



Government of Kerala

Response to COVID-19

Milestones in the battle against COVID-19

Jan 20 First advisory on nCoV sent to all districts

Jan 24 Special control room was setup in the Directorate of Health Services.

Jan 29
A student who returned from Wuhan, China was tested positive for the 2019-nCoV. 2nd and 3rd Case on Feb 2rd and 3rd

Feb 2
Testing for COVID 19 has been started in laboratories within Kerala

Jan 18
WHO notification on 2019 novel Corona virus was observed and guidance note sent to all districts

Jan 23
First Wuhan returnee came to Medical College, Thiruvananthapuram
Screening of all passengers returning from China started at Airport.

Jan 26
Comprehensive State level guidelines on screening, testing, admissions on 2019-nCoV
Guidelines released

Jan 30
All State & District Structures set up
Daily Review Meetings chaired by Hon. Health Minister

Mar 8
Pathanamthitata Cluster detected

Milestones in the battle against COVID-19

March 12

Revised guidelines on quarantine, testing, admission

March 16

Break the Chain campaign launched- Social Justice

March 28

First COVID 19 Death in the state

April 21

Sentinel Surveillance started

March 11

Surveillance Strengthened at Airport, Seaport, Railway Station, Borders

March 14

Hon. Chief Minister, Hon. Health Minister, Hon. Revenue Minister started Daily Review

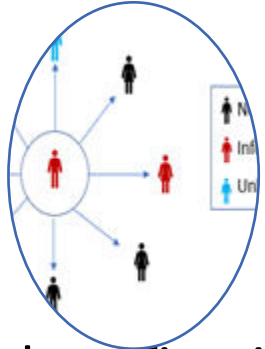
March 27

Kerala Epidemic Disease Ordinance published

April 20

16 Labs doing RTPCR
4 Labs Xpert

Strategy for combating COVID-19 in Kerala



Identification of Individuals with Risk & Rigorous Contact Tracing



Ensuring Good Quality Home Isolation



Rigorous Surveillance System



Testing All Eligible individuals



High Quality Care to all COVID patients



Proactive Care of Elderly & People with Morbidity



Responsible Citizens following advisory

State Structures to control COVID-19

State COVID-19
Management Committee

- Chaired by Hon. Chief Minister

Crisis Management
Committee

- Chaired By Chief Secretary

War Room at Secretariat

- Complimentary Activities

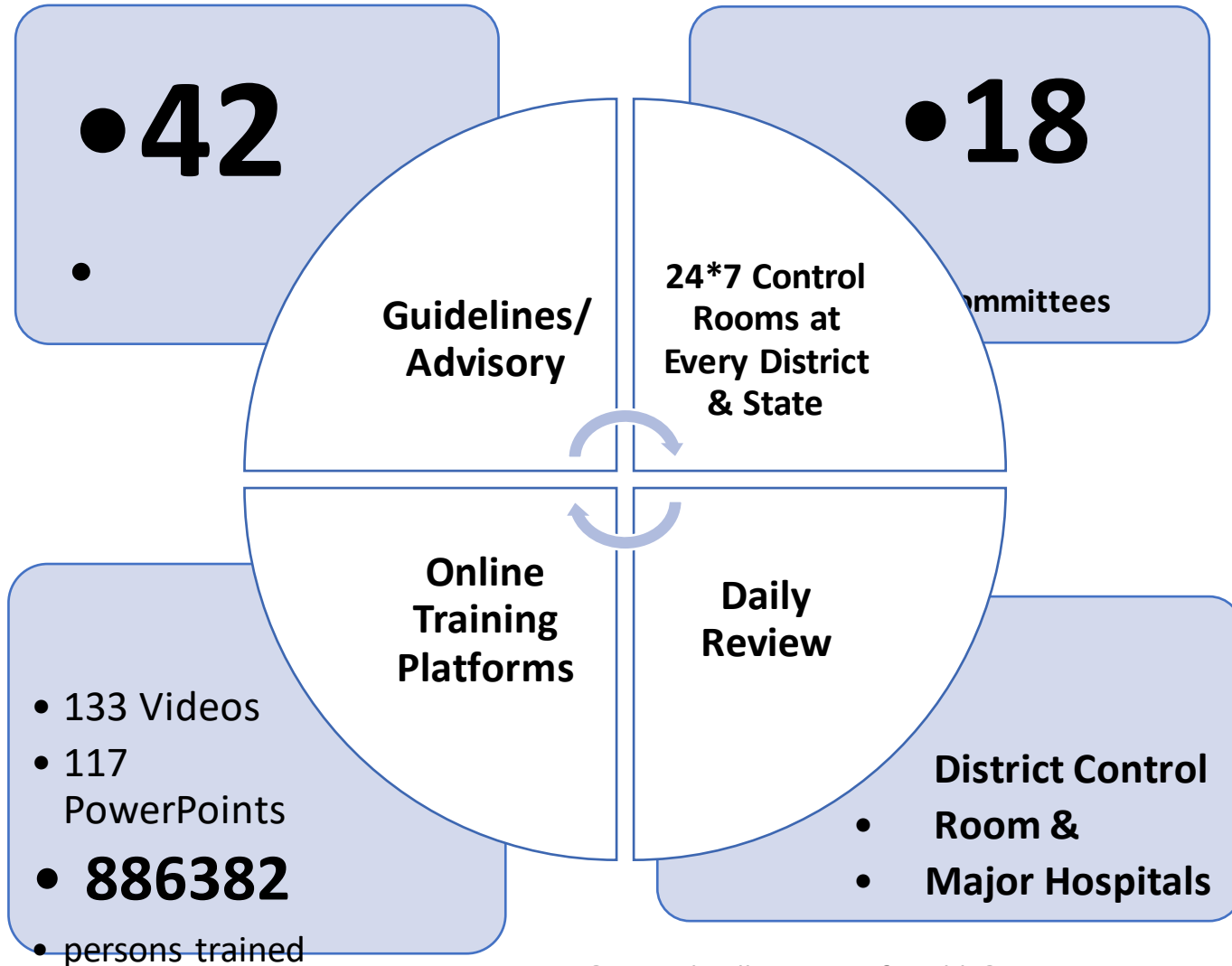
State level structures for Health Department

State Expert Group

State Medical Board

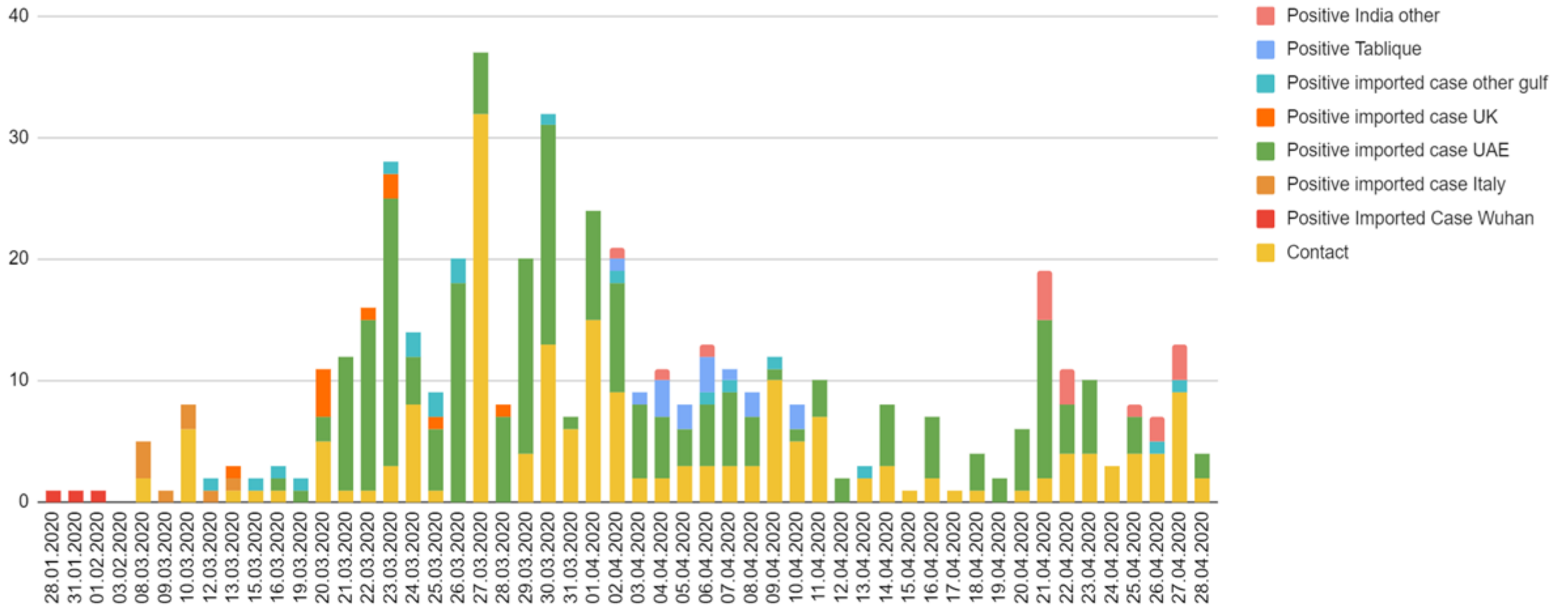
State Rapid Response Team

Systems/Tools for combating COVID-19 in Kerala

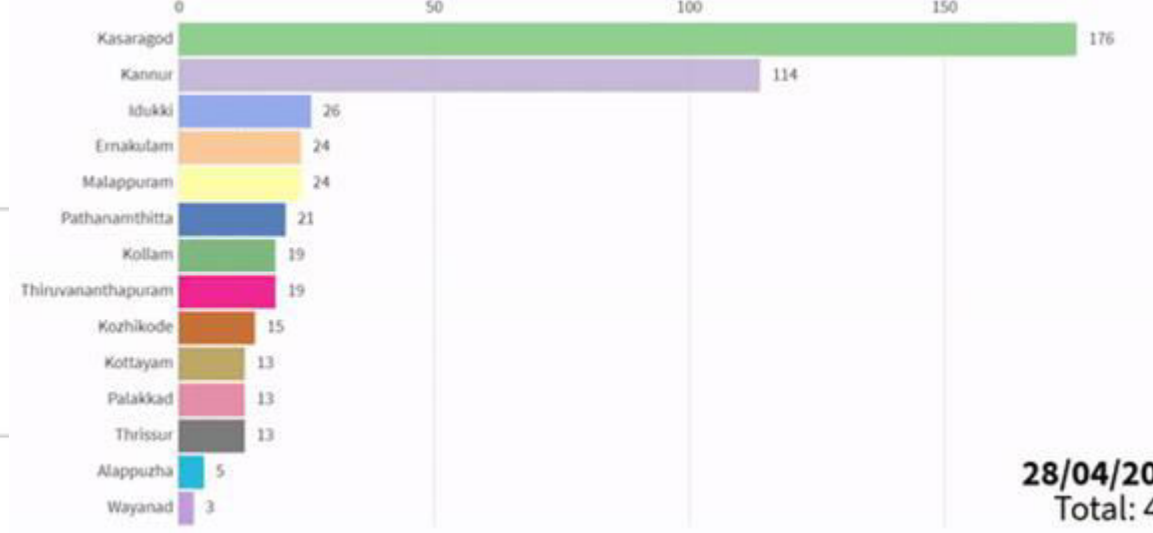
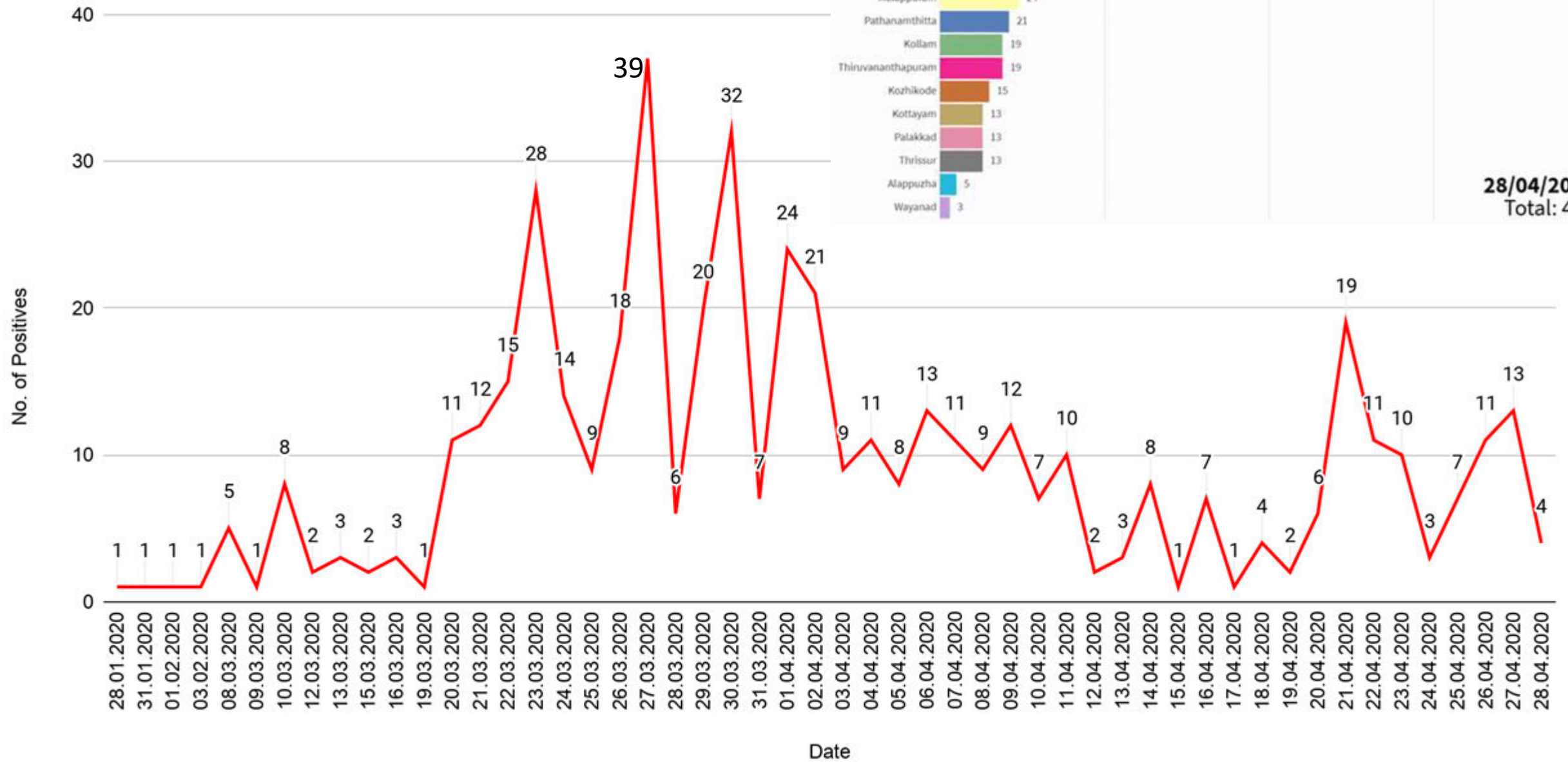


COVID-19 Kerala: Epidemiology

Distribution of Cases

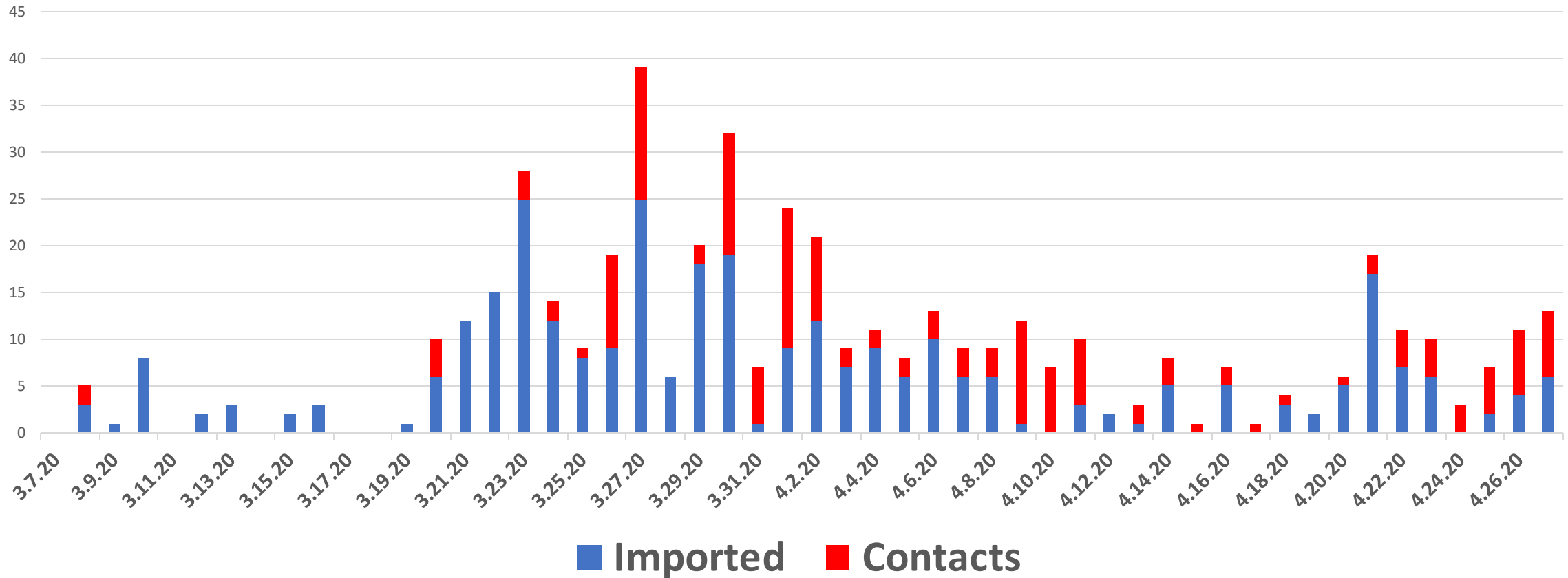


Positives as on 28th April 2020 6.30 PM



28/04/2020
Total: 485

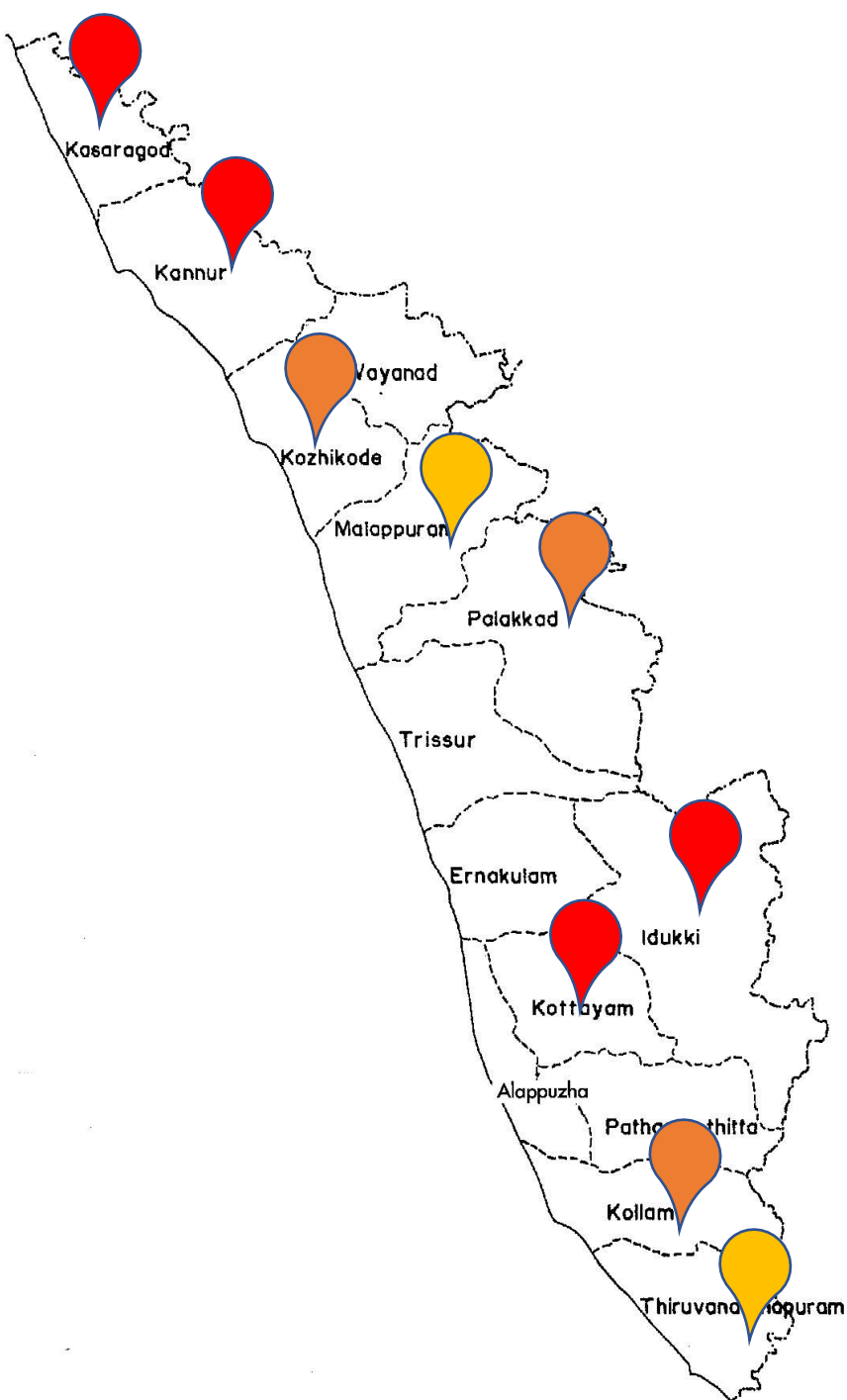
COVID-19 Kerala: Imported & Locally Acquired



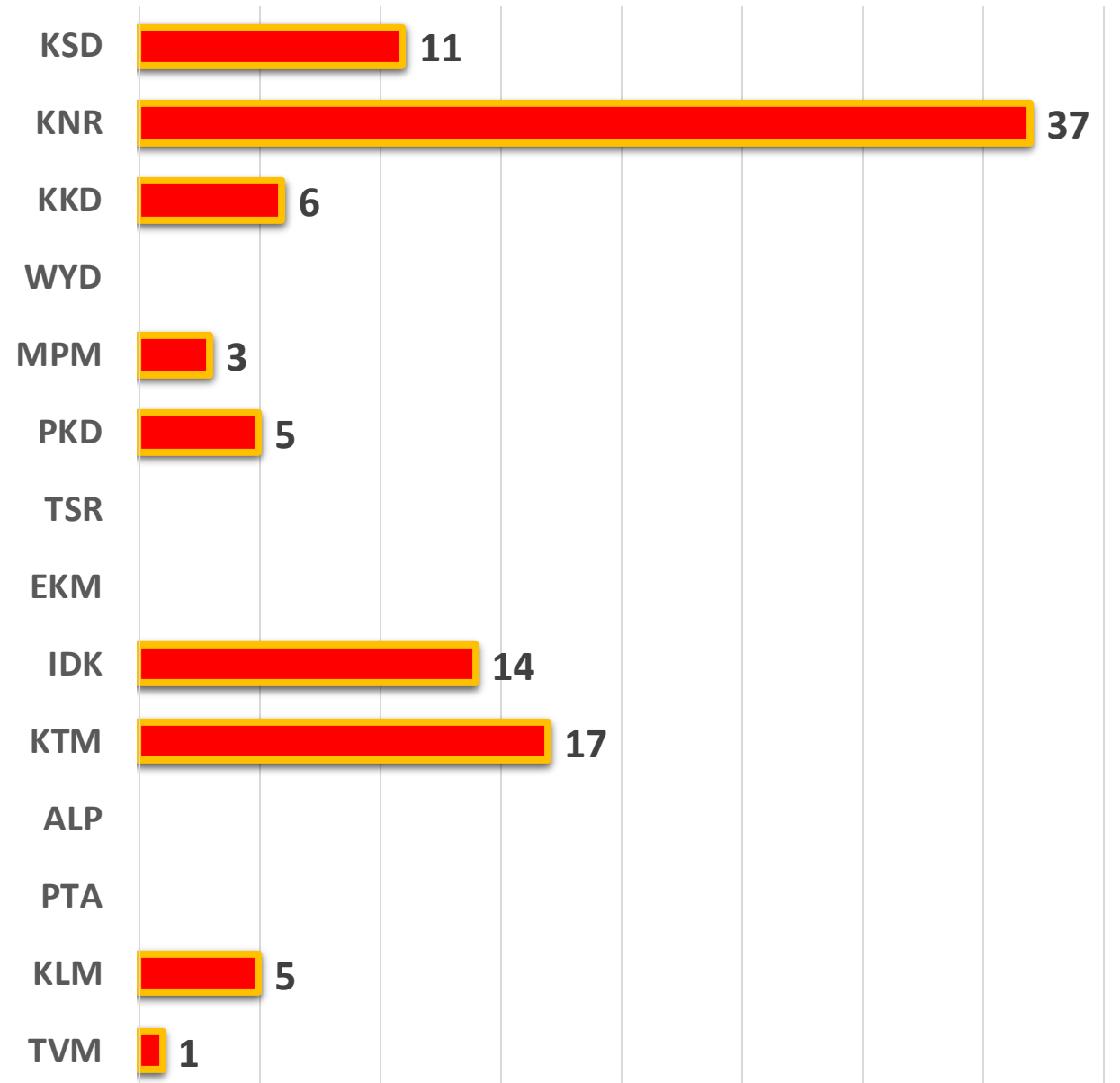
State COVID-19 Prevention & Control Cell, Ministry of Health & Family Welfare, Kerala

COVID19 Positive Cases Kerala as on 28th April 2020 6.30 PM



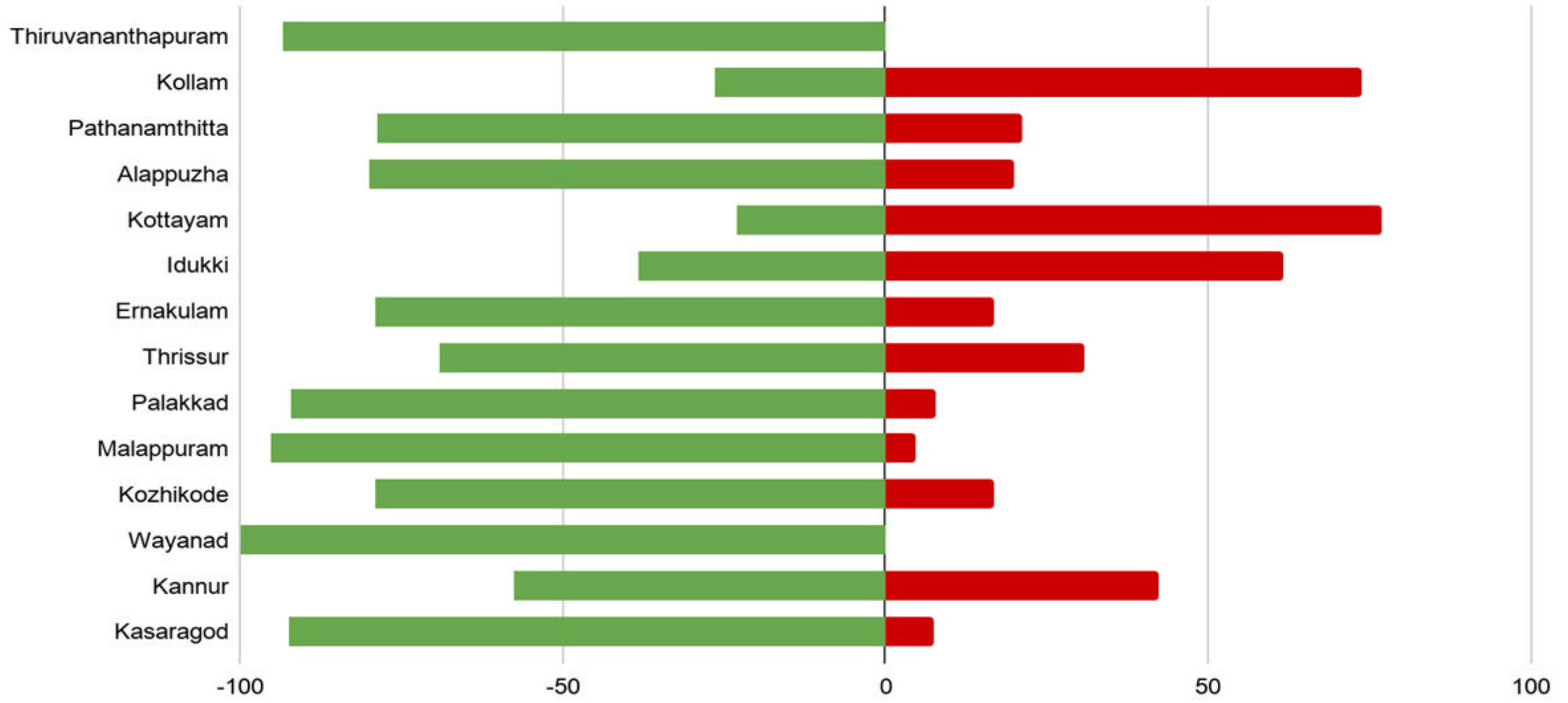


NEW POSITIVE CASES REPORTED IN LAST 14 DAYS



Recovered and Active Positive Cases as on 28th April 6.30 pm

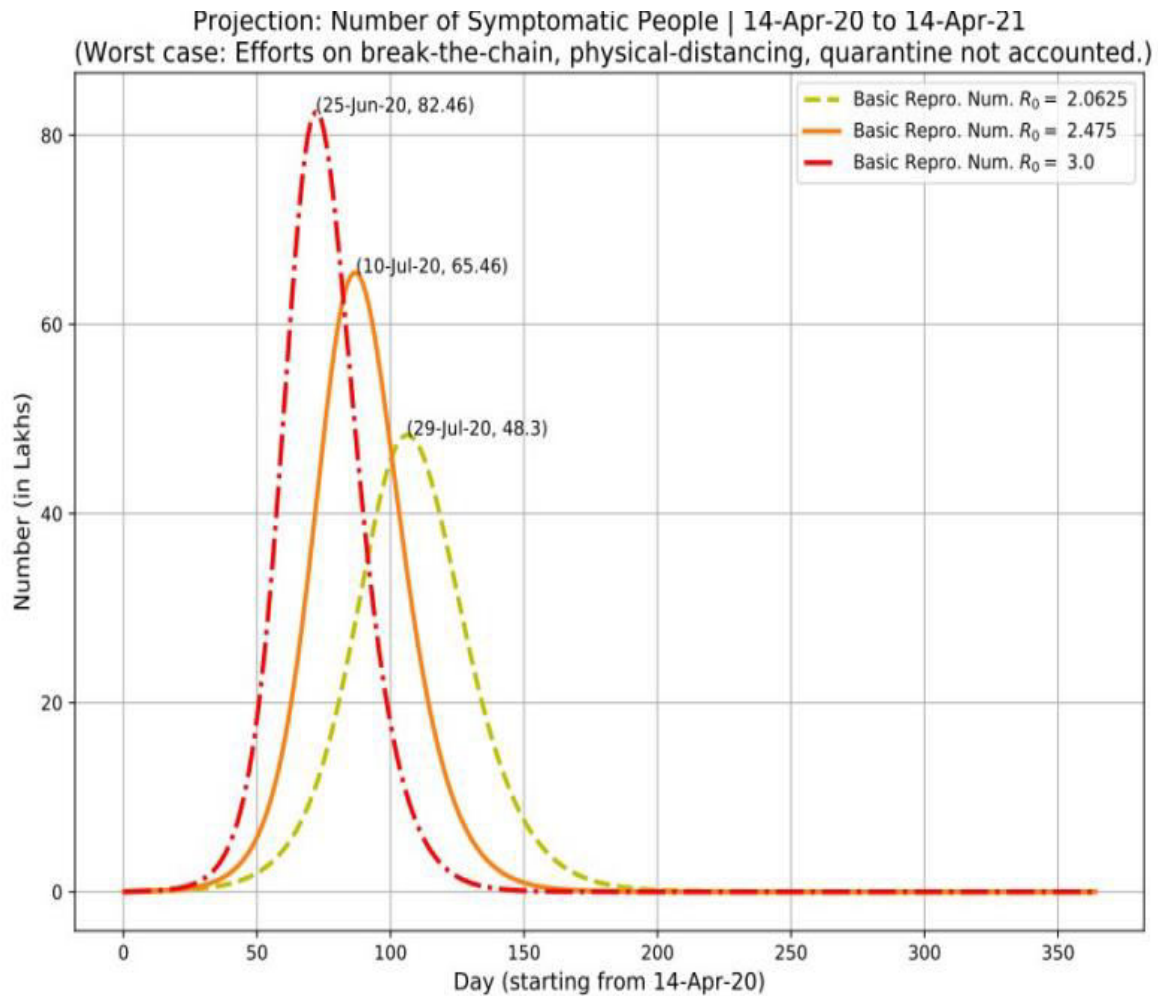
Recovered Active



Deaths

- There were three deaths with a case fatality of 0.6% (3/485).
- Low case fatality shows the early detection & efficiency of treatment provided.

'Projections' are only Mathematical Models



- All projections are based on assumptions and mathematical models. Model is only as good as assumptions used.
- If assumptions are not based on pragmatic realities and contextual settings, we might end up with results that are blown out of proportion.
- Biggest missing links in disease models are strength of health systems and human behaviours.

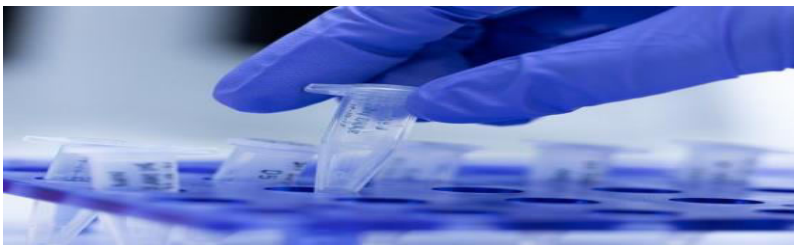
Testing for COVID-19

Type of Tests for COVID-19

Tests for COVID-19

RT PCR based tests

Detect the virus's
genetic material



Antibody Tests

Detects the body's immune response to
the infection caused by the virus rather
than detecting the virus itself



Real Time PCR Test

Real time RT-PCR is a nuclear-derived method for detecting the presence of specific genetic material of virus.

Currently 14 labs in Public Sector and 2 labs in private are conducting in house RT-PCR tests in Kerala.



Whom to be Tested for COVID-19 using RT PCR?

- Symptomatic individuals who have undertaken international travel in the last 14 d
- All symptomatic contacts of laboratory confirmed cases
- All symptomatic health care workers who cared for COVID-19 cases
- All patients with Severe Acute Respiratory Illness (fever AND cough and/or shortness of breath)
- Asymptomatic direct and high-risk contacts of a confirmed case should be tested once between day 5 and day 14 of coming in his/her contact
- All symptomatic from locality/area where clustering of cases/community transmission have been reported in last 14 days.
- All symptomatic who attended mass gatherings, festivals, funerals in last 14 days where people from abroad are likely to have attended

Xpress SARS-CoV-2 Test

- Xpress SARS-CoV-2 Test is a Cartridge Based Nucleic Acid Amplification Test
- It is a **Rapid** RT PCR Test (Detects Viral RNA) and confirmatory.
- Fully automated and provides results within **45 minutes.**
- It is done in the same GeneXpert machine already in use for TB testing
- 4 laboratories started functioning in Kerala



Xpress SARS-CoV-2 Test

Indications for Test: Samples with Emergency Nature

- Any COVID suspect before Emergency/ Unavoidable Surgery
- Any symptomatic Health Care Worker who worked in a setting with high exposure to COVID-19
- Any sick patients with Severe Acute Respiratory Illness for whom an emergency result has impact on clinical decision making
- Any suspected COVID deaths which requires testing for further actions.

Truenat-beta-CoV- Test

ICMR has validated Truenat-beta- CoV test on Truelab workstation and has recommended it as a **screening test**.

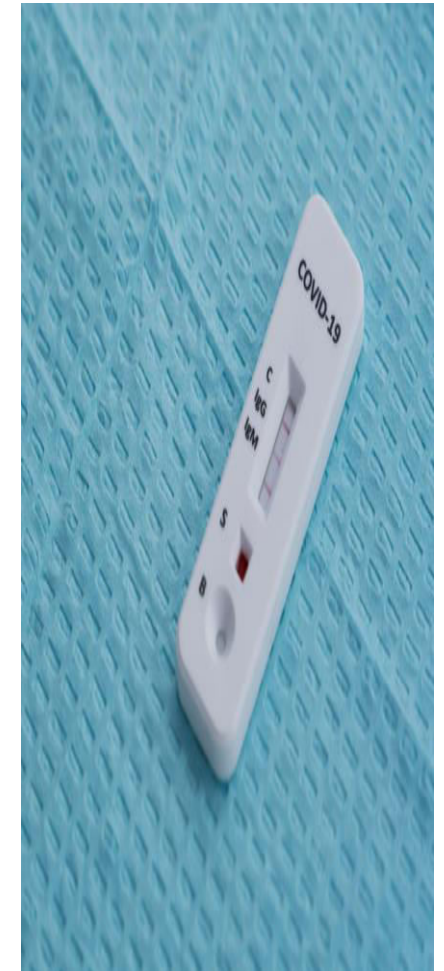
All positive samples need to be reconfirmed by a separate confirmatory assay for SARSCoV-2.

19 machines are in transit.



Antibody Tests

- The rapid antibody test cannot replace the PCR test.
- The rapid Antibody test is a supplementary tool for epidemiological surveillance and research
- The rapid antibody test will only be of utility after a minimum of 7 days of onset of symptoms.
- Kerala state planned to use the Antibody test for surveillance



Comparison of Tests Available for COVID diagnosis

	Real Time RT PCR	Xpress SARSCov2 (Rapid RT PCR)	Truenat-beta-Cov (Screening PCR Test)	Antibody Test
Sample Required	Nasopharyngeal Swab	Nasopharyngeal Swab	Nasopharyngeal Swab	Blood
Expertise Required for Lab	Hgh	Medium	Medium	Low
Minimum Time to get results once sample reaches Lab	6 Hurs (-96 tests/cycle)	45 Mn (-4 tests/ cycle)	60 min (-4 tests/cycle)	30 Mn
Applicability	Initial Days of Infection for Early detection	Initial Days of Infection for Emergency Detection.	Initial Days of Infection for Ruling Out the disease. All positive results to be confirmed by another test.	Later days of Infection Only (After 7 days) for Surveillance
How is Kerala using these tests?	Confirmation of cases	When Emergency results are required (Pre Surgery, Health Care Worker, Emergency clinical decision making, Suspicious Death,)	Nbt Started Yet. Plan is to use for same indications as Xpert.	Surveillance

Feb 1st week
NIV Alappuzha

March 3rd week
GMC Kozhikode
GMC Trivandrum
GMC Thrissur

March 4th week
State Public health lab
RGCB, Tvm
SCTIMST, Tvm
IUCBR Kottayam
MCC, Kannur

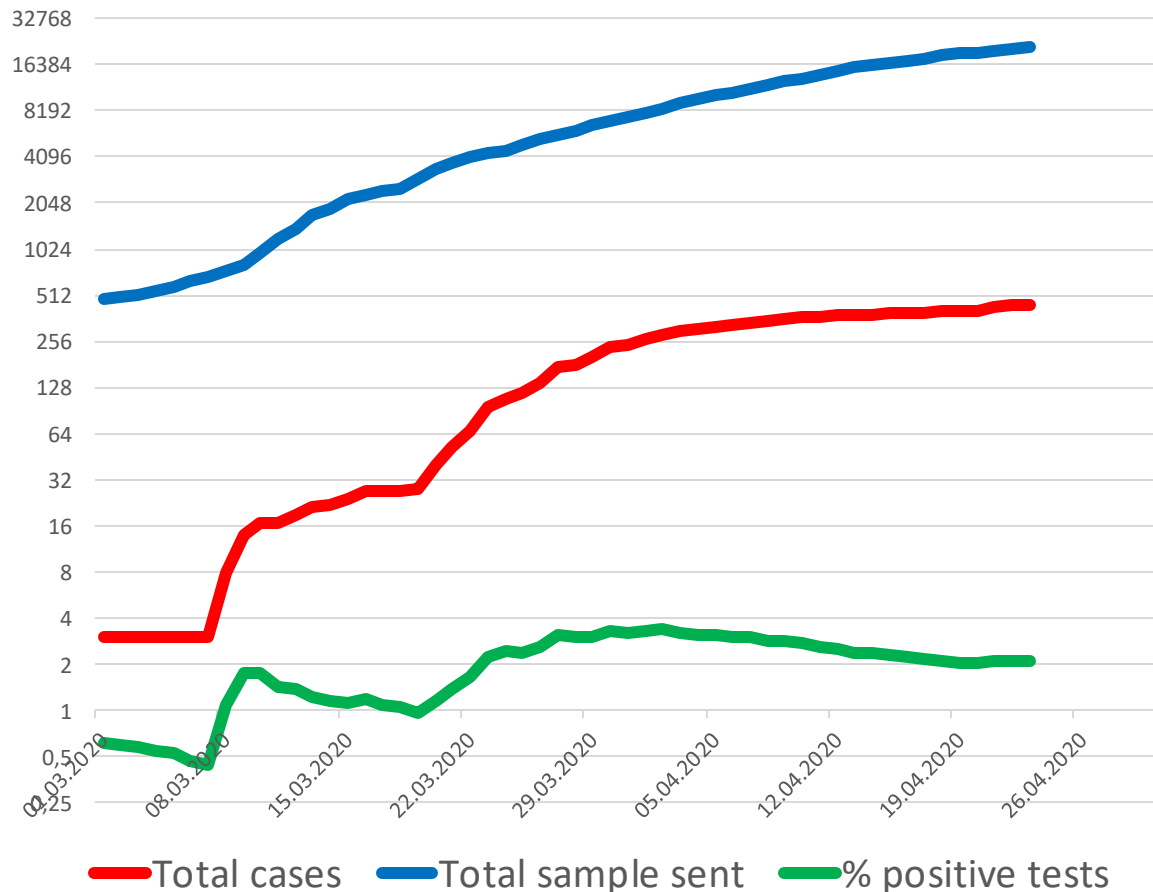


April 1st week
Central University, Kasargode

April 3rd week
GMC, Ernakulam
GMC, Manjeri
GMC, Kottayam
GMC, Kannur

Cumulative Trend of RT PCR Tests conducted, Total Cases and % of positive results

[Log scale is used to incorporate variations in parameters plotted]



- The graph (in log scale) shows that number of cases did not increase proportionately with number of tests.
- Despite high number of tests, % of positivity (No of positive tests / Total Tests performed) is coming down in Kerala.
- In week starting on 22nd March, ONE positive test result was obtained per 20 tests performed, where as in week starting with 20th April, to get one positive test, the state had to test 140 eligible samples.
- This is a good indicator of declining transmission and adequacy of tests.

Testing Strategies in Kerala

Strategy	Objective	Description
Routine	Early Case Detection	As per eligibility criteria
Augmented sample Testing	Detect positivity among priority groups	3000 samples on a single day from hot spots
Sentinel Surveillance	Detect any community transmission	900 samples/ week from 5 non-COVID suspect groups in non-COVID settings.

Results – Augmented sample Testing

Total Samples Received	Total Tested	Negative	Positive	Rejected	Indeterminate
3128	3128	3085	4	21	18*

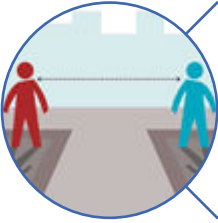
*** Results awaited for confirmation - 4**

Sentinel Surveillance - Week 1- Results

DATE	SAMPLES SENT	TESTED	NEGATIVES	POSITIVE	REJECTED/ INDETERMINATE
21.04.20	121	120	117	0	4
23.04.20	275	261	250	1	24
25.04.20	351	349	341	1	9
TOTAL	747	730	708	2	37



Wash your hands frequently



Maintain social distancing



Avoid touching eyes, nose and mouth



Use Face Mask when in Public



If you have minor illness, call your health care provider and ask advise.