

Scorecard of COVID 19
Testing Efficacy, Spread of Virus, and Impact of measures in India

April and May 2020

Strictly Confidential



Dynamics of Pandemic Management in India is complex Size and Regional Demography, Matters a lot!

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Analysis of Quality of Health Index and India's Ranking along with nations having over 100K COVID Cases

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Quality of Health: UNDP				COVID Impact Status as on 3 June 2020						
Ranking	Country	Physicians / 10000 Pn	Hospital Beds / 10000 Pn	Population	Tests	Cases	Deceased	Tests / Mn Pop	Cases / Mn Pop	Death / Mn Pop
4	Germany	42.1	83	837,63,806	39,52,971	1,84,091	8,674	47,192	2,198	104
15	USA	25.9	29	3308,54,064	186,03,174	18,81,205	1,08,059	56,228	5,686	327
15	UK	28.1	28	678,58,826	46,15,146	2,77,985	39,369	68,011	4,097	580
25	Spain	40.7	30	467,53,443	40,63,843	2,87,012	27,127	86,921	6,139	580
26	France	32.3	65	652,62,729	13,84,633	1,51,325	28,940	21,216	2,319	443
29	Italy	40.9	34	604,68,295	39,62,292	2,33,515	33,530	65,527	3,862	555
42	Chile	10.8	22	191,03,405	6,12,772	1,08,686	1,188	32,077	5,689	62
49	Russia	40.1	82	1459,29,848	111,51,622	4,23,741	5,037	76,418	2,904	35
59	Turkey	17.6	27	842,67,248	21,03,044	1,65,555	4,585	24,957	1,965	54
65	Iran	11.4	15	839,06,701	9,75,936	1,57,562	7,942	11,631	1,978	95
79	Brazil	21.5	22	2124,42,762	9,30,013	5,58,237	31,309	4,378	2,628	147
82	Peru	12.7	16	329,34,728	10,92,646	1,74,884	4,767	33,176	5,310	145
129	India	7.8	7	1,378,937,377	41,03,233	2,07,615	5,829	2,976	151	4
Total				26124,83,232	575,51,325	48,11,413	3,06,356	22029	1842	117
India's share (%)				52.78	7.13	4.32	1.90			
Average of nations with 100K cases										

Weekwise Top 10 States in terms of highest number of COVID Cases



29-Mar	04-Apr	12-Apr	19-Apr	26-Apr	02-May	09-May	16-May	23-May	30-May
Maharashtra	Maharashtra	Maharashtra	Maharashtra	Maharashtra	Maharashtra	Maharashtra	Maharashtra	Maharashtra	Maharashtra
Kerala	Tamil Nadu	Delhi	Delhi	Gujarat	Gujarat	Gujarat	Gujarat	Tamil Nadu	Tamil Nadu
Karnataka	Delhi	Tamil Nadu	Madhya Pradesh	Delhi	Delhi	Delhi	Tamil Nadu	Gujarat	Delhi
Delhi	Kerala	Rajasthan	Gujarat	Rajasthan	Madhya Pradesh	Tamil Nadu	Delhi	Delhi	Gujarat
Uttar Pradesh	Uttar Pradesh	Madhya Pradesh	Tamil Nadu	Madhya Pradesh	Rajasthan	Rajasthan	Rajasthan	Rajasthan	Rajasthan
Telangana	Telangana	Telangana	Rajasthan	Tamil Nadu	Tamil Nadu	Madhya Pradesh	Madhya Pradesh	Madhya Pradesh	Madhya Pradesh
Gujarat	Rajasthan	Gujarat	Uttar Pradesh	Uttar Pradesh	Uttar Pradesh	Uttar Pradesh	Uttar Pradesh	Uttar Pradesh	Uttar Pradesh
Rajasthan	Andhra Pradesh	Uttar Pradesh	Telangana	Andhra Pradesh	Andhra Pradesh	Andhra Pradesh	West Bengal	West Bengal	West Bengal
Tamil Nadu	Madhya Pradesh	Andhra Pradesh	Andhra Pradesh	Telangana	Telangana	West Bengal	Andhra Pradesh	Andhra Pradesh	Bihar
Madhya Pradesh	Karnataka	Kerala	Kerala	West Bengal	West Bengal	Punjab	Punjab	Bihar	Andhra Pradesh

Germany, UK, Spain, Italy, Sweden, etc., are in Europe, the dynamics, demography, and strategy was different, so as the result. Similarly, each of Indian states has its own dynamics. COVID Strategy need to align to ground realities.

Strategic Classification of Regions

Parameters	Empowered Action Group (EAG) States	Mega States	Micro States	Union Territories	Mega Cities
Number of States / UTs	9 States classified by Government of India. The key indicators are: High infant and maternal fatality mortality	12 major States in India with high degree of Public Health Infrastructure and contribution to GDP	8 North-Eastern States along Goa	7 Union Territories including Delhi)	7 Cities - Ahmedabad, Bengaluru,, Chennai, Hyderabad. Kolkata, Mumbai, and <u>New Delhi</u>
% ge of Population and Land area	50%	47%	1.5%	1.76%	Part of Mega States
% of Total COVID Cases in India	18%	32%	0.25%	10.6%	39%
% ge share of Total COVID tests conducted in India	30 – 32%	55 – 60%	1.5 – 2 %	8.5%	Part of Mega States
% ge share of Total COVID Positive patients death in India (Delhi deceased figure added to Mega City group)	18%	47%	5%	0	30%

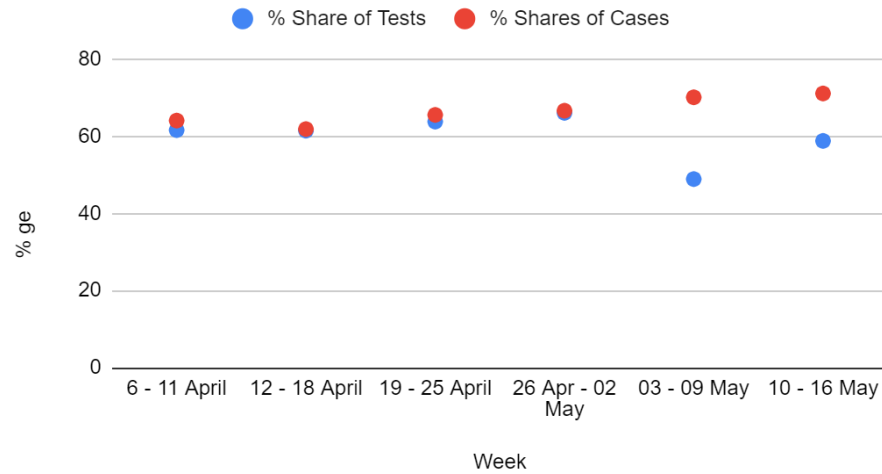
Strategic Classification of Regions

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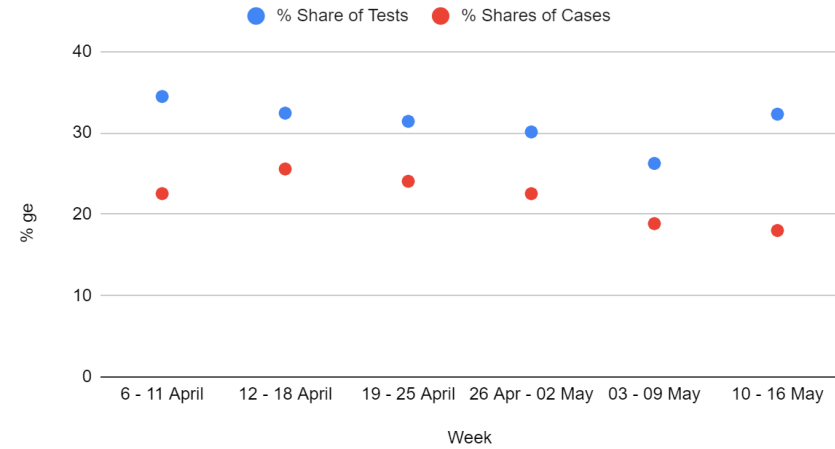
Empowered Action Group (EAG) States*	Mega States	Micro States	Mega Cities	Union Territories
Assam	Andhra Pradesh	Tripura	Ahmedabad	Dadra & Nagar Haveli
Bihar	Gujarat	Manipur	Bengaluru	Chandigarh
Chhattisgarh	Haryana	Mizoram	Chennai	Daman & Diu
Jharkhand	Himachal Pradesh	Nagaland	Hyderabad	Puducherry
Madhya Pradesh	Jammu & Kashmir	Meghalaya	Kolkata	Delhi
Orissa	Karnataka	Goa	Mumbai	Andaman & Nicobar
Rajasthan	Kerala	Sikkim	New Delhi	Lakshadweep
Uttarakhand	Maharashtra	Arunachal Pradesh		
Uttar Pradesh	Punjab			
	Tamil Nadu			
	Telangana			
	West Bengal			

Testing \propto Case Positivity

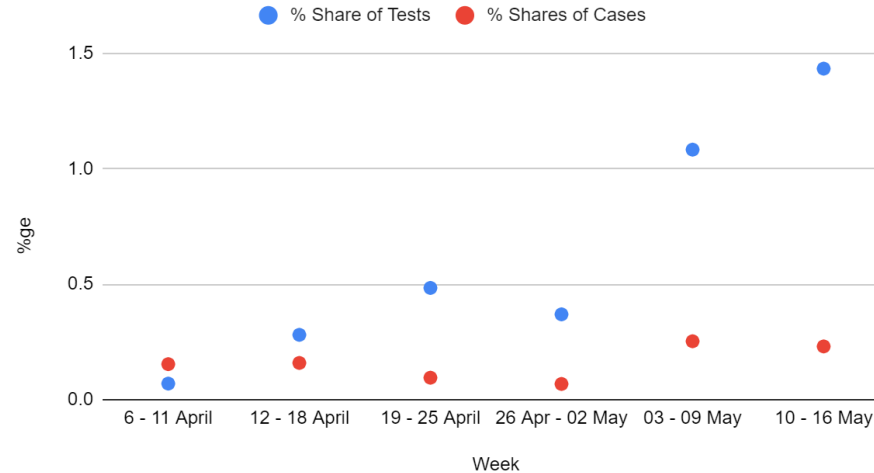
Mega States Correlation of %ge of Tests and Cases



EAG States Correlation of %ge of Tests and Cases



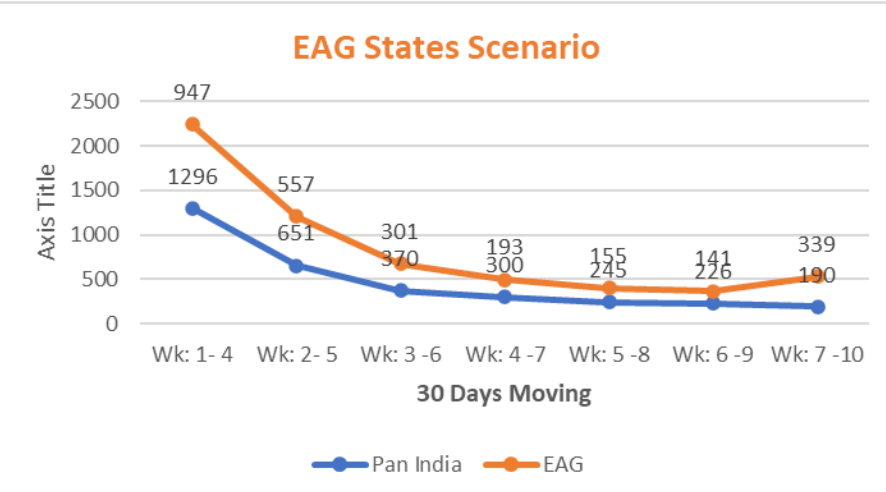
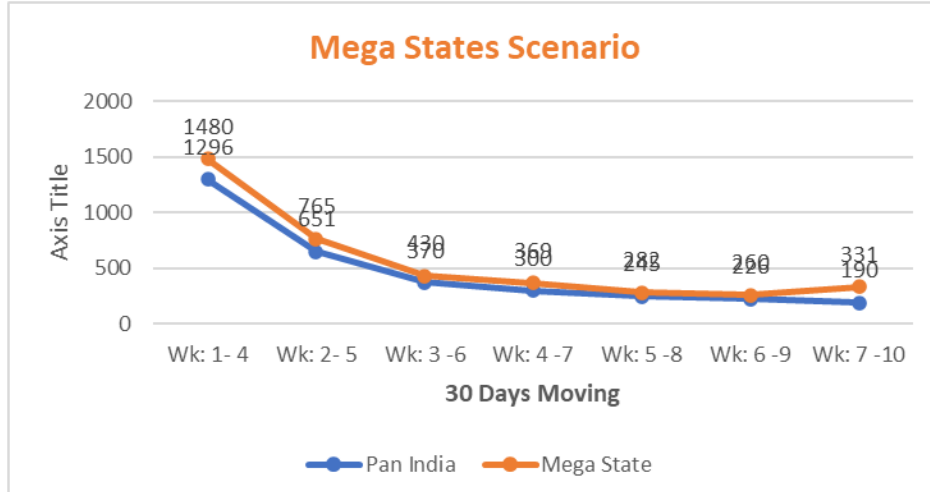
Micro States Correlation of %ge of Tests and Cases



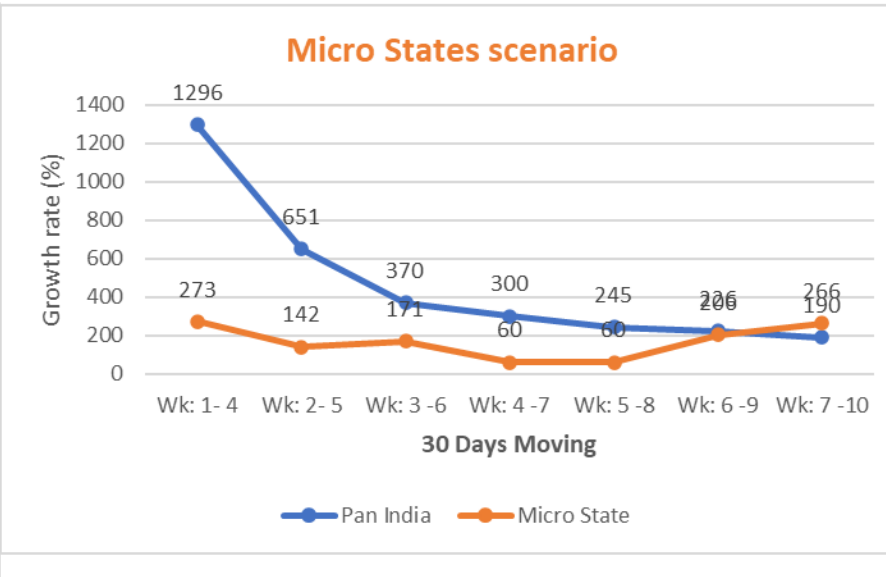
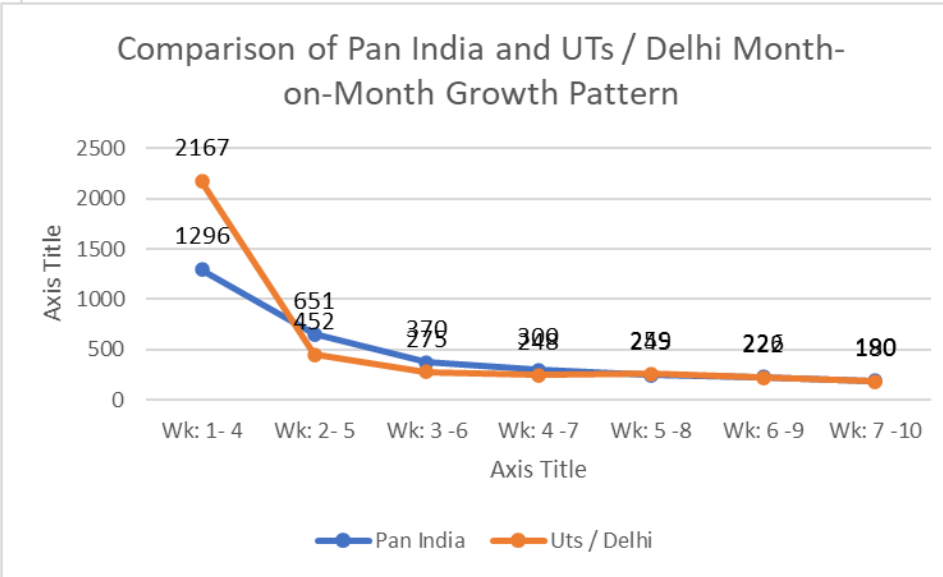
FALL IN GROWTH RATE OF COVID CASES HAS BOTTOMED. THANKS TO RELAXATION!

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MEGA STATES IS GROWING MORE THAN PAN INDIA RATE. ALL METRO CITIES MEDICAL INFRASTRUCTURE IS STRETCHED



EAG AND MICRO STATES ARE GROWING MORE THAN PAN INDIA RATE.



In June, India will become the 2nd most affected nation @ 550K+ COVID Cases; and will be among 10 nations in terms of fatality

COVID Trend in Mega Cities in India



Mega City	DPM - 17 May	DPM - 23 May	DPM - 30 May	Deceased
Ahmedabad	68.34	92.73	113.94	822
Mumbai	56.02	76.05	98.33	1227
Delhi	7.11	12.77	23.04	415
Chennai	7.32	10.56	17.18	122
Kolkata	10.91	12.61	14.31	202
Hyderabad	3.38	3.38	3.38	23
Bengaluru Urban	0.73	1.04	1.04	10

Mega City	CFR - 17 May	CFR - 23 May	CFR - 30 May	Deceased
Kolkata	12.17	11.04	9.84	202
Ahmedabad	6.05	6.69	6.92	822
Mumbai	3.77	3.29	3.19	1227
Bengaluru	3.24	3.75	2.96	10
Delhi	1.50	1.90	2.34	415
Hyderabad	2.44	2.05	1.72	23
Chennai	0.83	0.75	0.87	122

$$\text{Death Per Million Population} = (\# \text{ Death} / \text{Population}) \times 1000000$$

$$\text{Case Fatality Rate} = \text{Number of Death} / \text{Total Number of Confirmed Cases}$$

Mega City	CCFR - 17 May	CCFR - 23 May	CCFR - 30 May	Deceased
Kolkata	25.75	29.28	18.83	202
Ahmedabad	16.23	17.31	11.51	822
Hyderabad	7.01	7.54	7.01	23
Mumbai	17.66	14.87	6.98	1227
Bengaluru Urban	5.74	7.69	5.49	10
Delhi	3.16	3.67	4.89	415
Chennai	4.15	1.85	1.64	122

$$\text{CCFR: Closed Case Fatality Rate} = (\# \text{ Death from closed cases} / \text{Total Closed cases}) \times 100$$

Snapshot of COVID scenario in EAG States in India
Period : 25 March – 30 May 2020

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Period	State	EAG States	Population	34293000		Performance Indicators			
	Week		Number of Tests	Positive Cases	Mortality	Testing Efficiency	Spread of Virus	Treatment Efficiency	Impact of Measures
						Test Positivity Rate (TPR) %	Test Positivity Per Million (TPM)	Mortality Rate (MR)%	Death Per Million (DPM)
25 Mar - 14 Apr	1	6 - 11 April	25938	1216	46	4.69	35.46	3.78	1.34
	2	12 - 18 April	61222	2119	55	3.46	61.79	2.60	1.60
15 Apr - 3rd May	3	19 - 25 April	103833	2505	58	2.41	73.05	2.32	1.69
	4	26 Apr - 02 May	122363	2588	98	2.12	75.47	3.79	2.86
4 May - 17th May	5	03 - 09 May	141939	3076	137	2.17	89.70	4.45	3.99
	6	10 - 16 May	207664	4968	92	2.39	144.87	1.85	2.68
18 May - 23rd May	7	17 - 22 May	282977	7746	134	2.74	225.88	1.73	3.91
24 May - 30th May	8	24 - 30 May	231287	7397	149	3.20	215.70	2.01	4.34

Lok Sabha Constituencies in EAG States needing high priority



State	Lok Sabha Constituency	District	Remarks
Madhya Pradesh	Dewas, Khandwa, Vidisha	Dewas	***
Madhya Pradesh	Jabalpur	Jabalpur	***
Uttar Pradesh	Kanpur; Akbarpur	Kanpur Nagar	**
Madhya Pradesh	Vidhisa; Hoshangabad	Raisen	**
Odisha	Bhubaneswar	Khordha	**
Uttar Pradesh	Meerat, Amroha	Hapur	**
Rajasthan	Bharatpur (SC); Jodhpur	Bharatpur	**
Rajasthan	Bikaner	Bikaner	**
Uttar Pradesh	Faizabad	Ayodhya	**
Madhya Pradesh	Guna	Ashoknagar	**
Uttar Pradesh	Gorakhpur	Gorakhpur	*
Rajasthan	Banswara	Banswara	*
Uttar Pradesh	Ghaziabad	Ghaziabad	
Uttar Pradesh	Jaunpur; Machhlishahr	Jaunpur	
Uttar Pradesh	Maharajganj	Maharajganj	
Grading	Scoring	Status	
***	Death > 10; DPM > 4; CFR > 4; CCFR > 10	Critical	
**	Death > 10; DPM > 4; CFR > 4	Urgent	
*	Death > 10; DPM > 4	Attention	
Blank	Death > 10;	Obervation	

DPM: Death Per Million of Population
CFR: Case Fatality Rate
CCFR: Closed Case Fatality Rate

Snapshot of COVID scenario in Mega States in India
Period : 25 March – 30 May 2020



Period	Region	Mega States	Population	Performance Indicators					
				632088000		Testing Efficiency	Spread of Virus	Treatment Efficiency	Impact of Measures
			Number of Tests	Positive Cases	Mortality	Test Positivity Rate (TPR) %	Test Positivity Per Million (TPM)	Mortality Rate (MR)%	Death Per Million (DPM)
25 Mar - 14 Apr	1	6 - 11 April	35354	2672	126	7.56	4.23	4.72	0.20
	2	12 - 18 April	124575	4655	164	3.74	7.36	3.52	0.26
15 Apr - 3rd May	3	19 - 25 April	204670	7264	270	3.55	11.49	3.72	0.43
	4	26 Apr - 02 May	262536	9386	383	3.58	14.85	4.08	0.61
4 - 17 May	5	03 - 09 May	356787	17472	633	4.90	27.64	3.62	1.00
	6	10 - 16 May	370617	20709	643	5.59	32.76	3.10	1.02
18 - 23 May	7	17 - 22 May	500514	28494	745	5.69	45.08	2.61	1.18
24 - 30 May	8	24 - 30 May	454907	27536	853	6.05	43.56	3.10	1.35

Lok Sabha Constituencies in Mega States having DPM of more than 4



State	Lok Sabha Constituency	District	Deceased (30 May)	DPM (17 May)	DPM (23 May)	DPM (30th May)
Maharashtra	Akola	Akola	28	7.72	9.37	15.44
Maharashtra	Amravati; Wardha	Amravati ***	16	4.50	4.85	5.54
Gujarat	Anand	Anand ***	10	3.82	4.30	4.78
Maharashtra	Aurangabad; Jalna	Aurangabad	65	6.75	11.35	17.56
West Bengal	Bangaon; Barrackpore; Dum Dum; Barasat; Basirhat	North 24 Parganas ***	42	3.20	3.70	4.20
Maharashtra	Dhule	Dhule ***	16	3.90	4.39	7.80
Gujarat	Gandhinagar	Gandhinagar **	14	4.31	7.19	10.06
West Bengal	Howrah	Howrah	38	6.60	7.42	7.84
Maharashtra	Jalgaon; Raver	Jalgaon ***	72	7.09	9.69	17.02
Andhra Pradesh	Kurnool	Kurnool	23	4.69	5.18	5.67
Maharashtra	Nashik; Dindori (ST); Dhule	Nashik ***	60	5.73	7.53	9.82
Maharashtra	Palghar	Palghar	30	4.35	6.02	10.03
Maharashtra	Pune; Baramati; Shirur; Maval	Pune ****	320	19.94	27.26	33.94
Maharashtra	Raigad; Maval	Raigad	39	4.56	6.45	14.81
Maharashtra	Satara; Madha	Satara	16	0.67	1.66	5.33
Maharashtra	Solapur (SC); Madha; Osmanabad	Solapur	68	5.10	8.11	15.75
Gujarat	Surat; Bardoli	Surat	67	8.06	9.87	11.02
Maharashtra	Thane; Bhiwandi; Kalyan	Thane	182	4.25	7.69	16.46
Gujarat	Vadodara	Vadodara	39	17.56	19.21	21.40

**** Serious concern. Highest DPM.

*** Present among Districts having highest fatality in closed cases and also amongst Districtr having highest CFR. Requires immediate attention.

** Also present among districts with highest CFR. Requires immediate attention

Lok Sabha constituency in the alphabetical order

Lok Sabha Constituencies in Mega States Category having CFR of over 4%



State	Lok Sabha Constituency	District(s)	Deceased	CFR (17th May)	CFR (23 May)	CFR (30 May)
Maharashtra	Amravati; Wardha	Amravati	16	12.75	8.97	7.51
Gujarat	Anand	Anand	10	9.76	10.00	10.10
West Bengal	Bangaon; Barrackpore; Dum Dum; Barasat; Basirhat	North 24 Parganas	42	9.52	8.31	6.22
Maharashtra	Dhule, Nandurbar (ST)	Dhule	16	10.39	9.28	11.43
Gujarat	Gandhinagar	Gandhinagar	14	3.68	4.76	5.36
Maharashtra	Jalgaon; Raver (shared with Buldhana)	Jalgaon	72	12.00	10.17	11.86
Maharashtra	Nashik; Dindori (ST); Dhule	Nashik	60	4.19	4.94	5.40
Maharashtra	Solapur (SC); Madha; Osmanabad	Solapur	68	5.93	6.17	7.80
Maharashtra		Other States *	15	24.39	22.92	25.42
Telangana		Unknown *	47	10.00	20.65	13.17

Identified Constituencies has more than 10 death and for last 3 consecutive weeks CFR is above 4%

*** Deceased yet to be identified by the respective state Government**

Lok Sabha Constituencies in Mega States having over 10% Fatality Rate in the Closed Cases

State	Lok Sabha Constituency	District(s)	Deceased	Closed Case Fatality Rate
Maharashtra	Amravati; Wardha	Amravati	16	12
Gujarat	Anand	Anand	10	11
West Bengal	Bangaon; Barrackpore; Dum Dum; Barasat; Basirhat	North 24 Parganas	42	14
Maharashtra	Dhule, Nandurbar (ST)	Dhule	16	18
Maharashtra	Jalgaon; Raver	Jalgaon	72	21
Maharashtra	Solapur (SC); Madha; Osmanabad	Solapur	68	16

Snapshot of COVID scenario in Micro States in India
Period : 25 March – 30 May 2020



Period	Region	Micro States	Population	15165577		Performance Indicators			
						Testing Efficiency	Spread of Virus	Treatment Efficiency	Impact of Measures
		Week	Number of Tests	Positive Cases	Mortality	Test Positivity Rate (TPR) %	Test Positivity Per Million (TPM)	Mortality Rate (MR)%	Death Per Million (DPM)
25 Mar - 14 Apr	1	6 - 11 April	40	2	0	5.00	0.13	0.00	0.00
	2	12 - 18 April	662	11	1	1.66	0.73	9.09	0.07
15 Apr - 3rd May	3	19 - 25 April	1692	1	0	0.06	0.07	0.00	0.00
	4	26 Apr - 02 May	1955	14	0	0.72	0.92	0.00	0.00
4 - 17 May	5	03 - 09 May	7230	136	0	1.88	8.97	0.00	0.00
	6	10 - 16 May	10032	40	0	0.40	2.64	0.00	0.00
18 - 23 May	7	17 - 22 May	11183	82	0	0.73	5.41	0.00	0.00
24 - 30 May	8	24 - 30 May	18382	147	0	0.80	9.69	0.00	0.00

Snapshot of COVID scenario in Union Territories in India
Period : 25 March – 30 May 2020

Period	Region	Union Territories	Population	23530709		Performance Indicators			
						Testing Efficiency	Spread of Virus	Treatment Efficiency	Impact of Measures
	Week	Number of Tests	Positive Cases	Mortality	Test Positivity Rate (TPR) %	Test Positivity Per Million (TPM)	Mortality Rate (MR)%	Death Per Million (DPM)	
25 Mar - 14 Apr	1	6 - 11 April	1872	16	12	0.85	0.68	75.00	0.51
	2	12 - 18 April	11013	190	24	1.73	8.07	12.63	1.02
15 Apr - 3rd May	3	19 - 25 April	14685	689	11	4.69	29.28	1.60	0.47
	4	26 Apr - 02 May	16120	457	10	2.83	19.42	2.19	0.42
4 - 17 May	5	03 - 09 May	29192	860	6	2.95	36.55	0.70	0.25
	6	10 - 16 May	49402	1936	62	3.92	82.28	3.20	2.63
18 - 23 May	7	17 - 22 May	39025	2440	114	6.25	103.69	4.67	4.84
24 - 30 May	8	24 - 30 May	40209	1603	155	3.99	68.12	9.67	6.59

Initiative intent and disclaimer

This initiative is a voluntary initiative of IMA, IAP, PHFI and Proxima and dedication to the nation.

This initiative does not involve any kind of commercial value proposition to any of the partner institutions or to the individuals involved

The data collated and analysed based on secondary data

The user of this presentation is advised to revalidate the shared data from competent authorised agencies before using for any other purpose.

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Thank you