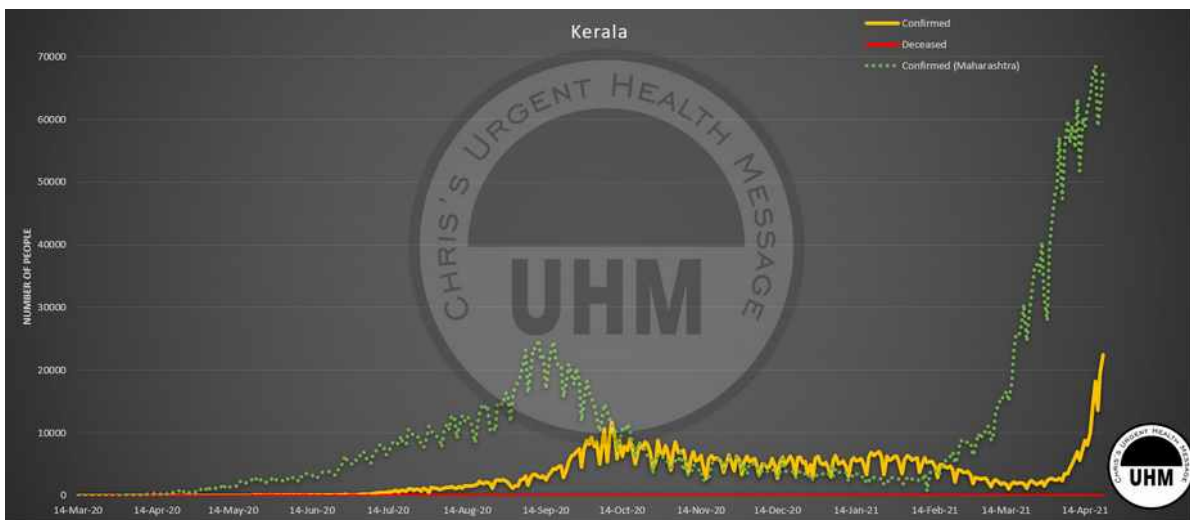
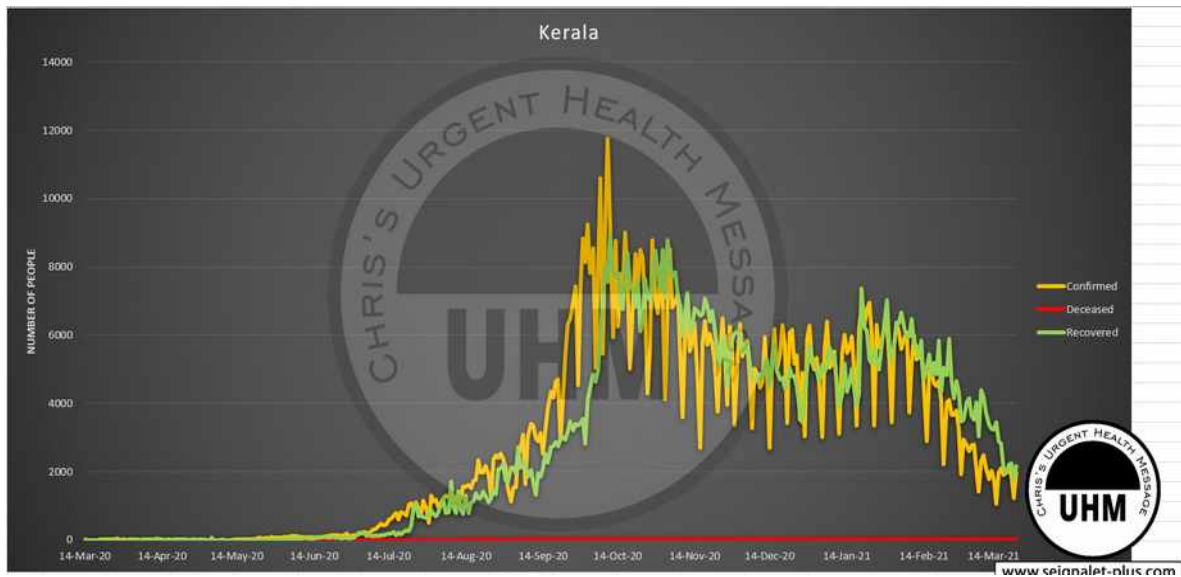
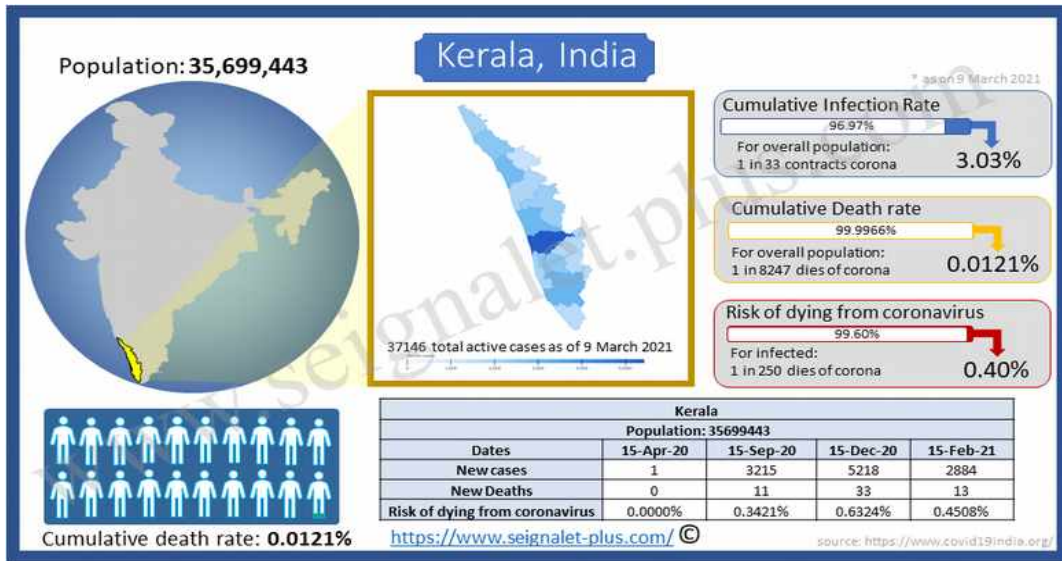


State name – **KERALA** see Chris's comments at the end



a)

State name – KERALA



Average serum vitamin d: 25 ng/ml (deficient per Holick)

(Severely deficient (less than 20 ng/ml, Deficient (less than 30 ng/ml), Sufficient (above 30 ng/ml), Highly sufficient (above 35 ng/ml)

Coronavirus Statistics to 15th February 2021

Population 36million (English system) 3.4 crore (Indian system)

Infection rate	1 in 33	4 th worst in India
Death rate from coronavirus per capita	1 in 8288	20 th lowest in in India
Death rate among those infected with coronavirus	1 in 250	6 th lowest in India

Chris's weighting system to explain number of infections and mortalities

Average temperatures

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Daytime °C	33	35 °	36 °	34 °	31 °	28 °	27 °	28 °	28 °	29 °	30 °	31 °
°F	93	95	97	93	88	82	81	82	83	84	85	88
Night °C	21	22	24	24	24	23	22	22	22	22	21	21
°F	69	72	75	76	75	73	72	72	72	72	70	69

8 Months of the year when it's pleasant go out in the sun. (Around 25 - 30 c or 77 - 86 f) mostly humid tropical wet climate

Main Monsoon (whole of India)	Winter Monsoon (Affects South East India)
X	

Percentage tobacco use	Average for India as whole	Position among states
12%	28%	31 th worst

Air Pollution levels

Low	Medium X(unhealthy)	High
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Statistics taken from the The [India State-Level Disease Burden Initiative](#)

Kerala			India as a whole (average of all the states)	
	Chronic obstructive pulmonary disease (COPD)	Lower respiratory infections	Chronic obstructive pulmonary disease (COPD)	Lower respiratory infections
Years of life lost	4.5	2.5	4.7	6.3
Ranking among other diseases	5.5	8.5	6	3.6

Average serum vitamin d of population

Severely deficient (less than 20 ng/ml)	Deficient (less than 30 ng/ml)	Sufficient (above 30 ng/ml)	Highly sufficient (above 35 ng/ml)	No data available
x				

Farming	Forestry, logging	Coal and steel, mining	Commercial/Government metro	Manufacturing metro	ITHub (City)
x				x	
Tribal	Power generation	Handicrafts	Shipbuilding	Tourism	
1.5%		x	x	x	

State share of in migration and out migration based on [2001 census](#) – page 15 (figures are rounded up)

Kerala	In migrants	Out migrants	Share of in - all India migration %	Share of out – all India migration %
	0.23 million	0.42 million	1.4	2.5

Ayush distribution to population by state government or NGO's: Kadha, Arsenicum Album etc.

Intensive (to entire population)	Mainly to “warriors” (police, health workers etc.)	No distribution of Ayush medicines
x		

Mass distribution of preventative allopathic medicines like Ivermectin to the population

Yes	No
	x

Sale of coronil allowed

Yes	No
x	

[Human development Index](#) (HDI is a composite index that takes into consideration (1) health, (2) Education and (3) Per capita income.)

HDI for this state	Position among states (starting from best position)	India's HDI (average of all the states)
0.779	1	0.519

[Percentage of slum dwellers in population](#) (see page 14): 1% 24th worst in India

Treatment of severe infections

Plasma therapy	Cuban interferon	Other Innovative allopathic	Standard therapy only (as in UK or US)
x	x		

Details of Traditional medicine and other treatment given in hospitals

[Report 15 june 2020 The print](#)

Ayurvedic medicine : A list of foods for boosting immunity was provided. A drop which can be taken as vapour while taking steam was also developed

"...Over the past two months, Kerala has been promoting Ayurveda as a way of improving immunity in the general population. The state has included Ayurveda practitioners in its early detection system and even set up a State Ayurveda Covid-19 Response Cell (SACRC), to work on Ayurvedic formulations and drugs for the management of the coronavirus...."

"..The document also suggests cooking special beverages along with herbs. For instance, it suggests boiling of water with dry ginger, coriander seeds, basil leaves, muthanga, panikoorka kayila, ajwain seeds and turmeric...."

This is Kadha although interestingly they are not calling it that. The language of Kerala is Malayam so perhaps it's called something different in Malayam. The basil leaves will be Tulsi, aka holy basil. [Pinterest](#): *"...Panikoorka is an Ayurvedic herb used for treating common cold, cough and fever. This herb native to Kerala is also a natural remedy for arthritis.."*

"...In curry, pastries, snacks, tiffin, soups, wherever possible, use green gram (cherupayar) liberally. Minimize the use of black gram," it adds..."

Green gram is called mung bean in the UK and US

[Novel antiviral activity of mung bean sprouts against respiratory syncytial virus and herpes simplex virus](#)

Hafidh et al 2015

"..Mung bean sprout extract showed Reduction Factor (RF values of more than 10 indicating a pronounced antiviral activities..." (Chris's note. RF refers to reduction of virus titers)

For mild and moderate

[Report 15th October New Indian Express](#)

The state was considering whether to discontinue use of HCQ in the light of American studies which found it had severe side effects.

"...Dr Aravind R, head of infectious diseases department, Government Medical College Hospital, Thiruvananthapuram, said HCQ is effective if given early in the disease course, but it has no role when administered late.

Aravind, who is also a member of the state medical board for COVID-19, added, "A slew of studies for and against HCQ are there in the public domain and the state has adopted a guarded approach based on its experience...."

For severe cases

[Report 31 march 2020 Times of India](#)

Cuban drug Interferon Alpha was used in severe cases to control cytokine storm (CS) (It's the CS which kills you). This was a clinical trial.

Dr R R Gangakhedkar, who heads epidemiology and communicable diseases at ICMR, said the drug is mainly used to control cytokine storm, which is caused by an overreaction of the immune system to an infection. "It has been used in multiple diseases when it comes to development of acute respiratory distress syndrome. China used it widely. It doesn't mean that it works alone, this is just a symptomatic treatment. If you have cytokine storm we use interferon alpha," he said.

Chris's note. Kerala was the only state or UT to use this drug. The low mortality in infected patients in Kerala speaks volumes I think.

Date vaccination started 16th january

[Vaccines](#) used

Covishield and covaxin

Side effects

[Report 18 jan 2021](#) The Hindubusinessline

Covid-19 vaccination: No cases of serious reactions in Kerala

No side effects were reported on first day.

[Report 2 march 2021](#) Hindustan Times

Health minister and 2 cabinet colleagues take vaccine.

<https://www.thenewsminute.com/article/kerala-nurse-dies-cardiac-arrest-officials-say-not-related-covid-19-vaccine-142481> died after vaccination. Cardiac arrest is said to be the reason behind death.

Numbers vaccinated

[Press Release 7 feb PIB](#)

2,91,852 were vaccinated by 7th feb 8 am IST

[Press Release 20 feb 2021 PIB](#)

4,32,989 were vaccinated till 20th feb

[Press Release 7 march 2021 PIB](#)

25,58,544 are vaccinated till 24th march 7 am IST

Chris's comments:

1. Very high infection rate

Kerala is another very interesting state because it had a high infection rate of 1 in 33 the 4th worst in India. It's a rich state. It has the highest human development index in India. Vitamin d serum levels are an average of 25 ng/ml which is insufficient per Holick. But sufficiency is 30 ng/ml and above so it's not too far from sufficiency and there are plenty of Indian states with much lower levels.

Tripura also has 25 ng/ml but a much lower infection rate of 1 in 125. Keralans have less than half the tobacco use of the national average and only 1% of the population are slum dwellers. So what was Kerala doing wrong to get such a high infection rate? The relatively low proportion of smokers could have something to do with it. [A study showed that smokers](#) were less likely to be hospitalised with covid-19 (but had more severe outcomes if they were).

I think there might also have been cultural reasons. Were they drinking their local version of Kadha (which they don't call kadha), buying Patanjali's coronil and eating plenty of green gram (mung beans)? Prime Minister Modhi's address to village chiefs telling them to make kadha and his youtube video showing how to make it were in Hindi. Also, Baba Ramdevs promotion of coronil (which I believe to be very effective despite the sly allopathic campaign against it) was also in Hindi. Ramdev is in Northern India. Kerala is at the southern tip. Were these promotions in Hindi penetrating Kerala?

2. Very low mortality rate among the infected.

Here are my speculations to account for this:

a) Fewer smokers. Far fewer smokers in Kerala than the national average so although smoking may protect against infection (the jury is still out on this) outcomes are worse if you are infected. So the low rate of tobacco use probably led to less severe outcomes for Keralans but it's hard to say how much importance to attach to this.

b) Hydroxychloroquine given as a preventative for mild infections to prevent progression. HCQ is an ionophore. It gets zinc into the cells. While I think it's ridiculous to give a drug with potential side effects when the natural supplement quercetin does the same thing with zero side effects, and HCQ is controversial and banned in the US and Europe, Dr. Arvind (see report above) said that they are using it correctly and only giving it in the early stages where he says it's very effective. I have no reason not to believe him (although of course I would tell him that high dose vitamin c intravenous is the therapy which should be used early and late in all cases – if it's not working, up the dose until it does!)

c) Plasma therapy. There can be side effects, sometimes severe but these are very rare if it's used correctly. Most Indian states and UT's are using it.

d) Cuban drug Interferon Alpha was used in severe cases to control cytokine storm (CS) (It's the CS which kills you). This was a clinical trial. The knockout punch for the mortality statistics! Kerala was the only state or UT to use this. Death rate among infected: 1 in 250, the 6th lowest in India. This statistic says it all. It should be rolled out immediately and used in all ICU's in India and elsewhere.

3. Cumulative death rate per capita

I think Interferon Alpha saved the day in Kerala. 1 in 8,247, just slightly less than the Indian average of 8,670. The all Indian infection rate was 3 times less though at 1 in 122. So with such a high rate of infection, coronavirus would have created a massacre in Kerala if it had not been for the excellent, innovative hospital care there. The ayurveda doctors need to up their game to prevent infections in the first place. The sensible thing of course would be to distribute a years supply of vitamin d supplements to the whole population. 5,000 i.u.'s for healthy adults, 10,000 for the over 60's and those with existing conditions, 20,000 i.u.s for the obese. This would prevent all infections and make all vaccinations with their terrifying side effects pointless and unnecessary.



Keralan martial arts





Tea plantations



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