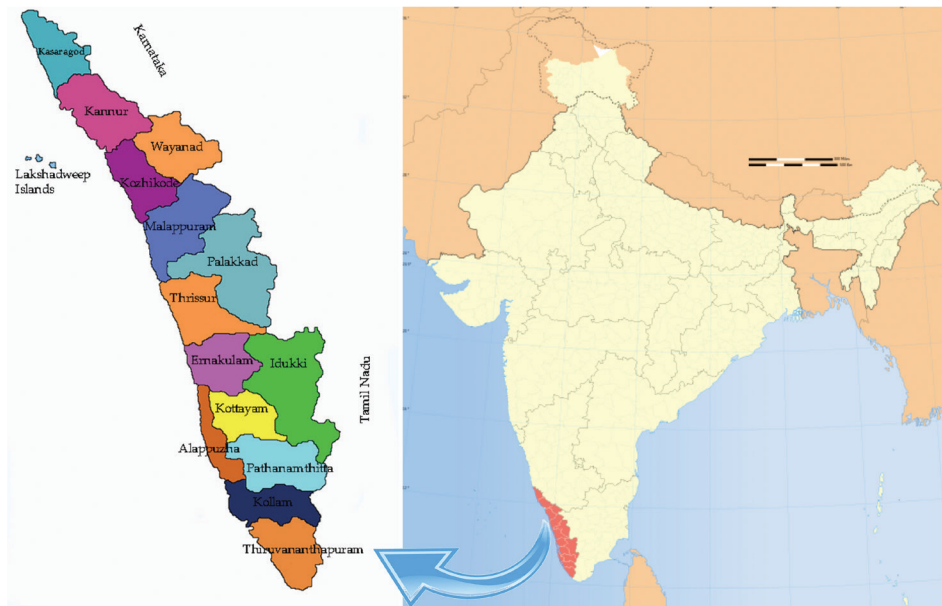
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aches and pains, nasal congestion, runny nose, sore throat or diarrhoea (MoHFW 2020). These symptoms are usually mild and begin gradually. Some people become infected but don't develop any symptoms and don't feel unwell. Older people, and those with underlying medical problems like high blood pressure, heart problems or diabetes, are more likely to develop serious illness. People can catch COVID-19 from others who have the virus. The disease can spread from person to person through small droplets from the nose or mouth which are spread when a person with COVID-19 coughs or exhales (MoHFW 2020). In our present study, an attempt has been made to understand the spread, chorology and affected area by COVID-19 also highlighting the initiatives taken by Kerala to fight against the COVID-19.

Study Area

The state of Kerala, on the southwestern Malabar Coast of India, spreads over an area of 38,863 km² and share its political boundary with Tamil Nadu to the east and south, Karnataka to the north and northeast and Lakshadweep Sea to the west (Figure 1).

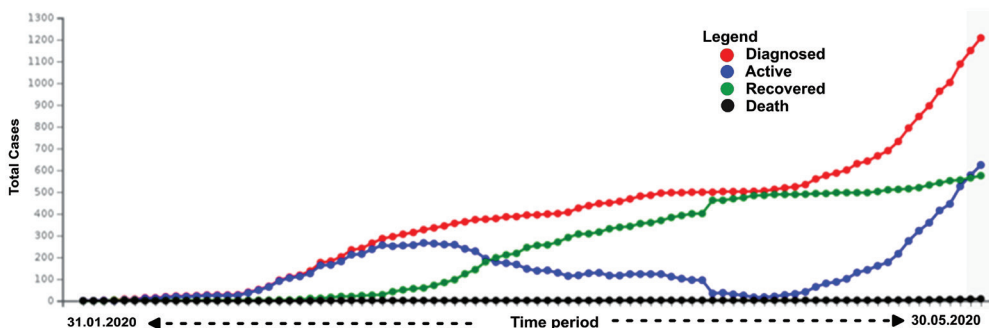
Figure 1: Map showing the study area



Chronology of COVID-19 Pandemic in Kerala

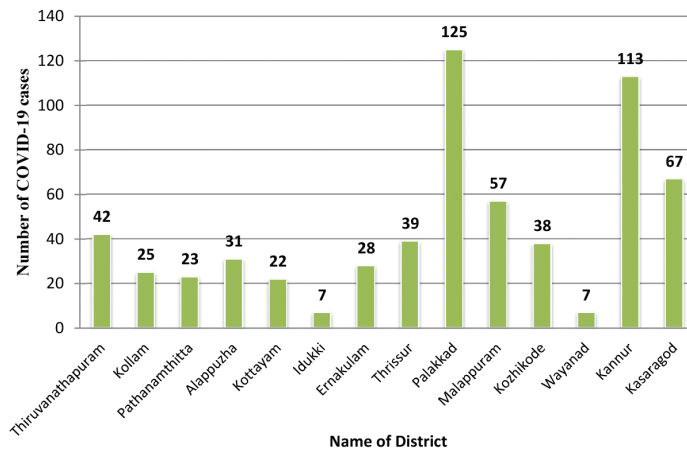
On 30 January 2020 first confirmed cases of the COVID-19 pandemic in Kerala were reported from three students of Kerala origin belonged to Thrissur, Alappuzha and Kasargod districts of Kerala who returned from Wuhan province of China. Wuhan province is considered as the origin point of COVID-19. Two students who returned were pursuing medical studies in Wuhan. Following contact tracing, more than 3000 peoples who were suspected to have come in contact with the affected were placed under quarantine where 45 were placed in hospital quarantine. Kerala declared state calamity which was withdrawn after 4 days when the three positive individuals recovered and no further cases were reported. The first death case occurred on 28 March 2020 in Ernakulam. In the representation below (Figure 2) daily number of diagnosed cases, active cases recovered cases and number of death has been represented.

Figure 2: COVID-19 daily graph by the total number of cases, recoveries and death



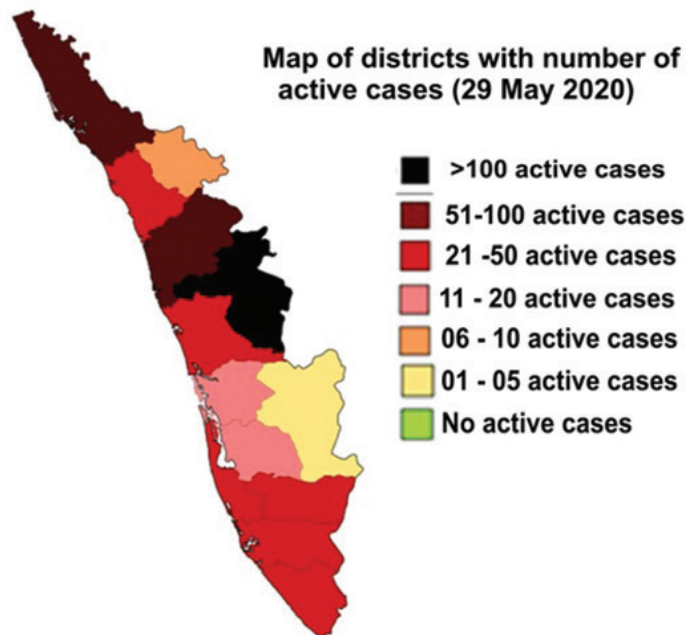
However, on 6 April the number of COVID-19 cases peaked at 266 which later began to decline. With the return of Keralites to their hometown from outside state or countries, the total COVID-19 cases spiked up in May with total 624 Positive cases as on 30 May 2020 (Supplementary Table S1). Palakkad district is one of the most affected districts with 125 cases followed by Kannur 113 cases and Kasaragod with 67 confirmed cases (Figure 3).

Figure 3: District wise distribution based on hospital admission



Idukki and Wayanad districts are the list affected district with 7 confirmed cases each. The map of districts with the number of active cases up to 29 May 2020 is represented in Figure 4.

Figure 4: The map of districts with the number of active cases up to 29 May 2020



Graphical representation of the number of persons under Surveillance (as on 30 May 2020) such as number of Persons under observation, number of persons under home/institutional quarantine and number of symptomatic persons hospitalised are represented in Figures 5(a)-5(c).

Figure 5(a): Graphical representation of the number of Persons under observation as on 30 May 2020

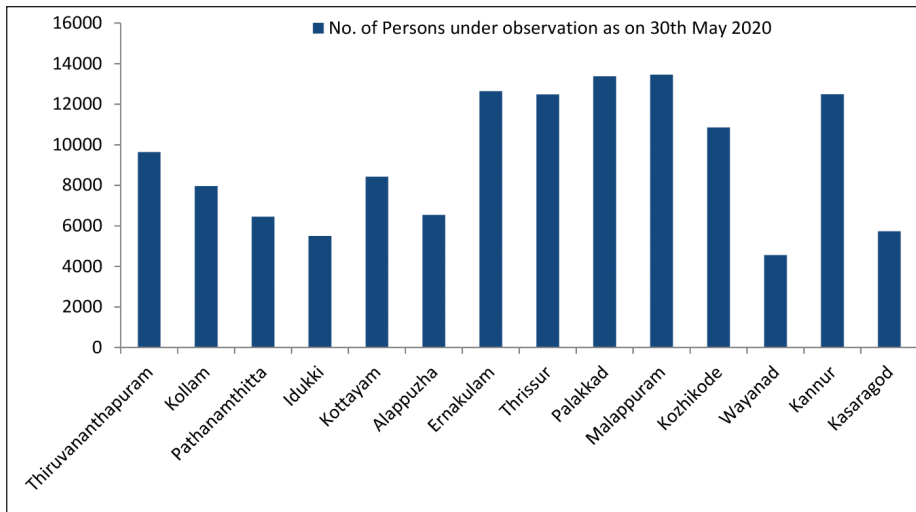


Figure 5(b): Graphical representation of the number of Persons under home/ institutional quarantine as on 30 May 2020

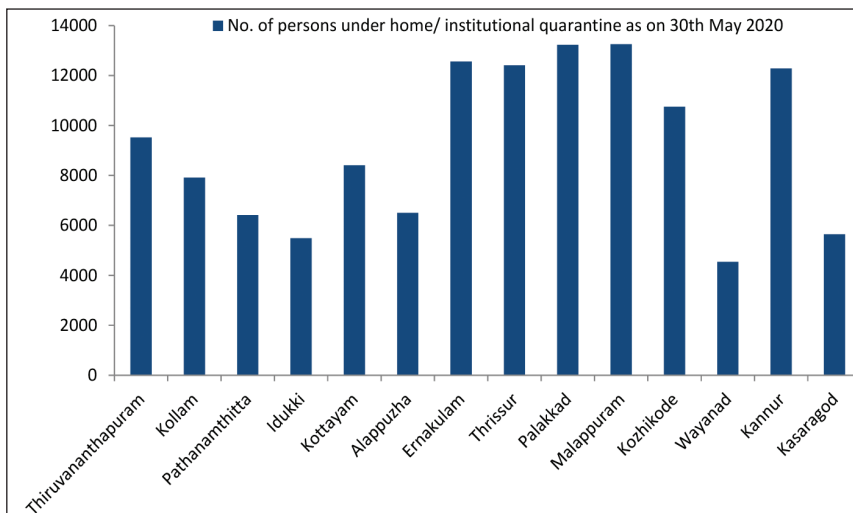
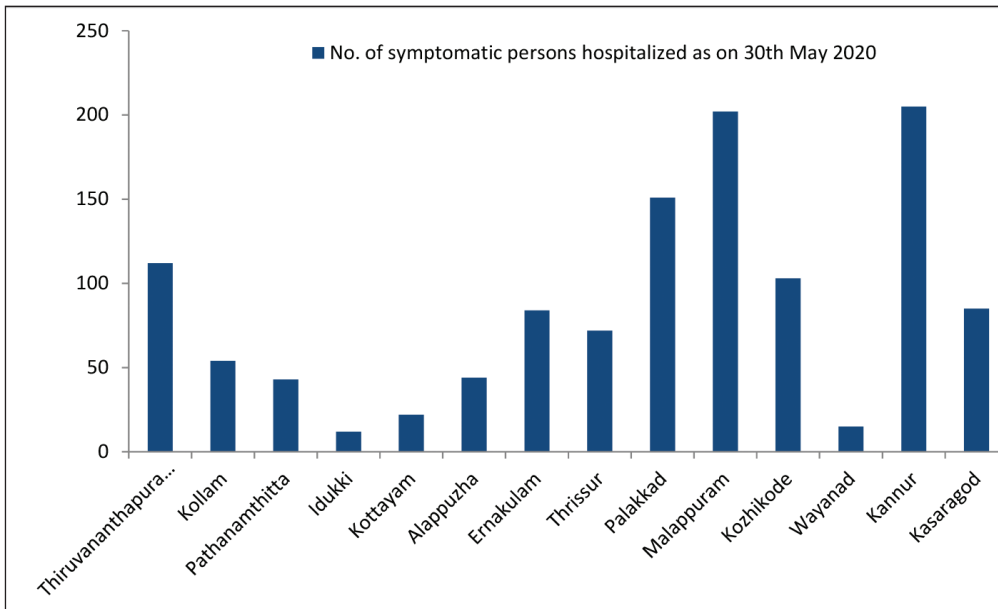


Figure 5(c): Graphical representation of the number of symptomatic persons hospitalised as on 30 May 2020



Innovative Solution/Best Practices

- **Call Centre Setup**

A 24x7 call centre has been set up in the Directorate of Health Services at the state level as well as at each district before the end of January 2020 (Government of Kerala, 2020). In order to strengthen the services provided by the State Call centre, three additional lines have been provided which bring the call centre capacity to a total of six lines. <http://dhs.kerala.gov.in/>

- **Isolation Facilities**

As on 1 February 2020, a minimum of two hospitals with isolation facilities have been identified in each district of the state.

- **Apex Committee of SDMA**

The Apex Committee of SDMA was conducted on 03.02.2020 by the chief secretary. It was decided to declare the nCorona Virus epidemic as state calamity and take all necessary steps to ensure the outbreak is effectively controlled.

- **Timely Home Isolation**

Strict home isolation for 28 days for persons who have arrived from the corona affected countries from the date of arrival in India, irrespective of whether they are symptomatic or asymptomatic was announced on 1 February 2020. As on 1 February 2020, a cumulative number of asymptomatic passengers under home isolation and observation were 1723 and 1793 respectively. By the mid of May (on 20 May 2020) the cumulative number of asymptomatic passengers under home isolation and observation increased to 56,362 and 56,981 respective.

- **Tele-counselling Services**

For providing Psycho-Social Support, the tele-counselling services supports have been extended and by 25 May 2020, 1107 personnel were working. About 2,94,090 people have been extended the psychosocial support calls. This support was provided to the general public, Elderly People living alone, children who need special cares, Labourers, mentally ill patients, etc. with a total of 8,78,617 Psycho-Social Support and Counselling Calls provided as of 30 May 2020.

- **Squads for Ensuring Home Isolation**

Special squads were formed to ensure the home isolation of people who were asked to remain home quarantine. This squad includes health staff, volunteers, police, etc.

- **Infrastructure Facilities**

Adequate infrastructure facilities have been ensured at all designated isolation facilities.

- **Establishment of Single Window Communication Channel**

As on 4 February 2020, single-window communication channel was established with all districts control rooms for high priority communication, headed at the state by the state control room. Automated data capturing formats for real-time data capturing from all districts were also established.

- **Human Resource Management Teams**

Human resource Management Teams had been constituted at the state and district level (as on 04.02.2020). Adequate HR had been ensured for isolation, airport surveillance, transport, isolation services, contact tracing and call centre.

- **Contact Tracing**

Following contact tracing, more than 3000 peoples who were suspected to have come in contact with the affected were placed under quarantine where 45 were placed in hospital quarantine.

- **Formulation of Training Monitoring Unit**

A training monitoring unit has been formulated at the state and district levels for content development and capacity building. As on 5 February 2020, more than 1293 elected representatives, 2544 kudumbashree volunteers, 206 other volunteers and 243 staff from other department were given training (Supplementary Table S2).

When the novel coronavirus was reported for the first time, the training division boosted its effort to enable the machinery of health services. Later training was extended to all line departments, doctors in private sectors, ambulance drivers, etc. these efforts were amalgamated at all levels to enable Kerala to tackle the health issues. Awareness classes conducted for both, public, LSG representatives under the leadership of PHC medical officers. Details of training provided to various persons are represented in Supplementary Table S2.

- **Voluntary Service**

The Department of Health and Family welfare called out for the participation of the health practitioners to join hands with the state in the fight against COVID-19 for offering voluntary service at the Isolation facilities in hospitals/ homes, patient management inwards, screening at airports, seaports, railway stations and bus stations.

- **Kerala Health Online Training**

For training of Staff of Health Department and other line departments, several training videos were prepared and disseminated by the Directorate of Health Services (<https://www.youtube.com/c/keralahealthonlinetraining>).

- **WhatsApp Chatbot**

In order to give authentic information and general awareness regarding COVID-19, Health Department released a WhatsApp chatbot. The WhatsApp number for the same is 9072220183 (<http://dhs.kerala.gov.in/>)

- **Break the Chain**

A mass campaign was introduced by the Kerala government to spread the awareness of handwashing and the campaign was named as “**break the chain**”. This campaign aims to spread awareness and educate the general public about the hygiene aspect especially in COVID pandemic scenario (Fig. 6). This mass movement was inaugurated by Smt. K. K. Shailaja, Health Minister of Kerala.

Figure 6: Picture of Kerala Government initiative of mass handwashing campaign



Source: Asianet news 2020.

- **Quarantine**

The state of Kerala took quarantine very seriously and mandated 28 days of home quarantine while the national guidelines for India were only 14 days. Everyone returning from red/high-risk zones or foreign countries affected with coronavirus were mandating to follow these guidelines.

- **Use of Aerial Technology**

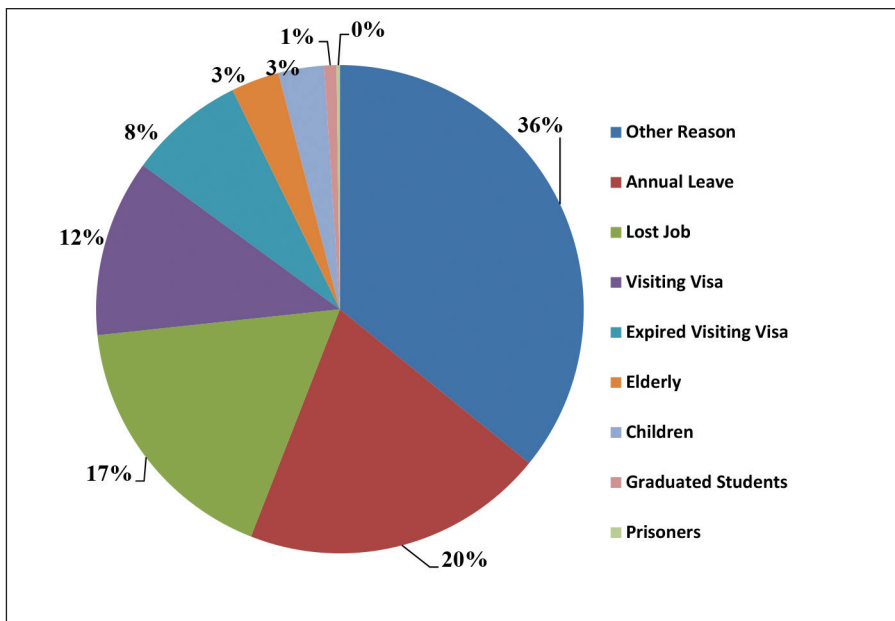
During the spread of coronavirus, Kerala government implemented the use of drone technology to monitor the successful implementation of lockdown. This technique was quite successful and help in preventing people from coming out of the home to quite some extend.

- **Repatriating Keralites**

At least 4.27 lakh NRKs (Non-resident Keralites) have registered on the NORKA (Department of Non-Resident Keralites Affairs) portal, of which about 1.69 lakh people constitute the most vulnerable sections, those who have lost their jobs, the employment contract has not been renewed; those released from prisons and awaiting

deportation, pregnant women, students who have completed courses and whose visa had expired (Figure 7). According to reports, around 1.69 lakh people belong to the priority categories (Supplementary Table S3). The sequence of contamination in Kerala is represented in supplementary Table S4.

Figure 7: Data of 351,636 NORKA registered expatriates based on their included type



Source: Asianet News 2020

Conclusion

The success of Kerala lies in battling the pandemic lies in its understanding of the idea of and secular sensibilities. The anti-coronavirus actions undertaken by the state attracted both national and international attention. The first case of COVID-19 was reported in Kerala in January and Kerala recorded highest COVID-19 cases in India from January to March. However, Kerala seems to have conceived the best strategy to fight against the spread of Coronavirus as a result of which the mortality rate is very low in Kerala and also the recovery rate is very high. It is also important to note that due to recent returning of Keralites to their native place from both national and international regions, the state is facing tremendous challenges.

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