

COVID 19: Trend Analysis and Projection

As on 15th August 2020





satyam-eva jayate, Truth alone triumphs, was adopted as the national motto of India on 26 January 1950

In COVID management, **Truthiness** in the disclosed data (data integrity) of Testing, Positivity, Recovery, and Fatality; or **truthfulness** of a individual about his/her (including family) health condition, is vital for India's efforts to save lives of the people.

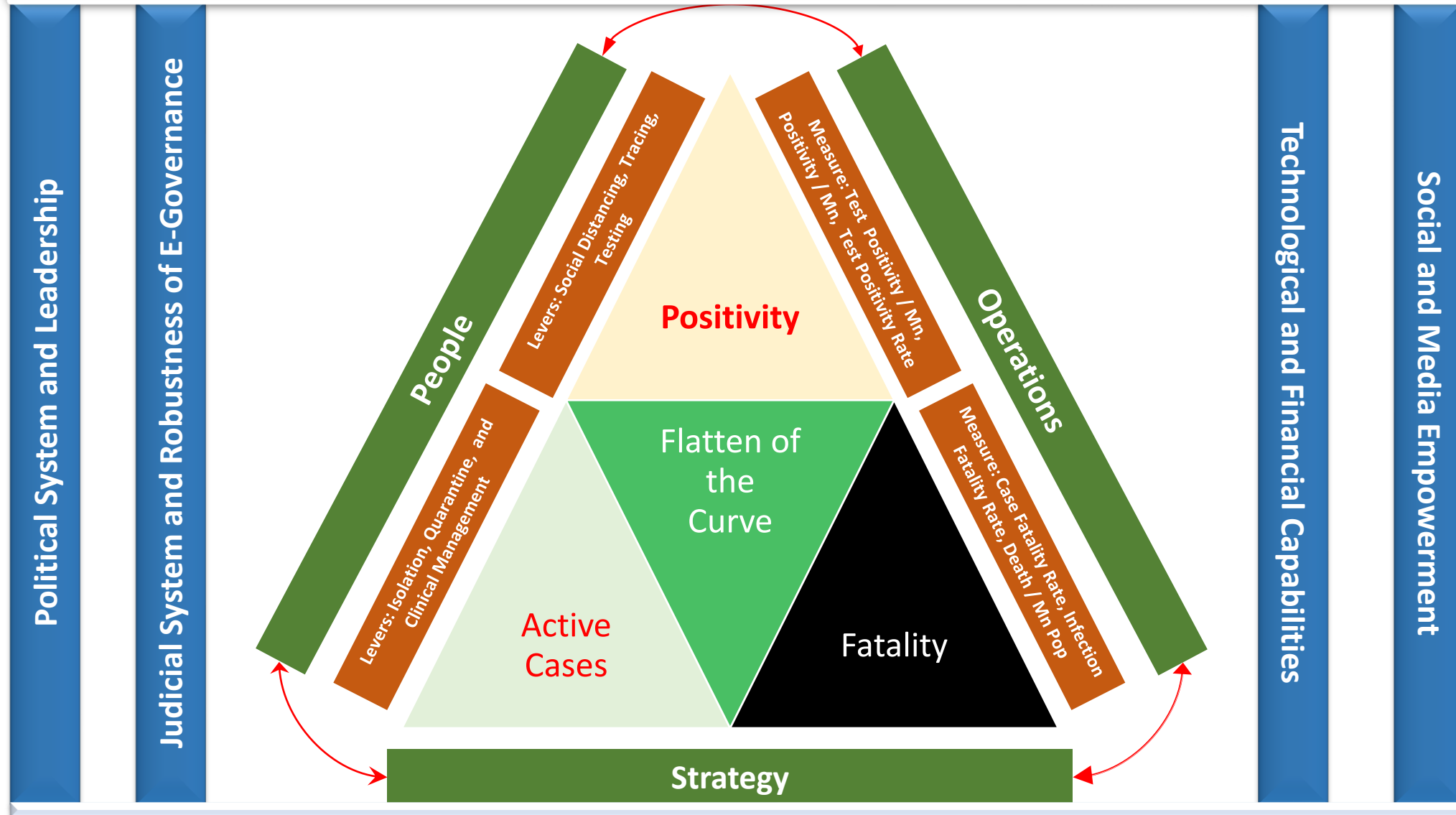
Proxima-PHFI Holistic Pandemic Management Pyramid

In an Pandemic / Epidemic, the virus spreads linearly and rapidly. The strategy to manage and flatten the growth of the virus depends on various systematic and unsystematic drivers.

Therefore, strategy formulation should factor the following:

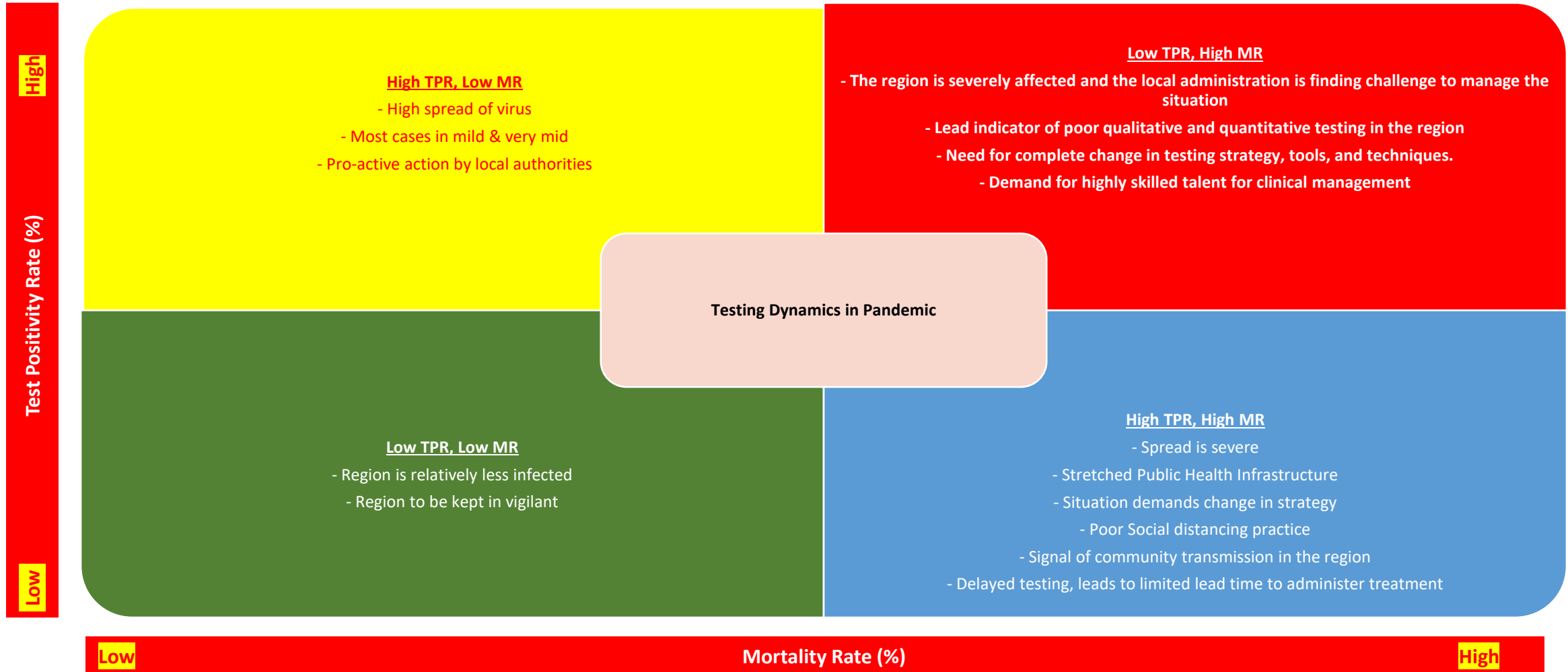
- Political System and Leadership; Judicial system and robustness of e-Governance; Technological and financial capabilities; and more importantly social and media empowerment.
- There must be complete synergy between 3 critical processes – Strategy, People, and Operations. In case if any of these processes are weak, then there are chances of ending up with poor results
- The flattening of the curve of virus growth will happen only the levers are used effectively and efficiently.
- Robust review mechanism: The Control rooms must have strong process and systems which provides real-time right and appropriate data and analysis which helps the decisions makers to take appropriate and timely decisions.

Proxima – PHFI Holistic COVID Management Pyramid



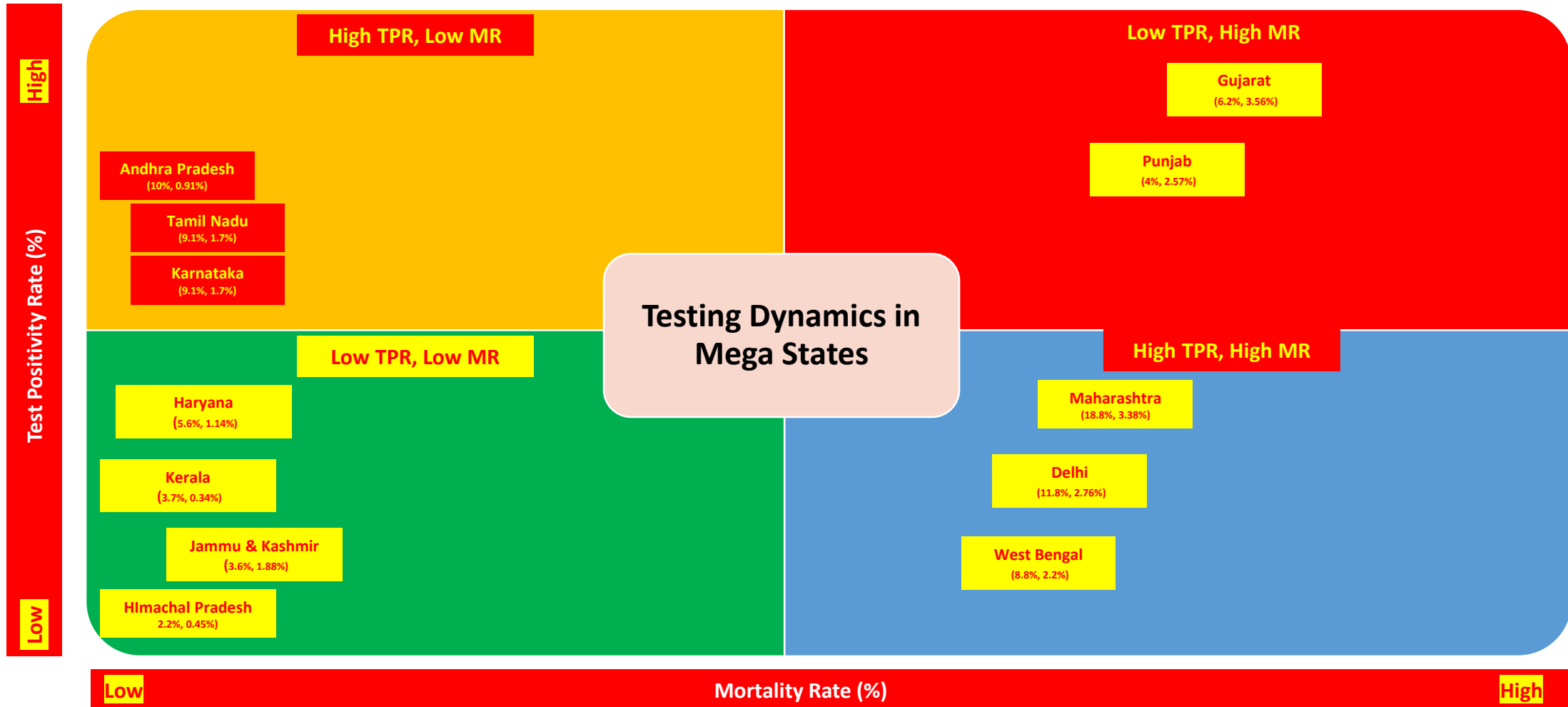
Proxima – PHFI Virus Spread Assessment Matrix (VAM)

Each position in the matrix demands appropriate strategy and suitable competences to execute effectively



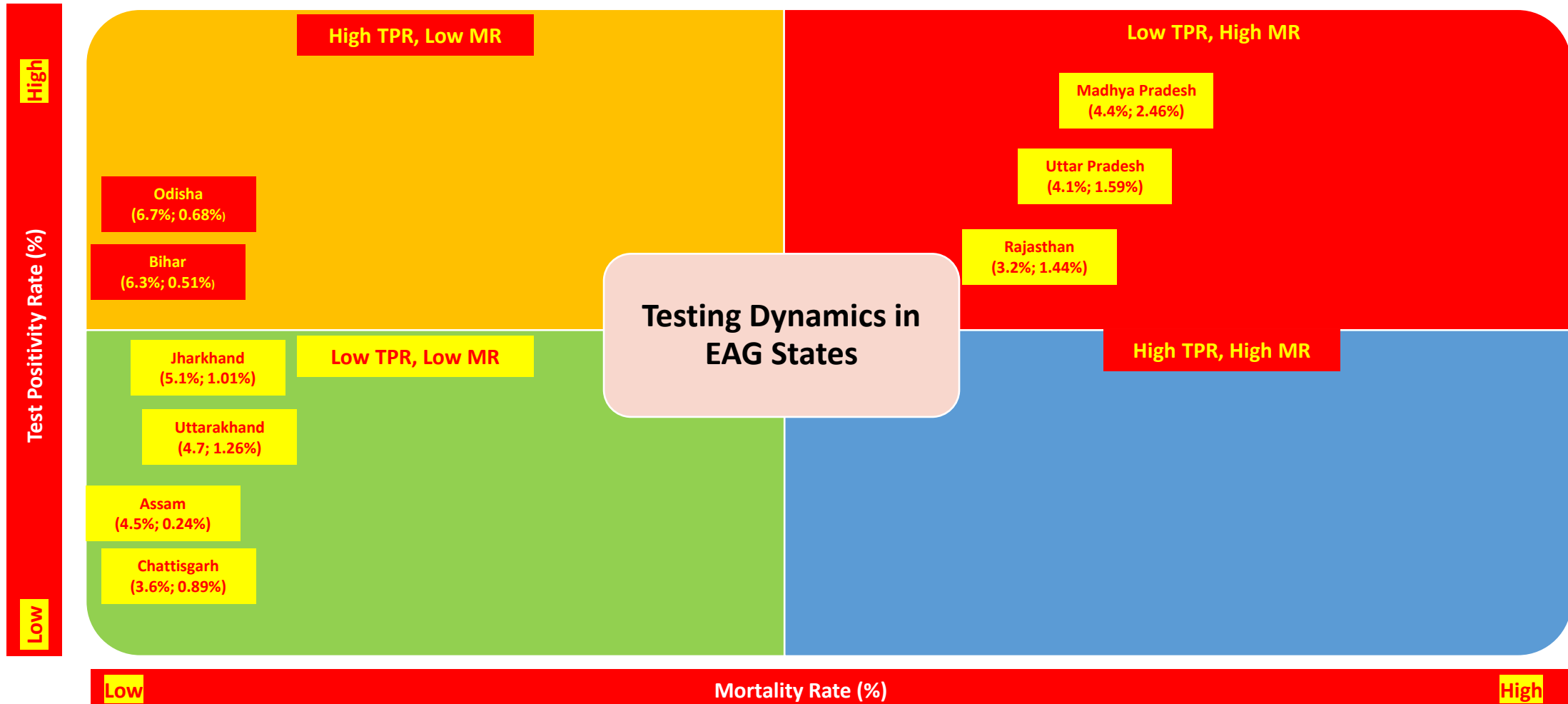
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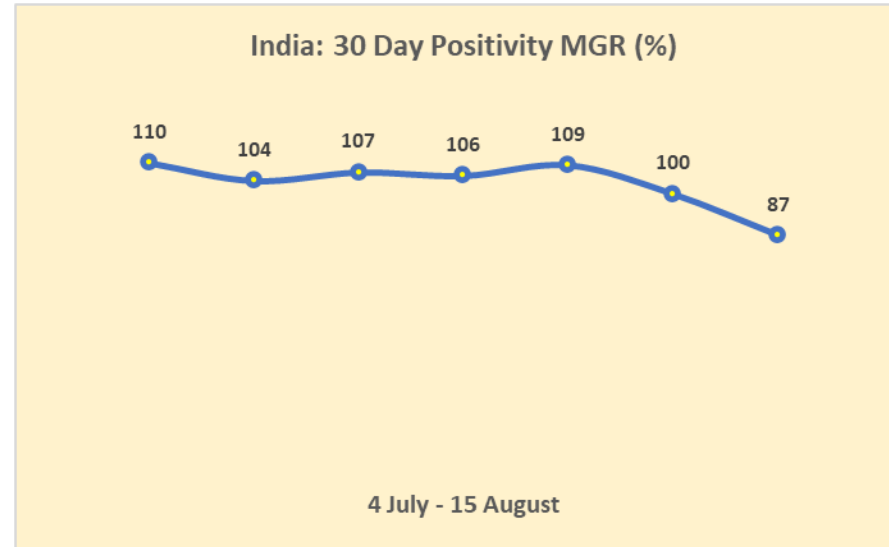


July - August: COVID Cases Growth Pattern in India

Reduction in Moving Growth Rate (MGR)% indicates the slowing down of velocity of virus spread.

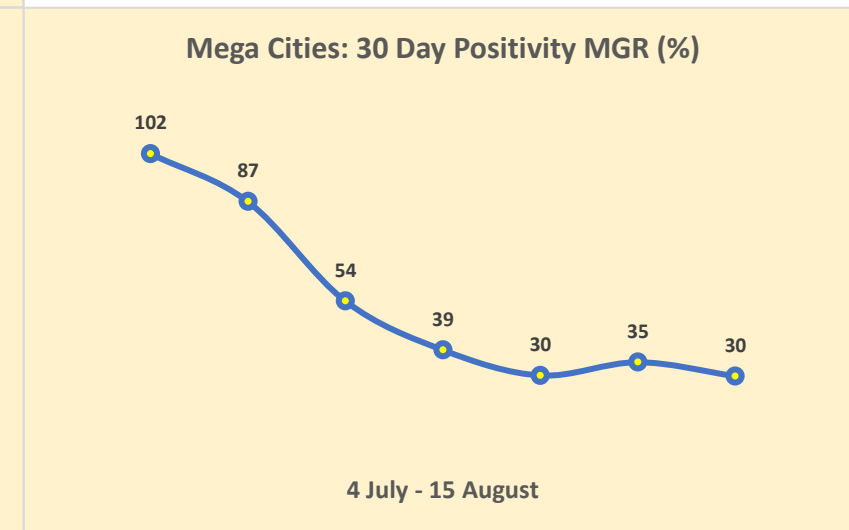
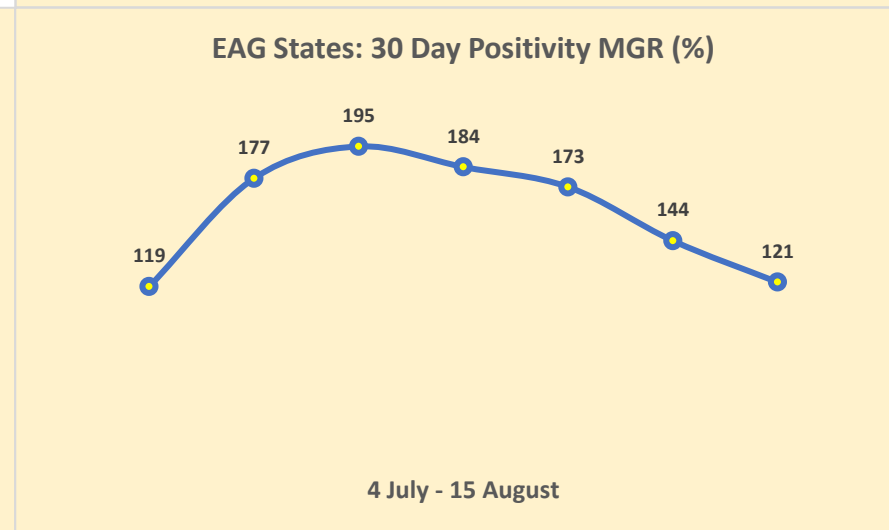
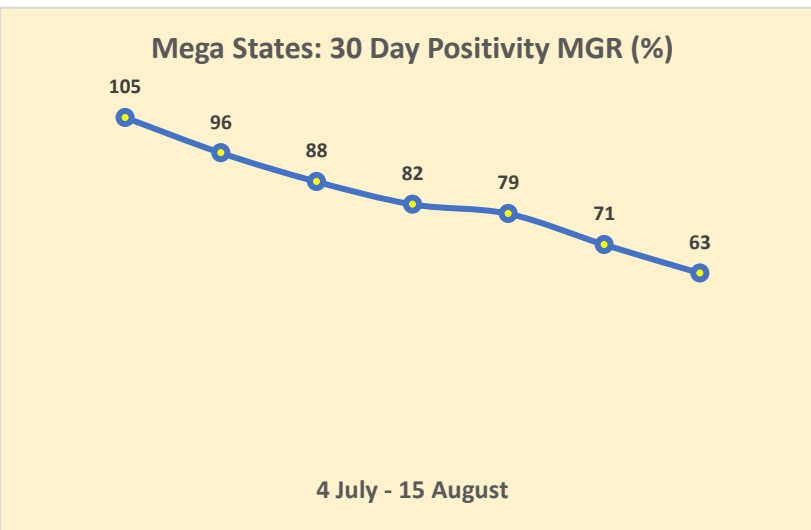
Decrease in MGR will increase the doubling period, vice-versa.

Decrease in MGR is due to combination of intervention and increase in base value

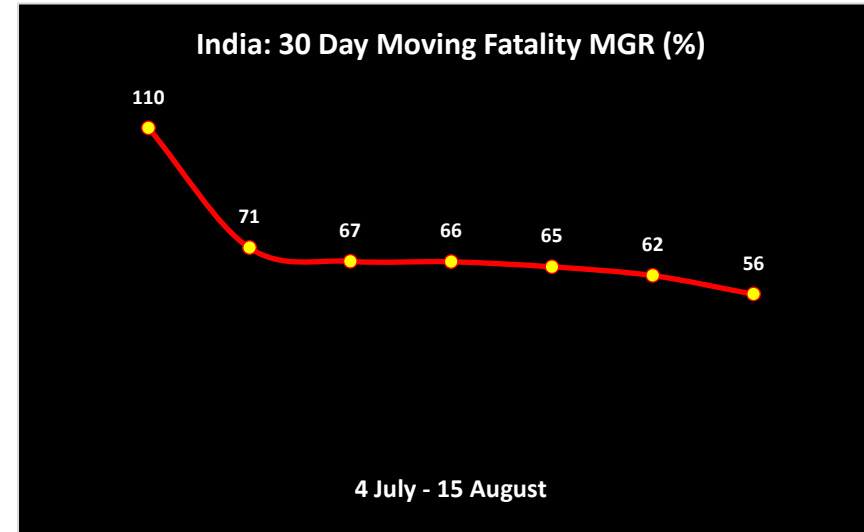


30 Day Positivity MGR of 80% after 6 months into pandemic with over 2.5 Mn positive cases as base is a matter of serious concern.

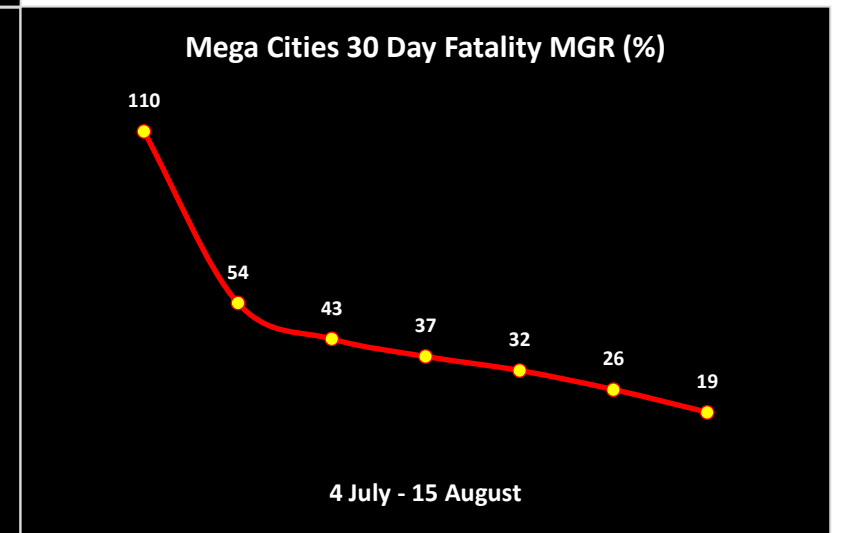
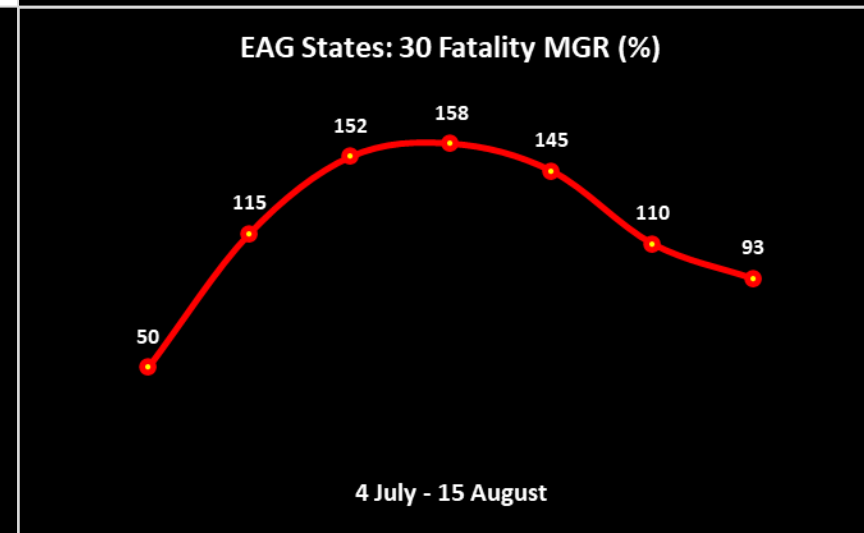
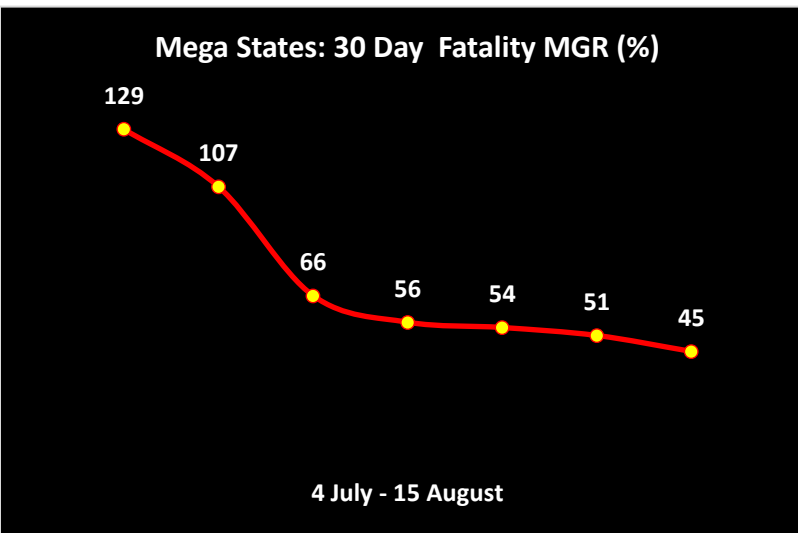
August and September will define the magnitude of COVID impact on India



July - August: COVID Mortality Growth Pattern in India



Drop in 30-Day Mortality MGR is positive trend. This indicates the doubling period for total deaths have increased



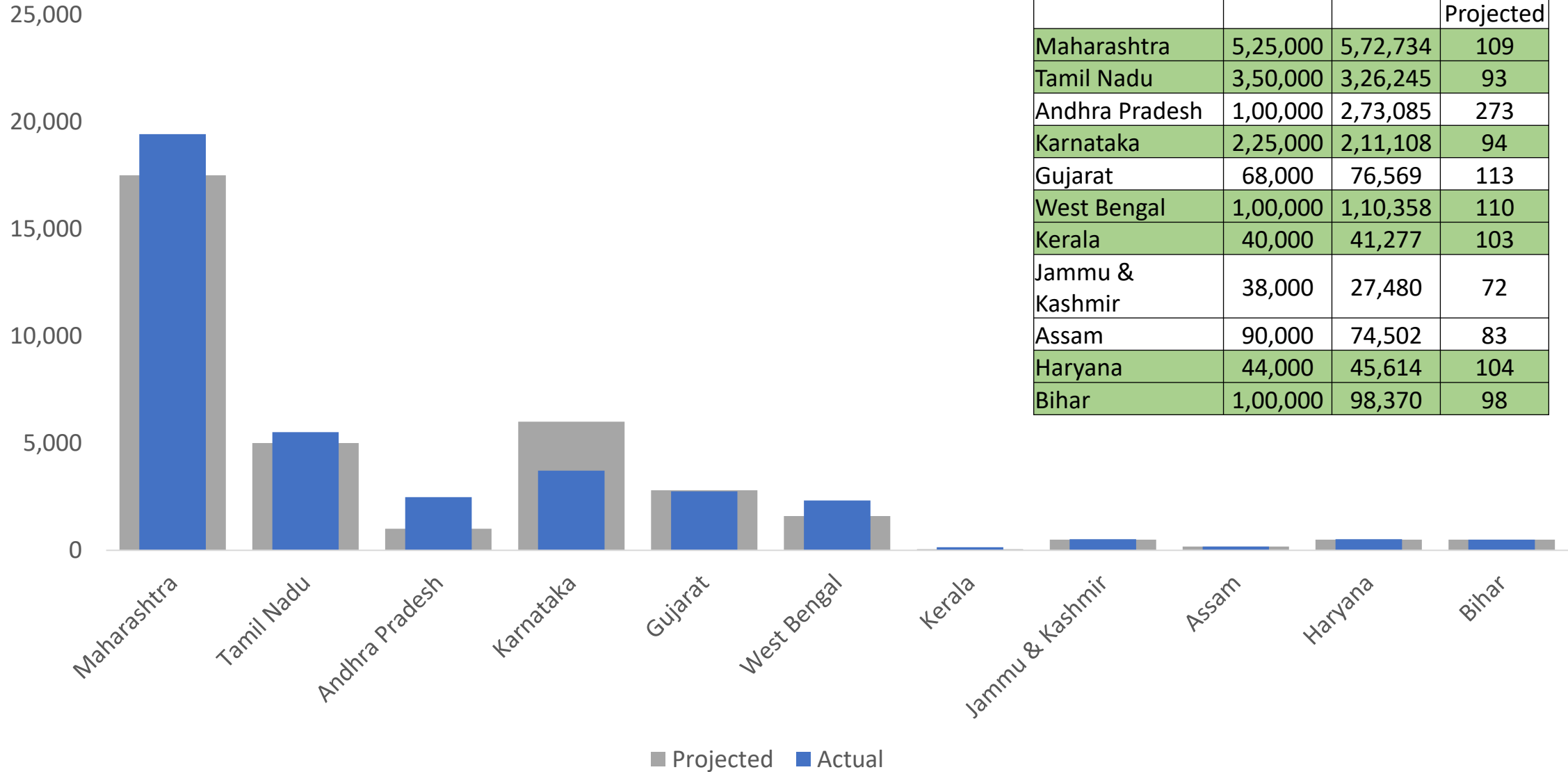
PPMS Forecasting Module: Positivity and Mortality

	20-Jul		Projection by: 15 Aug		Actuals on 15 Aug	
	Cases	Deaths	Cases	Deaths	Cases	Deaths
India	1154900	28089	2500000	45000	2527994	49161
Andhra Pradesh	53724	696	100000	1000	273085	2475
Assam	20647	58	90000	170	74502	175
Bihar	27455	187	100000	500	98370	500
Gujarat	50465	2166	68000	2800	76569	2746
Haryana	26858	355	44000	500	45614	518
Jammu & Kashmir	14650	254	38000	500	27480	520
Karnataka	67420	1403	225000	6000	211108	3718
Kerala	13275	44	40000	50	41277	140
Maharashtra	318695	12030	525000	17500	572734	19427
Tamil Nadu	175678	2551	350000	5000	326245	5514
West Bengal	44769	1147	100000	1600	110358	2319

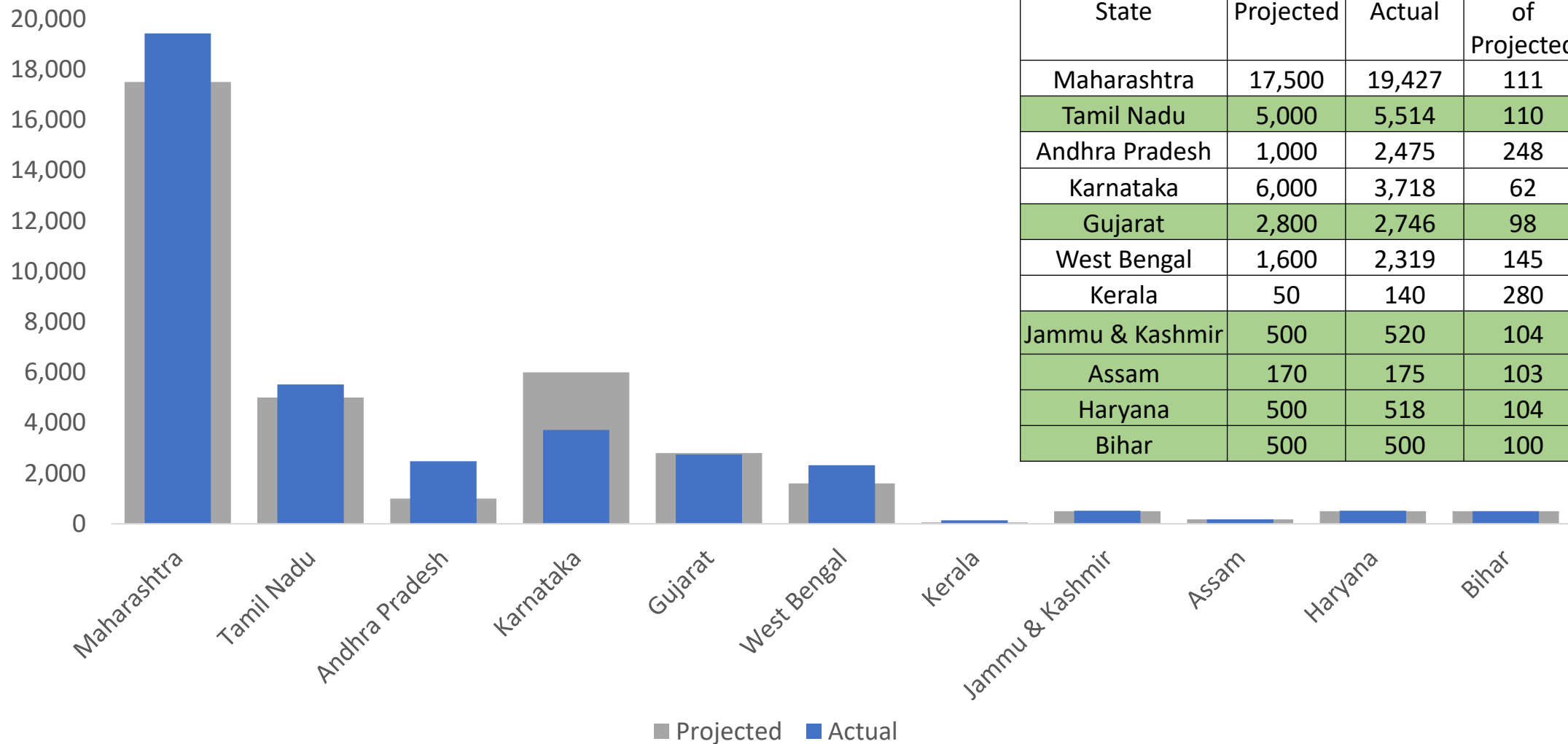
PPMS Forecasting Module successfully forecasted the COVID positive cases and deaths in India and also in several states

Envisaging emerging pattern and developing and executing effective plan is vital to reduce the mortality

Projected Vs Actual Covid 19 Cases for the week ending 15th August'2020



Projected Vs Actual Covid 19 Death Cases for the week ending 15th August'2020



Projection: 16 August – 12 September

The projection is an efforts to help the Central and State Government to examine and initiate necessary steps by effectively mobilise the required resources and achieve the desired result of reducing the mortality.

PS: Projected Values have been rounded off to the nearest thousand.

COVID Cases Projection: **4.5 – 4.75 Mn** before 12th September



Is the administration ready to manage the surge?

Many States gone into **'Auto Mode'**

Amidst of livelihood compulsions, geopolitical situation, the momentum to flatten the curve is getting lost

30-Day COVID Cases Growth Projection			
Consolidated	16-Aug	12-Sep	% Ge
	Actuals	Projection	
Mega States	1852408	3245361	75
EAG States	538721	1146000	113
Micro States	20456	61400	200
Union Territories	15424	34200	122
Delhi	151928	185000	22
Total	2578937	4671961	81

Quarantine Management is Critical

Incremental 1.5 Crores people need to be quarantined and managed effectively

Mega States	16-Aug	12-Sep
	Actuals	Projection
Andhra Pradesh	281817	580000
Gujarat	77663	100000
Haryana	46410	60000
Himachal Pradesh	3993	7000
Jammu & Kashmir	28021	50000
Karnataka	219926	450000
Kerala	42885	90000
Maharashtra	584754	1000000
Punjab	30041	62000
Tamil Nadu	332105	520000
Telangana	91361	91361
West Bengal	113432	235000
Total	1852408	3245361

EAG States	16-Aug	12-Sep
	Actuals	Projection
Assam	75559	165000
Bihar	101906	225000
Chattisgarh	15045	25000
Jharkhand	22672	50000
Madhya Pradesh	44433	75000
Odisha	57126	120000
Rajasthan	59979	100000
Uttar Pradesh	150061	365000
Uttarakhand	11940	21000
Total	538721	1146000

Micro States	16-Aug	12-Sep
	Actuals	Projection
Arunachal Pradesh	2658	10200
Goa	11339	32400
Manipur	4390	12500
Meghalaya	1292	3700
Mizoram	777	2600
Nagaland	3340	16700
Sikkim	1148	2800
Tripura	7076	17275
Total	20456	61400

Union Territories	16-Aug	12-Sep
	Actuals	Projection
Andaman & Nichobar	2306	6500
Chandigarh	2009	3500
Dadra & Nagar Haveli	1846	3200
Ladakh	1909	3000
Puducherry	7354	18000
Total	15424	34200

COVID Mortality Projection: 75 – 90K before 12th September

The **Strategy, Process, and Competences** required to manage the pandemic when virus has infected 100K people is different when over 2.5 Mn and 50K people are dead.

30-Day COVID Mortality Projection			
Consolidated	16-Aug	12-Sep	% Ge
	Actuals	Projection	
Mega States	39610	68268	72
EAG States	5946	11325	90
Micro States	186	345	85
Union Territories	170	389	129
Delhi	4188	4700	12
Total	50100	85027	70

After 180 days into the Pandemic, 2.5+ Mn of Cases, and 50K+ deaths, the performance review should shift to reducing the number of deaths
Authority with matching **accountability** is important

Mega States	16-Aug	12-Sep
	Actuals	Projection
Andhra Pradesh	2562	6250
Gujarat	2765	3000
Haryana	528	700
Himachal Pradesh	18	25
Jammu & Kashmir	527	1500
Karnataka	3832	6700
Kerala	147	400
Maharashtra	19749	31000
Punjab	771	4000
Tamil Nadu	5641	9000
Telangana	693	693
West Bengal	2377	5000
Total	39610	68268

EAG States	16-Aug	12-Sep
	Actuals	Projection
Assam	182	400
Bihar	515	1100
Chattisgarh	134	525
Jharkhand	229	500
Madhya Pradesh	1094	1500
Odisha	386	800
Rajasthan	862	1200
Uttar Pradesh	2393	5000
Uttarakhand	151	300
Total	5946	11325

Micro States	16-Aug	12-Sep
	Actuals	Projection
Goa	98	240
Tripura	55	60
Manipur	13	20
Nagaland	7	9
Arunachal Pradesh	5	7
Meghalaya	6	7
Sikkim	1	1
Mizoram	1	1
Total	186	345

Union Territories	16-Aug	12-Sep
	Actuals	Projection
Puducherry	106	270
Ladakh	10	15
Dadra & Nagar Haveli	2	4
Chandigarh	28	50
Andaman & Nicobar	24	50
Total	170	389

Dedication to the Nation

Proxima-PHFI Pandemic & Epidemic Management System (PPEMS) is a joint development of Proxima and Public Health Foundation of India (PHFI). PPEMS provides customised dashboard for stakeholders who are directly managing the pandemic.

Over last 24 weeks, PPEMS has been tested with the publicly available COVID 19 data. The system provides sharper insights on the emerging pattern of the Pandemic and systematically highlights regions which needs immediate and specific attention.

PPEMS is the voluntary efforts of researchers and analysts at Proxima and PHFI in dedication to the nation

Data source and disclaimer

1. The data collated and analysed based on secondary data. The primary sources are:
<https://www.mohfw.gov.in/> <https://www.covid19india.org/> www.google.com; www.wikipedia.org;
<https://www.worldometers.info/coronavirus/#countries>
2. Updated testing data of 4 mega cities (Ahmedabad, Bengaluru, Chennai, Delhi, and Mumbai) are available in the public domain. Whereas, updated testing data of Kolkata and Hyderabad is not to be found by our researchers. The analysis of average testing data has limitation with respect to data of 4 mega cities. Therefore, readers of this report need to factor the same for further inferences.
3. Information related to current status of Telangana and its districts are not available in the public domain. Therefore, readers of this report need to factor the same for further inferences.
3. The user of this presentation is advised to revalidate the shared data from authorised public institutions.

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Thank you