

Experiences of Kerala with the COVID-19 Pandemic- Morbidity

School of Public Health Team

"This is an exponential event, that is, we see things doubling every two days, every three days, every four days, and people - certainly including myself - don't seem to be able to think straight about exponential growth."

- Daniel Kahneman, April 2020, Nobel laureate economist and psychologist

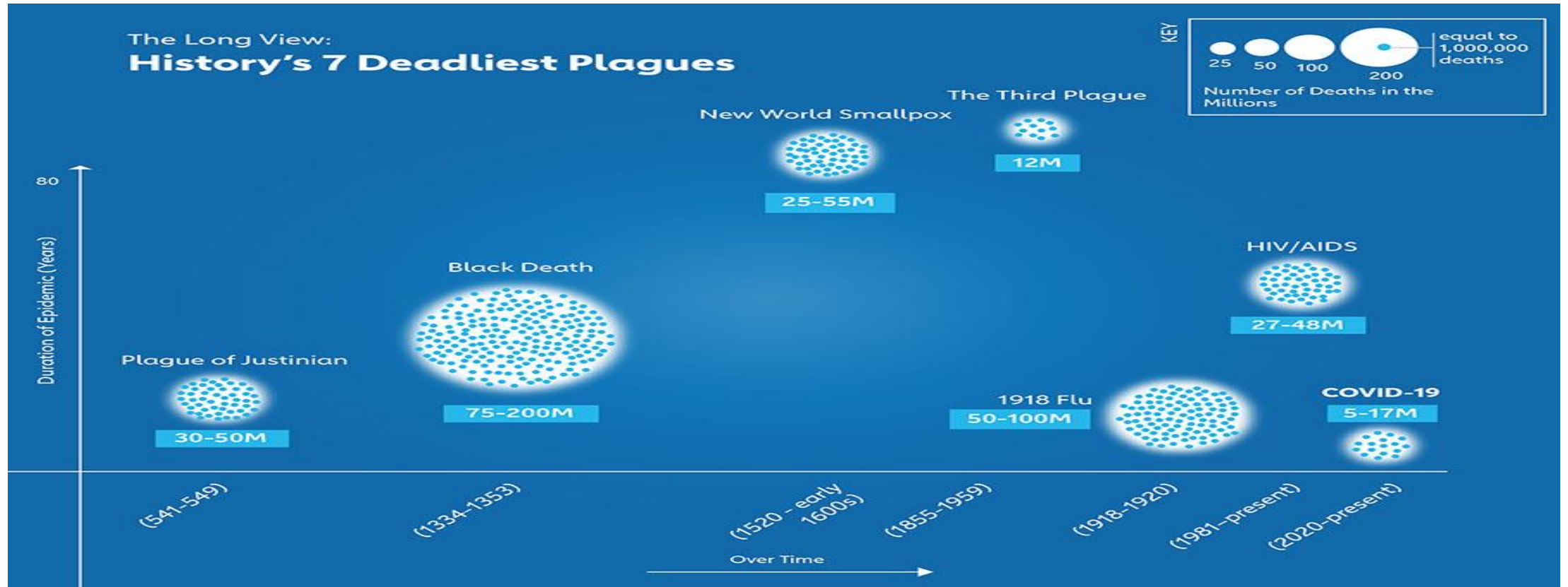
Introduction

- The second most populous country, the second position in covid situation
- The pandemic is leaving much for us to learn
- Health care professionals and academia has the additional responsibility of knowledge generation
- Research brings new evidence and new information every day
- Evidence needs to be translated to policy and policy to action

Objectives

- To describe the pandemic in Kerala in terms of Pandemic behaviour-
 - Progression as evidenced by waves and test positivity rate (2020-21)
 - Transmission dynamics in the community in terms of geospatial distribution and hotspot formation and containment zones (May-June 2020)
 - Disease outcomes in terms of hospitalization
- To highlight the lessons learned from this experience as policy directions for future pandemic preparedness.

Brief historical glimpses- The panorama of Pandemics



(Source: [https:// www.gavi. org/vaccineswork/historys-seven-deadliest-plagues](https://www.gavi.org/vaccineswork/historys-seven-deadliest-plagues))

Global pandemic situation in chronological order

Name of Pandemic	Year	Cases	Death	Case Fatality Rate (%)	Countries affected
Marburg	1967	466	373	80	11
Ebola	1976	33,577	13562	40.40	9
Hendra	1994	7	4	57.80	1
H ₅ N ₁	1997	861	455	52.8	18
NIPAH	1998	513	398	77.6	2
SARS COV	2002	8096	774	9.6	29
H ₁ N ₁	2009	1632258	284500	17.4	?214(74)
MERS COV	2012	2494	858	34.4	28
HYN ₉ Birds Flu	2013	1568	616	39.3	3
COVID 19	2019	609,848,852	6,507,002	1.06	196

(Source-Originally by Dr Sanjeev and updated by team)

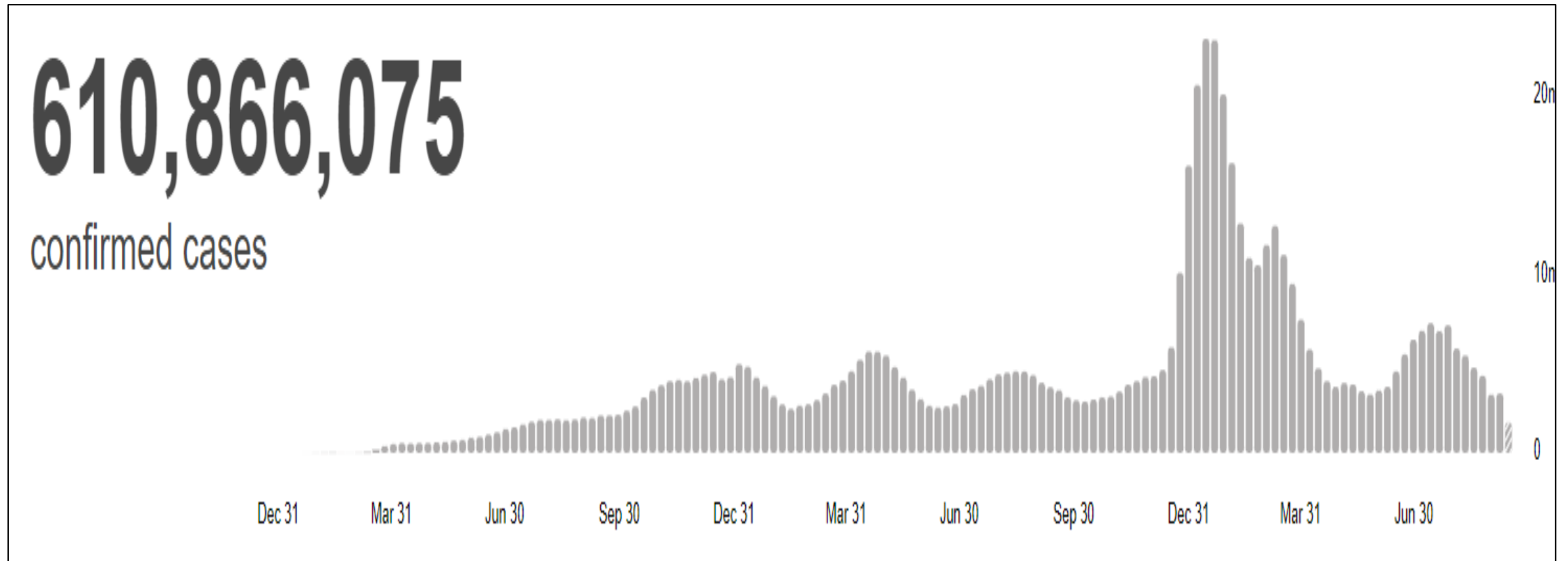
COVID-19 pandemic origin

- A cluster of pneumonia of unknown origin -Wuhan, China, in December 2019
- Jan 12, 2020, China- sequence of a novel coronavirus-SARS-CoV-2 isolated
- Jan 13, 2020- first case outside China, Thailand
- Jan 20, 2020- WHO- Corona class B notifiable disease and global emergency of international concern
- Feb 16th WHO named virus as COVID-19
- March 11, 2020- WHO declared COVID-19 as pandemic-118,000 cases, 114 countries, 4,291 deaths

COVID-19 situation in China

- The first COVID-19 event in Wuhan sea food market, China, Dec 2019
- Dec 31, 2019, the Wuhan Municipal Health Commission reported 27 cases of COVID-19 pneumonia
- Lockdown at Wuhan with 470 confirmed cases and 17 deaths on 23rd Jan
- China- 548 cases and zero death- Jan 26th, 10,000 cases and 200 deaths- Jan 30th, 20,000 cases and 500 deaths- Feb 5th, 47310 cases and 960 deaths- Feb 9th, 70,000 cases on Feb 18th
- On Feb 16th Convalescent plasma therapy was started and showed promising results

Global situation of COVID-19

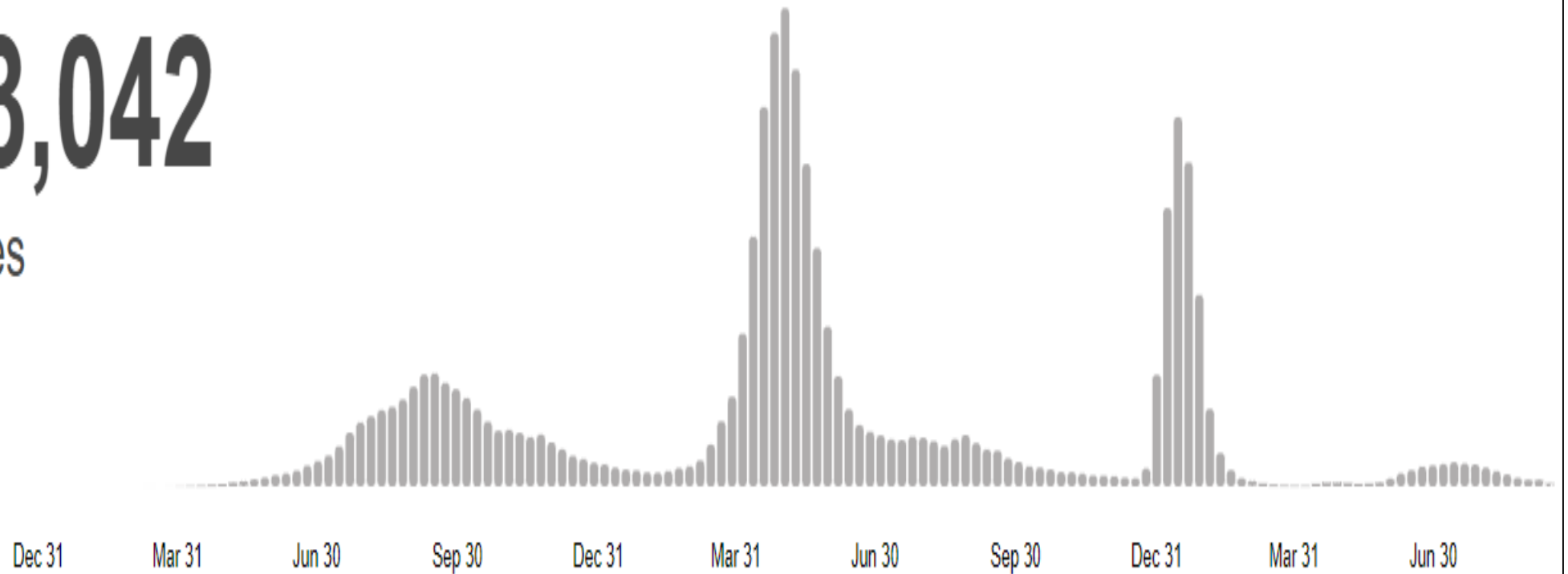


as on September 12, 2022

India- COVID-19 cases

44,553,042

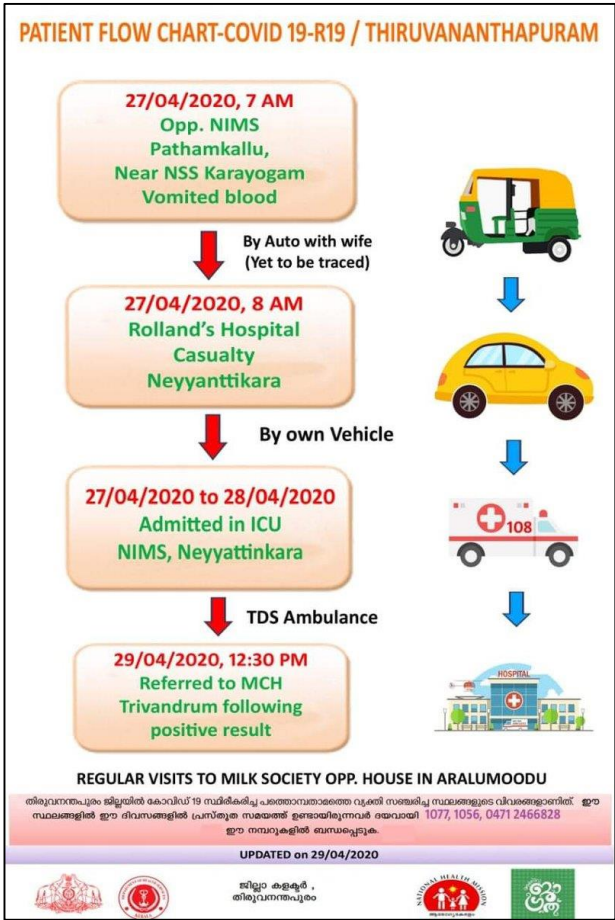
confirmed cases



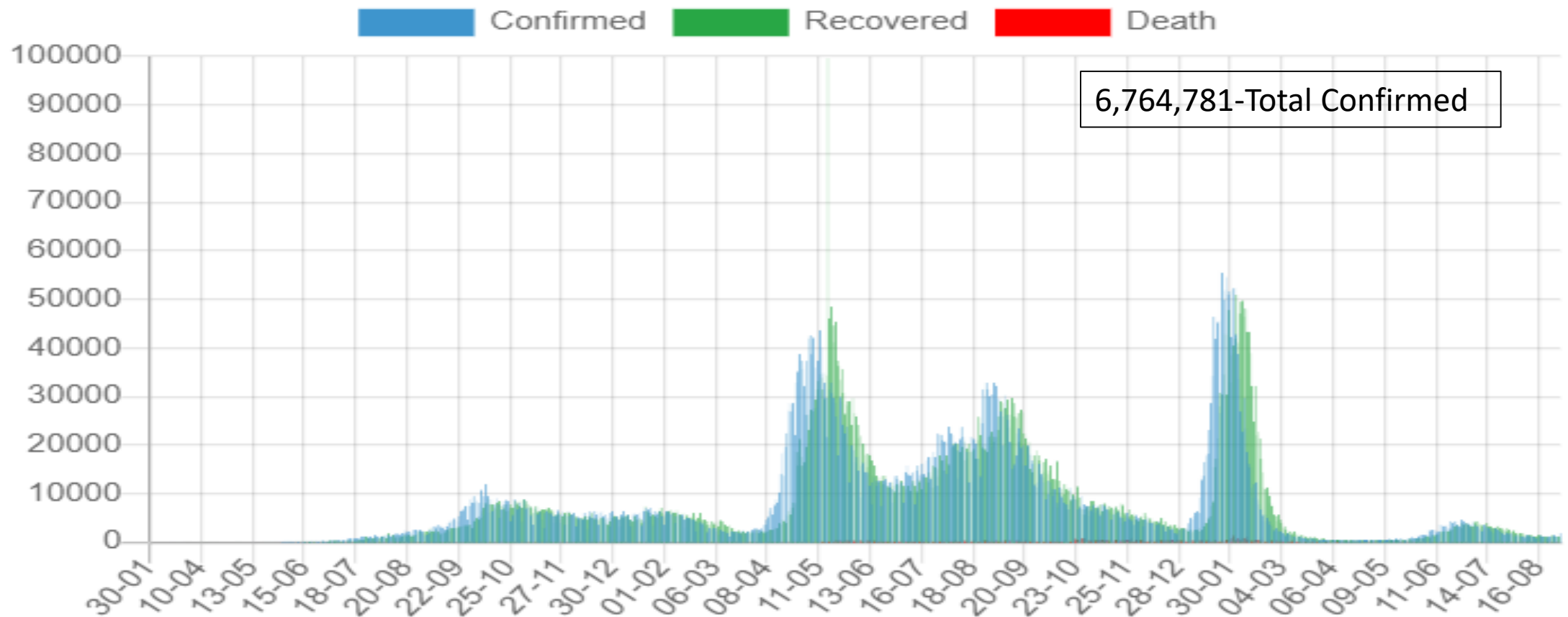
as on September 19, 2022

COVID-19 control measures in Kerala

- The first case- Medical College Hospital, Trissur on 27th of January
- A rapid response- guidelines, airport screening
- The second and third cases
- Indians evacuated from China by special AI flights, put under home quarantine
- Testing facilities -12 centers across the country
- Preventive measures- distancing, personal hygiene, screening and contact tracing



Kerala situation as on September 23, 2022



Tracing back the COVID-19 trajectory in Kerala

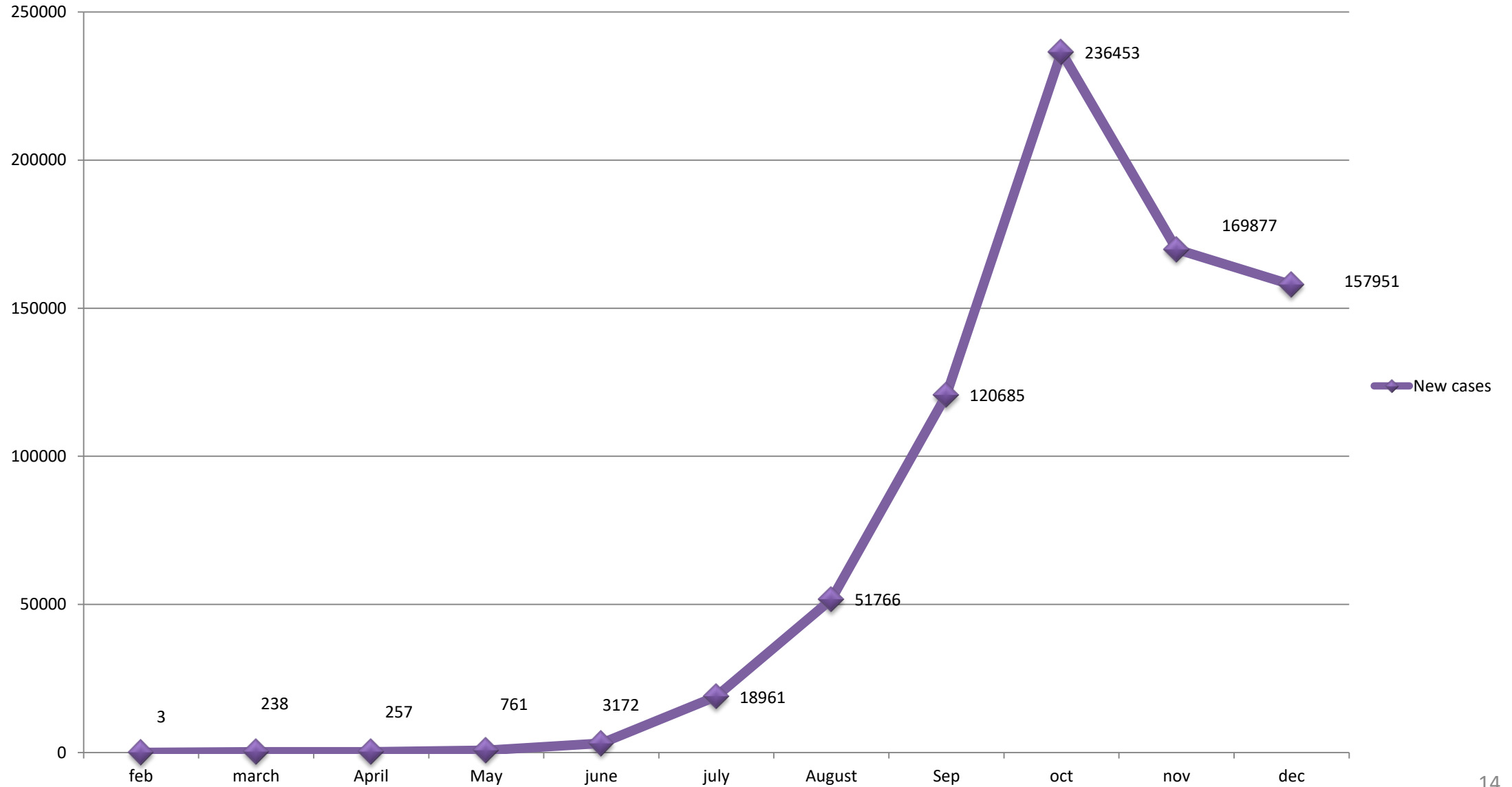
Burden of COVID 19 in Kerala

A). Phases of transmission – First Wave & Second Wave, TPR

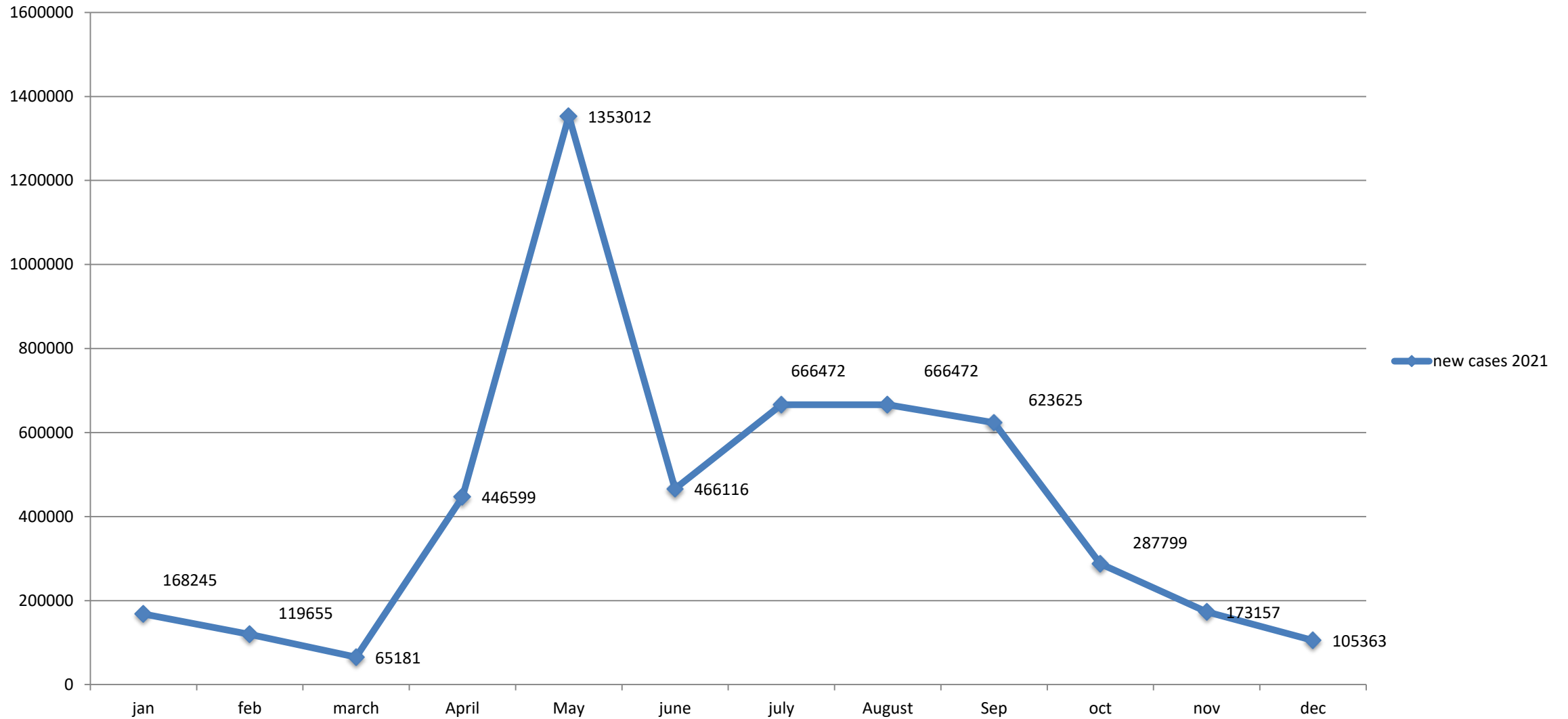
B). Transmission dynamics- Geospatial distribution, hotspot dynamics

c). Disease outcome- hospitalization

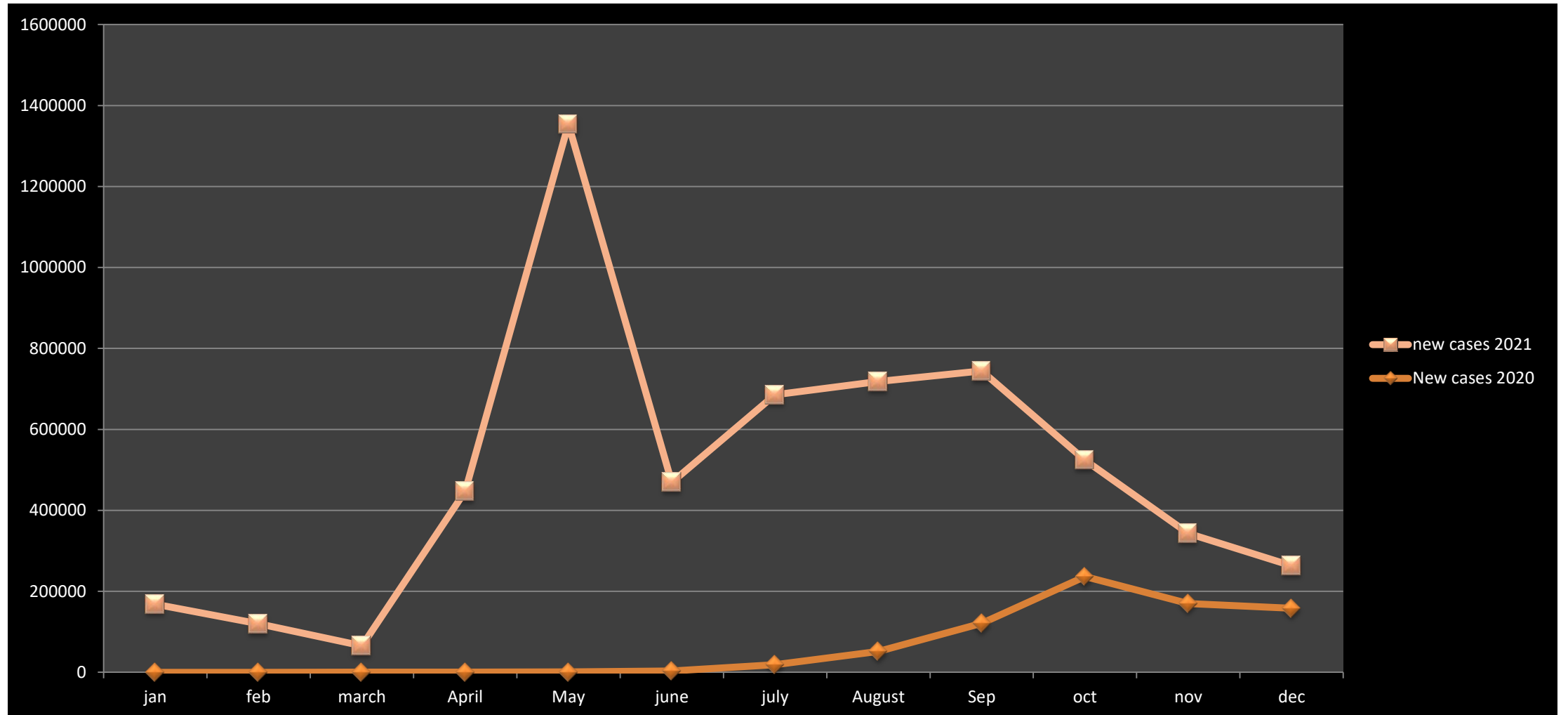
Phases of Transmission- FIRST WAVE - 2020



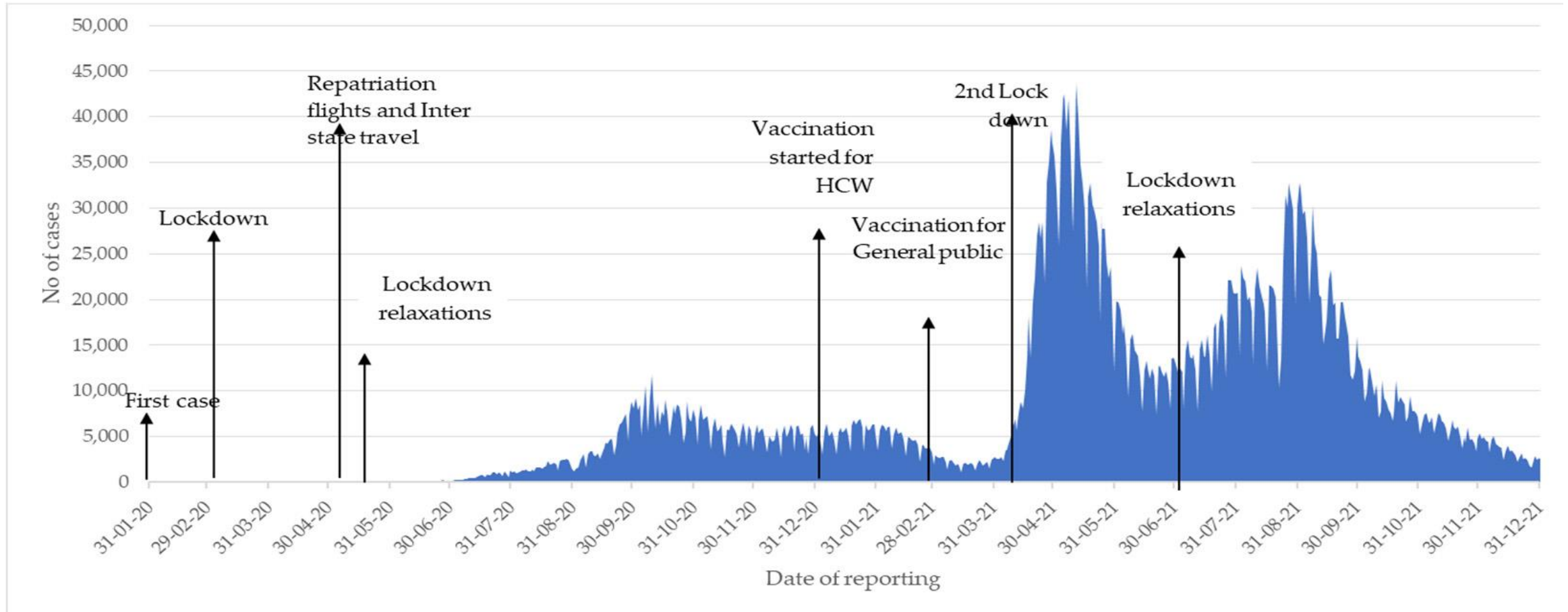
SECOND WAVE - 2021



Comparison Of Reported Cases- first Wave and Second Wave

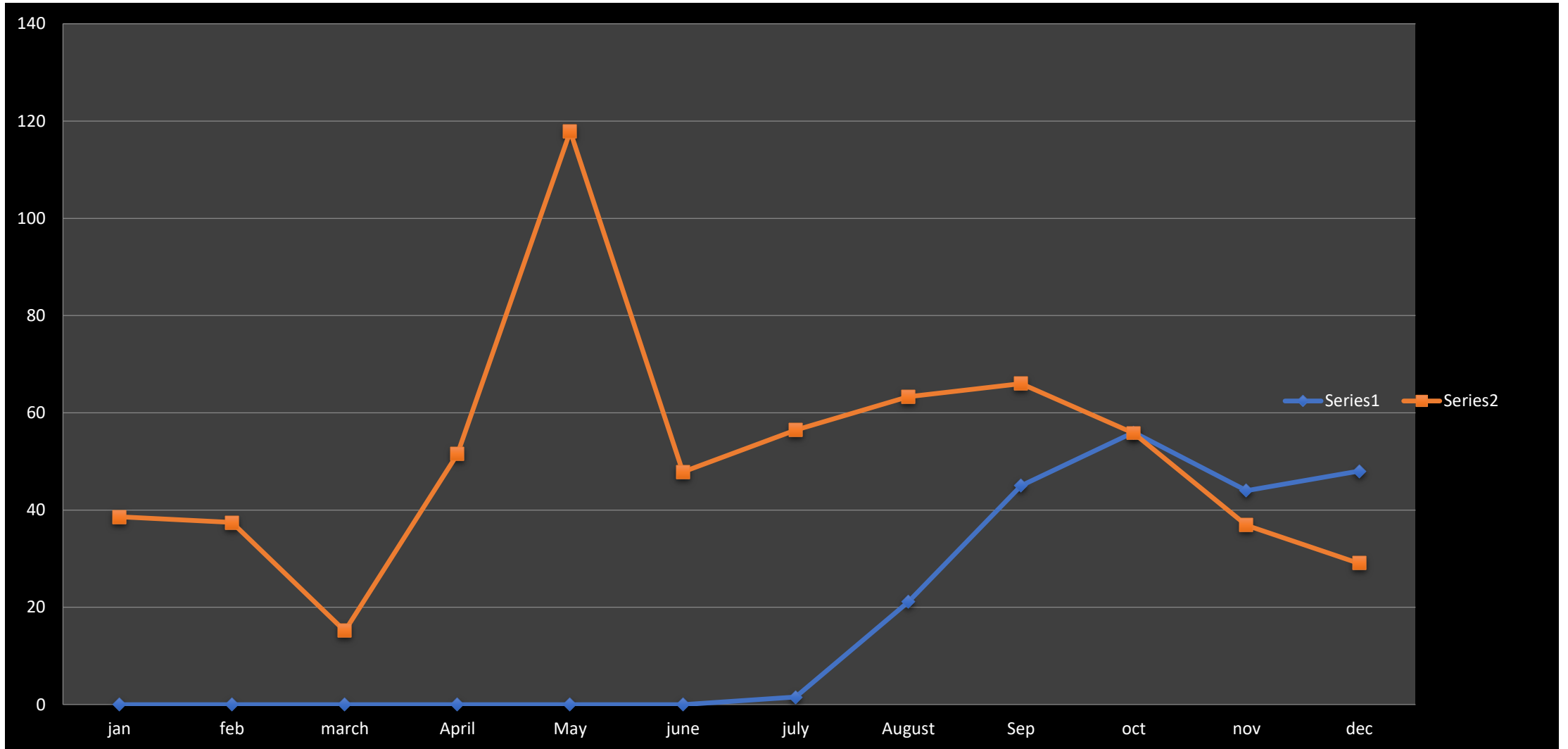


Monthly number of cases of COVID-19 in Kerala, 2020–2021

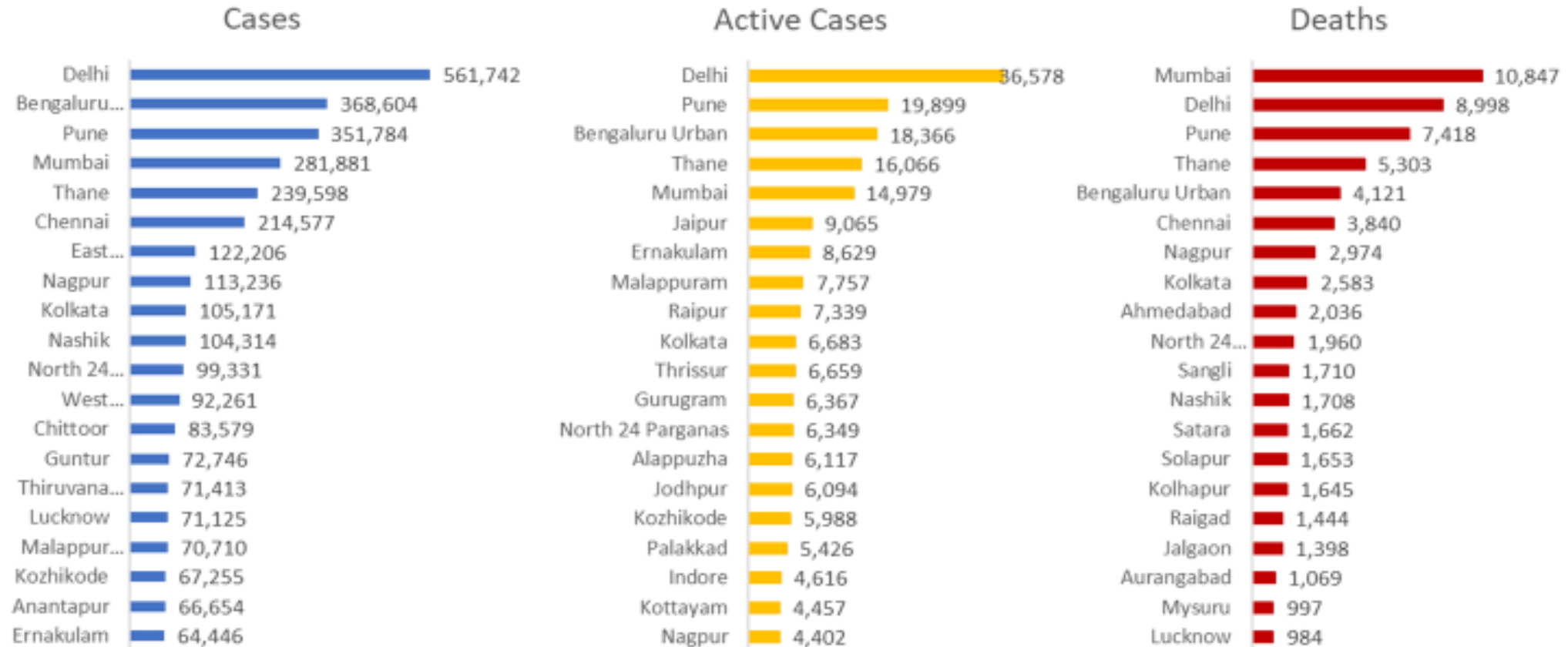


(Source: Jaya, A.M. et al Trop. Med. Infect. Dis. 2022, 7, 105 6)

Comparison of Mean TPR - 2020 & 2021



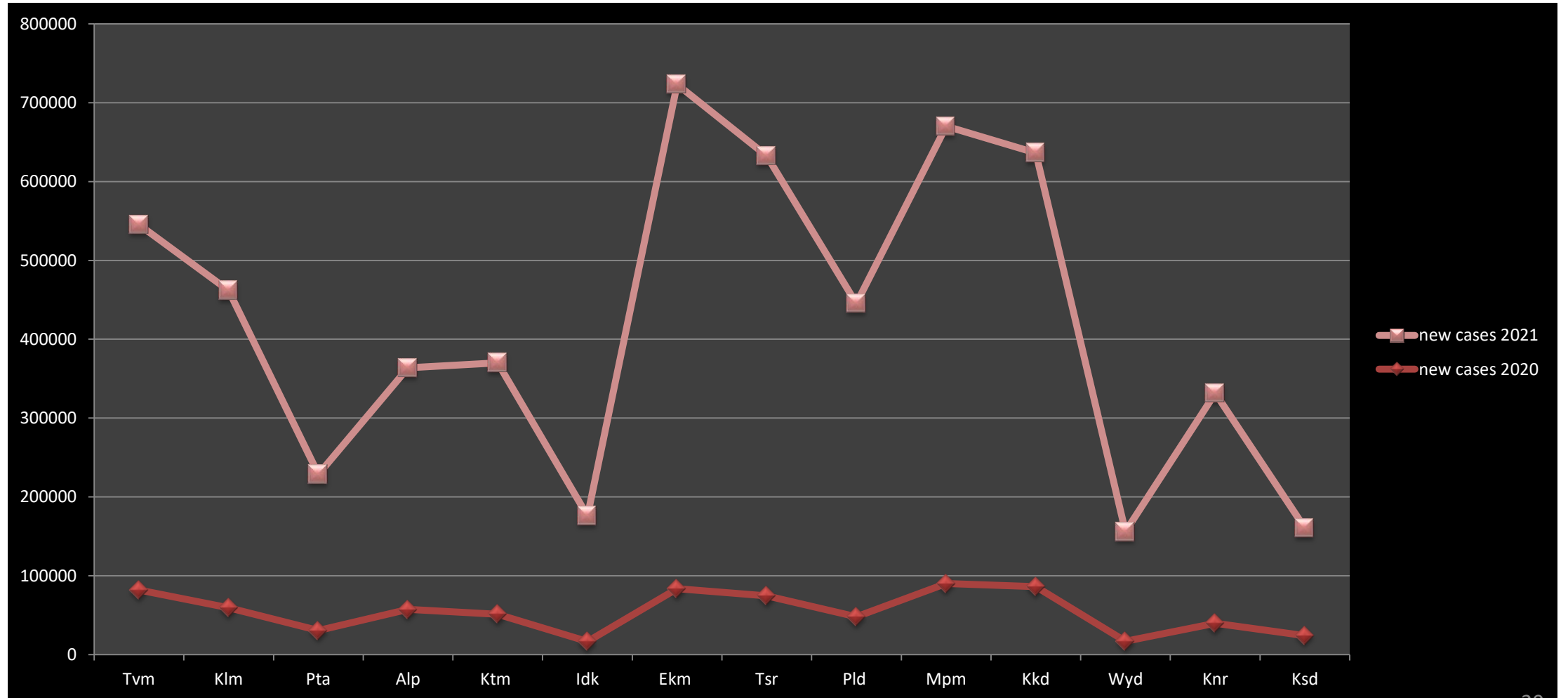
Top 20 districts with COVID burden



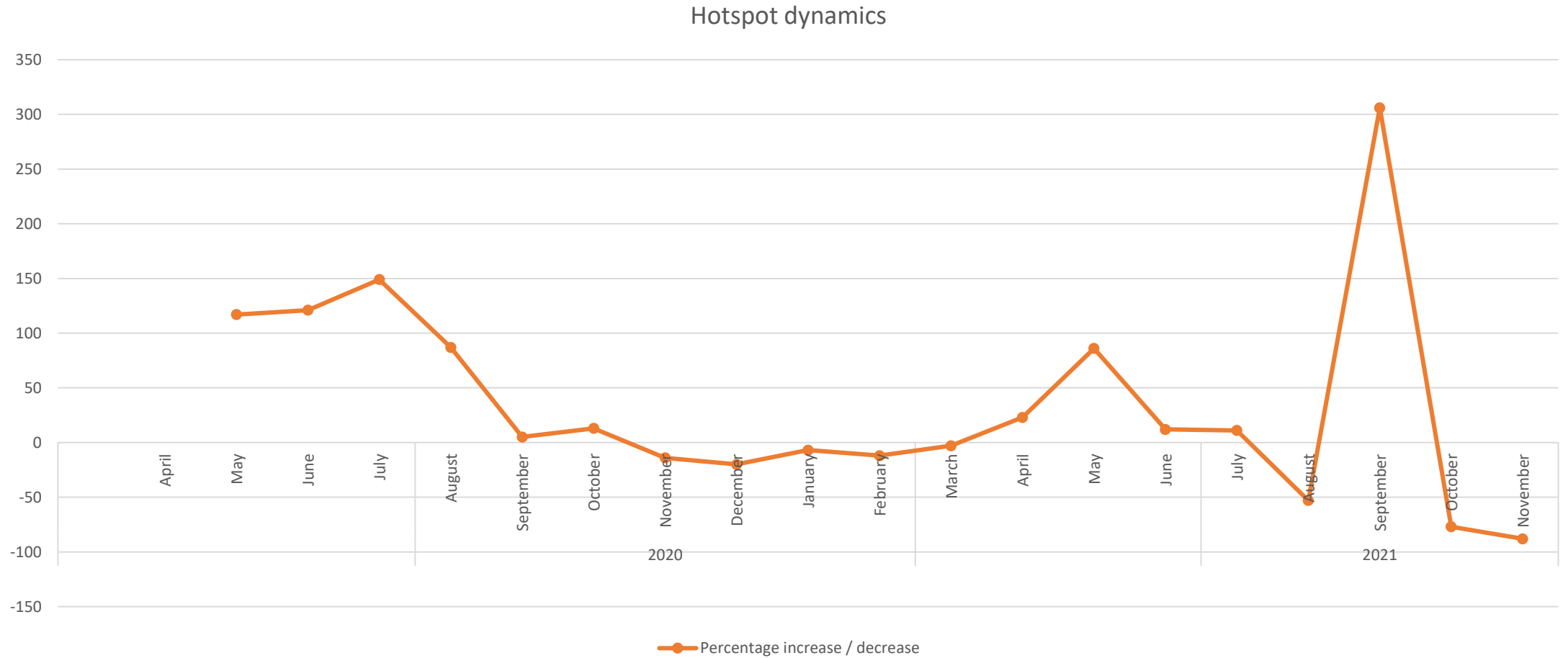
*Delhi included for comparison Data Source: MOHFW & State's bulletins, as of 29/11/2020

Geospatial distribution

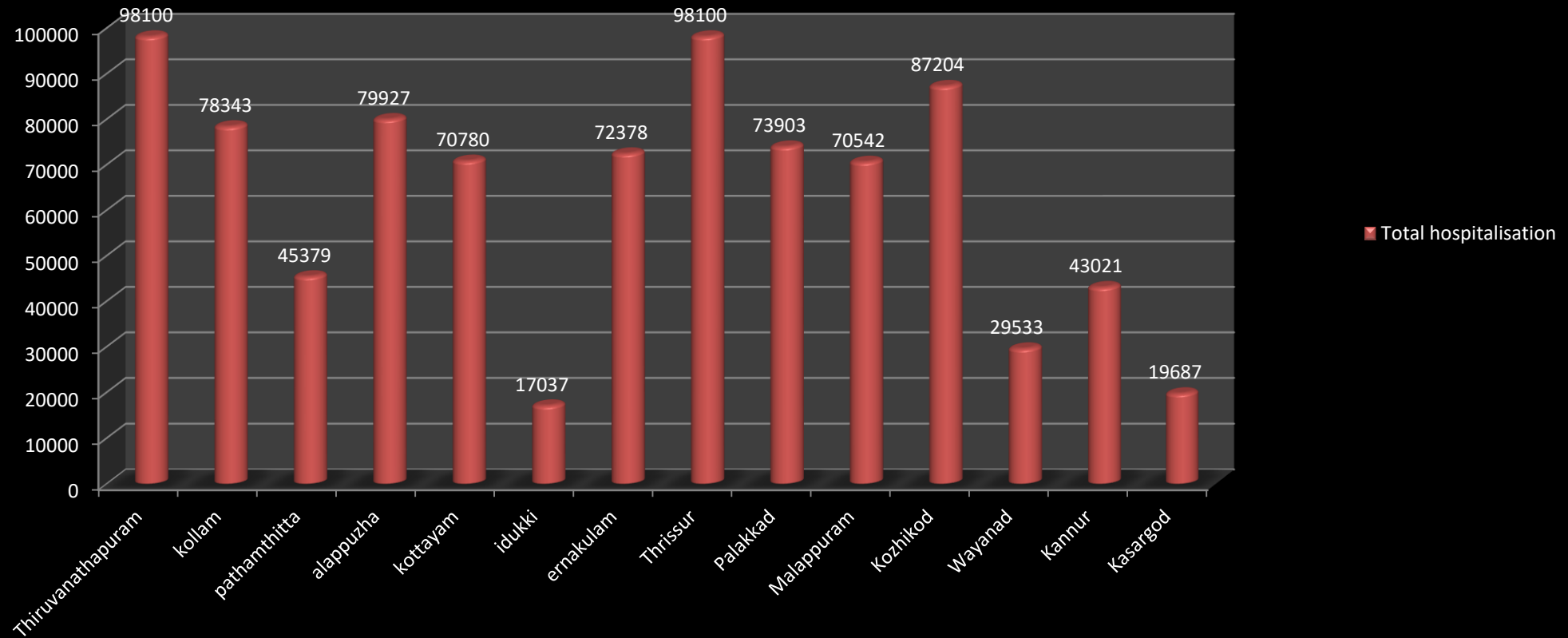
Comparison of Reported cases - First Wave and Second Wave [District Wise]



Hotspot dynamics (Difference in Percentage) -2020-2021 Kerala

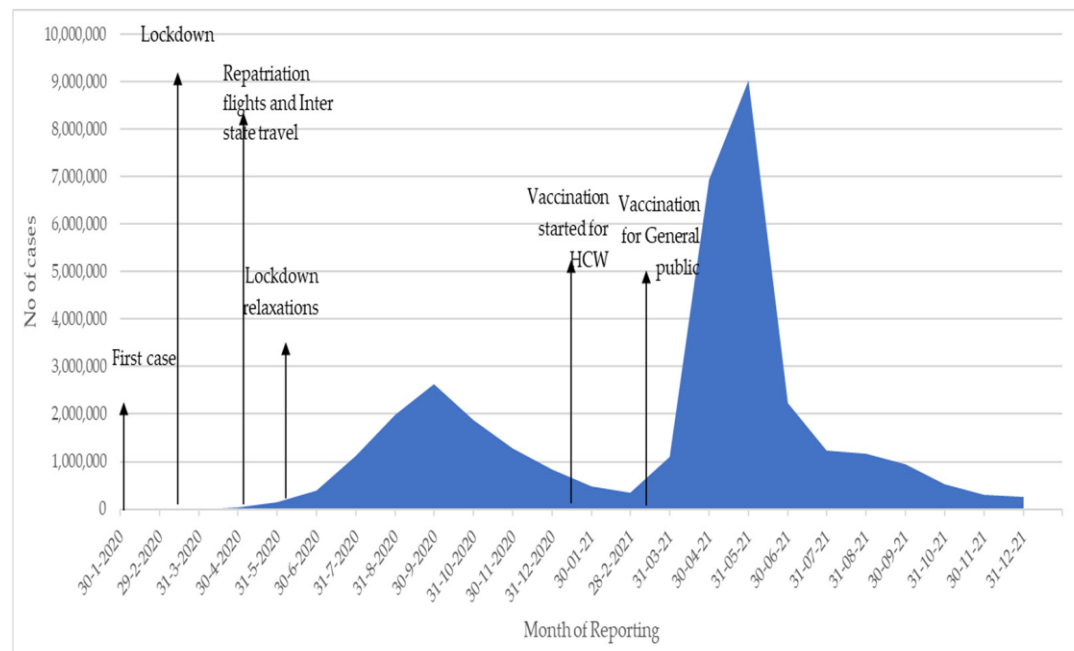


HOSPITALIZED CASES PER MONTH – DISTRICT WISE

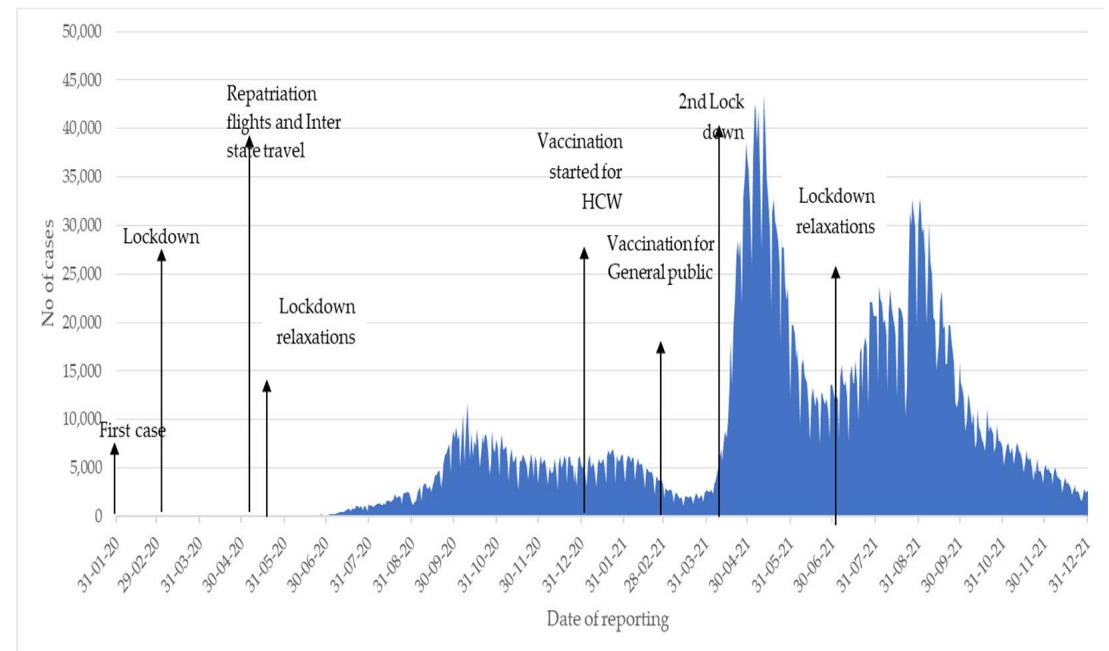


Discussion

Monthly number of cases of COVID-19 in India, 2020–2021



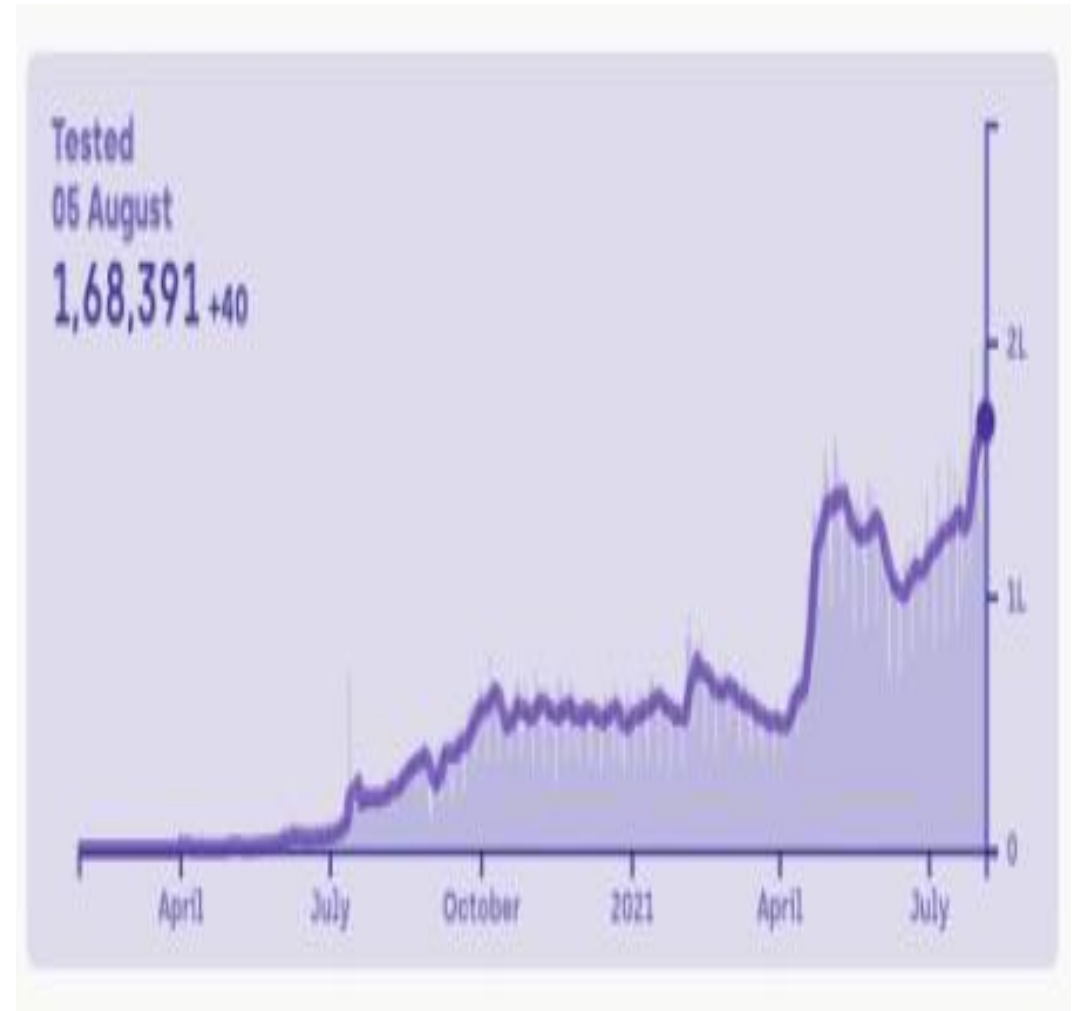
Monthly number of cases of COVID-19 in Kerala, 2020–2021



Source: Jaya, A.M. et al Trop. Med. Infect. Dis. 2022, 7, 105 6)

TPR

- “Kerala conducted over 79,000 tests for every 100,000 people yesterday. Maharashtra on the same day tested 40,000 people per 100,000 of its population. By comparison, Uttar Pradesh, among India’s largest states, tested 29,000 per 100,000,
- <https://qz.com/india/2043576/why-does-kerala-still-have-so-many-cases-of-covid-19/> Manavi Kapoor Quartz India 6-8-2021



CONCLUSIONS

- Kerala had a hard hit by the COVID-19 pandemic
- The first phase was managed successfully which contributed to the delayed peak of the epidemiological curve
- The second wave was delayed due to the successful mitigation strategies, but prolonged due epidemiological characteristics of the pandemic, ease of the restrictions, and a relaxed attitude of the people

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Thank
You