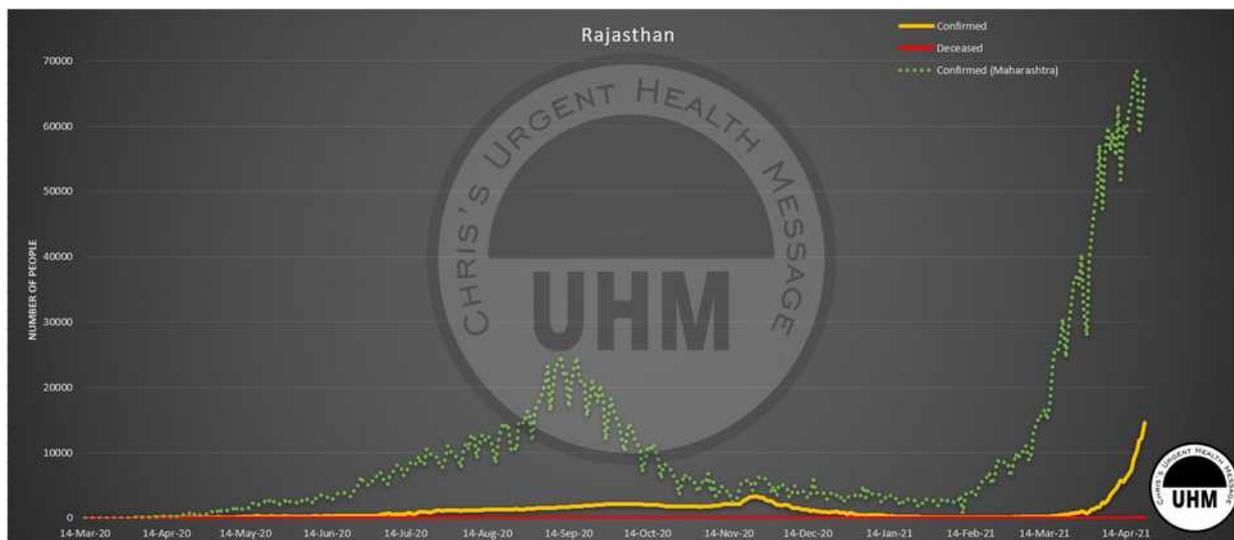
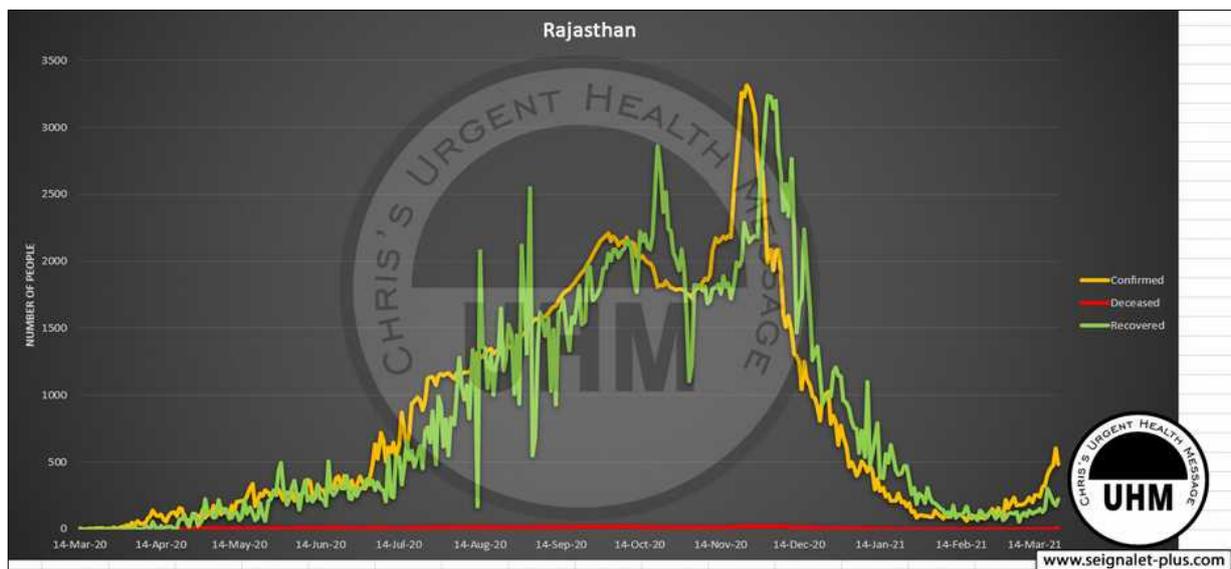
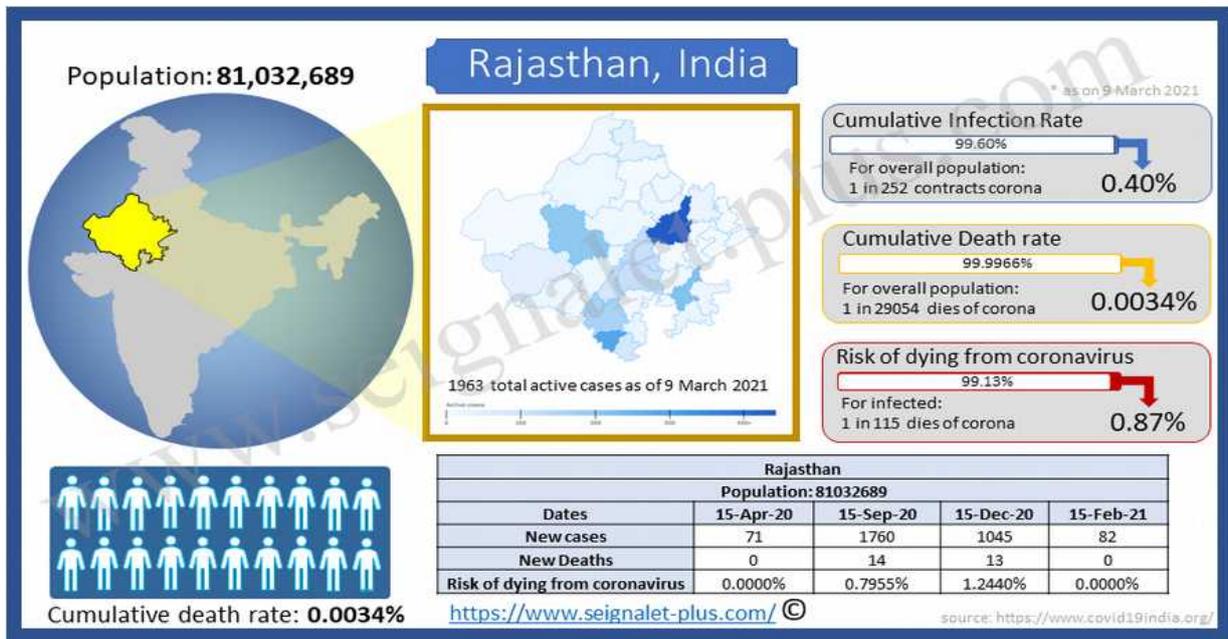


State name – **Rajasthan** see Chris's comments at the end



State name – **Rajasthan** See Chris's comments at the end



Average serum vitamin d: 15 ng/ml (severely deficient) Note: this is an estimate. See Chris's comments at the end.

[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: 81 million (English system), 8.1 crore (Indian system)

Infection rate	1 in 252	4 th lowest in India
Death rate from coronavirus per capita	1 in 29,054	8 th lowest in India
Death rate among those infected with coronavirus	1 in 115	13 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	22	25	32	38	40	38	33	31	32	33	28	23
°F	71	78	89	99	105	101	91	88	91	91	83	74
Night °C	8	11	16	22	27	28	26	24	24	20	15	10
°F	46	52	61	71	79	82	78.5	76	74	67	58	49

3 Months of the year when it's pleasant go out in the sun. (Around 25 - 30 c or 77 - 86 f)

Climate is hot (desert), winters are warm. Monsoon June/July/August/September

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

Rajasthan: Tobacco consumption

Percentage tobacco use	Average for India as whole	Position among states
24.70%	28%	19 th worst

Air Pollution levels in Rajasthan

Low	Medium	High
		X

Report: Times of India 2018 [Rajasthan has highest death rate per lakh due to air pollution](#)

“..Rajasthan has highest death rate per lakh due to air pollution...” (lakh is Indian for 100,000)

“...Rajasthan is one of the states having highest level of both ambient particulate matter & household air pollution...” “...The highest death rate in India due to air pollution was in Rajasthan...”

Statistics taken from: [The India State-Level Disease Burden Initiative](#)

Rajasthan			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	7.75	11	4.7	6.3
Ranking among other diseases	3	1	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	IT Hub (City)
X		X		X	
Tribal	Power generation	Handicrafts	Shipbuilding	Tourism	
13%		X		X	

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

Figures are rounded up

Rajasthan		Share of in - all India migration %	Share of out – all India migration %
In migrants	Out migrants		
0.72 million	0.99 million	4.4	6.0

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)
0.650	29th	0.519

[Percentage of slum dwellers in population](#) (see page 14): 1% 20th worst in India

Treatment of severe infections

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

Traditional Herbal Medicines from the hills of Shekhawati region of Rajasthan
Katewa and Galav 2005

Scroll down to page 8 of the PDF. The article claims that 10 different plant species are used for respiratory tract infection!

Medicine distributed by the state or NGO.

Health official distributed Kadha to their employees and to common peoples
[Report 15th March, 2020 National Herald](#)

“..According to health officials, the syrup distribution begun a week ago and has been given out in many areas, including the district collectorate. On March 5, around 3,000 employees, advocates and common people were provided this 'kadha' at the collectorate. According to Indra Kumar Jain, Deputy Director of the Ayurveda Department in Jaipur, the syrup is made of 60 Ayurvedic herbs, including ginger, jaggery, munakka and black pepper...” “...While medicines are provided by our department, stove and utensils to prepare and distribute it are being supplied by different organisations that have associated with us for the noble cause,” Jain said....”

A private company CNP (Cultivator Natural Products Pvt. Ltd.) distributed ayurvedic immunity boosting kit free to “front line warriors” and the army.
[Report 10th June, 2020 Organiser](#)

“..Joining the fight against Corona pandemic, Cultivator Natural Products, has prepared kits of its Ayurvedic medicines to fight Corona where each kit contains 3 types of tablets namely, Breathayu, Immuincrease and Triphala. There are 30 tablets of each type which are to be taken for 7 days. The company has distributed 67,000 such medicine kits to Corona frontline warriors and army soldiers...”

CNP: Founded in 1988. It works in cultivation of natural fruits and plants.
[Website](#)

Medicine details

Kadha: made of 60 Ayurvedic herbs, including ginger, jaggery, munakka and black pepper.

CNP: kit has 90 tablets of 3 types namely, Breathayu, Immuincrease and Triphala

Date distributed

Kadha: March 5 2020

CNP: No date mentioned news reported on 10-Jun-2020

Number of medicines distributed

Kadha: on 7th march- 3,000 people on 5th march - around 3,000 employees, advocates and common people.

CNP: Didn't mentioned about number of people but 60,30,000 tablets were distributed (10 June) the company has vowed to produce 50 lakh (5million) tablets.

Details of Traditional medicine and other treatment given in hospitals

Clinical trial of an ayurvedic medicine was started (article language: Hindi, wait for google to translate it to English)

[Report 6th June, 2020 Aaj Tak](#)

“...Testing of an immunity medicine of Ayurveda has also been started on 12,000 people in Ramganj, Jaipur. The Union Ministry of AYUSH is conducting this trial in collaboration with the Clinical Research Organization team...” “...the National Institute of Ayurveda working under the Ministry of AYUSH has made four medicines regarding corona, one of which is named AYUSH 64...”

Post-Covid centre opened at Ayurveda District Hospitals in Rajasthan to treat ex-covid19 people who went in depression and become weak.

[Report 16th Dec, 2020 Hindustan Times](#)

“...Rajasthan Health Minister Raghu Sharma said that a post-Covid centre will be opened at all the district Ayurveda Hospitals in the state. Experts will treat the patients who have turned negative after being treated for corona in these centres through Homeopathic, Ayurvedic and Unani medical systems...”

Type of medicine given:

Medicine type: ayurvedic immunity booster. Name: Sanshmani buti (or booti) (सं शमनी बू टी)

For mild and moderate patients

Sanshmani buti is use on 12000 people (condition of patient not mention in report but as it is immunity booster It must be for asymptomatic and mild patients)

For severe cases

Plasma therapy and Tocilizumab injection were used (both are allopathic treatment)

[Report 27th July, 2020 Hindustan Times](#)

“...Rajasthan will provide the life-saving injection, Tocilizumab, and plasma therapy to every critical patient of the coronavirus disease (Covid-19) in the state, chief minister Ashok Gehlot has said...”

Date started

Clinical trial of Sanshmani buti: No date mention News reported on 06 June 2020

Plasma therapy: 27 July, 2020

Date vaccination started

16th of Jan, 2021

1.5 Lakh Health Workers To Get COVID-19 Vaccine In First Phase

[Report 11th Jan, 2021 Swachh India](#)

“...Rajasthan Health Minister Dr Raghu Sharma on Sunday (January 10) said that around 4.5 lakh (450,000) healthcare workers have been included in the first phase of COVID-19 vaccination that is starting from January 16 and they will be administered ‘Covishield’ vaccine against the virus...”

Vaccines used

Covishield (only two vaccines are approved in India covishield and covaxin)

Side effects:

Deaths

1 man dies 5 days after taking vaccine shot. Officials says death was not due to vaccine side-effect but due to kidney problem

[Report 22nd Jan, 2021 India Today](#)

“..In its report, the district AEFI committee has concluded that Sharma was suffering from high blood pressure and was a chronic patient of kidney disease which caused brain haemorrhage leading to his death and that his death has nothing to do with coronavirus vaccine dose he was administered...”

Numbers vaccinated

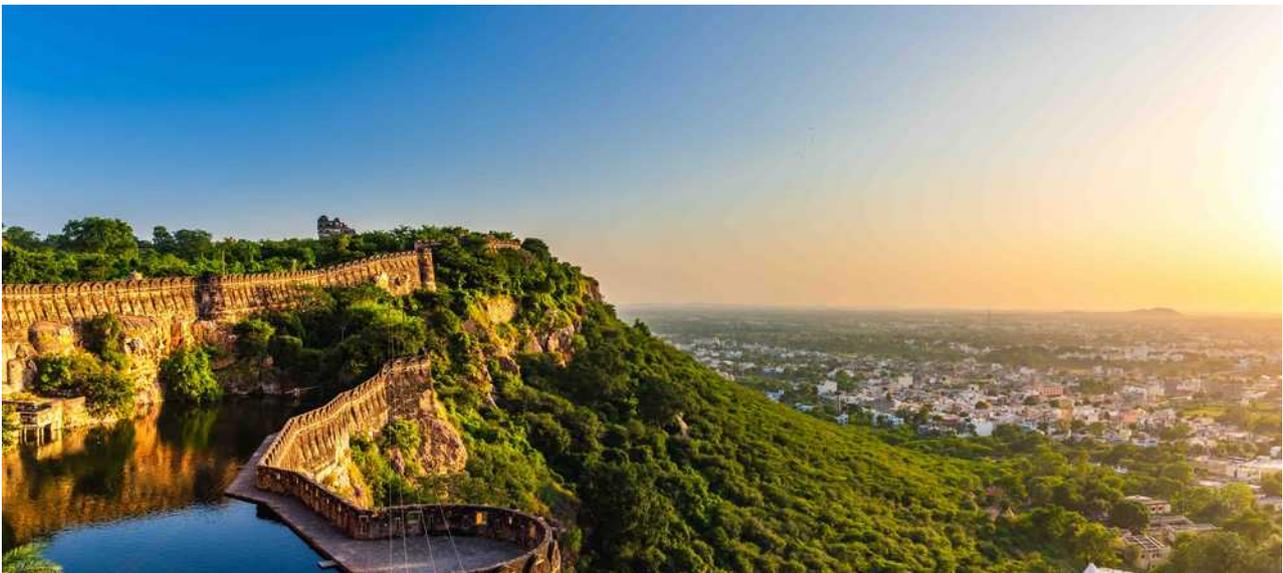
Total people vaccinated till 14th march, 2020: 28,94,730

Total vaccine: 37.61lakh (3.761million) doses of vaccine are provided to state. (No shortage of vaccine)

[Report 9th March, 2021 NDTV](#)

“..There is no shortage of anti-Covid vaccines in Rajasthan, the centre said today after the state said it will run out of vaccines soon if the centre does not urgently send more supplies. The state government had asked the centre for more doses to be sent as it slowed down the pace of the vaccination drive with only those who need their second dose being administered the shot today...”

Interview with Sakshi. Resident of Chittorgarh, (major city in Rajasthan)



Chittorgarh fort with city as backdrop

Chris's comments follow

C is Chris. S. is Saskshi.

C. What kind of ayurveda were people in Rajasthan using for coronavirus?

S. People here were drinking home made medicinal decoctions. Using tulsi leaves, cloves, ginger, black pepper and lemon. People were also taking ayurvedic immunity booster coronil tablets by Patanjali

C. OK. So everyone was drinking Kadha every day?

S. Yeah. People were having kadhas 3-4 times a week in the morning.

C. Where were they buying coronil?

S. From ayurvedic medical stores and patanjali stores. Patanjali is the company manufacturing coronil

C. Patanjali stores online or in Rajasthan?

S. There are brick and mortar shops exclusively of Patanjali everywhere in India, even Rajasthan. There is an online store also for patanjali products.

C. Is there a Patanjali store in your own town?

S. Yes. Patanjali stores work on franchise model. There are almost 15-20 patanjali stores in Udaipur. It's a tier 3 city

C. OK. Was everyone you know using coronil?

S. I think 3 out of 10 people were using coronil here. from everyone i know

C. OK. Was anyone else distributing ayurvedic medicine?

S. Yeah. Private NGOs, political parties and at some small level many people were distributing free ayurvedic medicines for social work purposes

C. Can you give me some more details about that?

S. Yeah. Some private NGOs were distributing free medicines to villages and to people below poverty line. Some political parties had set up kadha camps at different places in the city. And some people, like my friends were distributing free medicines and kadha pouches to people above the age of 65 and to those who are more prone to the disease. I saw people drinking neem and aloe vera juice. In my family, My father, grandfather and uncle ate chyawanprash and ashwagandha for straight 5-6 months to improve their immunity. I don't like the taste of kaadha and neem juice. So i used to take bhringraj syrup and lemon tea with tulsi, *pudeena, and cloves to improve immunity. An NGO distributed free neem giloy tablets in our block. Our neighbor is an ayurvedic vaid (doctor) who had set up an online conference on how to improve immunity at home through ayurveda.

* [Pudina or pudeena is mint](#). "...According to the book, 'Healing Foods' by DK Publishing, "Menthol, the active oil in mint is responsible for the anti-septic and anti-bacterial properties that make it a good choice for relieving indigestion, irritable bowel syndrome and soothing an upset stomach . Its adaptogenic properties can help balance body in whatever way is needed, so it can be both invigorating and mildly sedative. "

C. The reason I'm asking all these questions is because I'm writing a blog post on what all the Indian states did to beat Kahda. This is the article on the whole of India: <https://www.seignalet-plus.com/breaking-coronavirus-is-nearly-over-in-india-we-tell-you-why/>

S. ohh that's great. I will definitely give it a read and share with my friends as well

C. If you have a high enough blood vitamin d level you won't get infected because vitamin d stimulates the body's own anti-microbials to kill the virus. So in general in India in the very hot states where people avoid the sun like Maharashtra and Rajasthan people have low levels of vitamin d. 13 ng/ml in Maharashtra. In a pleasant climate like Bihar where people are out in the sun on farms all day the level is much higher. 30 ng/ml in Bihar. So in M. 1 in 55 were infected. In Bihar 1 in 475 were infected. Rajasthan has a low level of vitamin d: 15 ng/ml. So it should have a high infection rate. But it's 1 in 252. It's an anomaly. It only makes sense if people were using lots and lots of ayurveda and I think that they were.

S. yes, You're right. I noticed during the lockdown, every household had stacked up on lemons and used them in their drinks, meals, etc. Also, there were camps for free ayurvedic medicines set up in different parts of cities. People strictly followed the lockdown here. It has become a daily routine for us now to drink lemon water in the morning and eat lots of vegetables. Also here's an interesting fact. Rajasthan is a vegetarian state. 50% people in Rajasthan are pure vegetarians.

C. So is eating lots of vegetables to fight coronavirus ayurvedic advice?

S. most of the vegetables are packed with vitamins, that helps in building immunity. I don't know if that counts in ayurvedic cure or not.

C. You said: "... An NGO distributed free neem giloy tablets in our block.." Do you know the name of the NGO?

S. yes of course. Abhyudya foundation and Shree Seva Sansthan these NGOs distributed recipes of kadhas and neem giloy tablets

C. How many days' supply of neem giloy tablets?

S. They gave two tablets per family member to every household. We planted a neem giloy in our backyard and drank its juice every week

C. What did Shree Seva Sansthan distribute?

S. Shree Seva Sansthan gave the neem giloy tablets in our block while Abhyudaya foundation gave kadha recipes pamphlets

C. Oh, OK. Was anyone distributing a free kit?

S. Yeah. A lot of NGOs like "PRAYAS" were distributing free kits of kadhas and medicines and different politicians were also distributing free medicines and kadhas and juices there was a kadha camp set up at every 2kms of area in cities

C. Who was running the Kadha camps? Different NGOs and like I said politicians

S. There were two camps near our house. One of them was set up by political party and another one was set up by an ayurvedic doctor along with NGO

C. Were they there every day?

S. Only for 2-3 weeks Do you know what month? last year march and april and then again in march this year

C. OK. When the panic started. Was the political party that set up the kadha camp the BJP? Both congress and BJPOK. In Jaipur a company was distributing a kit. The company's called CNC. Did you hear about that?

S. yeah when the panic started. and since the cases have began to increase again, they are again dsistributing kadhas yes i have heard about CNC. I completed one of the courses there. Its an infotech company

C. No. It's anurvedic agriculture and medicine company . I might have the name wrong. I'll give you a link to the article. oh okay.

S. Then i have'nt heard about it

C. It's CNP. <https://www.organiser.org/Encyc/2020/6/10/Jodhpur-based-company-distributes-Ayurvedic-medicines-to-Corona-frontline-warriors-and-Army-soldiers.html> yeah

S. i have heard about this campaign. But not about the company

C. Do you know how long they were giving out the kits for?

S. as much as i remember this happened from april first week to mid-may So around 5 weeks.

C. Do you think everyone in Jaipur got the kit?

S. Not everyone. Because this campaign was not a door-to-door campaign

C. OK. It was frontline workers. Correct? Every frontline worker I can say.

S. yes correct

C. OK. You've given me everything I need I think to make my case, which is that the people of Rajasthan helped each other with Ayurvedic medicine and saved thousands of lives. You've been very helpful.

Chris's Comments

“The Rajasthan miracle”

Rajasthan is probably the most interesting state in India from the point of view of the effectiveness of Ayurvedic traditional recipes for respiratory infections like Kadha. The state has absolutely nothing going for it in terms of geography that would help it overcome coronavirus – quite the opposite. Yet it has the 4th lowest infection rate in India. (*Note: the report and my comments are for coronavirus in Rajasthan until 9th March 2021. I believe that the 2021 spike or*

“second wave” was started by the vaccination campaigns in Maharashtra and Delhi by something called ADE. [Antibody Disease Enhancement](#), with the spikes taking off in mid february, two weeks after the start of the vaccine roll out and communicated to other states by M and D sending their migrant workers back to their home state in special trains at the start of April. As elsewhere, I believe that India needs to halt vaccination immediately. Apart from severely deficient Maharashtra, Delhi and Goa, India beat it once in 2020 and has all the tools necessary to beat it in 2021 (at time of writing - 3rd of June it's already doing so). Furthermore, distribution of a year's supply of vitamin d supplements, 10,000 i.u.s per day for a healthy adult and 15,000 i.u.s for the obese and those with co-morbidities would not only kill coronavirus virtually overnight it would greatly improve the health of the Indian population in general. Severely deficient in many states and UT's.)

Mean serum vitamin d level

I have used the observational study by Padhi et al [Lower levels of vitamin D are associated with SARS-CoV-2 infection and mortality in the Indian population: An observational study](#) published online in September 2020 to find the mean serum vitamin d levels for each state and Union Territory. For some there is no data available. The level for Rajasthan is given as 15 ng/ml and 2 studies are quoted for this data. But I was unable to confirm these as correct because one of them is from a hospital in Delhi, albeit close to Rajasthan (a study of vitamin d deficiency implicated in pre-eclampsia patients compared to equivalent controls) and the other is from a book which I'm unable to find. So I think that the guys in Khallikote University in Odisha were guessing here. So what is the real level? I think that severely deficient 15ng/ml is a good guess though because the state is very hot. It's a desert climate. There are only 3 months of the year where it would be pleasant to go out in the sun. Like the rest of India there are 4 months of monsoon - not really conducive to sunbathing. If anything I think the mean level could be lower at 13 ng/ml - Maharashtra level or even lower.

Not only does Rajasthan:

1. have a severely deficient serum level of vitamin d among its citizens.
2. It has the highest level of lung disease in India due to the high levels of air pollution. Respiratory infection is the number one cause of years of life lost due to disease and the number 2 cause is COPD (chronic obstructive pulmonary disease) – bronchitis and emphysema to you and me.

So for covid-19 infections we could expect a massacre. Perhaps an even higher level of infection than its neighbour Maharashtra with 1 in 55. Yet Rajasthan had 1 in 252 (to March 9th 2021) the 4th lowest in India! What is going on here?

This is one of the biggest anomalies that I have found among Indian states and UT's and it shows that there are other factors in play apart from vitamin d levels.

My speculative explanations for the low levels of infection

1. High level of endemic respiratory disease conferring infection

The high level of lung disease caused by micro particulates entering the lungs in dust storms in Rajasthan could be a clue . People living in Jaipur and other towns and cities would be very used to using Ayurvedic polyherbal remedies like Kadha to ward off respiratory infections. Also, would the high level of previous respiratory infections confer some immunity? I will propose a very high level of ayurvedic remedy consumption (see reports and interview with Sakshi and my point 4 beneath) as the main reason for low infection rates but who knows how much immunity conferred by previous infections figures in the mix? It could even be the main reason. Discussed in this [article](#).

2. Virtually no slums

There are very few slums in Rajasthan. 1% only of slum households. I think that when finding somewhere to defecate is a problem you are not likely to be organized enough to get your ingredients together to make kadha. So Rajasthan would not have the slum problems of a Maharashtra for example.

3. Sophisticated and effective folk and tribal medicine

Reports in the Indian media and central government communications always talk about Ayurvedic medicines like Kadha, Ayush 64* or homeopathic drugs for prevention and treatment of early states or pharma drugs like HCQ and Ivermectin as prophylactics and early stage treatment and anti-viral and other drugs for severe cases but what about folk medicine? 13% of the population of Rajasthan is tribal and they would be using their folk medicines. Reports of folk medicine for coronavirus in the media are few and far between but I think there is a massive amount of underreporting going on here. In rural communities in India people go to their local healer for remedies for their ailments. India has [8,000 species of medicinal plants](#). Medicinal plants are used as monotherapies. This 2005 [study](#) on medicinal plants used in the hills of Shekhawati region of Rajasthan talks about **10 different plant species used by local healers for respiratory infections!**

A repurposed polyherbal originally for malaria but which the [AYUSH](#) ministry found to be very effective in early cases in many robust studies. This is being distributed to early cases, particularly among the poor by a Hindu nationalist NGO in 2021.*

*** “..Traditional & Non-Conventional Systems of Health Care and Healing Which Include Ayurveda, Yoga, Naturopathy, Unani, Siddha, Sowa-Rigpa and Homoeopathy etc. Traditional & Non-Conventional Systems of Health Care and Healing Which Include Ayurved...”.*

4. Very high distribution and consumption of powerful ayurvedic medicines

a) Coronil. This is a 3 component “kit” produced by Patanjali. See my article on how India beat coronavirus in 2020 for the story. We have worked out from production figures given in an interview by Patanjali’s M.D that around 1 in 65 Indians bought the kit. According to Chittorgarh (population 120,000) resident Sakshi, 3 out of 10 of her acquaintances were using this. Which is a much higher figure than 1 in 65. Read my interview with Sakshi above.

b) A firm: CNP in Jodpur, (second largest city after Jaipur) grows organic herbs and makes ayurvedic medicines. They distributed their own 3 component ayurvedic medicine kit, similar in concept to coronil, free to all “frontline workers”. So this would include the police and the army and health workers. It was distributed in Jodpur and 2 other towns, Pali and Jalore.

c) According to Sakshi’s testimony, at home, in addition to the powerful traditional Kadha hot drink, a traditional Indian polyherbal recipe for respiratory infections like colds and flu, people were making teas from the powerful anti-viral, immune modulating herbs giloy and neem. (Neem is a tree which grows all over India. Giloy is a creeper which grows on neem trees. It has it’s own curative properties but also absorbs some of neem’s as it feeds on the tree.). “In silico” (computer modelling of molecules) studies show that both neem and neem giloy prevent the coronavirus from infecting cells. One study shows that neem is even more effective than ivermectin at preventing the docking of the spike protein with cells. Neem had a miraculous curative and prophylactic effect on coronavirus patients in this small trial.

Mortality among the infected

Death rate among those infected with coronavirus – 1 in 115. The 13th lowest in India.

So the mortality rate among infected is in the middle ranking for Indian states. Plasma therapy was used, as in most other states and UT’s. The repurposed arthritis drug Tocilizumab was used. Here is the conclusion from a [randomized trial of the drug for coronavirus](#): “..In hospitalized patients with Covid-19 pneumonia who were not receiving mechanical ventilation, tocilizumab reduced the likelihood of progression to the composite outcome of mechanical ventilation or death, but it did not improve survival. No new safety signals were identified...”

So an average effort in Indian terms from the Rajasthan allopaths treating moderate to severe cases but many times better than the UK's figure of 1 in 34 infected who died.

