

**COVID 19**

**STATE REPORT ON CLUSTERS**

(9<sup>th</sup> July 2020)



Department of Health & Family Welfare

Government of Kerala

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## **Message**

I am happy to note that as per the instructions of Hon Chief Minister Shri Pinarayi Vijayan, the Department of Health and Family Welfare has prepared a frame work to identify the clusters by studying the epidemic. The document will give guidance to the field teams to conduct the study of epidemic concurrently and take immediate actions at the field level by identifying the COVID clusters.

The report will also give information to the reader regarding the analytic method to be adapted for doing similar exercise for any other epidemic.

This initiative reflects the strength of the Department and the capacities of health functionaries at the grass roots for taking evidence-based interventions in the fight against COVID19.

I urge all the functionaries to analyse the data, draw sound inference, decide focused interventions based on the inference and implement them to contain and control COVID 19 epidemic.

I wish all the success to your efforts.

I also take this opportunity to congratulate the District Surveillance teams and the team at the state level who have done the analysis and published this report.

**K.K Shailala Teacher**

**Minister for Health & Family Welfare**

**Social Justice**

**Woman and Child Development**

**Government of Kerala**

## Introduction

The Department of Health and Family Welfare has developed a well-structured surveillance mechanism in the State. The journey started with the Sector Reform Project in the country under EU funding in late 90s and the initiative of using post cards for informing communicable diseases later on evolved into Integrated Disease Surveillance Project in the country. The State has taken various initiatives to strengthen the surveillance further by doing extensive capacity building, institutional strengthening and involving grass root level structures and Panchayat Raj Institutions. The department of Health and Family Welfare has established District Surveillance Units (DSU) in every district. In all Medical Colleges Prevention of Epidemic and Infectious diseases cell ( PEID Cell) were established. These units have been functioning in integrated way and providing insights regarding various outbreaks and assist in developing containment strategy. This is further supported by the involvement of private Medical colleges in establishing PEID Cell in their respective institutions. The private sector Hospitals also have been contributing in sharing information and coordinating activities in disease containment.

As the whole world started experiencing COVID 19 pandemic, the department has initiated strong surveillance mechanism such as risk identification, symptom surveillance, testing surveillance and sentinel surveillance. Simultaneously the Department has been constantly building capacities of the Surveillance Unit to examine various aspects such as infectivity among Health Care Workers and front-line workers, Death audits, Positivity studies etc. In order to understand the progression of epidemic specific guidelines such as mapping of cases to identify the clusters were issued.

In Ponnani from the Sentinel Surveillance the cases were detected and right in time the whole containment strategy was put in place. Similarly, in Thiruvananthapuram the cases were identified in Ward 66, 74 and 75 and intensive activities in these clusters could be initiated.

The District surveillance unit has studied the data of the two weeks as on date 9<sup>th</sup> July 2020 and submitted the mapping reports. These reports were further studied and analysed and a detailed report is submitted for taking specific actions in these clusters and the districts. All the DSUs and PEID Cell have been instructed to study regularly and analyse the cases to take effective control measures in time.

The report is presented by giving -

- a. State basic data on COVID19.
- b. Definition of clusters categorization.
- c. State abstract of categories of clusters
- d. Details of each district

## State Abstract

	KERALA
Total number of confirmed cases	6534
Total cases recovered	3708
Deaths	27
Total active cases	2795
<b>AFTER 4TH MAY</b>	
Import	5161
Contacts	874
Total	6035
Proportion of locally acquired cases (after May 4) %	14.48
Imported: locally acquired ratio (after May 4)	5.9 : 1
<b>CONTACTS UNDER SURVEILLANCE</b>	
Total contacts currently under observation	29819
Primary contacts	25306
Secondary contacts	4513
Travellers	17833
Local contacts	11986

## Definition of Cluster

Term	Definition
<b>Large Community Cluster</b>	More than 50 locally transmitted cases in an identified geographical area
<b>Limited Community Cluster</b>	More than or equal to 2 locally transmitted cases in a division/ward within 14 days but not in same households.
<b>Closed Community Cluster</b>	More than or equal to two cases of locally transmitted cases in 'closed community' like CISF camps/ Defence camps/ Labour camps etc.
<b>Institutional Cluster</b>	More than or equal to two cases of locally transmitted cases in an institution like Hospital/ Office within 14 days

\*The definitions are given to complete the report. The definitions will be further improved and a separate advisory will be issued for the Health functionaries.

## Summary of Clusters in Kerala

	Total Clusters	Active Clusters where containment ongoing	Contained Clusters
Large Community Cluster	2	2	0
Limited Community Cluster	35	27	8
Closed Community Cluster (CISF, Defence camps etc)	4	3	1
Institutional Cluster (Hospital, Office)	6	3	3
<b>Total</b>	<b>47</b>	<b>35</b>	<b>12</b>

## Details of Clusters in Kerala

District	Number of Clusters	Name of Cluster	Characteristics of Cluster	Current Status of Cluster
Thiruvananthapuram	6	Attukkal	Limited Community Cluster	Containment strategy ongoing
		Poonthura	Large Community Cluster	
		Puthenpally	Limited Community Cluster	
		Manacadu		
		Muttathara		
		Palayam		
Kollam	11	Chathanoor	Limited Community Cluster	Contained
		Kalluvathukkal		
		Kadakkal		
		Kulathupuzha		
		Kavanadu	Limited Community Cluster	Containment strategy ongoing
		Sakthikulangara		
		Eravipuram		
		Pulamon, Kottarakara		
		Mulankadakam Jn		
		Sasthamcotta		
		Chavara		

Pathanamthitta	4	Ranni Pazhavangadi	Limited Community Cluster	Contained	
		Vadasherikkara			
		Pathanamthitta Municipality 13,14,21,23,24	Limited Community Cluster		Containment strategy ongoing
		Thiruvalla 33,28			
Alapuzha	4	Indo Tibetan Force, Nooranad	Closed Community Cluster	Containment strategy ongoing	
		Kayamakulam M (4,9)	Limited Community Cluster		
		Pallithodu			
		Thekkekkara, Kurathiyadu			
Kottayam	2	Chirakkadavu (4,5)	Limited Community Cluster	Containment strategy ongoing	
		Pallikkathodu-8 ward			
Idukki	2	Kanjikuzhy	Limited Community Cluster	Containment strategy ongoing	
		Kattappana 8 ward			
Ernakulam	4	Ernakulam Market	Limited Community Cluster	Containment strategy ongoing	
		Chellanom			
		Munabam			
		Aluva			
Thrissur	5	THQ Chavakkad	Institution	Contained	
		CHC Vadakkekad	Institution		
		PHC Porathishery	Institution		
		Corporation Office	Institution	Containment ongoing	
		Warehouse, TSR	Institution		
Malappuram	3	Ponnani	Large Community Cluster	Containment ongoing	
		Thanoor	Limited Community Transmission		
		Nilambur			
Kozhikode	1	Cresecent Flat, Vellai,	Institution	Containment ongoing	

<b>Kannur</b>	<b>2</b>	<b>CISF, Kuthuparamba</b>	<b>Closed Community Cluster</b>	<b>Containment ongoing</b>
		<b>DSC Cluster, Kannur</b>	<b>Closed Community Cluster</b>	
<b>Wayanad</b>	<b>2</b>	<b>Ladder Resort, Sulthan Batheri</b>	<b>Closed Community Cluster</b>	<b>Contained</b>
		<b>Manathawadi</b>	<b>Limited Community Cluster</b>	
<b>Kasaragod</b>	<b>1</b>	<b>Chengalam</b>	<b>Limited Community Cluster</b>	<b>Contained</b>

\*The cluster categorization is done to give guidance to Health functionaries for taking intensive activities in the field



## **CLUSTER SPECIFIC ACTION PLAN**

1. Contact Tracing
2. Active Case Finding
3. Intense Testing
4. Reverse Quarantine
5. Information Education Communication
6. Intersectoral coordination
7. Involvement of community leaders, NGOs, Community
8. Mobilisation of vehicles for transportation
9. Setting up of CFLTC
10. Ensure Psychosocial support to people in containment one
11. Ensuring good quality quarantine
12. Addressing other medical needs of people in cluster zone

## **Daily Review of activities**

1. Daily COVID trend within the cluster
2. Review of trend of fever, ARI/ILI, Pneumonia and unknown death
3. Identification of cases of local transmission (with and without history)
4. Early identification of new clusters; cases of locally acquired infection in time and place in nearby areas
5. Contact tracing status of cases of locally acquired transmission within the clusters
6. Review of number of persons in quarantine (travellers, contacts; primary/secondary, HCW) within the cluster
7. Review action taken reports from clusters and provide recommendations
8. COVID Testing status within clusters (samples sent category wise, pending results, positivity, logistics etc)
9. Occupancy status of CFLTCs, COVID hospitals and critically ill patients' status
10. Review of Cluster specific IEC activities

## **Generic guidelines to districts**

- District Administration to map cases and identify newly evolving clusters and initiate timely containment action.
- District to impose rigorous social distancing and break the chain campaign with more community ownerships.
- District to get ready with a greater number of CFLTCs and open more COVID hospital based on trigger plan to manage the rapid increase in number of cases. HR, equipment to be mobilised.

- District to be map the Human resource pool LSG wise irrespective of sector and train all the available HR- Doctors, nurses, AYUSH, interns on COVID clinical management protocol
- District to have a good patient transportation plan mobilising and training double chambered jeep/taxi/auto with proper facilities for disinfection.
- District to ensure triage and strengthen infection control in all hospitals including private hospitals so as to ensure that even if a COVID suspects land in any health facility, no transmission should happen within health facility.
- Second tier of administrative and clinical teams to execute the responsibilities alternatively so as to reduce the fatigue among staff.
- A system for catering to the medical and psychological needs of those in containment zone need to be established.
- Strengthen surveillance in coastal, tribal and urban slums and deploy array of tests in a judicious manner.

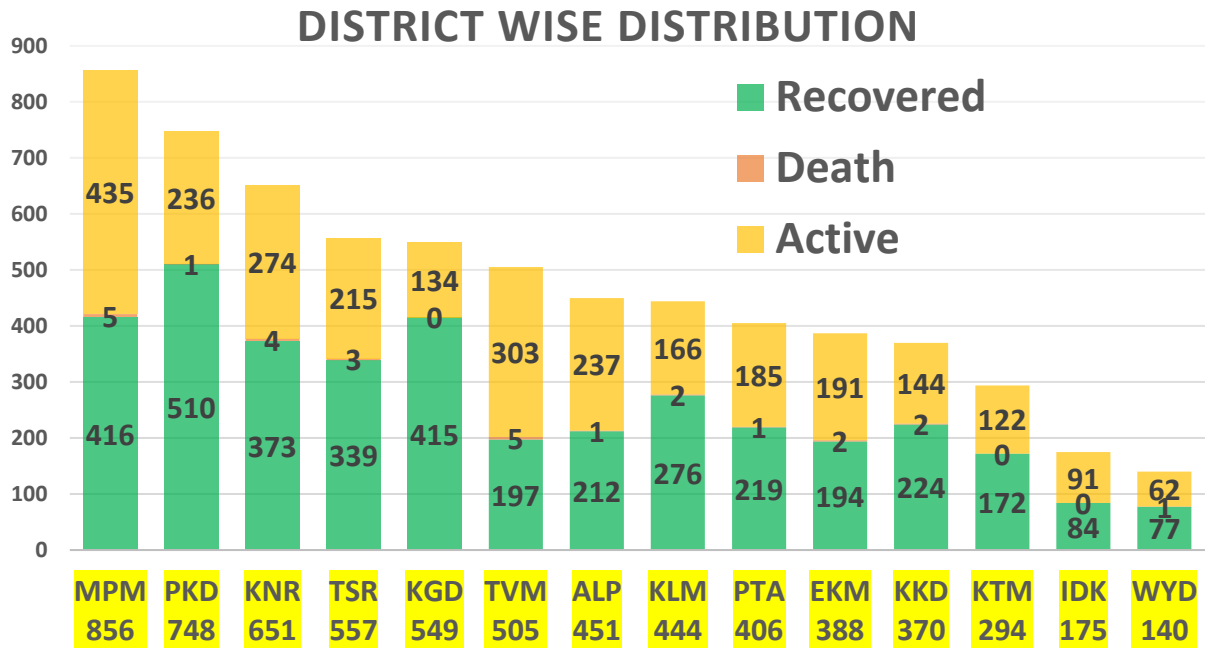
## **THIRUVANANTHAPURAM**

Population - 33 Lakhs  
Population density - 1508/km2.

### **Thiruvananthapuram- COVID scenario**

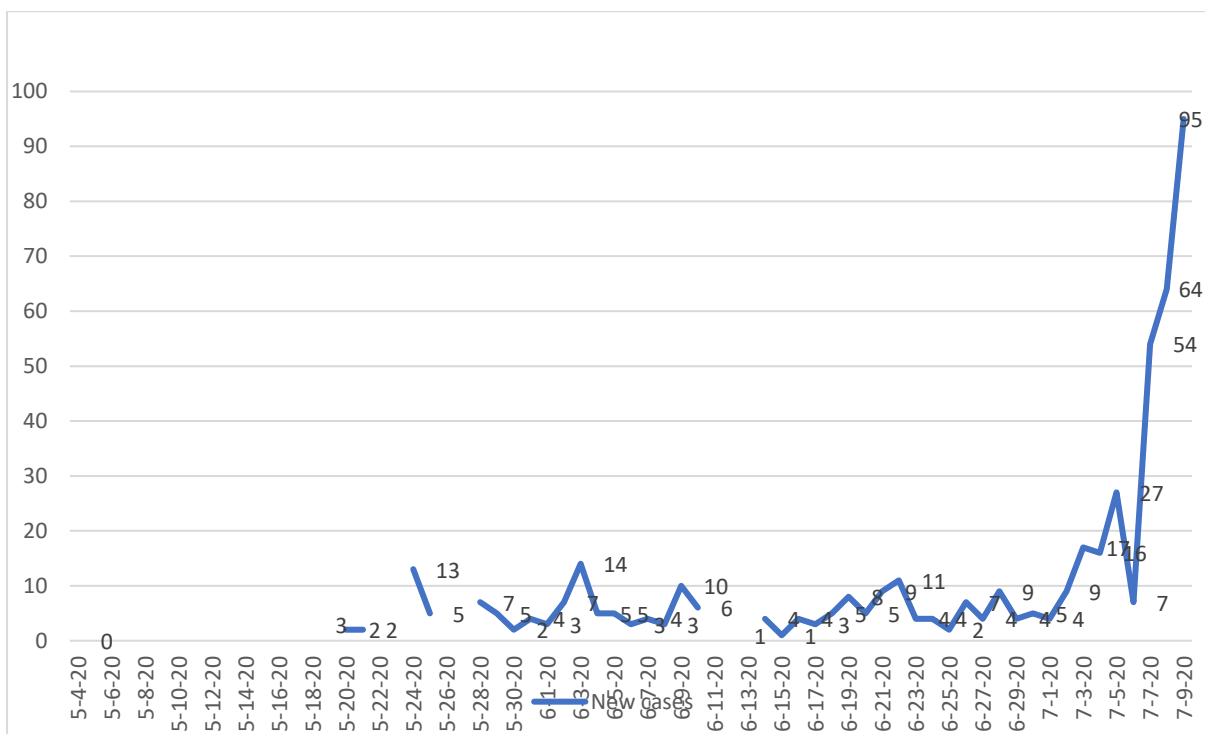
	<b>KERALA</b>	<b>TVM</b>	<b>Percentage in TVM as compared to state total</b>
<b>Total number of confirmed cases</b>	<b>6534</b>	<b>505</b>	<b>7.73</b>
<b>Total cases recovered</b>	<b>3708</b>	<b>197</b>	<b>5.31</b>
<b>Deaths</b>	<b>27</b>	<b>5</b>	<b>18.52</b>
<b>Total active cases</b>	<b>2795</b>	<b>303</b>	<b>10.84</b>
<b>AFTER 4TH MAY</b>			
<b>Import</b>	<b>5161</b>	<b>230</b>	<b>4.46</b>
<b>Contacts</b>	<b>874</b>	<b>260</b>	<b>29.75</b>
<b>Total</b>	<b>6035</b>	<b>490</b>	<b>8.12</b>
<b>Proportion of locally acquired cases (after may 4) %</b>	<b>14.48</b>	<b>53.06</b>	
<b>Imported: locally acquired ratio (after may 4)</b>	<b>5.91 : 1</b>	<b>0.88 : 1</b>	
<b>CONTACTS UNDER SURVEILLANCE</b>			
<b>Total contacts currently under observation</b>	<b>29819</b>	<b>1549</b>	<b>5.19</b>
<b>Primary contacts</b>	<b>25306</b>	<b>608</b>	<b>2.40</b>
<b>Secondary contacts</b>	<b>4513</b>	<b>941</b>	<b>20.85</b>
<b>Travellers</b>	<b>17833</b>	<b>548</b>	<b>3.07</b>
<b>Local contacts</b>	<b>11986</b>	<b>1001</b>	<b>8.35</b>

Thiruvananthapuram constituted 11.47 % of COVID cases reported in last 14 days and 7.73% of total cases in state.

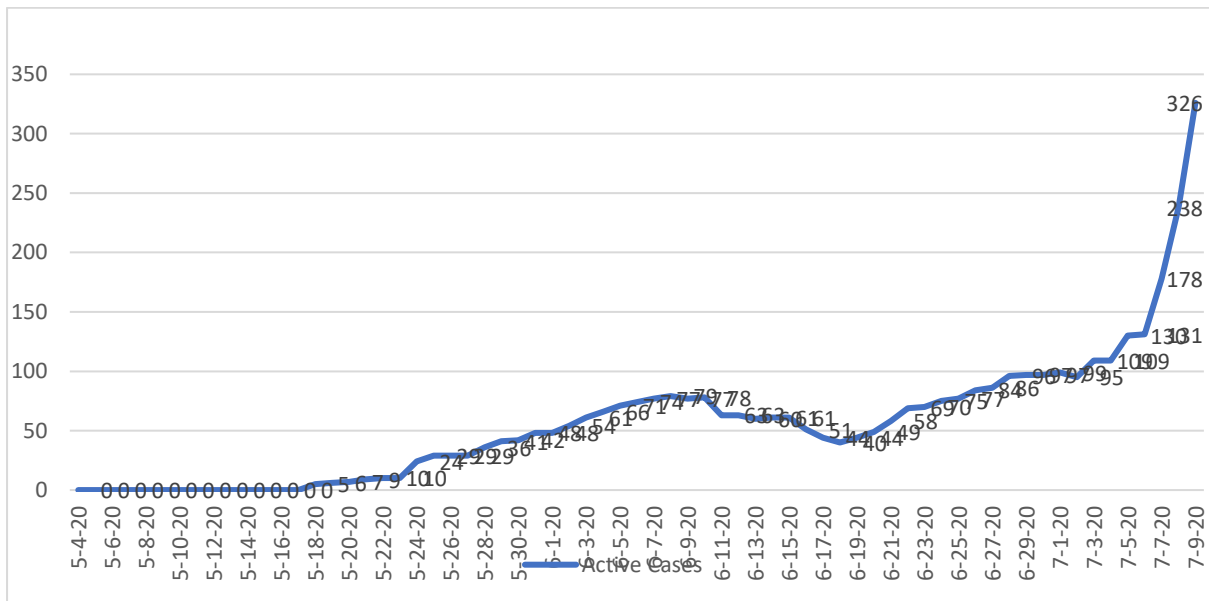


Recovery rate is 39 % as on 9-07-2020

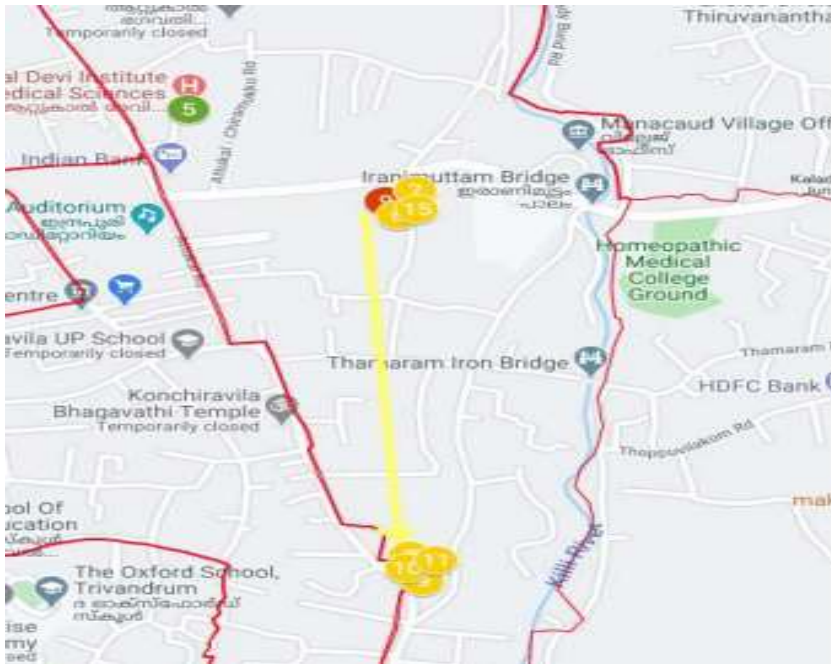
#### Daily report of New cases



## Active Cases



## Thiruvananthapuram- Clusters



Distribution of case in Manacade (Ward 72),Atukal (Ward 70),Kaldy (Ward 5) areas

Figure 2: Distribution of cases from Poonthura (Ward 66), Muttathara (Ward 78), Putherpally (Ward 74)



Figure 3: Distribution of cases from Palayam (Ward 27), Vanchiyoor (Ward 82) and Pettah (Ward 93)



Poonthura and Kumarichantha – Largest cluster in Trivandrum district was identified in Poonthura ward and Kumarichantha. The index case was the source of infection for 13 other cases; the potential source of infection which was from Kanyakumari district of Tamil Nadu. The index case was a fish merchant, who brought fish wholesale from Kanyakumari harbour, unloaded it at Kumarichantha, engaged in fish auction in Kumarichantha. In addition, he also used to visit many other households. In Kumarichantha, lorries carrying fish for sale, from Tamil Nadu was unloaded. Fishermen from Poonthura area happens to come in contact with lorry drivers and headload workers in this area. Most of the cases reported from this area were fish vendors. Medical representative, who resided in the same area, turned positive, due to frequent visits to Kumarichantha, whose family member had also turned positive.

Attukal – An auto-driver cum teleserial actor who had travelled extensively in Attukal, Manacaud and Konchiravila and Kalady, eventually transmitted the infection to eight others. He had frequent visits from relatives from Kuzhithurai, Tamil Nadu. There is potential history of contact with commuters from Tamil

Nadu. This cluster also involves two healthcare workers in the private hospital he had visited at Attukal.

The following wards have been identified to have higher risk of cases due to density of contacts, potential sources and epidemiological linkages.

1. 16 – Medical College
2. 27 - Palayam
3. 55 - Kalady
4. 61 -Kottappuram
5. 62 - Vizhinjam
6. 63 - Harbour
7. 66 – Poonthura
8. 67 – Ambalathara
9. 68 – Kamaleswaram
10. 69 - Kalippankulam
11. 70 – Attukal
12. 71 – Chalai
13. 72 – Manacaudu
14. 73 – Kuriyathi
15. 74 – Puthenpally
16. 75 – Manikyavilakom
17. 76 – Beemappally east
18. 77 – Beemappally
19. 78 – Muttathara
20. 80 – Fort
21. 82 – Vanchiyoor
22. 87 – Valiyathura
23. 88 – Vallakkadavu
24. 99 – Poundukadavu

Out of the above wards, 6 wards are identified as Top priority high risk areas, namely,

1. Attukal (70)
2. Poonthura (66)
3. Puthenpally (Kumarichantha) (74)
4. Manacaud (72)
5. Palayam (27)
6. Muttathara (78)

### **Action Taken**

Triple lock down was declared in TVM Corporation 05.07.2020.

The Poonthura ward was brought under containment zone, the main strategy in the containment zone was planned with the leadership of the District Collector and technical advices were provided by the District Medical Officer and The District Programme Manager.

### **The main activities were as listed below**

- Meeting with Local Leaders
- Coordination meeting with Deputy Commissioner of Police and Team.
- Meeting with Priest at Poonthura Church
- Planning meeting with Local Community Health Centers

### **IEC activities**

- Joint mike announcement with Health and Police Department (11am to 1pm, 4.30pm to 7pm)
- Mike announcement through church by the Priest
- With the help of the Social Service Volunteers street to streets announcements are planned at Local areas within Poontura
- During announcement priority will be given for Social Distancing, Environmental hygiene, Hand hygiene, Important COVID19 symptomatology, Influenza like illnesses, Sever acute Respiratory Infections etc
- Importance of protecting the Vulnerable Populations of the Community (Reverse Quarantine)



## Commencement of Help Desk

- Help desk will be setup at three sites with the help of corporation and church- The places identified are Fides centre, Cheriya muttom Junction and Poonthura bus stop.
- The functions of this centre are reassurance, information regarding Covid 19 illness, information about results, and information about place of admission.
- Other functions include checking of temperature using infrared thermometer, monitoring oxygen saturation with pulse oxymeter, necessary contact numbers in an emergency such as DISHA and control room Poonthura are available from here (7594822922).

## Anti-infectivity methods

- Local Hypochloride spraying was done with the help of corporation in the morning and in the evening.

## CONTACTS UNDER CONTACTS UNDER SURVEILLANCE strategy

- House to house monitoring with the help of social service volunteers.
- The monitoring is based on symptomatology, using a checklist, etc.
- Strict contact tracing.
- Broadcasting.
- Reverse quarantine.

## Details of Antigen Testing in Containment Zone

Date	Sample Tested	Positives
05.07.2020	46	03
06.07.2020	60	19
07.07.2020	311	60
08.07.2020	365	71
09.07.2020	340	88
<b>Total</b>	<b>1122</b>	<b>241</b>

In addition to these 8315 RTPCR tests were conducted in the district in last 7 days including routine samples of all eligible from Cluster Containment zone.

### **District Specific Actions- Recommendations**

Thiruvananthapuram is showing evidence of recent local transmissions and increase in locally acquired cases. New clusters are evolving. Monitor the cases and do mapping daily to identify early warning signs such as stray positive cases in more numbers not knowing the source of infection, sudden death, sudden increase in fever cases, respiratory illnesses in OPD.

## **MALAPPURAM**

Population - 44 Lakhs

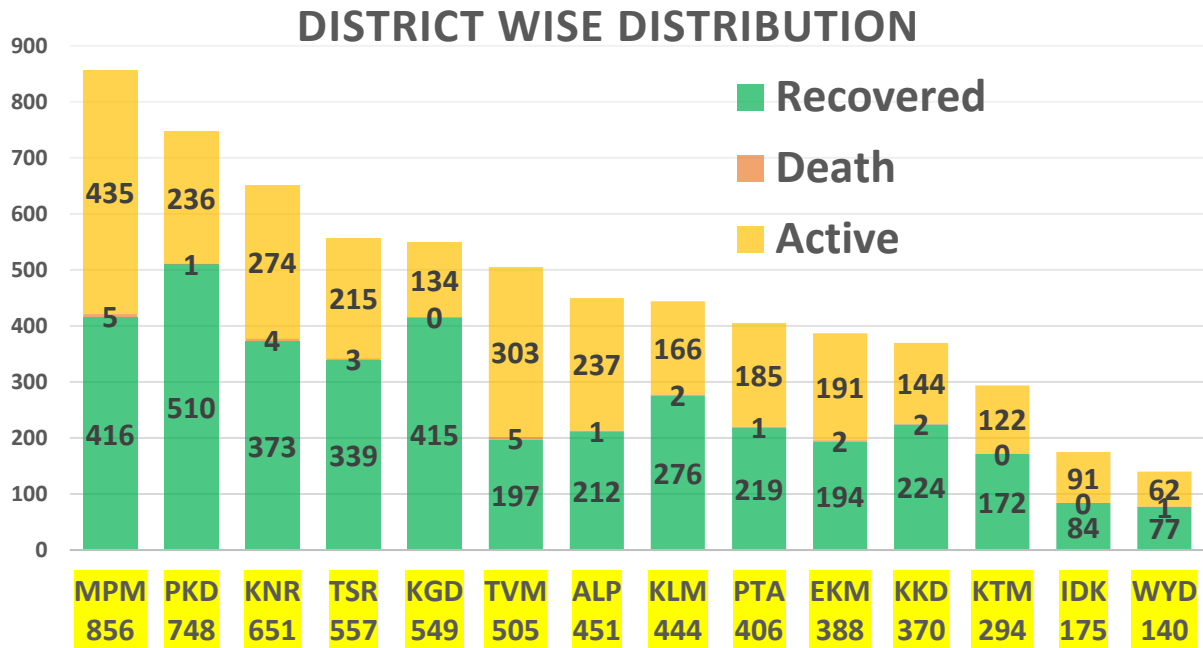
Population density - 1157/km<sup>2</sup>.

Malappuram is the most populous district in Kerala.

### **Malappuram- COVID scenario**

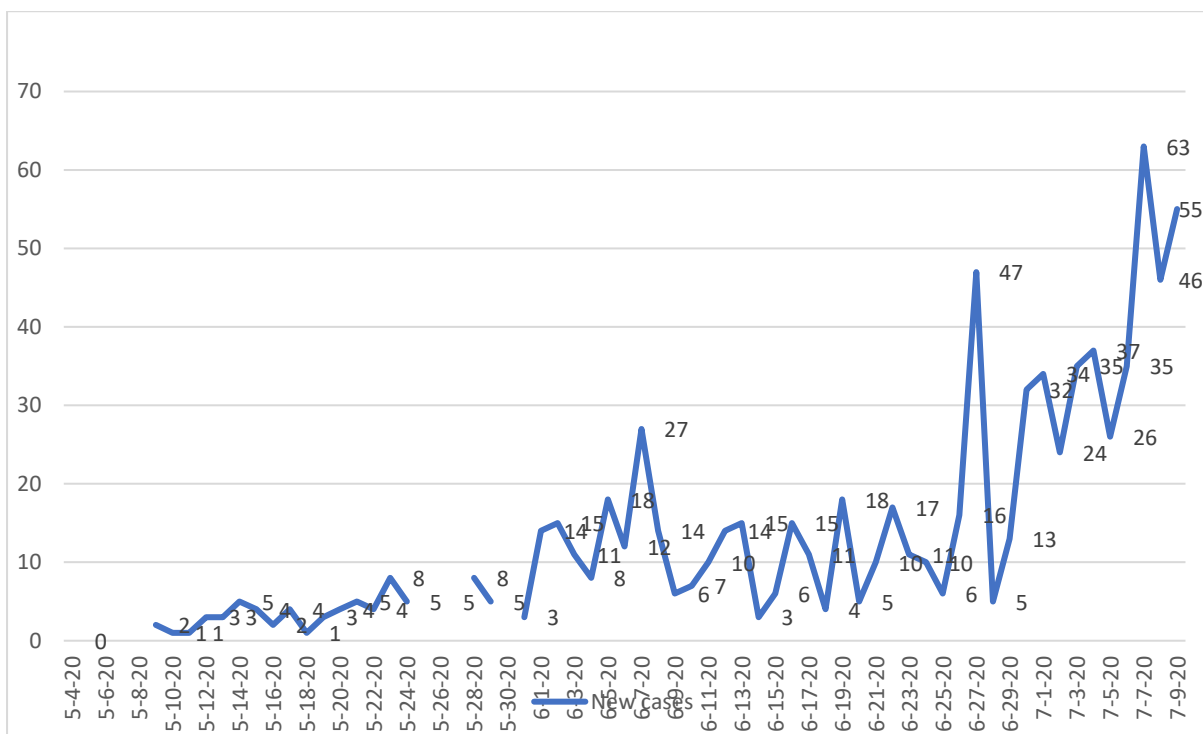
	Kerala	Malappuram	Percentage in Malappuram out of state total
Total number of confirmed cases	6534	856	13.10
Total cases recovered	3708	416	11.22
Deaths	27	5	18.52
Total active cases	2795	435	15.56
<b>AFTER 4TH MAY</b>			
Import	5161	722	13.99
Contacts	874	111	12.70
Total	6035	833	13.80
Proportion of locally acquired cases (after may 4) %	14.48	13.33	
Imported: locally acquired ratio (after may 4)	5.9 : 1	6.5 : 1	
<b>SURVEILLANCE</b>			
Total people currently under observation	29819	3613	12.12
Primary contacts	25306	3514	13.89
Secondary contacts	4513	99	2.19
Travellers	17833	2973	16.67
Local contacts	11986	640	5.34

Malappuram constituted 16.67 % of COVID cases reported in last 14 days and 13.1 % of total cases in state.

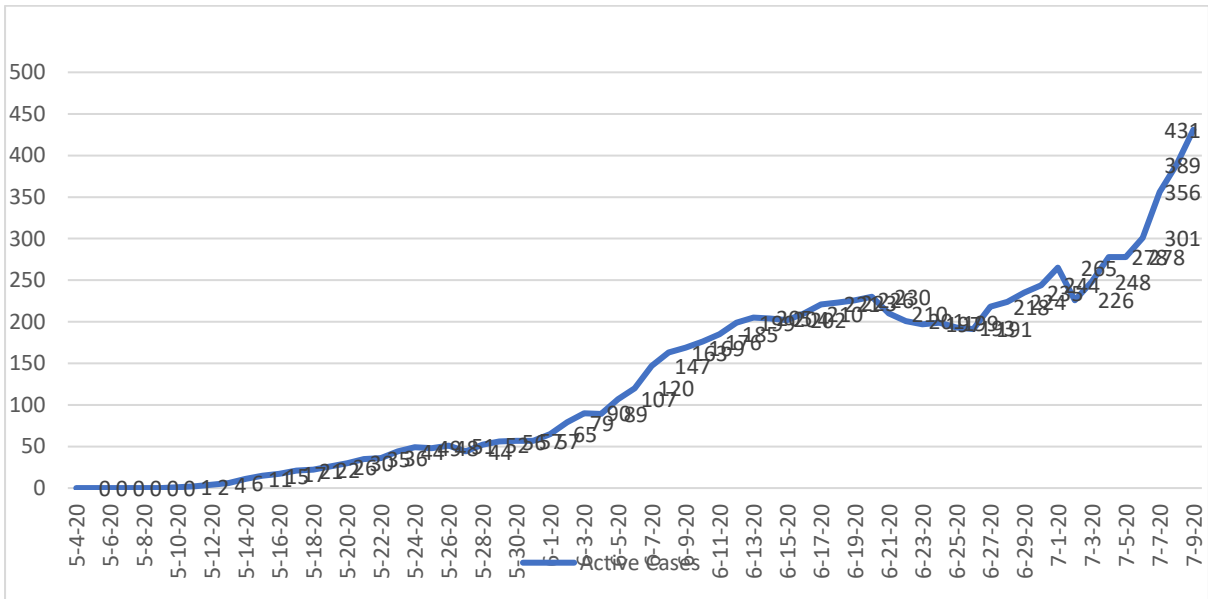


Recovery rate is 48.5 % as on 9-07-2020

#### Daily report of New cases

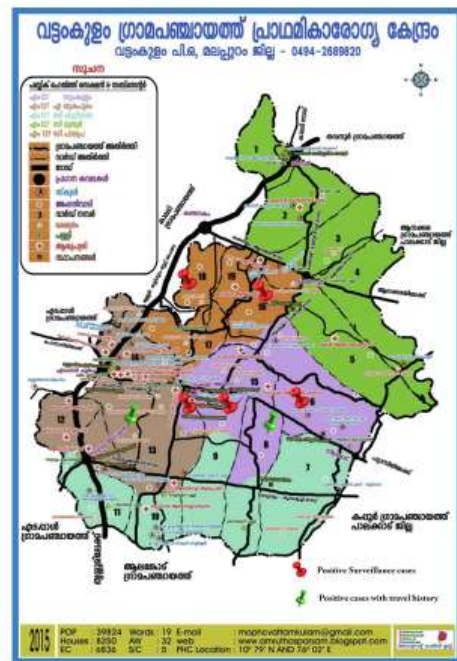


## Active Cases



## Clusters at Malappuram

First major cluster identified was at Ponnani Taluk



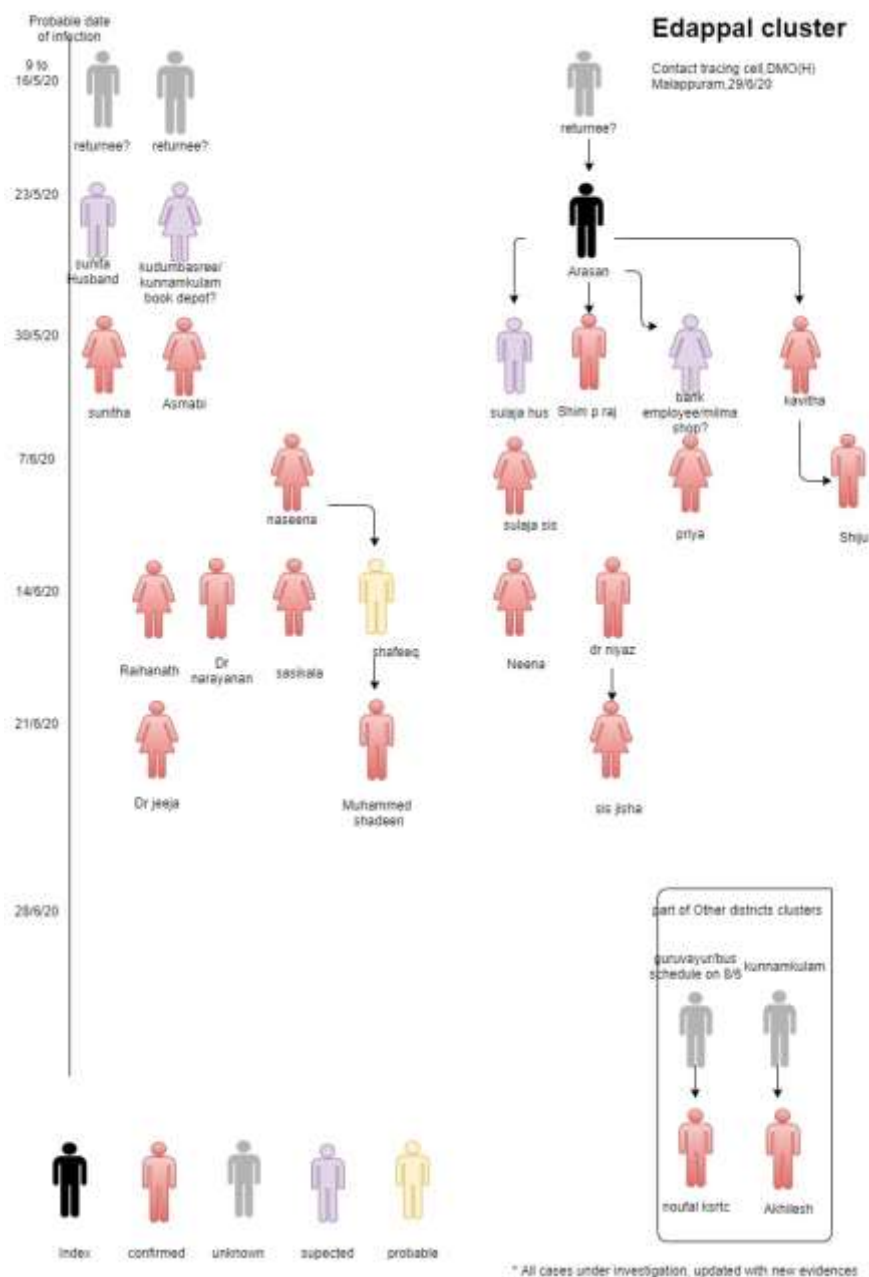
Following the diagnosis of five COVID 19 cases from Vattamkulam panchayath and another five positive health care workers from two private hospitals in the panchayath, the entire Ponnani Taluk was declared as containment zone by

the State disaster management authority on 29/06/2020, based on the recommendations from district administration.

The activities in the containment zone were based on

- Aggressive contact tracing
- Active case search
- Intense Testing including all ILI from zone, SARI and Random Testing for COVID-19

### Aggressive Contact Tracing at Ponnani



### Details if CLIA Antibody based test at Ponnani Taluk

Number	
Total Sample Tested	1479
Total Sample Reactive	06 (0.4%)

### Details of Confirmatory Test at Ponnai Taluk

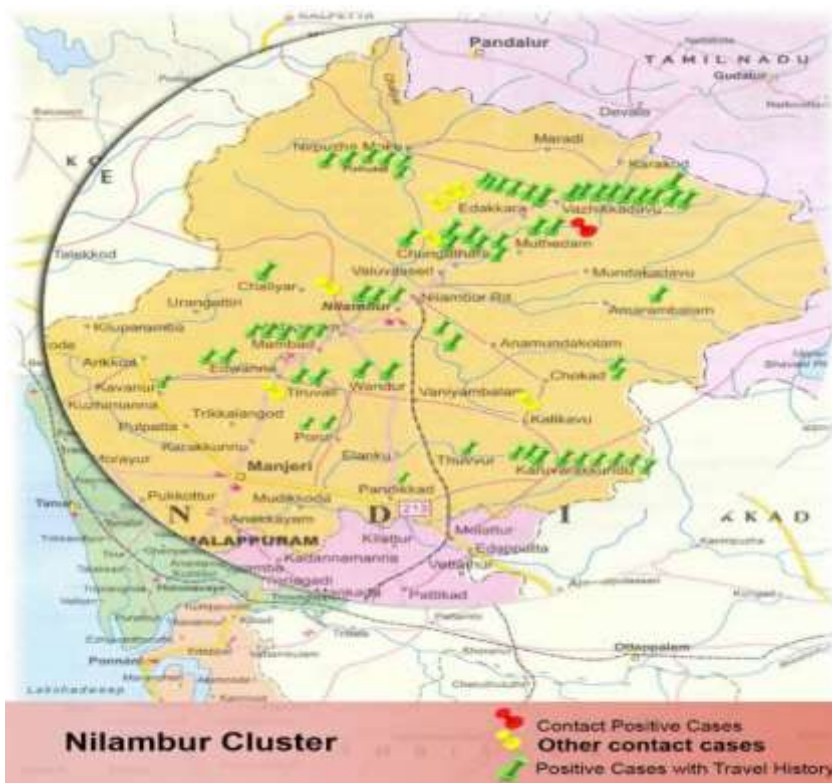
Name of LSG	Tested	Positives
Vattamkulam	356	1
Edappal	420	1
Kaladi	553	2
Alamkode	489	2
Nannamukku	519	
Thrikkannapuram	467	1
Veliamcode	557	2
Ponnani	1084	38
Maranchery	299	1
Perumpadappu	569	2
<b>Total</b>	<b>5311</b>	<b>50</b>

# PONNANI CLUSTER

TOTAL CASES : 50 (0.94%)  
TOTAL TEST DONE : 5311



## Evolving Clusters at Malappuram



Nilambur Taluk is another cluster in Malappuram



## **Suggestions**

Malappuram is showing evidence of recent local transmissions and increase in locally acquired cases. New clusters are evolving. Monitor the cases and do mapping daily to identify early warning signs such as stray positive cases in more numbers not knowing the source of infection, sudden death, sudden increase in fever cases, respiratory illnesses in OPD.

## **ERNAKULAM**

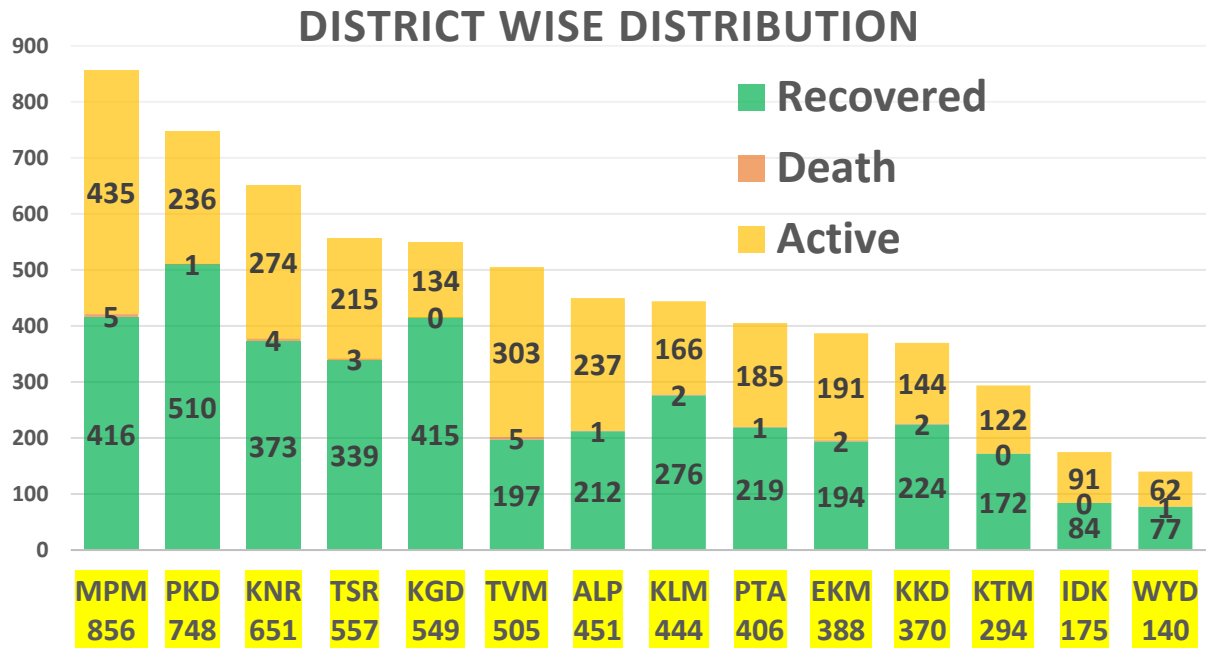
Population - 32.82 Lakhs

Population density - 1364/km<sup>2</sup>.

### **Ernakulam- COVID scenario**

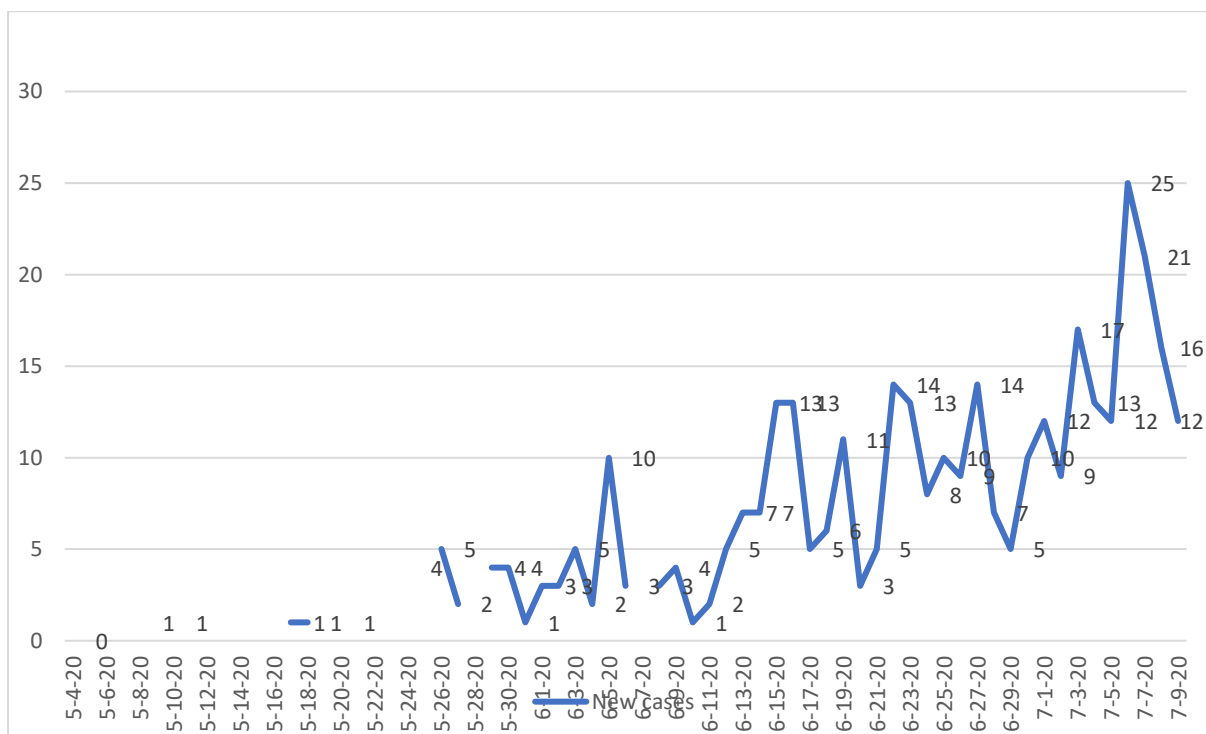
	KERALA	EKM	Percentage in EKM of state total
Total number of confirmed cases	6534	388	5.94
Total cases recovered	3708	194	5.23
Deaths	27	2	7.41
Total active cases	2795	191	6.83
<b>AFTER 4TH MAY</b>			
Import	5161	289	5.60
Contacts	874	79	9.04
Total	6035	368	6.10
Proportion of locally acquired cases (after may 4) %	14.48	21.47	
Imported: locally acquired ratio (after may 4)	5.91 : 1	3.66 : 1	
<b>SURVEILLANCE</b>			
Total people currently under observation	29819	1091	3.66
Primary contacts	25306	480	1.90
Secondary contacts	4513	611	13.54
Travellers	17833	207	1.16
Local contacts	11986	884	7.38

Ernakulam constituted 6.5 % of COVID cases reported in last 14 days and 5.94 % of total cases in state.

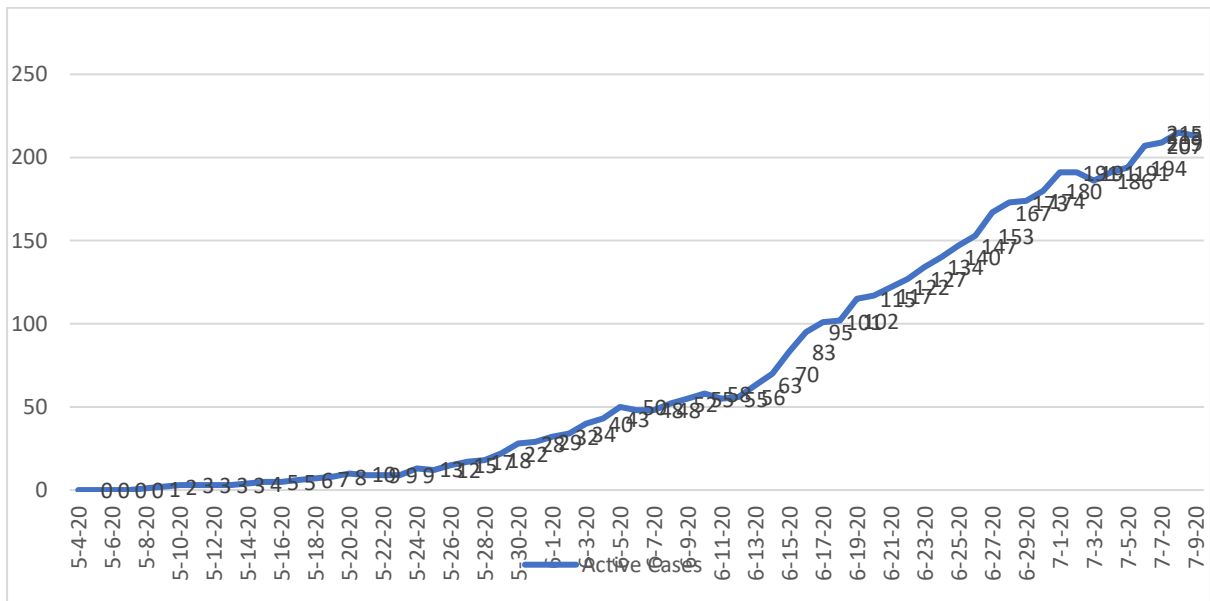


Recovery rate is 50 % as on 9-07-2020

#### Daily report of New cases



## Active Cases





One main cluster is that of Ernakulam Market, Where 12 COVID 19 cases were reported. This belong to 2 different shops in nearby areas. All contacts were traced and tested. Area under strict Surveillance  
Other clusters are Munambom, Chellanom and Aluva.

**Actions Taken**

- Special teams at the DSU level & Peripheral level has been constituted
- Block Level Nodal Officers (Revenue block) Have been identified & trained in Contact tracing & other Surveillance activities.
- These team can be deployed to any area as an when needed.
- Sample collecting facility is provided in 12 different institutions.
- 4 mobile sample collection teams are in position, working as per schedule daily
- DSU has 10 different teams with specific assigned roles and 2 public health experts is there

**Suggestions**

Strengthen surveillance in coastal areas and private hospitals

## **KANNUR**

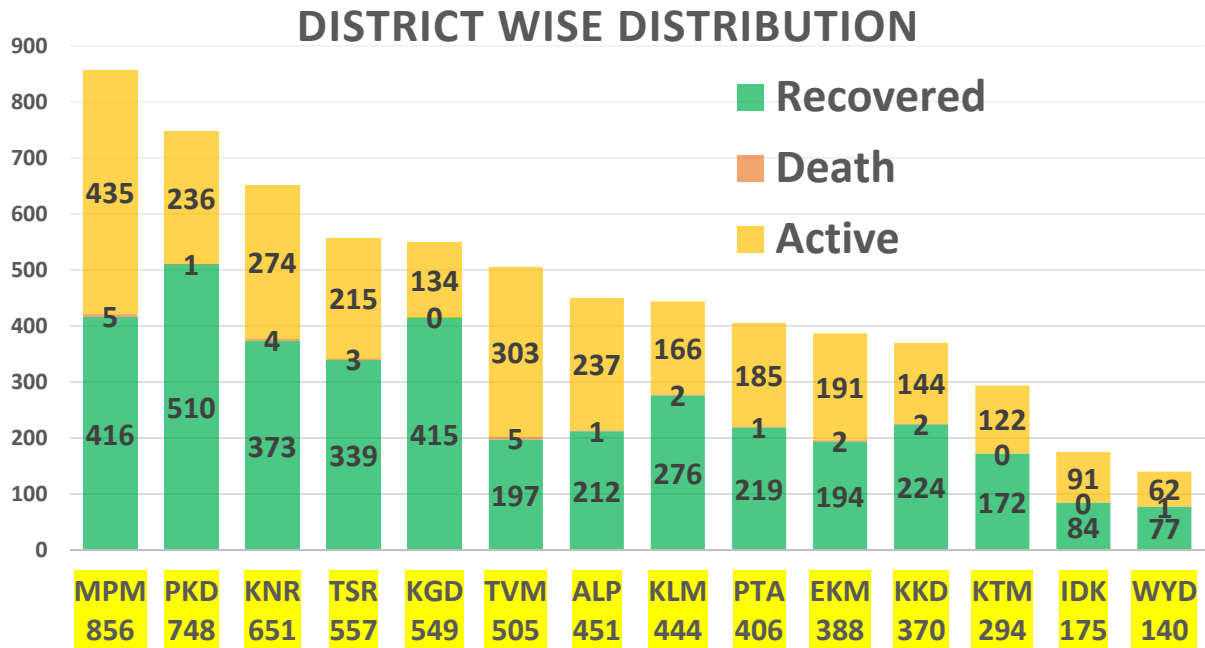
Population - 25.23 Lakhs

Population density - 851/km<sup>2</sup>.

### **Kannur- COVID scenario**

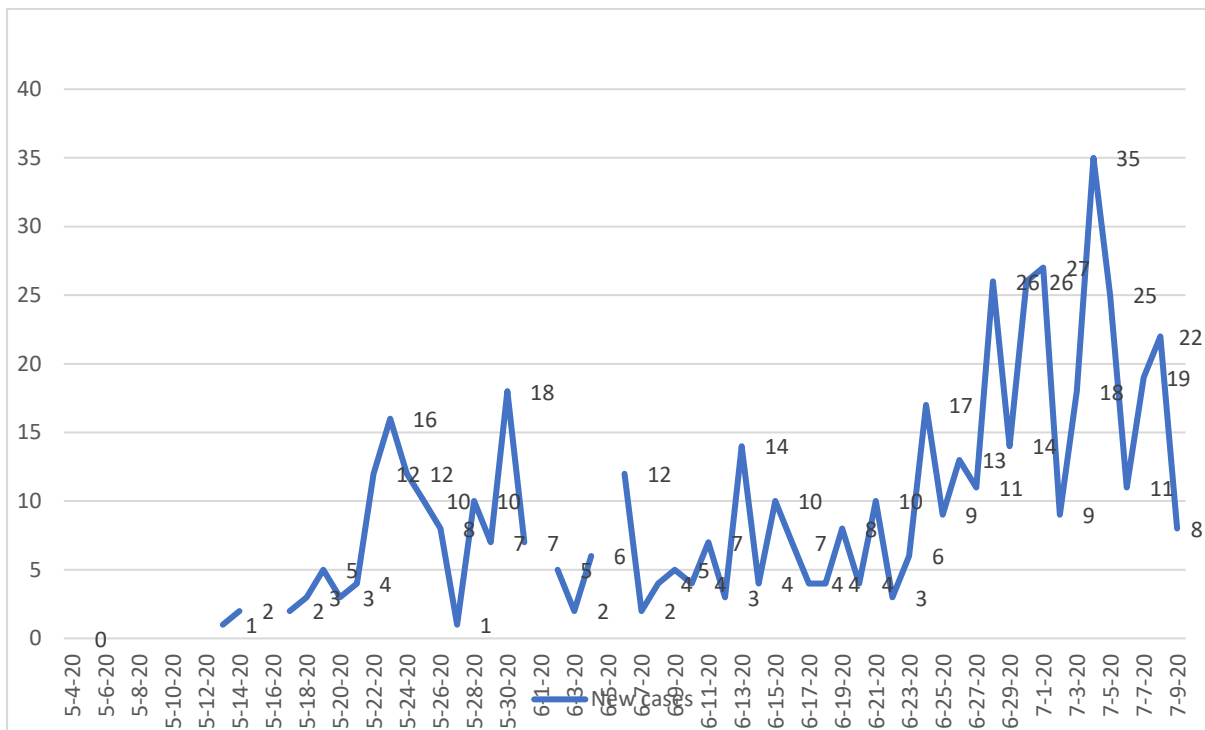
	KERALA	KNR	Percentage in Kannur out of state total
Total number of confirmed cases	6534	651	9.96
Total cases recovered	3708	373	10.06
Deaths	27	4	14.81
Total active cases	2795	274	9.80
<b>AFTER 4TH MAY</b>			
Import	5161	446	8.64
Contacts	874	87	9.95
Total	6035	533	8.83
Proportion of locally acquired cases (after may 4) %	14.48	16.32	
Imported: locally acquired ratio (after may 4)	5.91 : 1	5.13 : 1	
<b>CONTACTS UNDER SURVEILLANCE</b>			
Total people currently under observation	29819	6622	22.21
Primary contacts	25306	5349	21.14
Secondary contacts	4513	1273	28.21
Travellers	17833	3450	19.35
Local contacts	11986	3172	26.46

Kannur constituted 9.4 % of COVID cases reported in last 14 days and 9.96 % of total cases in state.

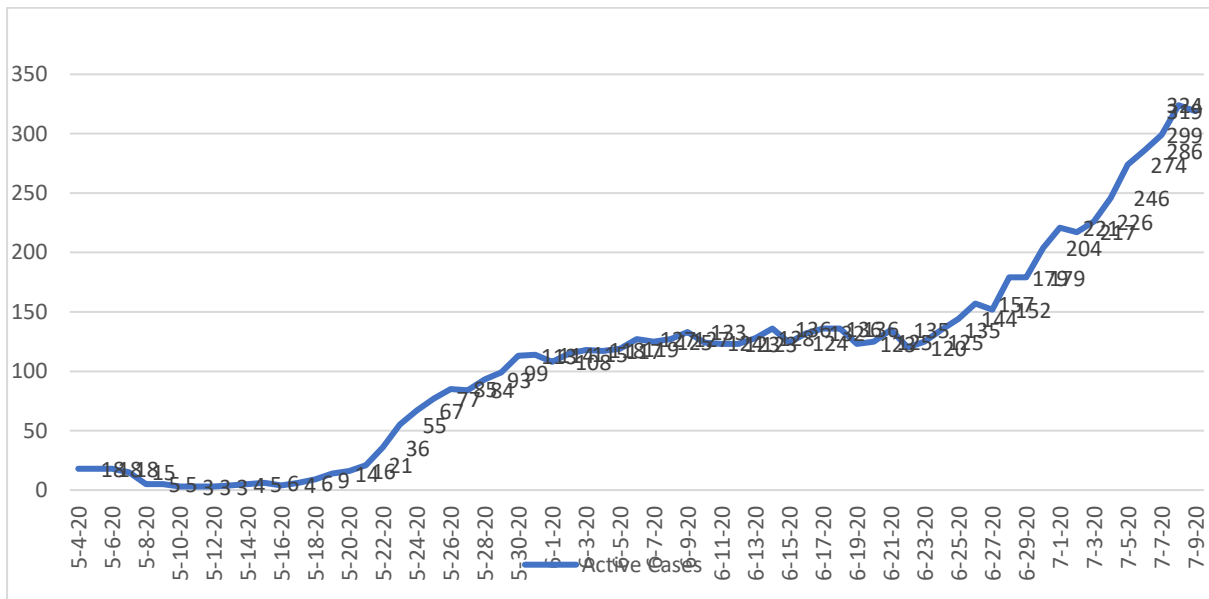


Recovery rate is 57.3 % as on 9-07-2020

### Daily new cases

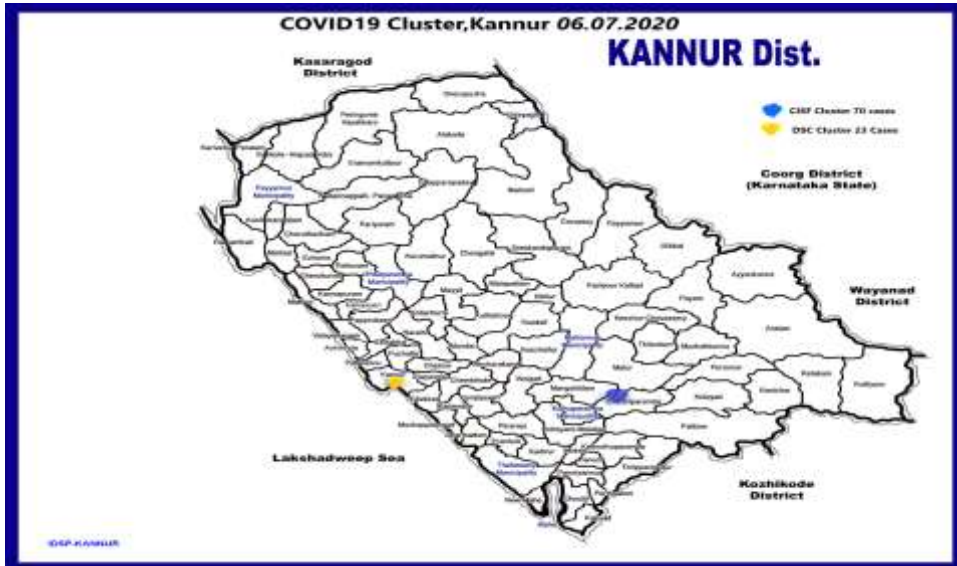


## Active cases



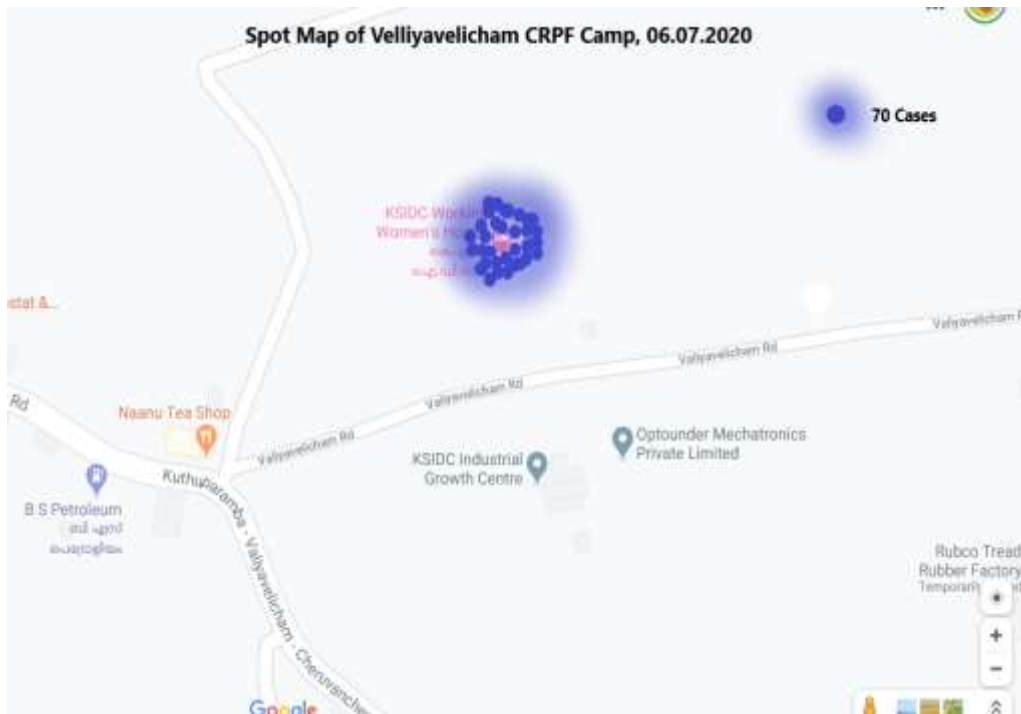
### Clusters:

1. CISF Cluster, Veliyavelicham, Kuthuparamba (70 case)
2. DSC Cluster, Kannur (23 case)

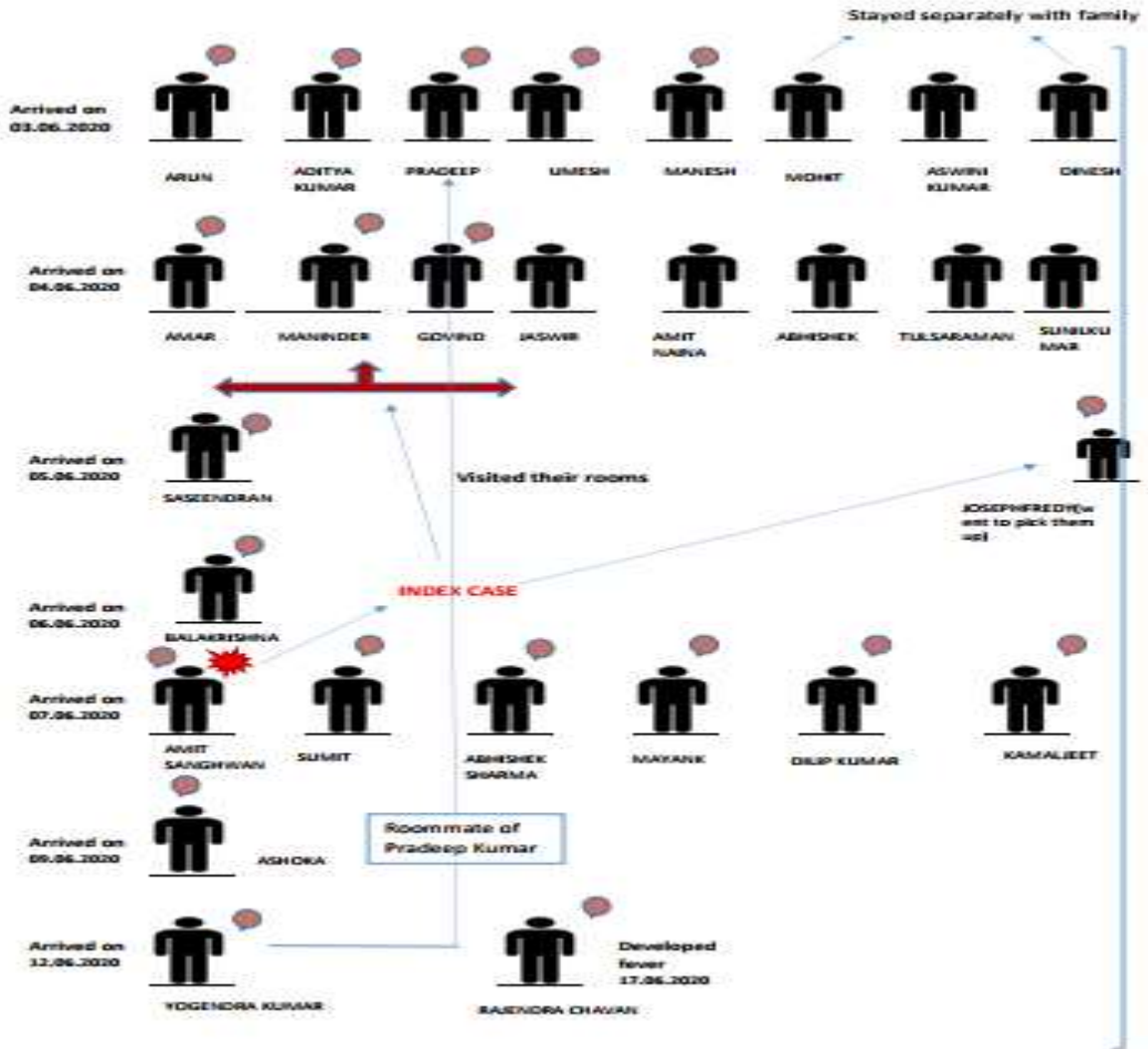


Transmission Routes Established. Poor quality quarantine with common bathroom was the reason.





- All inmates of camps shifted to different places
- Instructions given to CISF through District collector to all such cantonment areas and places where central gov employees come regarding precautionary measures and COVID19 norms.
- Zoom meeting was conducted in the presence of District Collector where members of DSC, KIAL, CISF participated.
- SIT visited the area did detailed investigation on 3.07.2020



Steps taken to ensure good quality quarantine at CISF camps.



## **Suggestions**

Kannur is showing evidence of recent local transmissions and increase in locally acquired cases. Monitor the cases and do mapping daily to identify early warning signs such as stray positive cases in more numbers not knowing the source of infection, sudden death, sudden increase in fever cases, respiratory illnesses in OPD.

District to take special attention regarding CISF, Defence camps.

## **ALAPPUZHA**

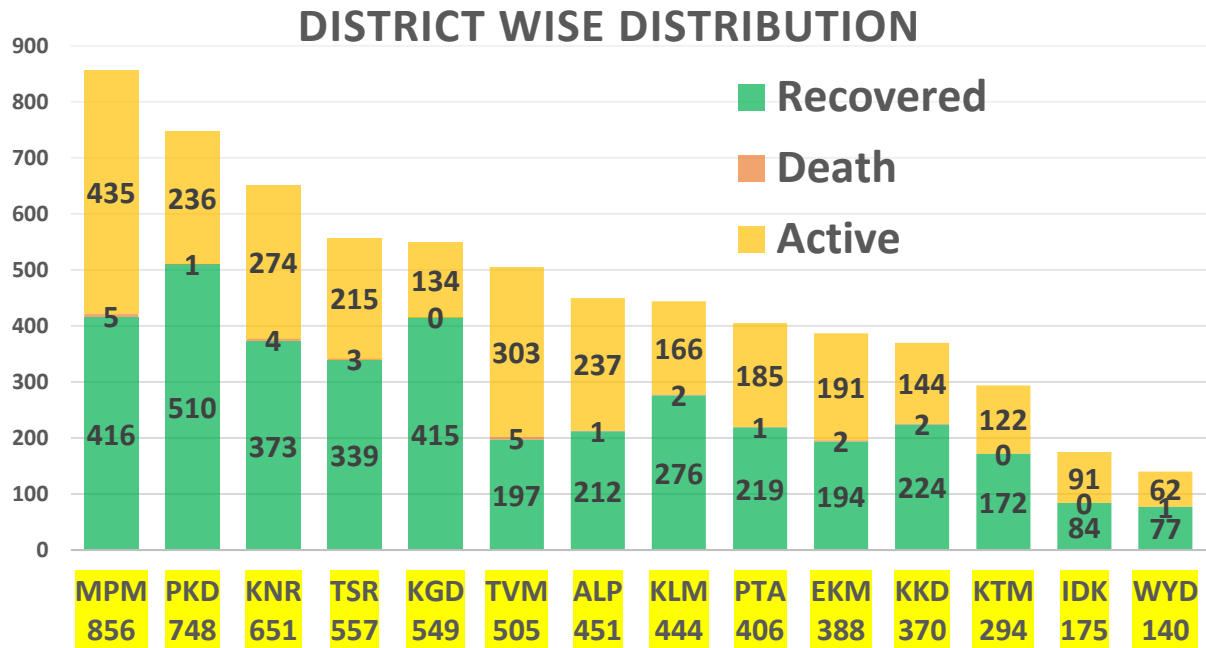
Population - 21.27 Lakhs

Population density - 1504/km2.

### **Alappuzha - COVID scenario**

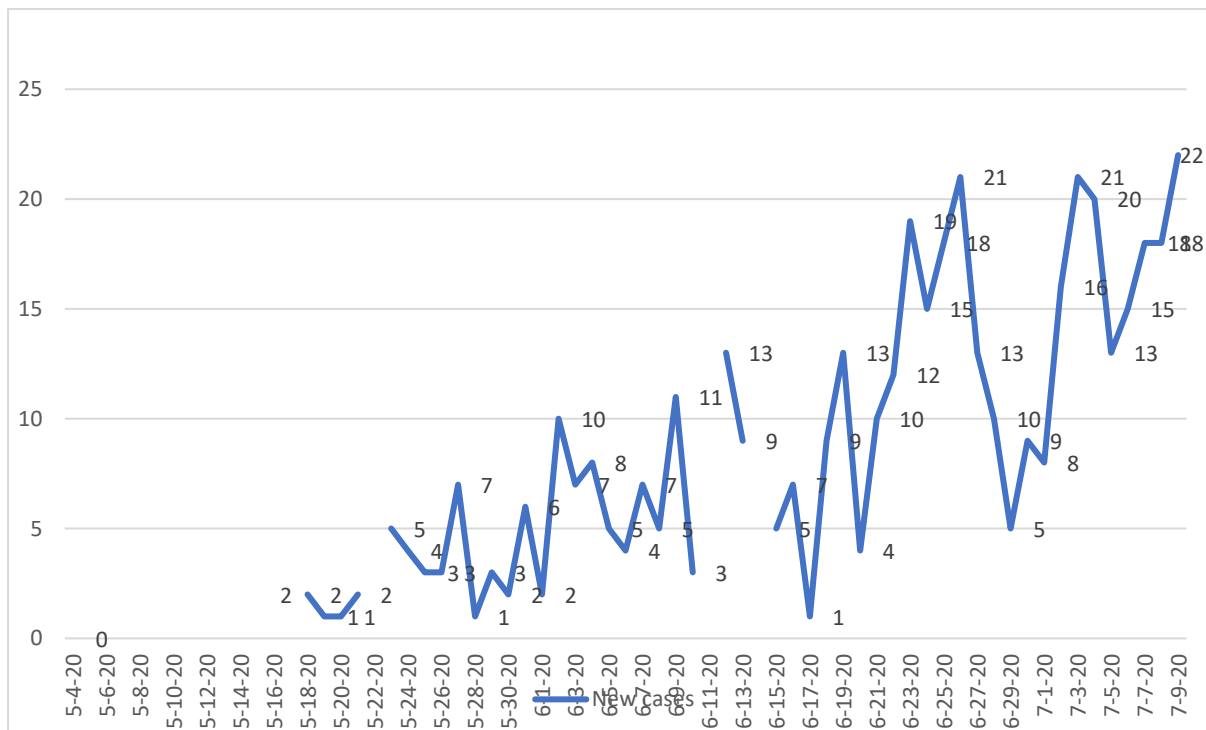
	KERALA	ALP	Percentage in Alappuzha of state total
Total number of confirmed cases	6534	451	6.90
Total cases recovered	3708	212	5.72
Deaths	27	1	3.70
Total active cases	2795	237	8.48
<b>AFTER 4TH MAY</b>			
Import	5161	394	7.63
Contacts	874	52	5.95
Total	6035	446	7.39
Proportion of locally acquired cases (after may 4) %	14.48	11.66	
Imported: locally acquired ratio (after may 4)	5.91	7.58	
<b>CONTACTS UNDER SURVEILLANCE</b>			
Total people currently under observation	29819	1858	6.23
Primary contacts	25306	1341	5.30
Secondary contacts	4513	517	11.46
Travellers	17833	1204	6.75
Local contacts	11986	654	5.46

Alappuzha constituted 7.4 % of COVID cases reported in last 14 days and 6.9 % of total cases in state.

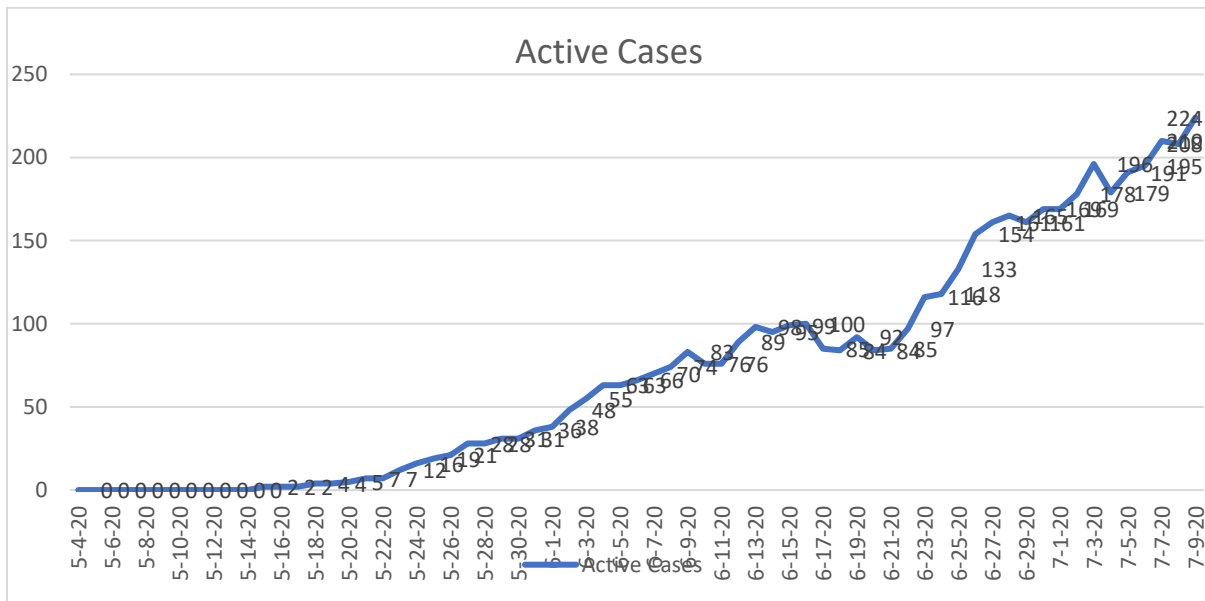


Recovery rate is 52.5 % as on 9-07-2020

### Alappuzha daily new cases



## Active cases



### Cluster identified in Alapuzha

<b>Indo Tibetan Force, Nooranad</b>
<b>Kayamakulam M (4,9)</b>
<b>Pallithodu</b>
<b>Thekkekkara, Kurathiyadu</b>

### District Specific Suggestion

Alapuzha is showing evidence of recent local transmissions and increase in locally acquired cases. Monitor the cases and do mapping daily to identify early warning signs such as stray positive cases in more numbers not knowing the source of infection, sudden death, sudden increase in fever cases, respiratory illnesses in OPD.

District to focus on Clusters at Indo Tibetan camp

Improve surveillance at coastal areas

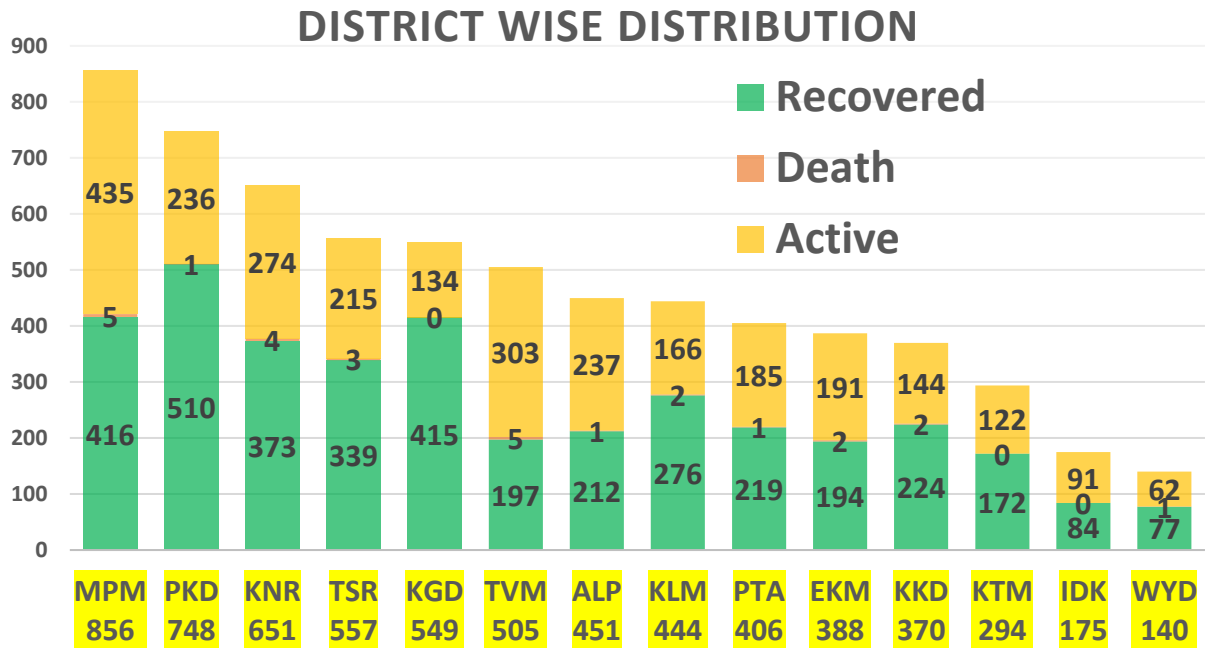
## **THRISSUR**

Population - 31 Lakhs  
Population density - 1026/km2.

### **Thrissur- COVID scenario**

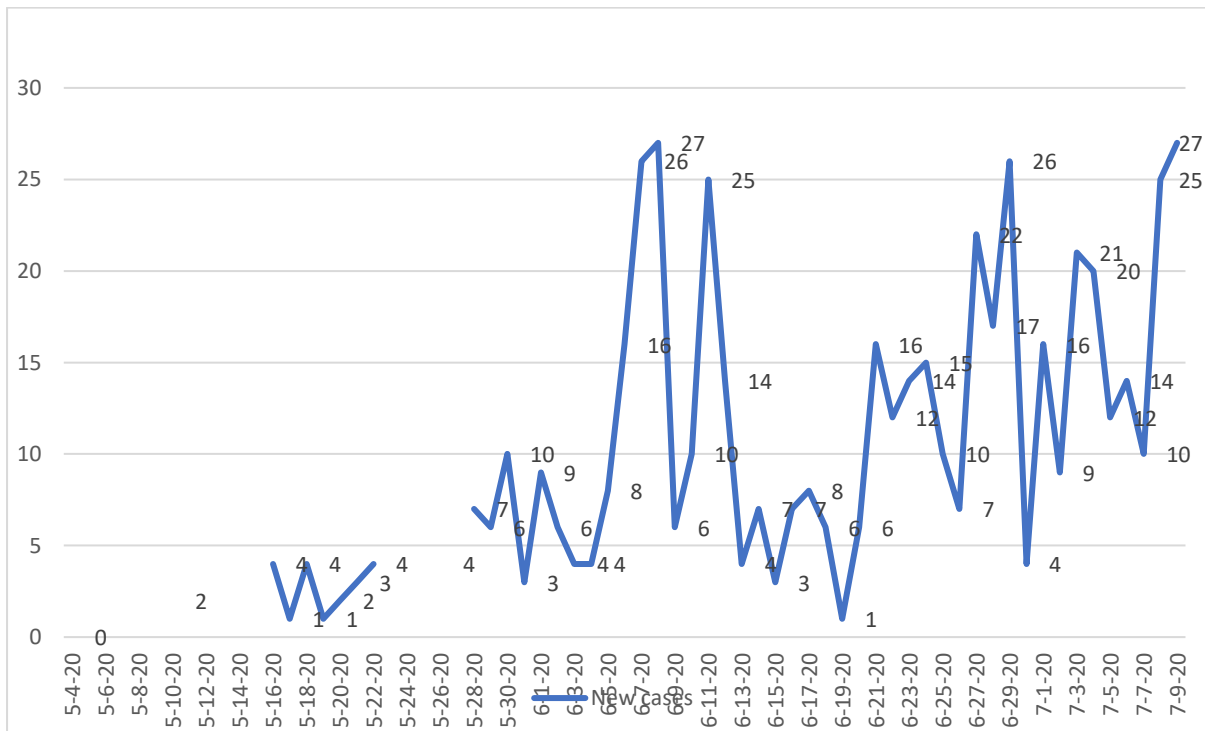
	KERALA	TSR	Percentage of total in TSR
Total number of confirmed cases	6534	557	8.52
Total cases recovered	3708	339	9.14
Deaths	27	3	11.11
Total active cases	2795	215	7.69
<b>AFTER 4TH MAY</b>			
Import	5161	460	8.91
Contacts	874	83	9.50
Total	6035	543	9.00
Proportion of locally acquired cases (after may 4) %	14.48	15.29	
Imported: locally acquired ratio (after may 4)	5.91 : 1	5.54 : 1	
<b>CONTACTS UNDER SURVEILLANCE</b>			
Total people currently under observation	29819	3511	11.77
Primary contacts	25306	3057	12.08
Secondary contacts	4513	454	10.06
Travellers	17833	2541	14.25
Local contacts	11986	970	8.09

Thrissur constituted 8.2 % of COVID cases reported in last 14 days and 8.52% of total cases in state.



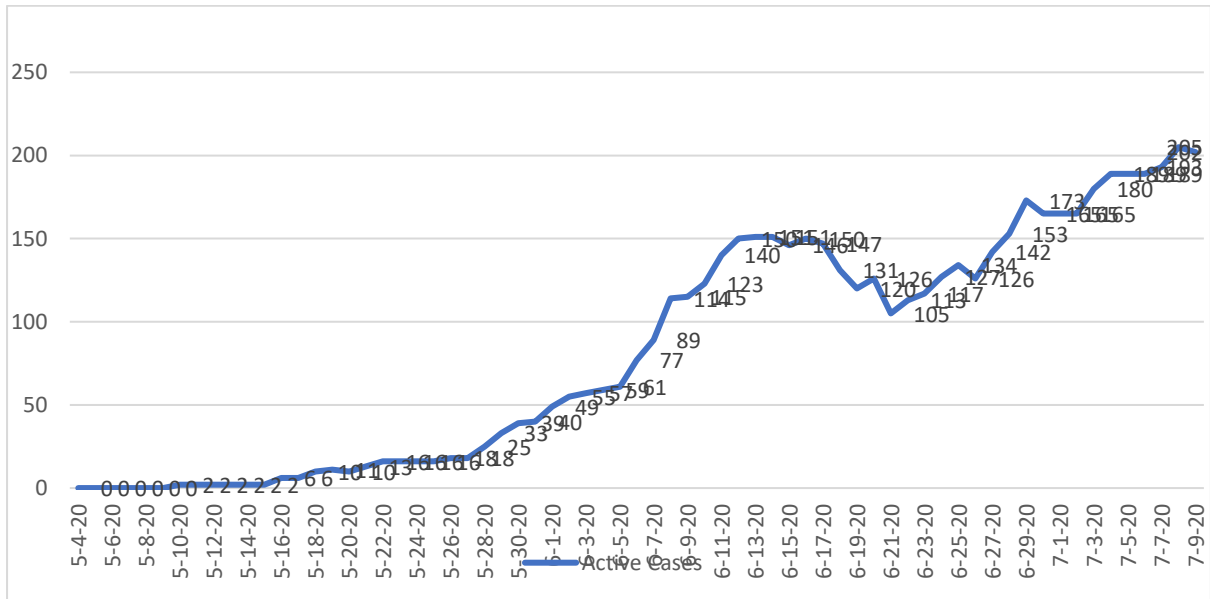
Recovery rate is 60.8 % as on 9-07-2020

### New cases

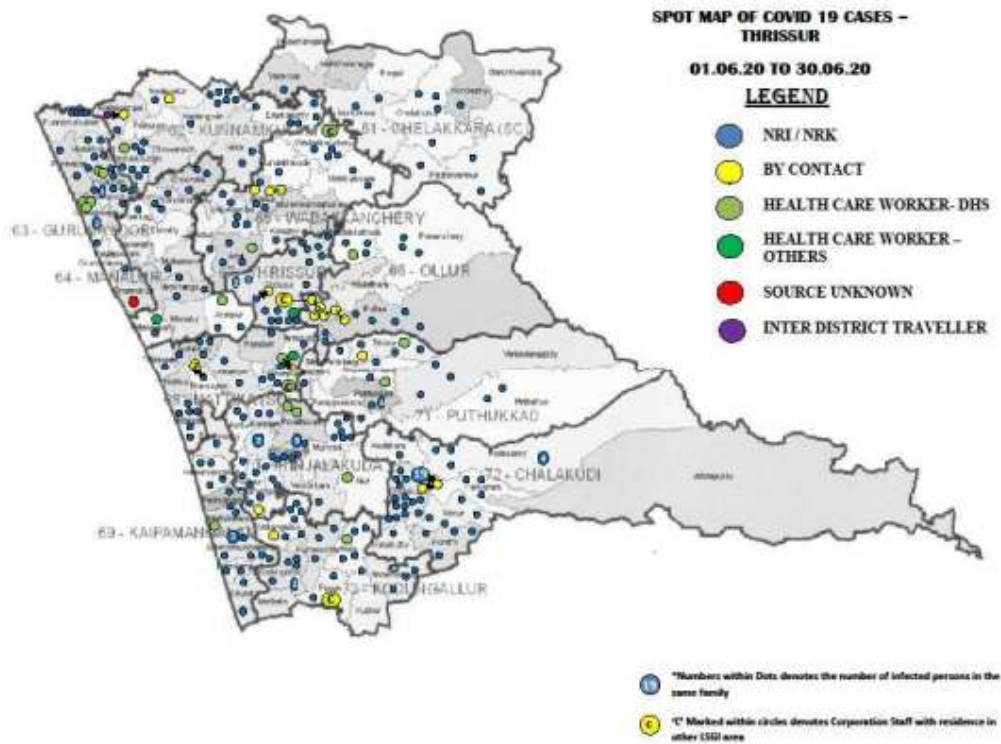




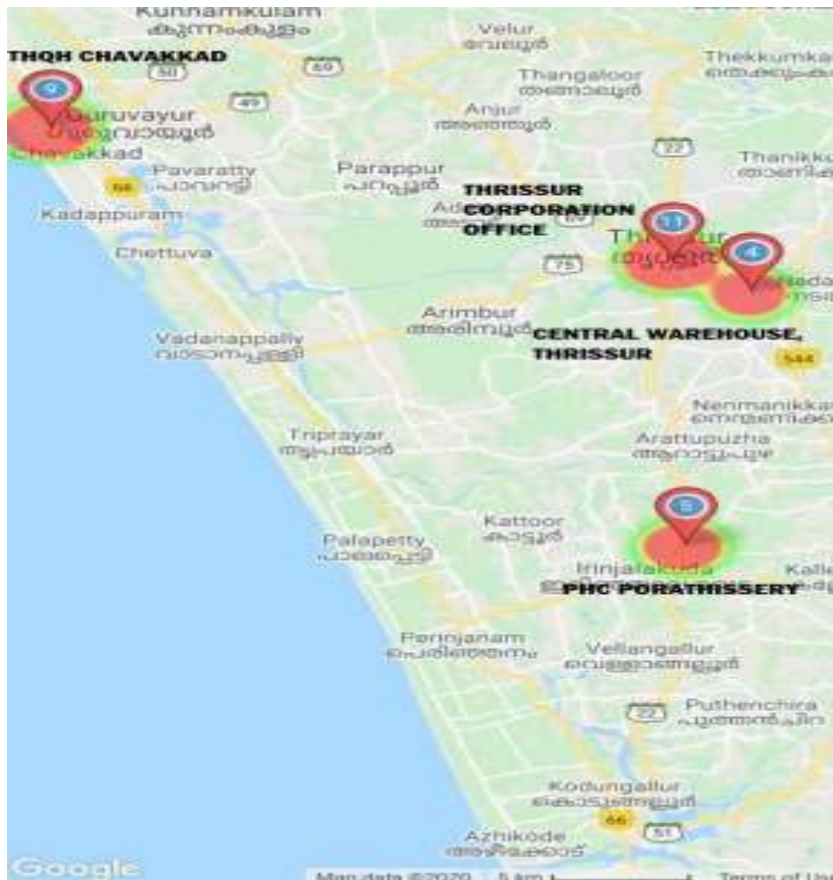
## Active Cases



## Spot Map of Cases in Thrissur



## Clusters Identified in Thrissur



**THQH Chavakkad** - 149 hospital staff and 32 ASHA workers of which 9 were found positive (1 Staff nurse, 1 OP receptionist, 2 ASHA workers and 1 cook, 2 JPHN, 1 PRO and 1 Lay Secretary)

**CHC Vadakkekad** - 47 hospital staff and 22 ASHA workers of which 3 were found positive (PRO, Doctor, Palliative nurse)

**PHC Porathissery** - 20 hospital staff and 26 ASHA workers of which 5 were positive (1 JPHN, 1 JHI, 1 Pharmacist, 1 Ambulance driver, ASHA).

**Corporation Office, Thrissur**

**Warehouse, Thrissur**

The possible reason for clustering among the HCW points to compromise in the general preventive measures in maintaining social distancing, use of mask and proper sanitation. (eg. Sharing common space for having food (together) etc. especially in ill ventilated rooms).

### **Actions taken by District**

- Preparing spot map of cases
- Active case finding by Detailed contact tracing
- Enforcement of room quarantine

### **Activities in containment zone**

- Testing of contacts as per guidelines
- Testing of all IL/ SARI cases from the area.
- Strict enforcement of social distancing

### **District Specific Actions**

Thrissur is showing evidence of recent local transmissions and increase in locally acquired cases. Monitor the cases and do mapping daily to identify early warning signs such as stray positive cases in more numbers not knowing the source of infection, sudden death, sudden increase in fever cases, respiratory illnesses in OPD.

Strengthen Hospital Infection control in all hospitals

Strengthen surveillance in coastal areas

## **KASARAGOD**

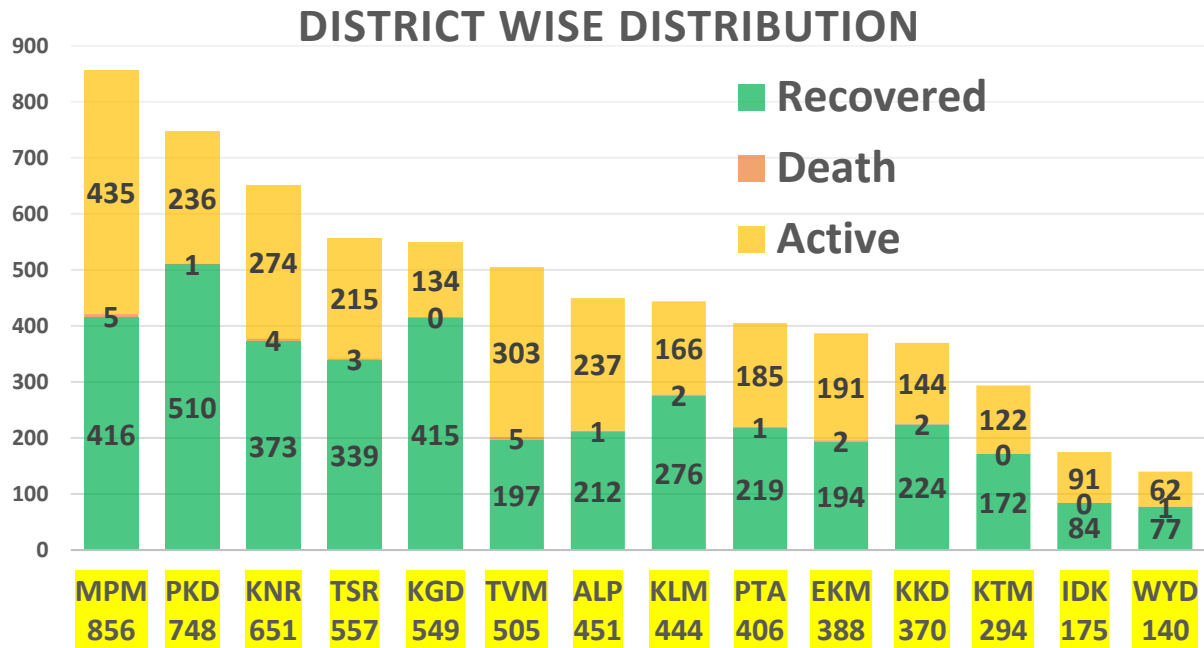
Population - 13.1 Lakhs

Population density - 656/km<sup>2</sup>.

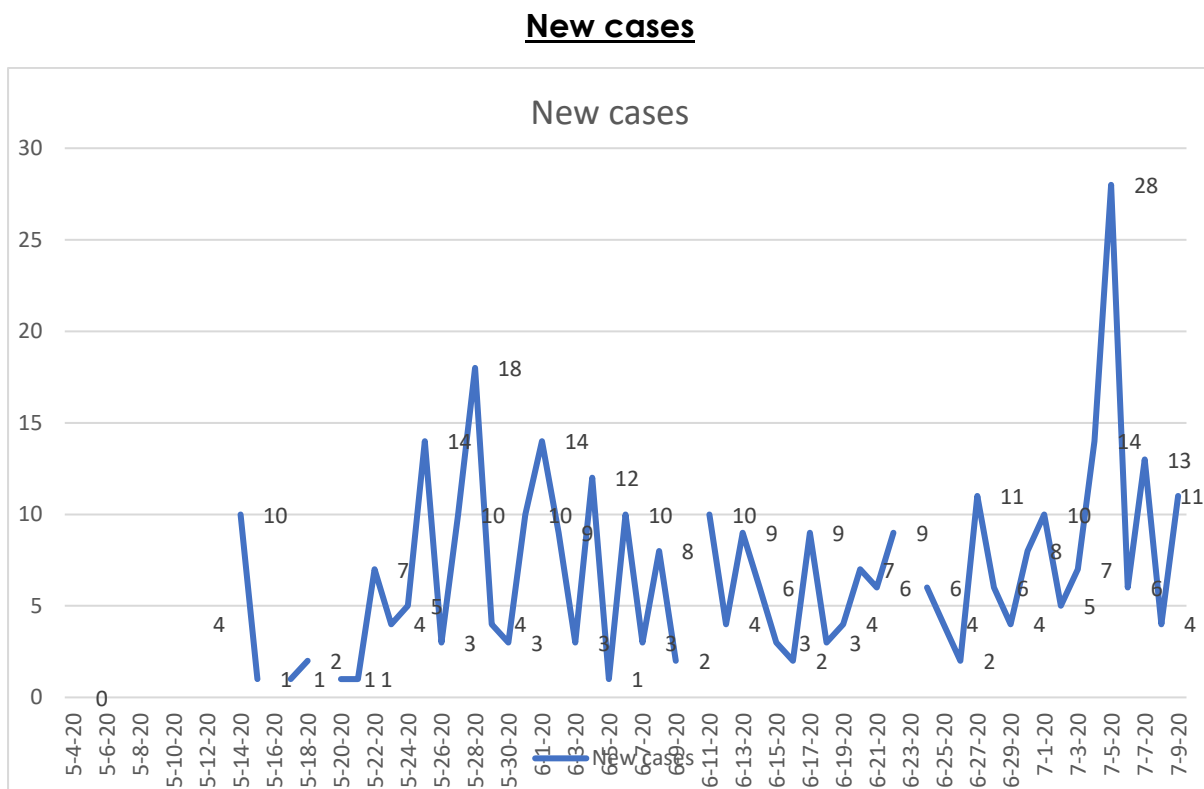
### **Kasaragod- COVID scenario**

	KERALA	KGD	Percentage
Total number of confirmed cases	6534	549	8.40
Total cases recovered	3708	415	11.19
Deaths	27	0	0.00
Total active cases	2795	134	4.79
<b>AFTER 4TH MAY</b>			
Import	5161	349	6.76
Contacts	874	22	2.52
Total	6035	371	6.15
Proportion of locally acquired cases (after may 4) %	14.48	5.93	
Imported: locally acquired ratio (after may 4)	5.91 : 1	15.9 : 1	
<b>CONTACTS UNDER SURVEILLANCE</b>			
Total people currently under observation	29819	448	1.50
Primary contacts	25306	406	1.60
Secondary contacts	4513	42	0.93
Travellers	17833	132	0.74
Local contacts	11986	316	2.64

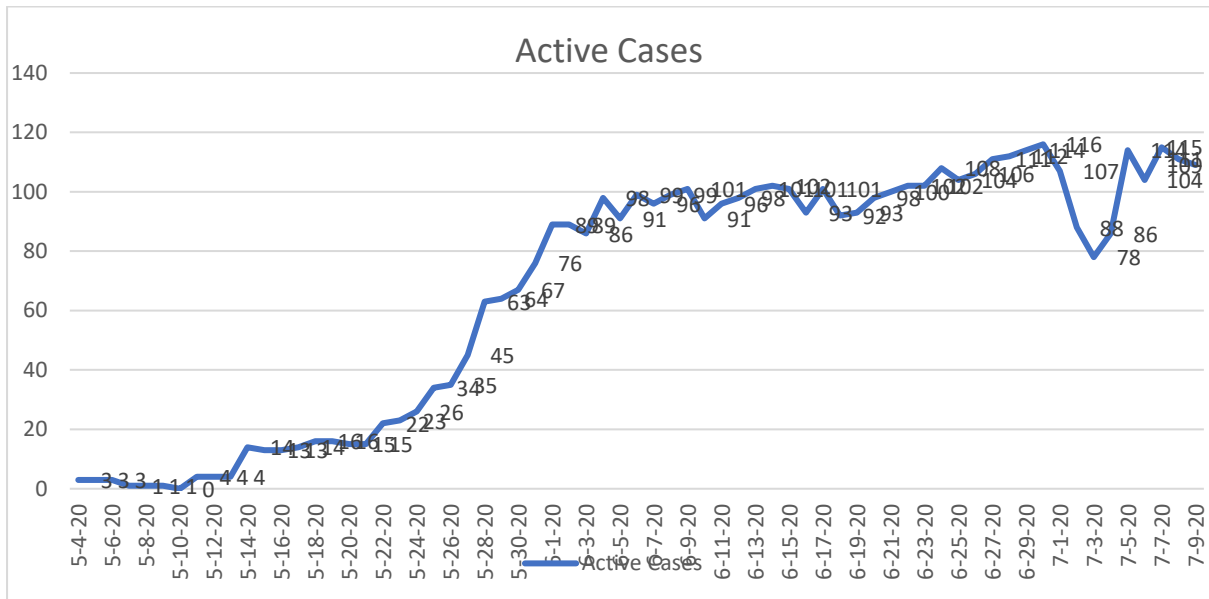
Kasaragod constituted 4.5% of COVID cases reported in last 14 days and 8.4 % of total cases in state.



Recovery rate is 75.6 % as on 9-07-2020



## Active cases



No active clusters in Kasaragod

## **KOZHIKODE**

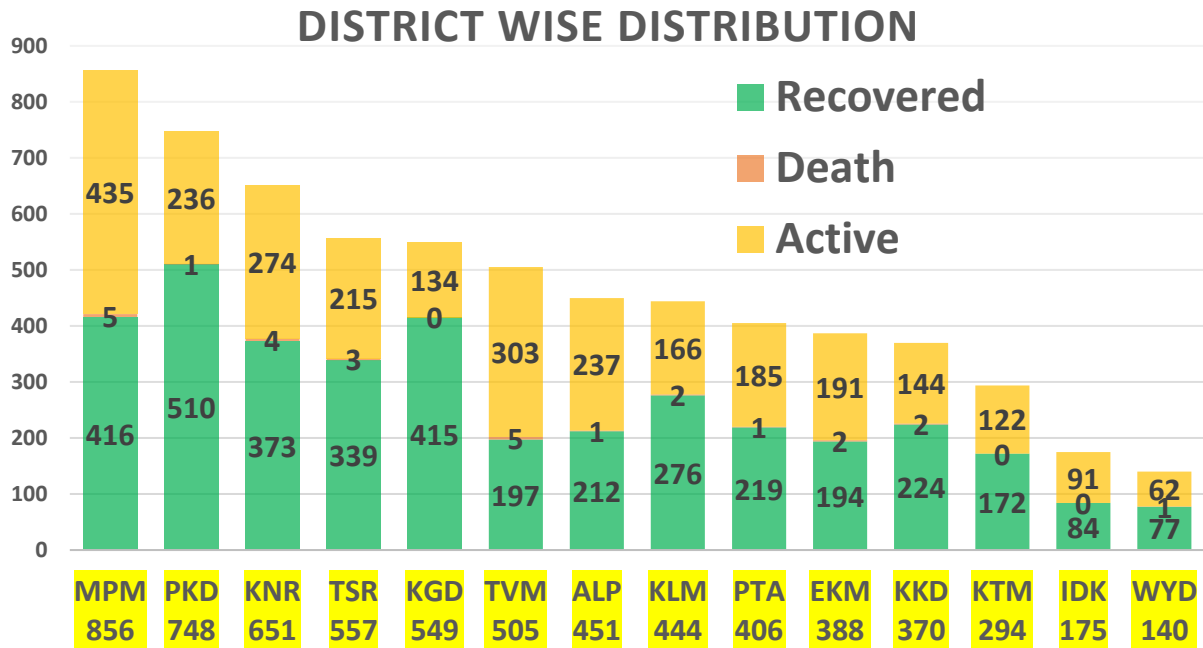
Population - 30.8 Lakhs

Population density - 1316/km<sup>2</sup>.

### **Kozhikode- COVID scenario**

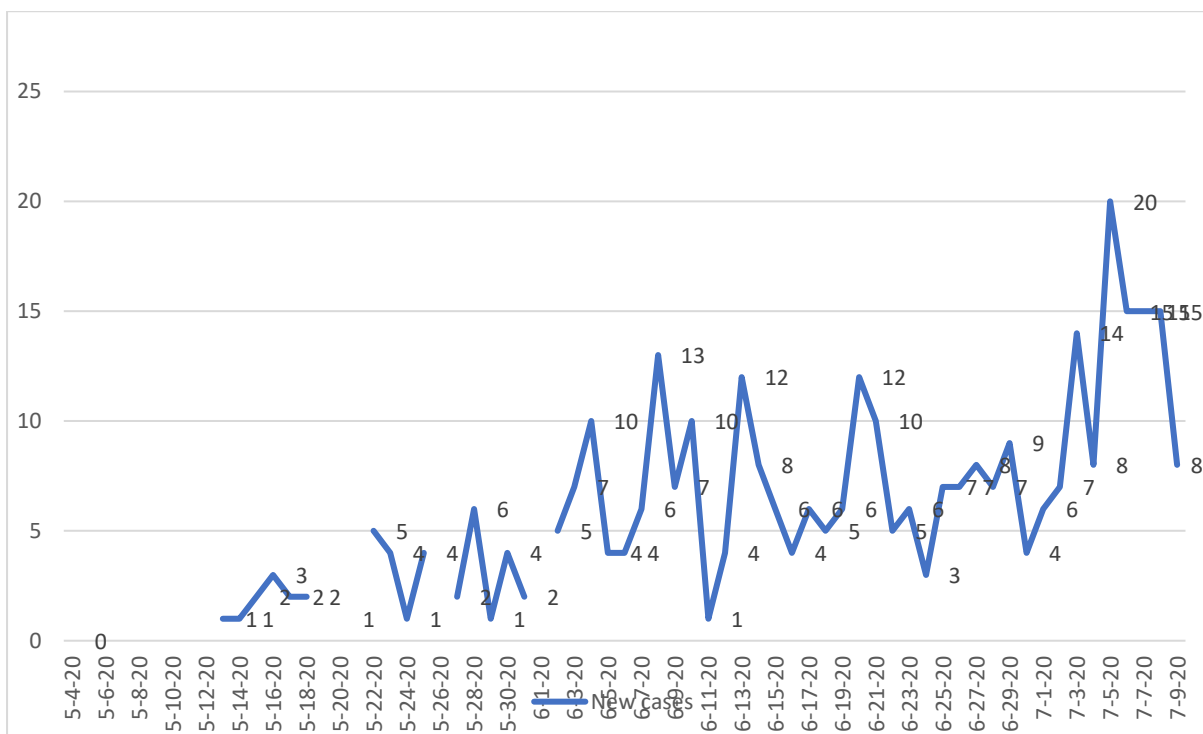
	KERALA	KKD	Percentage in KKD of state total
Total number of confirmed cases	6534	370	5.66
Total cases recovered	3708	224	6.04
Deaths	27	2	7.41
Total active cases	2795	144	5.15
<b>AFTER 4TH MAY</b>			
Import	5161	314	6.08
Contacts	874	31	3.55
Total	6035	345	5.72
Proportion of locally acquired cases (after may 4) %	14.48	8.99	
Imported: locally acquired ratio (after may 4)	5.91 : 1	10.1 : 1	
<b>CONTACTS UNDER SURVEILLANCE</b>			
Total people currently under observation	29819	6075	20.37
Primary contacts	25306	6056	23.93
Secondary contacts	4513	19	0.42
Travellers	17833	3714	20.83
Local contacts	11986	2361	19.70

Kozhikode constituted 5 % of COVID cases reported in last 14 days and 5.66 % of total cases in state.



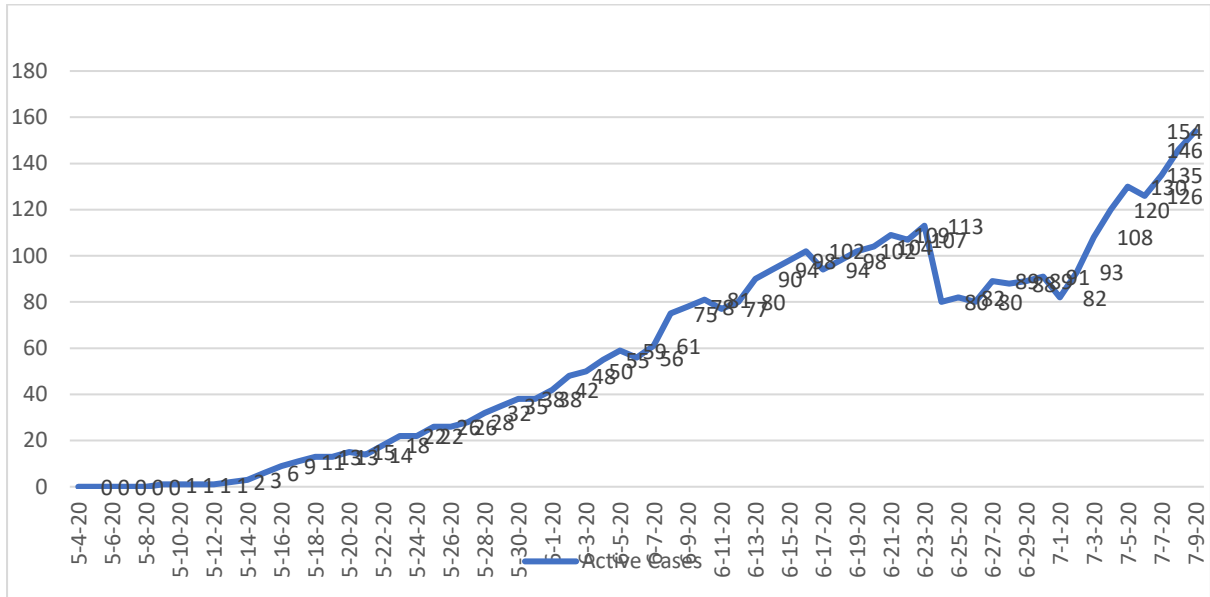
Recovery rate is 60.5 % as on 9-07-2020

#### Daily report of New cases

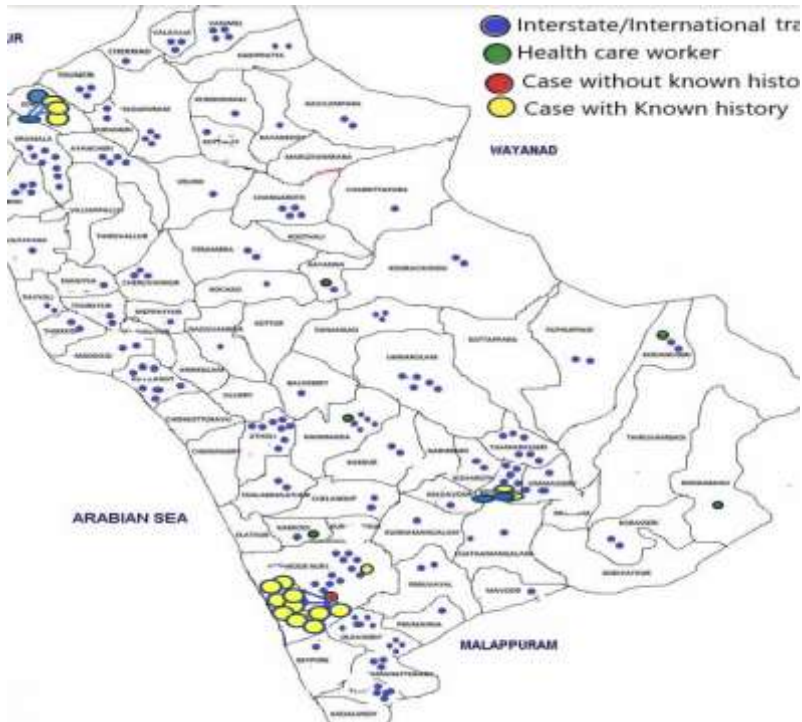




## Active Cases



## Spot Map Kozhikode



No active cluster in Kozhikode

## **KOTTAYAM**

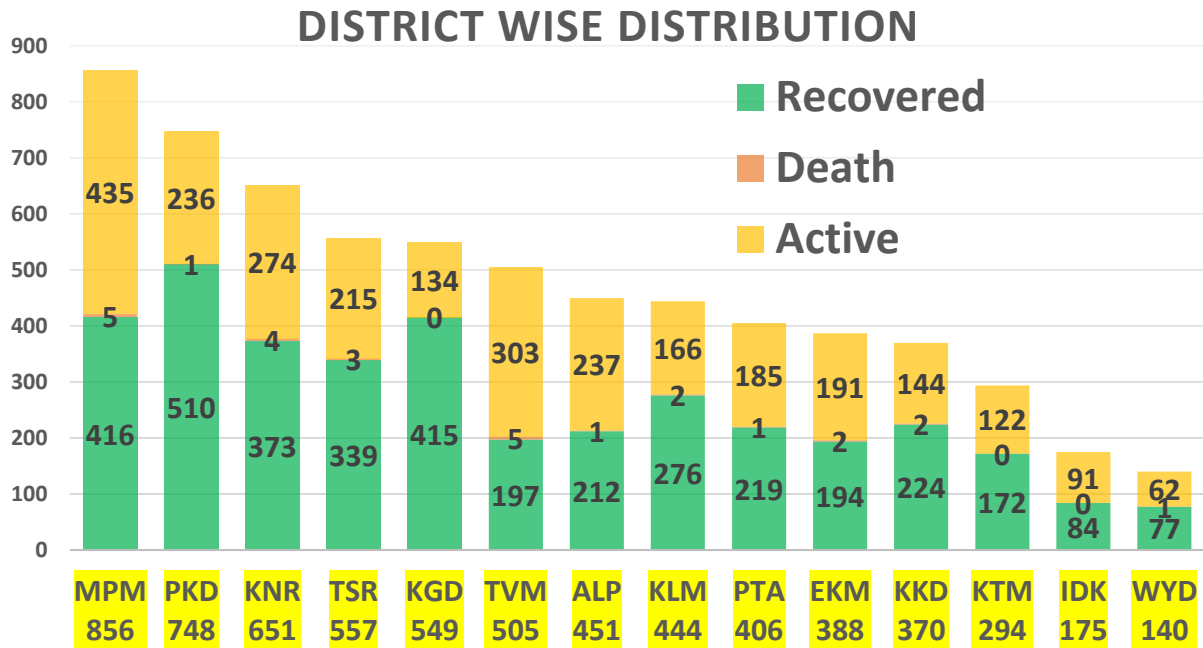
Population - 19.75 Lakhs

Population density - 894/km<sup>2</sup>.

### **Kottayam- COVID scenario**

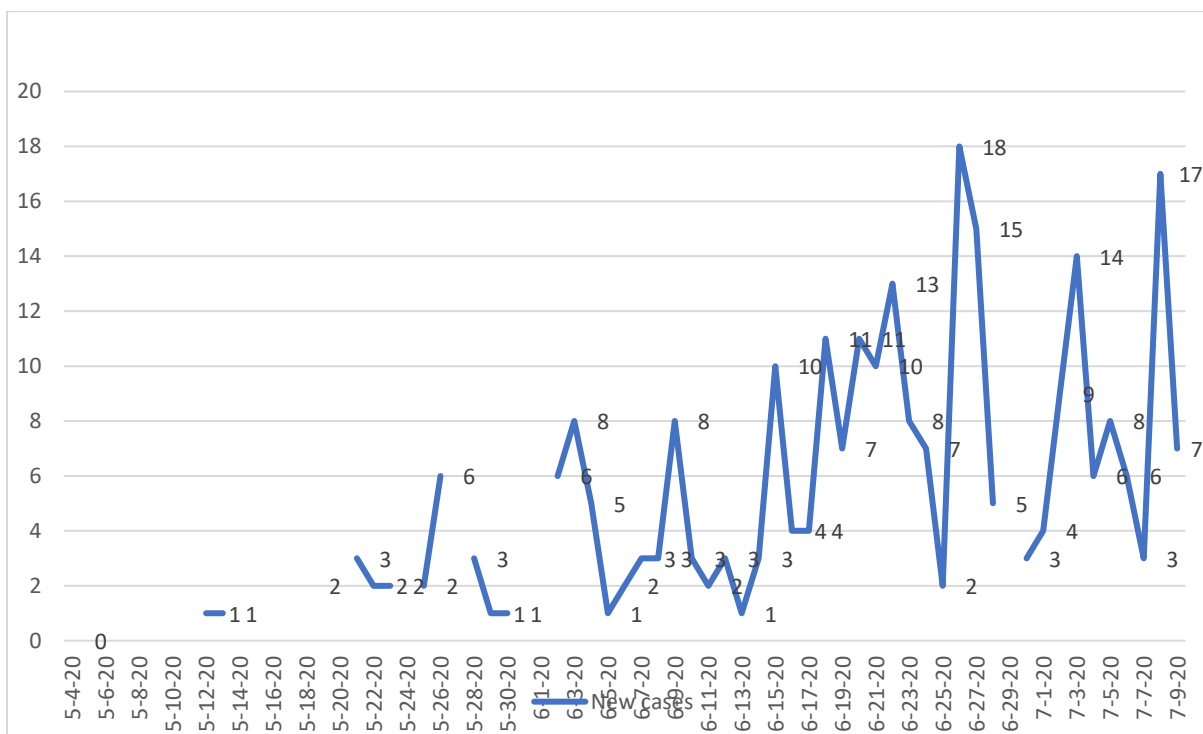
	KERALA	KTM	Percentage in Kottayam of total in state
Total number of confirmed cases	6534	294	4.50
Total cases recovered	3708	172	4.64
Deaths	27	0	0.00
Total active cases	2795	122	4.36
<b>AFTER 4TH MAY</b>			
Import	5161	257	4.98
Contacts	874	17	1.95
Total	6035	274	4.54
Proportion of locally acquired cases (after may 4) %	14.48	6.20	
Imported: locally acquired ratio (after may 4)	5.91 : 1	15.1 : 1	
<b>CONTACTS UNDER SURVEILLANCE</b>			
Total people currently under observation	29819	2253	7.56
Primary contacts	25306	2245	8.87
Secondary contacts	4513	8	0.18
Travellers	17833	2123	11.90
Local contacts	11986	130	1.08

Kottayam constituted 4 % of COVID cases reported in last 14 days and 4.5 % of total cases in state.

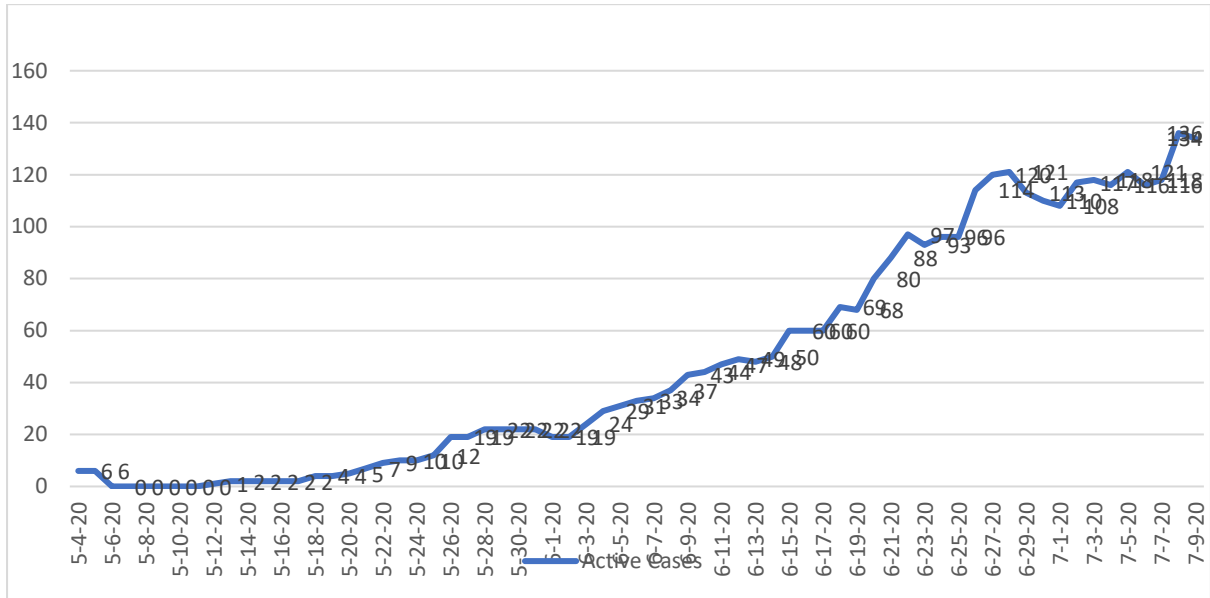


Recovery rate is 58.5 % as on 9-07-2020

#### Daily report of New cases



## Active Cases



## Spot Map of Kottayam



## **Clusters in Kottayam**

Chirakkadavu – ward 4,5

Pallikkathodu – ward 8

Erumali – Ward 12

## **Suggestions for Kottayam**

Improve surveillance in markets.

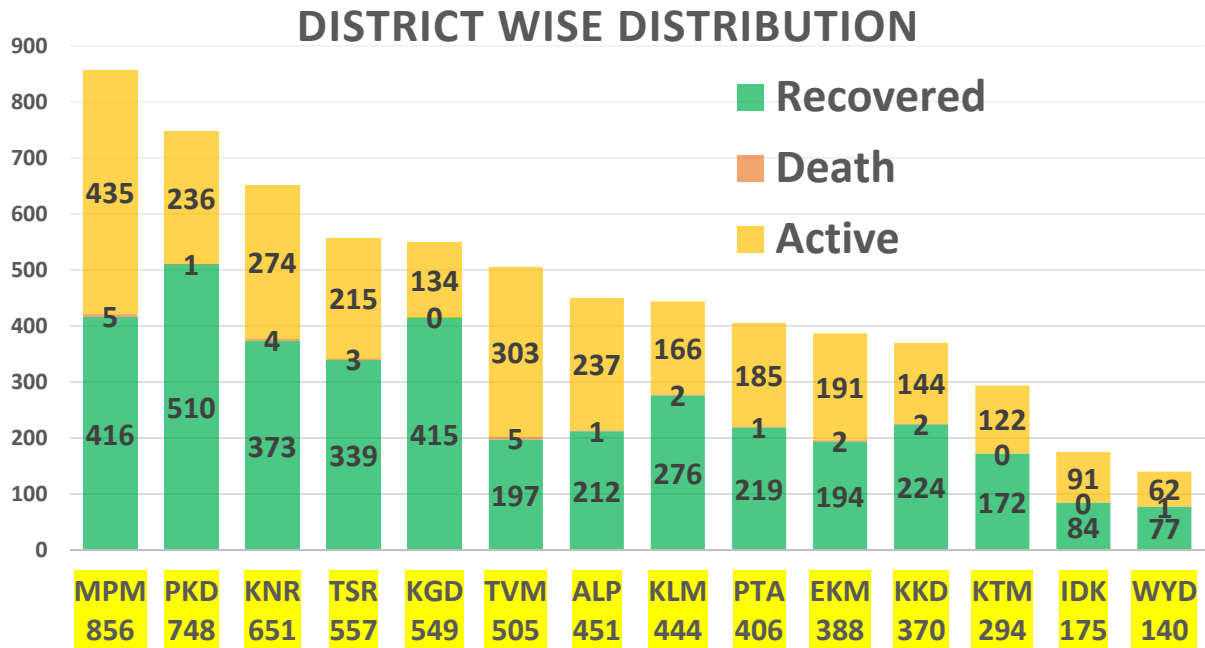
## **IDUKKI**

Population - 11 Lakhs  
Population density - 254/km<sup>2</sup>.

### **Idukki- COVID scenario**

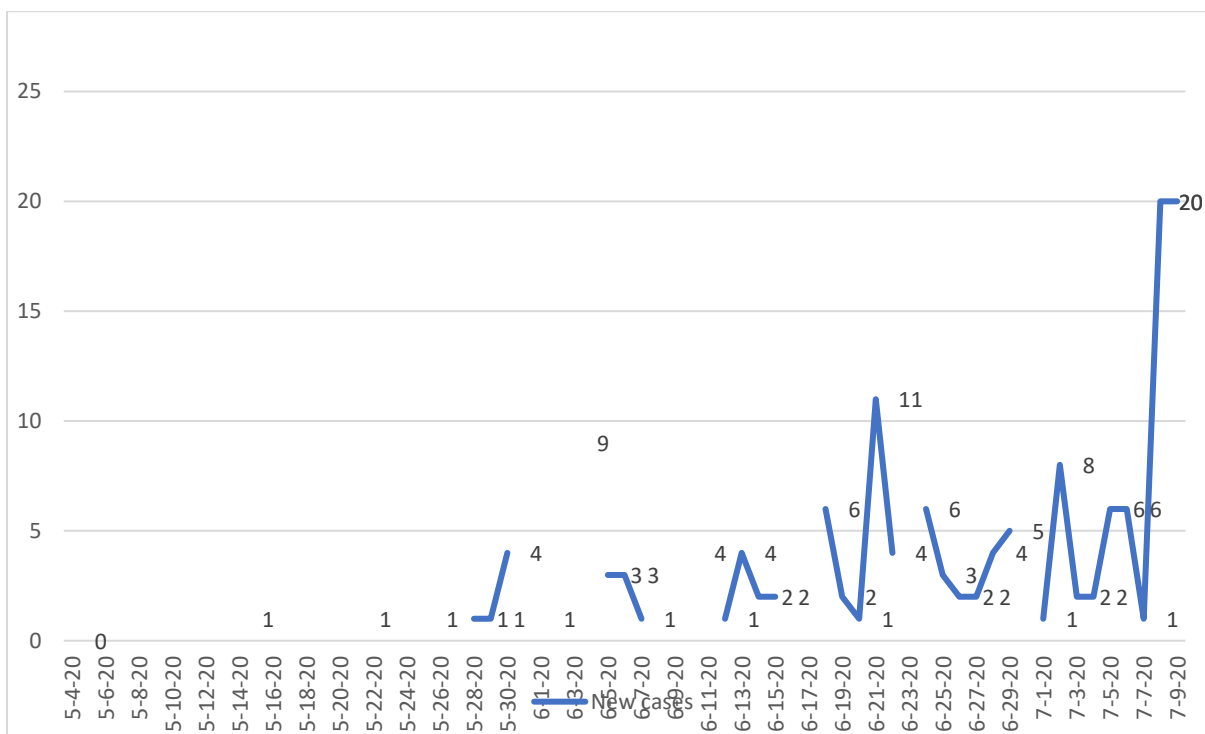
	KERALA	IDK	Percentage in IDK of state total
Total number of confirmed cases	6534	175	2.68
Total cases recovered	3708	84	2.27
Deaths	27	0	0.00
Total active cases	2795	91	3.26
<b>AFTER 4TH MAY</b>			
Import	5161	138	2.67
Contacts	874	13	1.49
Total	6035	151	2.50
Proportion of locally acquired cases (after may 4) %	14.48	8.61	
Imported: locally acquired ratio (after may 4)	5.91 : 1	10.6 : 1	
<b>CONTACTS UNDER SURVEILLANCE</b>			
Total people currently under observation	29819	723	2.42
Primary contacts	25306	588	2.32
Secondary contacts	4513	135	2.99
Travellers	17833	34	0.19
Local contacts	11986	689	5.75

Idukki constituted 2.8 % of COVID cases reported in last 14 days and 2.68 % of total cases in state.

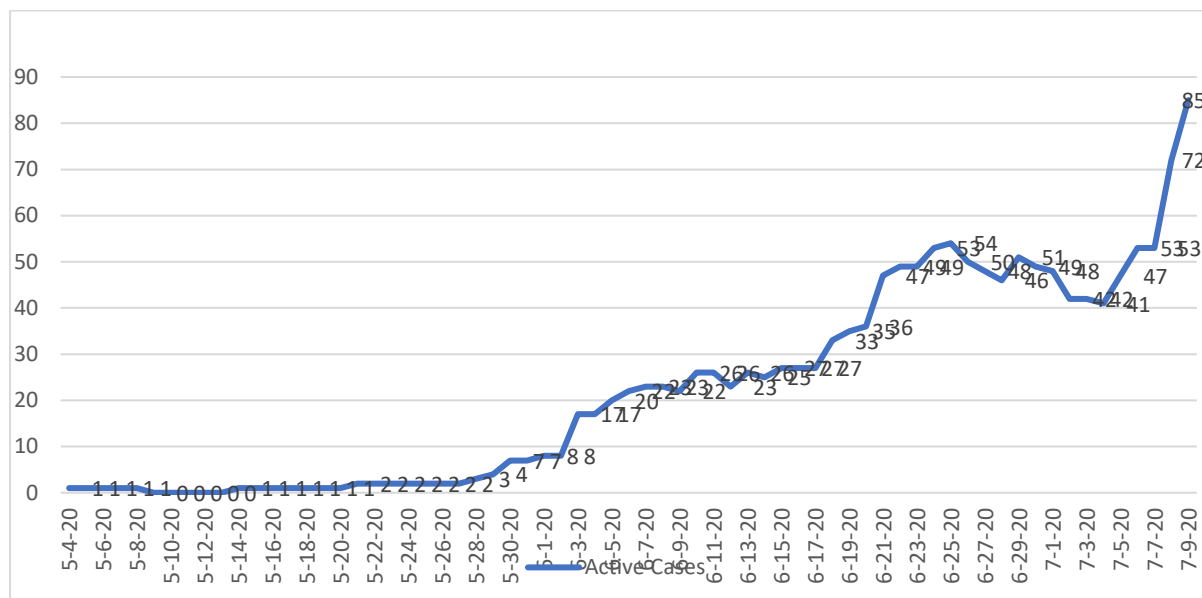


Recovery rate is 48 % as on 9-07-2020

#### Daily report of New cases



## Active Cases



### Clusters in Idukki

Kanjikuzhi Panchayat, 4 Cases

Kattappana Municipality, Ward 8, 4 cases – Was under lockdown, testing of all contacts done – 4 primary contacts (9.5%) turned positive, Sentinel surveillance samples taken from Kattappana high risk groups for 2 weeks, none turned out to be positive.

### Actions taken

Special teams at the DSU level & Peripheral level constituted

Block Level Nodal Officers (Health block) identified

Sample collecting facility provided

5 mobile sample collection teams, planning to upscale to 10.

DSU has 20 teams with specific assigned roles, supported by 6 public health experts



## **KOLLAM**

Population - 25.8 Lakhs

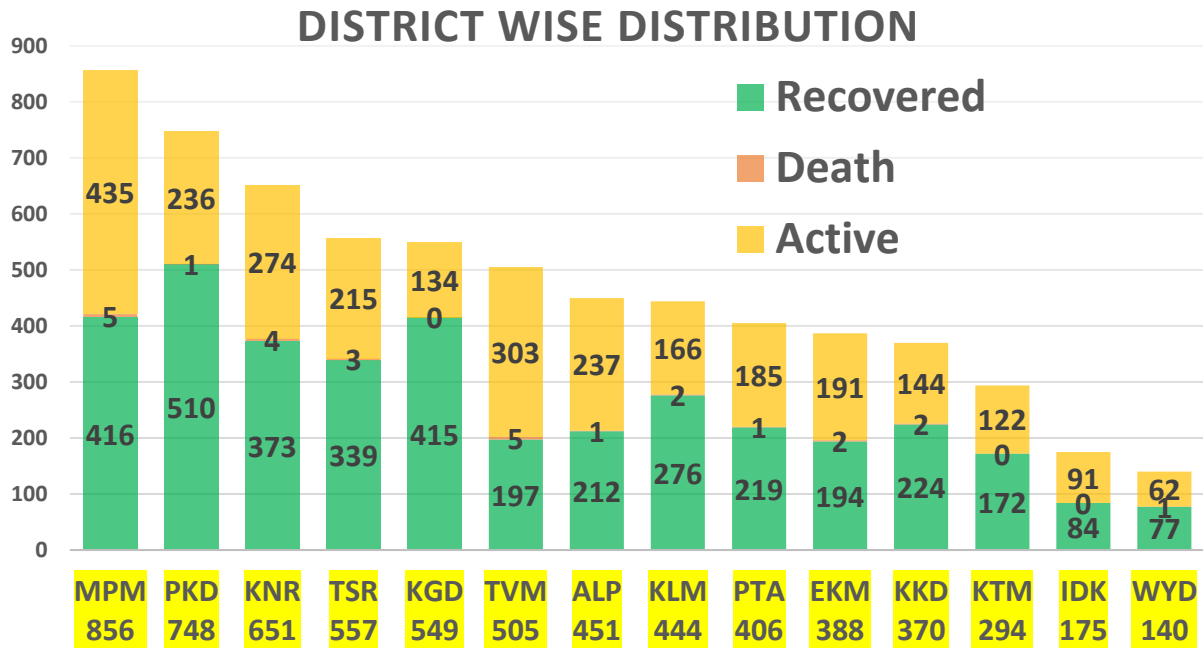
Population density - 1037/km<sup>2</sup>.

Kollam is the most populous district in Kerala.

### **Kollam- COVID scenario**

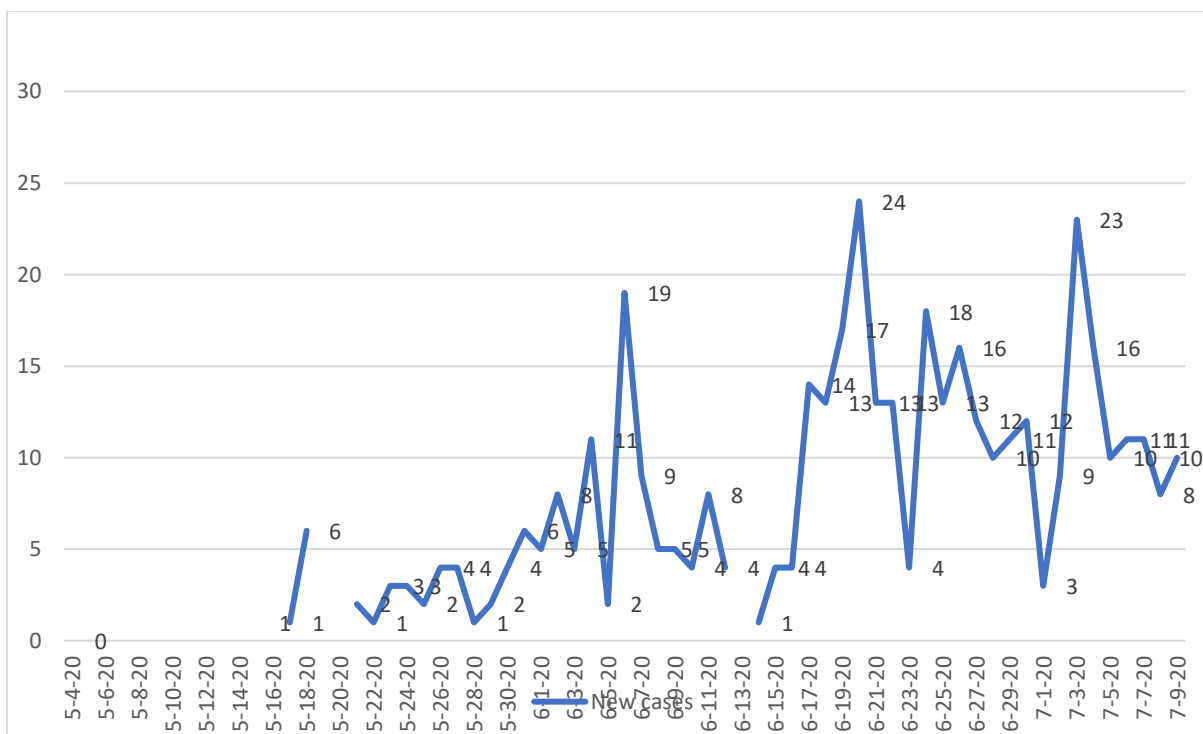
	KERALA	KLM	Percentage
Total number of confirmed cases	6534	444	6.80
Total cases recovered	3708	276	7.44
Deaths	27	2	7.41
Total active cases	2795	166	5.94
<b>AFTER 4TH MAY</b>			
Import	5161	388	7.52
Contacts	874	35	4.00
Total	6035	423	7.01
Proportion of locally acquired cases (after may 4) %	14.48	8.27	
Imported: locally acquired ratio (after may 4)	5.91 : 1	11.1 : 1	
<b>CONTACTS UNDER SURVEILLANCE</b>			
Total people currently under observation	29819	356	1.19
Primary contacts	25306	272	1.07
Secondary contacts	4513	84	1.86
Travellers	17833	251	1.41
Local contacts	11986	105	0.88

Kollam constituted 5.7 % of COVID cases reported in last 14 days and 6.8 % of total cases in state.

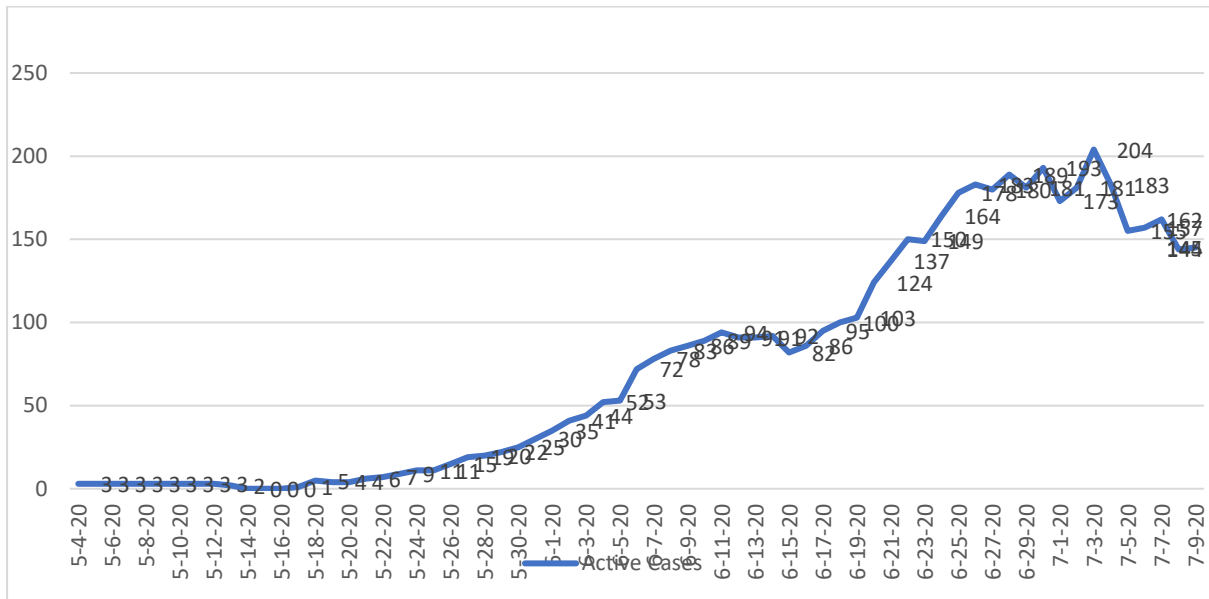


Recovery rate is 62.2 % as on 9-07-2020

#### Daily report of New cases



## Active Cases



### Details of Clusters

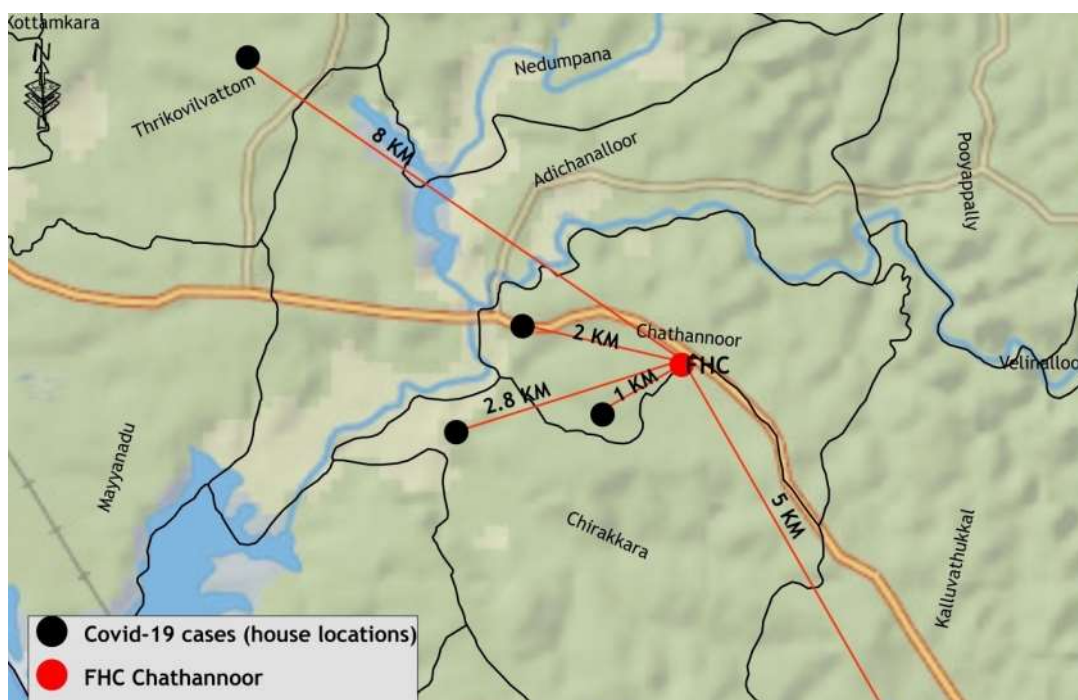
#### Old Clusters (Already Contained)

1. CHATHANOOR
2. KALLUVATHUKKAL
3. KADAKKAL
4. KULATHUPUZHA

#### Current Clusters

1. KAVANADU
2. SHAKTHIKULANGARA
3. ERAVIPURAM
4. PULAMON  
KOTTARAKKARA

5. MULANKADAKAM JUNCTION
6. SHASTHAMCOTTAH
7. CHAVARA



### Chatthannur cluster

- a. Total contacts identified - 352
- b. Positive-3
- c. Negative- 219
- d. Not tested - 349

### Kalluvathukkal cluster

The three cases found positive are epidemiologically linked, The possible source of infection is P16 who belongs to the earlier cluster of cases from Chathannoor, works in FHC Chathannoor, but stays in Kalluvathukkal. No other contacts have become positive.

### District Specific Suggestion

District to strengthen surveillance at coastal areas

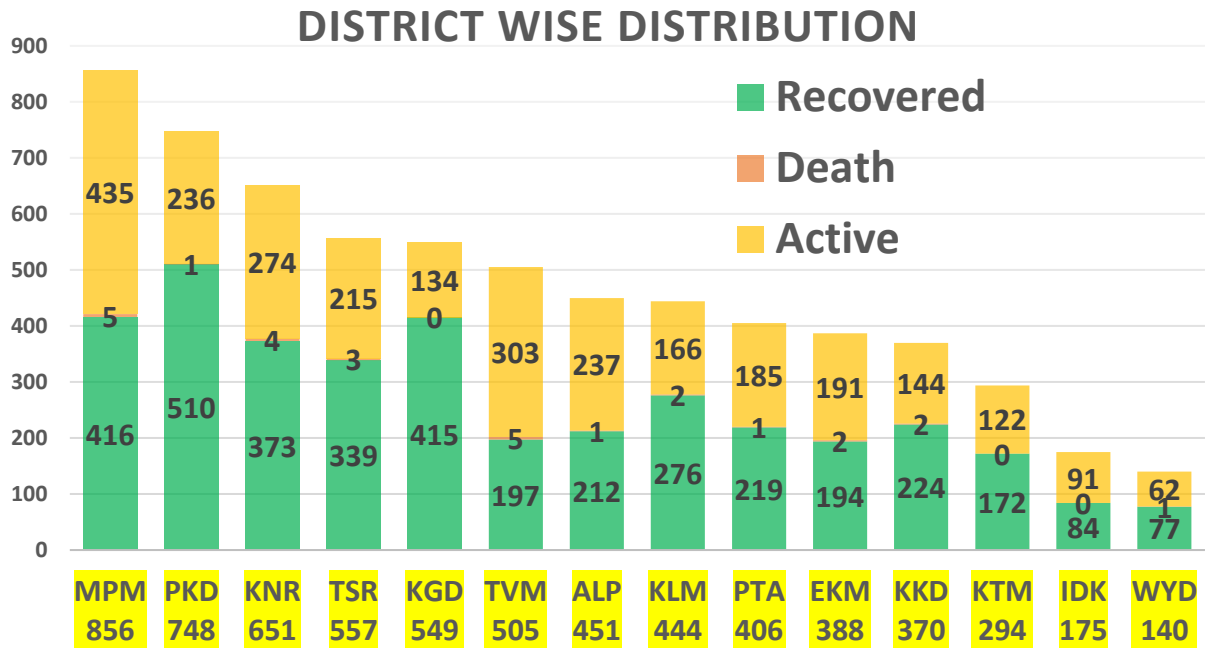
## **PALAKKAD**

Population - 28 Lakhs  
Population density - 627/km<sup>2</sup>.

### **Palakkad- COVID scenario**

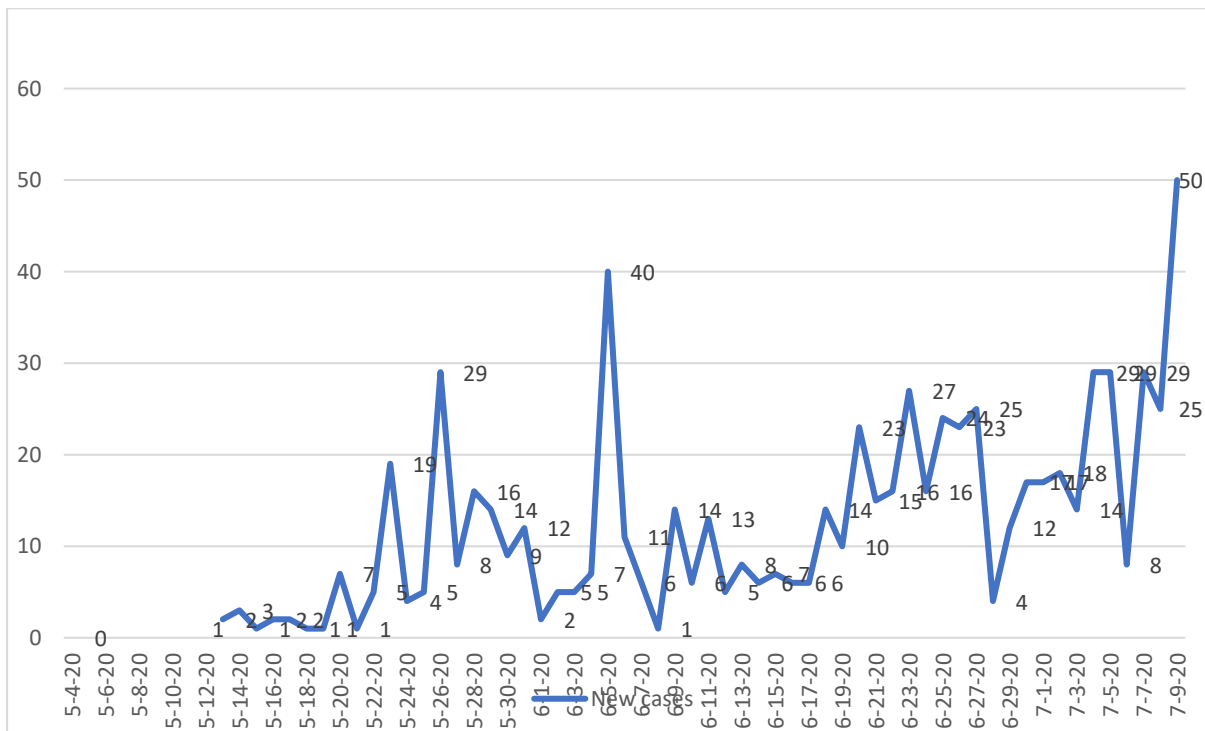
	KERALA	PKD	Percentage
Total number of confirmed cases	6534	748	11.45
Total cases recovered	3708	510	13.75
Deaths	27	1	3.70
Total active cases	2795	236	8.44
<b>AFTER 4TH MAY</b>			
Import	5161	678	13.14
Contacts	874	55	6.29
Total	6035	733	12.15
Proportion of locally acquired cases (after may 4) %	14.48	7.50	
Imported: locally acquired ratio (after may 4)	5.91 : 1	12.3 : 1	
<b>CONTACTS UNDER SURVEILLANCE</b>			
Total people currently under observation	29819	1446	4.85
Primary contacts	25306	1213	4.79
Secondary contacts	4513	233	5.16
Travellers	17833	443	2.48
Local contacts	11986	1003	8.37

Palakkad constituted 10.69 % of COVID cases reported in last 14 days and 11.45% of total cases in state.

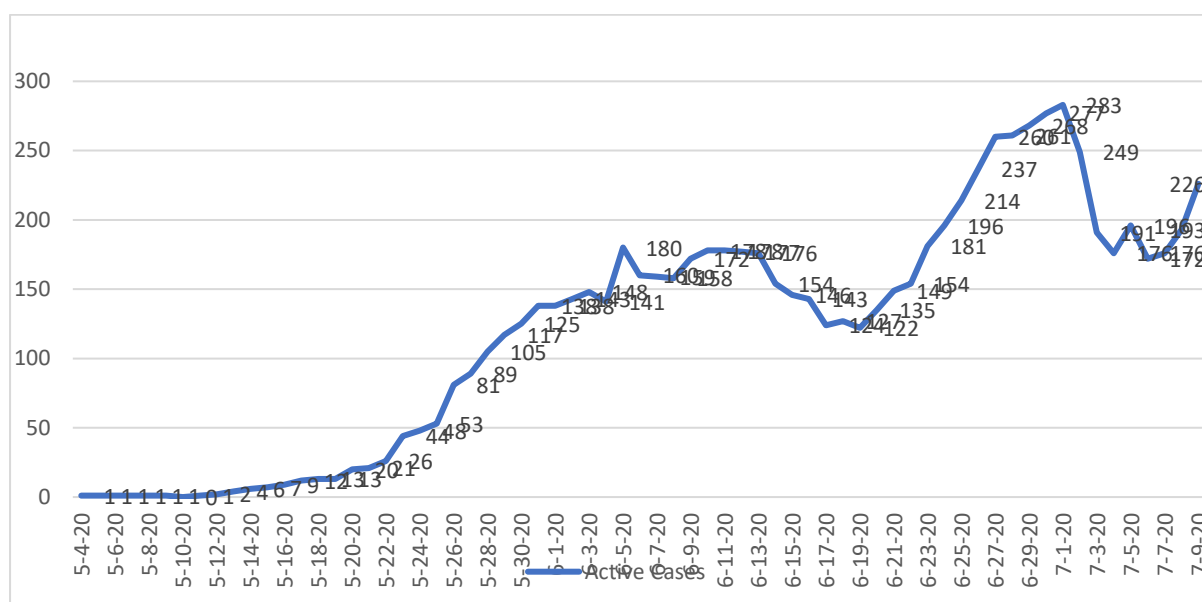


The second most burdened district in the state, Recovery rate is 68.2 % as on 9-07-2020

### New cases



## Active cases



### Potential places in Palakkad District where clusters can evolve

1. Kanjikkode Industrial area and Alanallur
2. Tamilnadu border sharing area in Chittoor Thaluka
3. KSRTC, Municipal, Olavakkode and Stadium bus stands
4. Streets and shops along the NH66 from Walayar to Vaniyampara where interstate passengers and interstate truck drivers halt for refreshment/rets
5. Palakkad junction, town and Shornur railway stations
6. Major markets: Kanjikkode, Koduvayur, Velanthavalam, Kuzhalman nam, Vaniyamkulam, Palakkad Major markets in Valiyangadi, Wadakkanchery
7. Busstands- Ottapalam, Mannarkkad, Pattambi, Wadakkanchery, Alathur
8. Attapadi area
9. Puthunagaram, Anikkode, Kollangode junctions

### Cluster containment measures

1. Aggressive contact tracing activated immediately identifying the cluster
2. A control room will be started at the block PHC level
3. Active case search
4. Enhanced CONTACTS UNDER SURVEILLANCE of ILI/SARI cases in the buffer zone through the Govt. hospitals, private hospitals and clinics, nursing homes, general practitioners, AYUSH hospitals and practitioners.

5. Testing all ILI from zone for 28 days or until no unlinked cases reported for at least 28 days
6. SARI cases at all health facilities will be tested with RT-PCR
7. After ensuring all these measures taken containment zone and buffer zone will be declared Shops,markets and public movement will adhere strictly to the containment strategies like double/triple lockdown as per the situation analysis by the District Authorities Palakkad.
8. Continuous IEC will be given when clusters are being identified giving on emphasis on various aspects of Covid 19 in a phased manner

### **Active case search**

- Case search will be coordinated by a special team at the Panchayath level headed by PHC Medical Officer with the support of Block level Medical officer and Health supervisor by deploying necessary staff from time to time
- At District level this will be implemented and monitored by the team of faculty of Dept of Community Medicine, GMC Palakkad, Deputy DMO & JAMO from the District Medical Office.
- Active case search in the model of Pulse polio model house to house survey will be conducted strictly adhering to the case definition existing at that time.
- The basic units of survey will be wards which will be divided equally among the active search team comprising ASHA, Kudumbashree workers & volunteers and necessary training will be given by training team in a decentralised manner.
- Each team will be given 50-75 houses which will be surveyed and data entered in the concerned forms daily by 12pm which should be supervised and crosschecked by the RRT member of concerned ward.
- The suspected ILI cases found in the survey will be sent for swab collection on the same day itself to the nearest swab collection points.
- The data will be compiled at the PHC level and send to the block level and reporting will happen to the district level before 2pm in excel format through the block level DEO posted in google spreadsheets on the same day.
- Every day at block level and district level the team will analyse the reports, identifies any early warning signals and necessary feedback will be given back in the virtual meeting platforms with the concerned blocks.

### **Survey**

- Team members will be in the field on survey days till noon. At the end of the survey, on each day the forms will be handed over to the team member in charge of ward by ASHA. Data will be converted to a line list at the end of each day. The filed team will
  - 1 Do risk assessment of the cases identified
  - 2 Cases after assessment will be send for appropriate testing as per protocol.



### **Situation analysis and control strategy**

- The team will co-ordinate with the medical officer and do a situation analysis, in which they will identify the threats. They will conduct meetings with stake holders and conduct field visits. The team will arrive at a locally feasible, actionable plan for the control of Covid transmission in the area. The plan should consider locally sustainable measures which can be practiced for at least next 6 months.

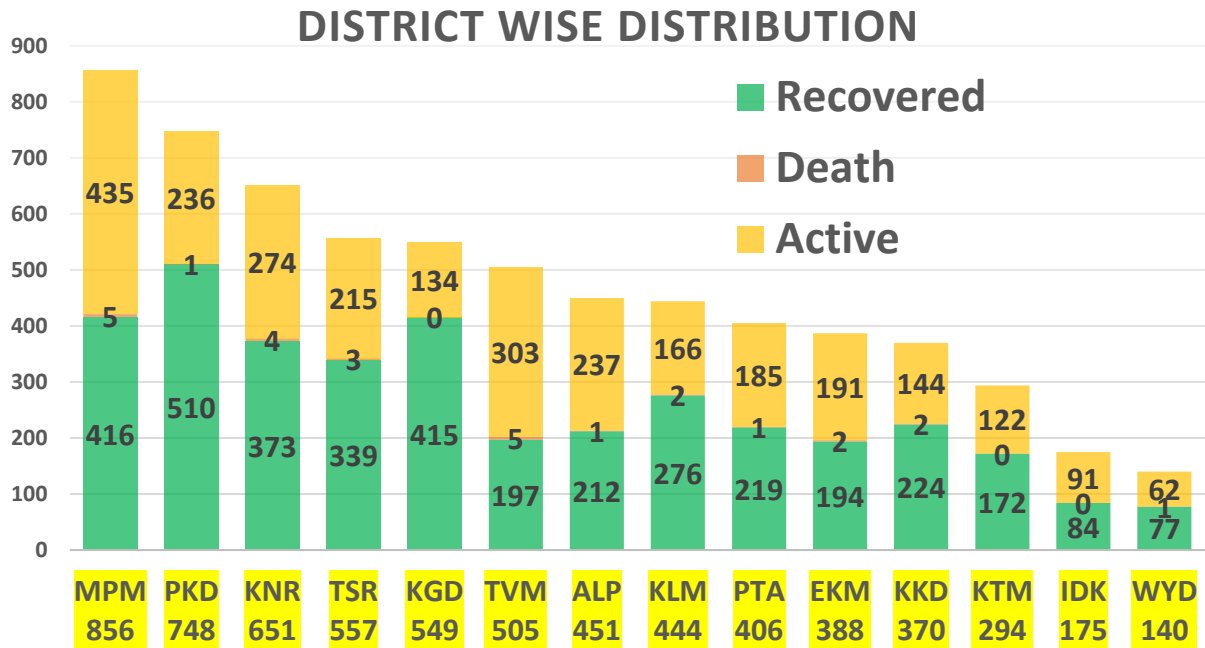
## **PATHANAMTHITTA**

Population - 12 Lakhs  
Population density - 466/km<sup>2</sup>.

### **Pathanamthitta- COVID scenario**

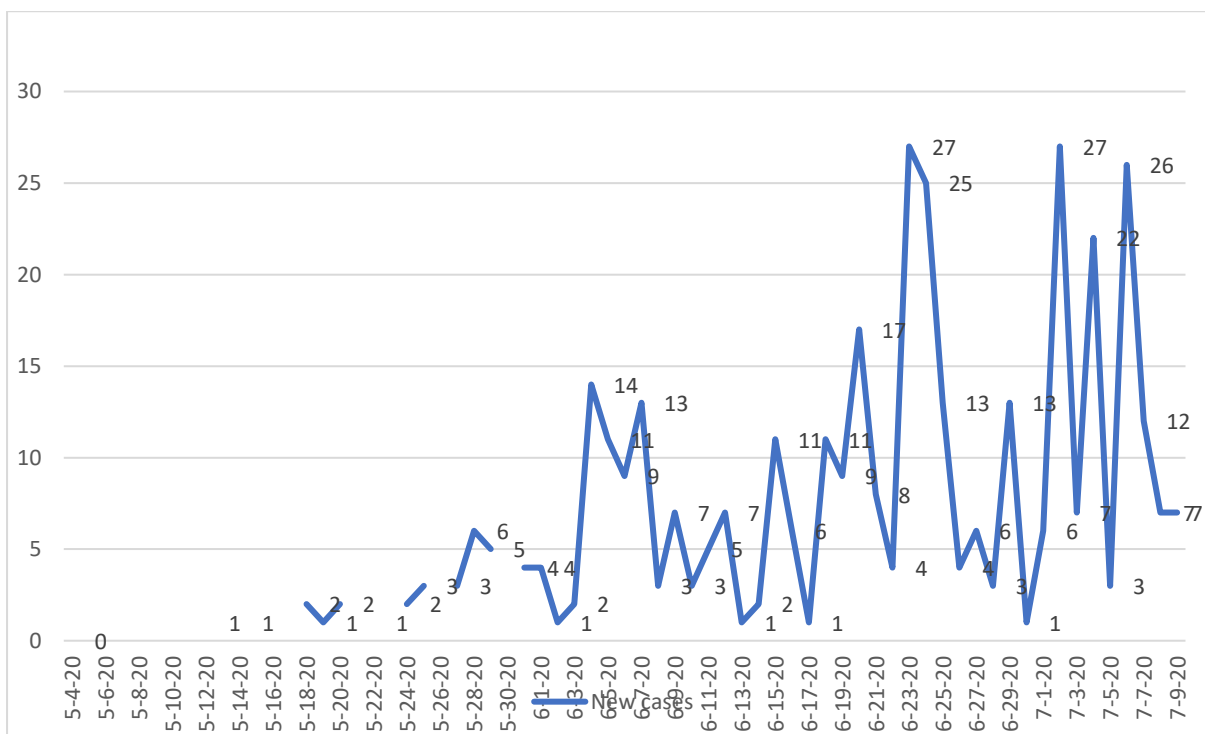
	KERALA	PTA	Percentage
Total number of confirmed cases	6534	406	6.21
Total cases recovered	3708	219	5.91
Deaths	27	1	3.70
Total active cases	2795	185	6.62
<b>AFTER 4TH MAY</b>			
Import	5161	382	7.40
Contacts	874	7	0.80
Total	6035	389	6.45
Proportion of locally acquired cases (after may 4) %	14.48	1.80	
Imported: locally acquired ratio (after may 4)	5.91 : 1	54.6 : 1	
<b>CONTACTS UNDER SURVEILLANCE</b>			
Total people currently under observation	29819	115	0.39
Primary contacts	25306	105	0.41
Secondary contacts	4513	10	0.22
Travellers	17833	105	0.59
Local contacts	11986	10	0.08

Pathanamthitta constituted 5.1 % of COVID cases reported in last 14 days and 6.21 % of total cases in state.

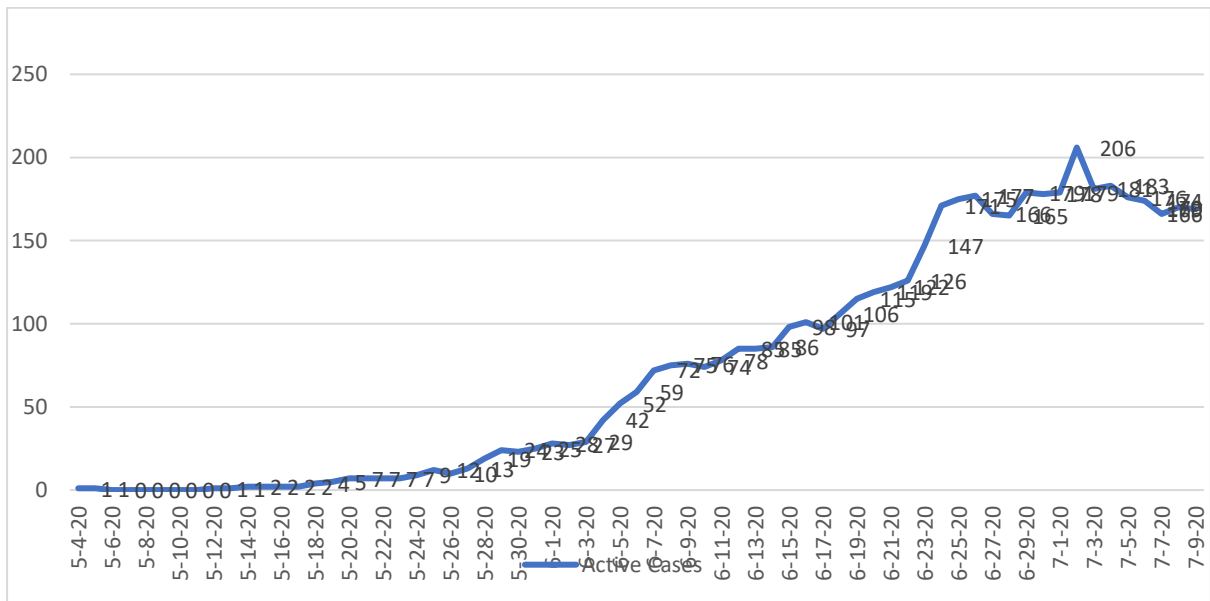


Recovery rate is 53.9 % as on 9-07-2020

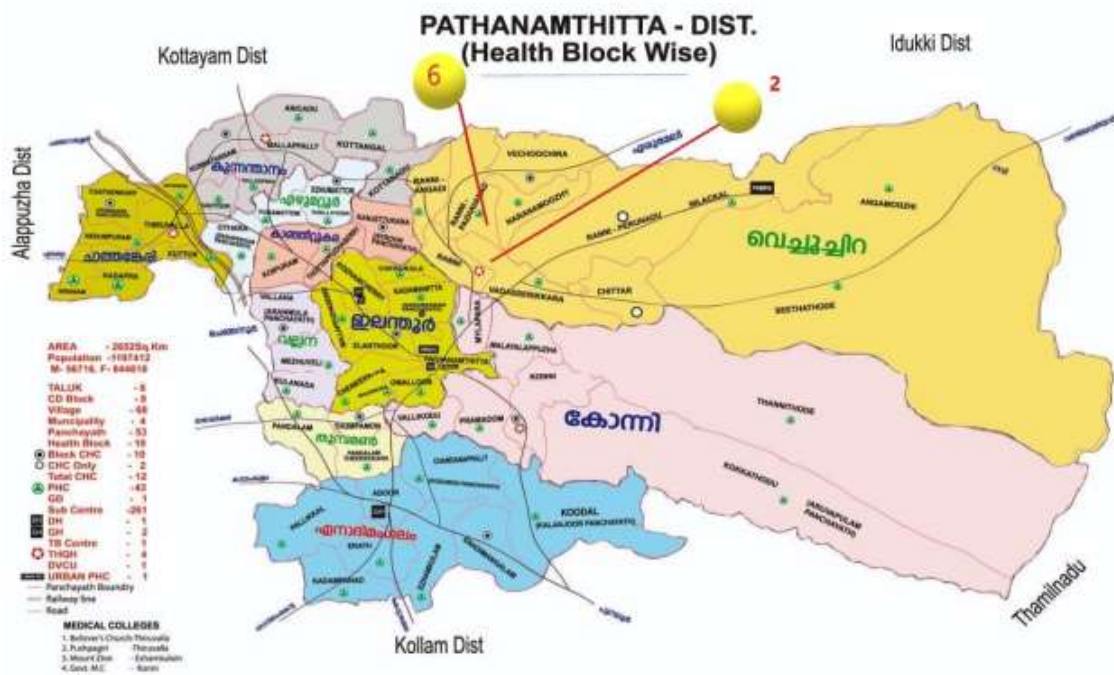
#### Daily report of New cases



## Active Cases



## Spot Map-Pathanamthitta



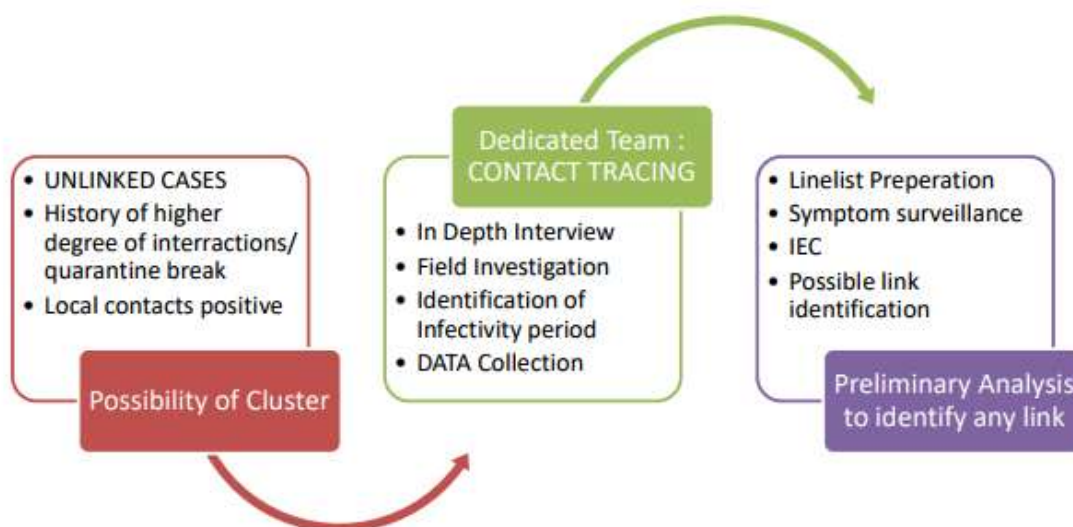
## Clusters at Pathanamthitta



Ayathala and Ranni Pazhavangadi Cluster

## Activities and Plan

### Cluster Containment Strategy Activity Flow chart



## **WAYANAD**

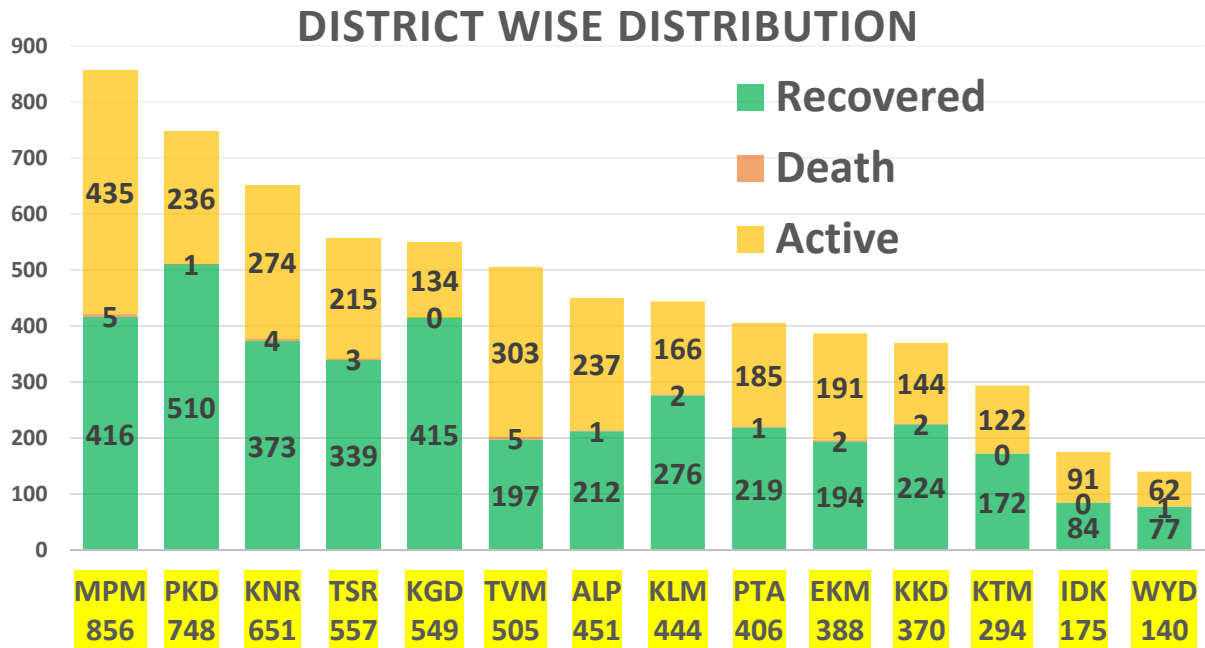
Population - 8 Lakhs

Population density - 384/km<sup>2</sup>.

### **Wayanad- COVID scenario**

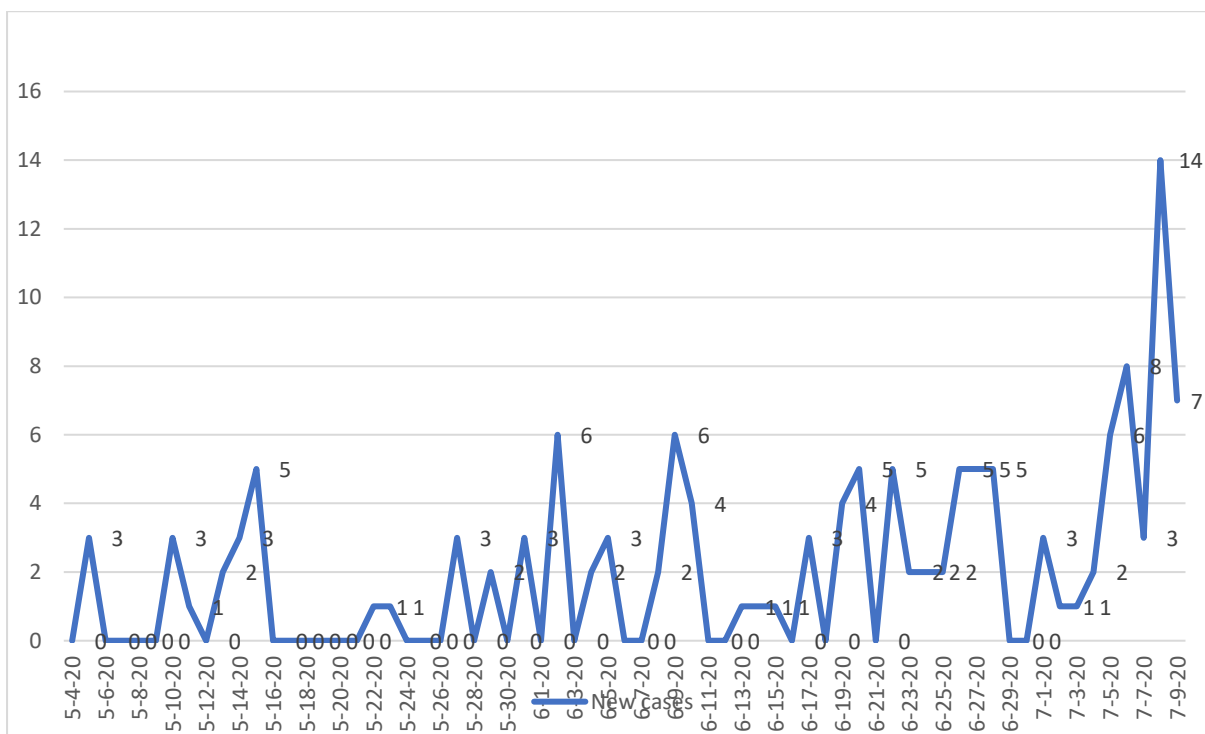
	KERALA	WYD	Percentage in WYD as compared to state total
Total number of confirmed cases	6534	140	2.14
Total cases recovered	3708	77	2.08
Deaths	27	1	3.70
Total active cases	2795	62	2.22
<b>AFTER 4TH MAY</b>			
Import	5161	114	2.21
Contacts	874	22	2.52
Total	6035	136	2.25
Proportion of locally acquired cases (after may 4) %	14.48	16.18	
Imported: locally acquired ratio (after may 4)	5.91 : 1	5.18 : 1	
<b>CONTACTS UNDER SURVEILLANCE</b>			
Total people currently under observation	29819	159	0.53
Primary contacts	25306	72	0.28
Secondary contacts	4513	87	1.93
Travellers	17833	108	0.61
Local contacts	11986	51	0.43

Wayanad constituted 2.1% of COVID cases reported in last 14 days and 2.14 % of total cases in state.

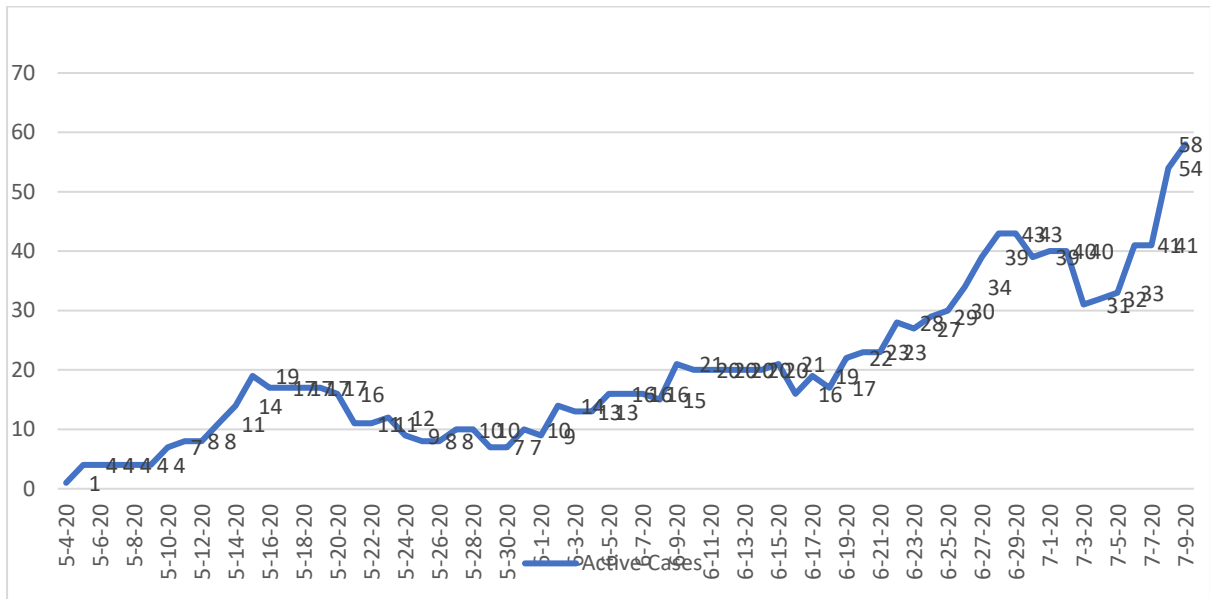


Recovery rate is 55 % as on 9-07-2020

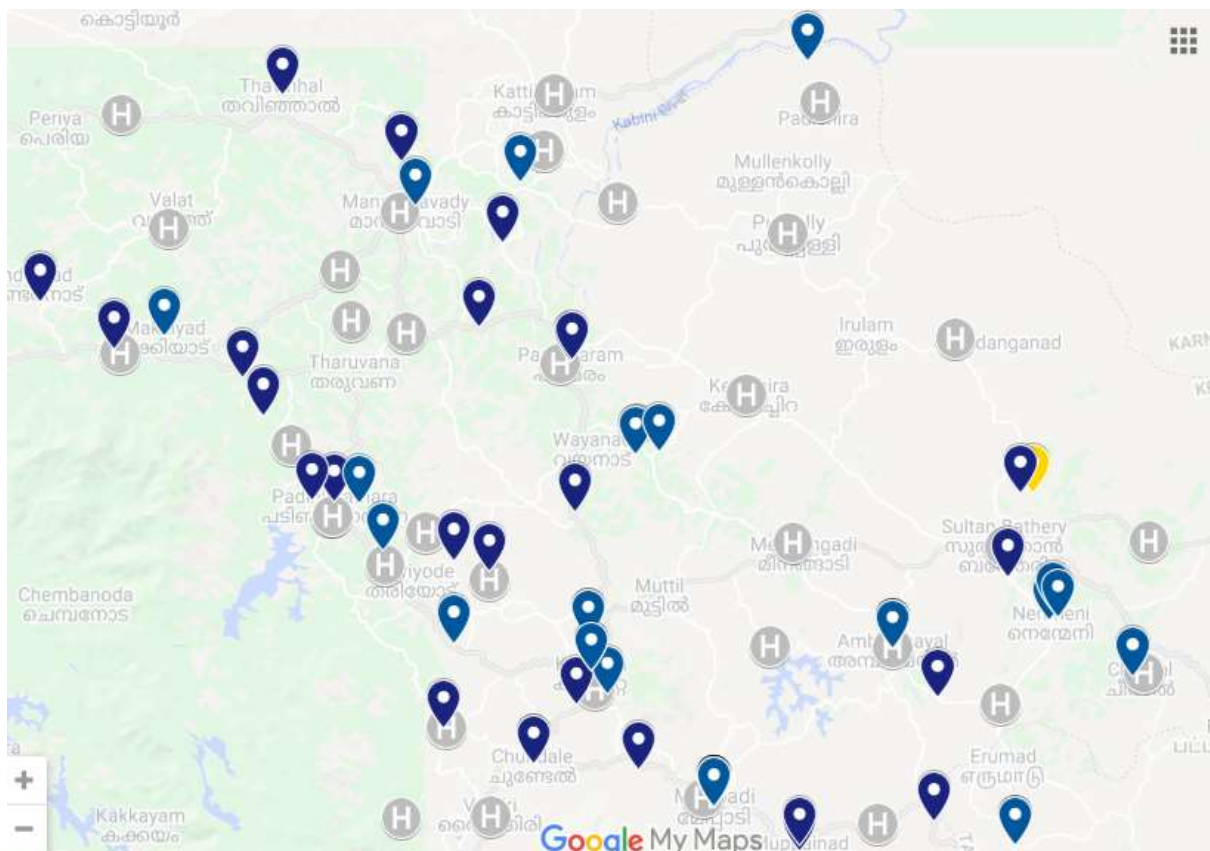
#### Daily report of New cases



## Active Cases



## Distribution of Cases in Wayanad





### **Sulthan Bathery- Guest Worker Camp- 4 Cases in May last week**

- Frequent unloading of goods and visit of Truck drivers/workers to the site from different areas like Calicut, Coimbatore, Rajasthan, Bangalore. Movement of workers within district and inter district
- Contact tracing and testing all primary contacts with risk prioritisation
- Containment of Bathery municipality divisions by district administration
- 58 primary and 181 secondary contacts identified and quarantined
- Active CONTACTS UNDER CONTACTS UNDER SURVEILLANCE via RRT started in all divisions, reporting using google form from field.
- **Cluster is contained and not active now.**

### **Mananthavadi Cluster- 22 cases in May first week**

- Strict home quarantine for all the primary and secondary contact
- Disinfection of houses and lorry
- Contact tracing and testing risk based
- Prepared route map and traced out contacts
- Quarantine ensured via RRT
- Intensified active and passive CONTACTS UNDER CONTACTS UNDER SURVEILLANCE in affected area, reporting from field using google form
- Testing of lorry drivers who visited Koyembedu market was initiated immediately
- Cluster is contained and not active now.

### **No active cluster in Wayanad as of now**



COVID-19 (nCorona) Virus Outbreak Control and Prevention State Cell  
Health & Family Welfare Department  
Government of Kerala

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INSTRUCTION TO DISTRICT SURVEILLANCE OFFICERS ON PREPARING A  
CONTACT MAP OF CASES FROM LOCAL TRANSMISSION

No. 31/ F2/2020/H&FWD- 2<sup>nd</sup> July 2020

The COVID-19 pandemic is evolving and the field data and the clinical data is revealing new knowledge into the epidemiology of the disease. It is essential that the technical strategies and guidelines are refined based on the new knowledge for control and prevention of the disease as well as for the efficient resource management. The Department of Health and Family Welfare, Government of Kerala was the first state in India to issue comprehensive guidelines for Testing, Quarantine, Hospital Admission and Discharge for COVID-19 and also for various field works. The District Surveillance Units are doing contact tracing meticulously by using time stamping, rout mapping etc.

In order to facilitate the data analysis specially to identify any cluster of cases formations and need to do intensive prevention interventions in a localized area, the following guidelines are issued.

1. Local transmission cases are those cases which are locally acquired from an international / interstate traveller or cases that may not have a travel or contact history. They are divided into two as follows:
  - a. Local transmission cases WITH history (contact with an International / interstate traveller or suspect/confirmed case)
  - b. Local transmission cases WITHOUT history (NO KNOWN HISTORY)
2. The line list of all such cases in the past 28 days are to be prepared with their age, sex, address etc.
3. Use a plain map of the district with all LSG's names and names of health care institutions
4. The contact map of local cases are to be prepared in three colours.
  - a. Make a spot map based on the address of the cases identified as local transmission
  - b. BLUE colour should be given to international / interstate travellers who have become positive in the last 28 days
  - c. YELLOW colour dots are to be given to cases with history ○
  - d. RED Colour dots are to be given to cases without any known history ●



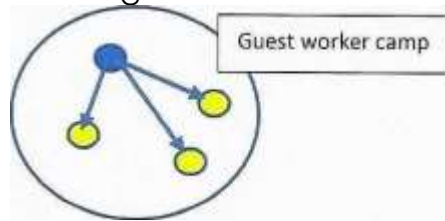
- e. GREEN colour dots are to be provided to Health Care Workers tested positive on their respective institutions marked on the map
- f. Epidemiologically linked cases (contacts) are to be linked as per the following with an arrow showing the direction of transmission based on the day of onset of symptoms if available. If no such information is available a straight line should be drawn connecting the dots:



- g. If the cases with history have a contact with a traveller then the dot of the traveller should be coloured in blue as follows:



- h. Boundary of wards/divisions of Panchayaths / Municipalities with clustering of cases (2 or more local transmission cases in the last 28 days) without any history should be coloured in thick red COLOUR.
- i. Clustering of cases in institutions like hostels, camps should be encircled as and labelled as given below:



*Rajon*  
Principal Secretary

## Annexure

### District Surveillance Officers for COVID

1	Dr. Jose Dcruz	DSO, Thiruvananthapuram
2	Dr R Sandhya	DSO, Kollam
3	Dr. Nandini C.S	DSO, Pathanamthitta
4	Dr.Sushama P.K.	DSO, Idukki
5	Dr Rajan K.R	DSO, Kottayam
6	Dr. Deepthy	DSO, Alappuzha
7	Dr. Sreedevi S	DSO, Ernakulam
8	Dr.Anoop T.K	DSO, Trissur
9	Dr. K A Nazar	DSO, Palakkad
10	Dr. Nandakumar	DSO, Malappuram
11	Dr. ASHADEVI	DSO, Kozhikkode
12	Dr. Soumya	DSO, Wayanad
13	Dr. Shaj MK	DSO, Kannur
14	Dr.Manoj.AT	DSO, Kasaragode

### State level Team to collate the information

1	Dr Sarita R L	Director of Health Services
2	Dr Meenakshy	State Surveillance Officer, Addl Director Health Services Public Health
3	Dr. Vidya	Dy Director Health Services Public Health

### The Report compilation and analysis

1	Dr Rakesh	Consultant WHO Kerala
2	Dr Libu	Asst Professor, Community Medicine, MCH Thiruvananthapuram
3	Dr Tony	Asst Professor, Community Medicine, MCH Thiruvananthapuram

## Acknowledgement

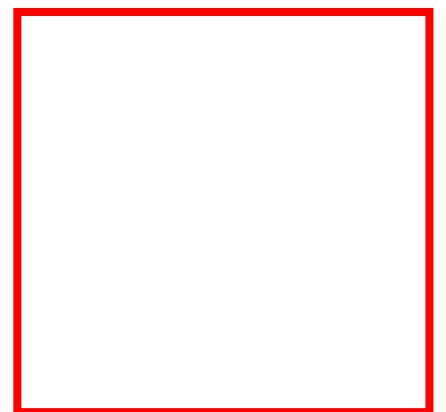
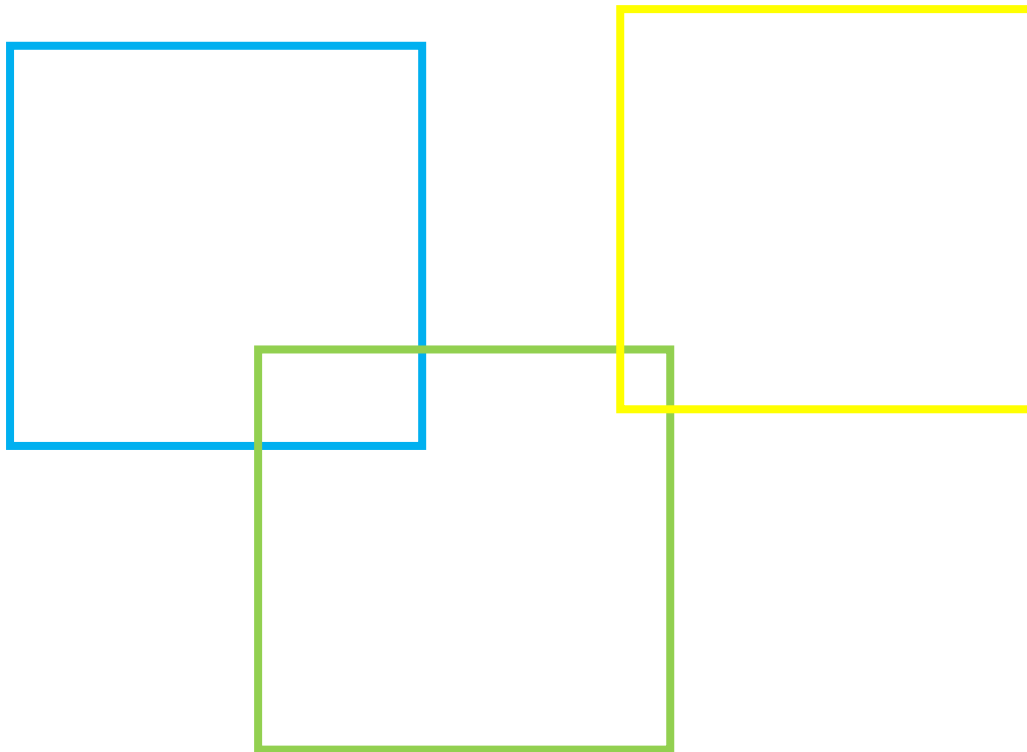
The Department of H&FW is taking all out actions to contain the epidemic. The Department is taking the efforts to build the capacities of the field functionaries to bring in scientific rigour in planning and interventions right at the grass roots so as to mitigate the problem at the right time. This report is the output of the efforts taken by the field functionaries in meticulously following the people at risk, conduct symptom surveillance, testing and quarantine or hospital admissions. After detection of the cases, the District Surveillance Units have been oriented to study the epidemic regularly and map the cases so as to know clusters of COVID cases and to take intensive control measures. The work done by the field teams and District Surveillance Team is highly appreciated.

In any such large-scale operations, the specific nodal units have to put in their efforts optimally to collate the information. It is appreciated that Dr Sarita R L, Director Health Services, Dr Meenakshy Addl Director Health Services and Dr Vidya Dy Director Health Services along with the State Surveillance Unit has coordinated with the field units and with utmost sense of urgency collected the information.

After collating the information and reports from various District Surveillance Units in different forms and shapes, it is noteworthy to mention that at the state level the team of doctors, Dr Rakesh Bhat, Dr Tony and Dr Libu have interpreted the information and compiled the report in the shortest possible time.

This framework will guide the DSUs and health functionaries to study the disease properly and to take appropriate interventions.

Dr Rajan Khobragade  
Principal Secretary  
Health & Family Welfare  
Government of Kerala



Department of Health & Family Welfare  
Government of Kerala  
Annexe II, Secretariat  
Thiruvananthapuram  
[www.health.kerala.gov.in](http://www.health.kerala.gov.in)