

COVID 19: Performance Analysis of 4 Mega States & Key Observations

As on 22th 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.

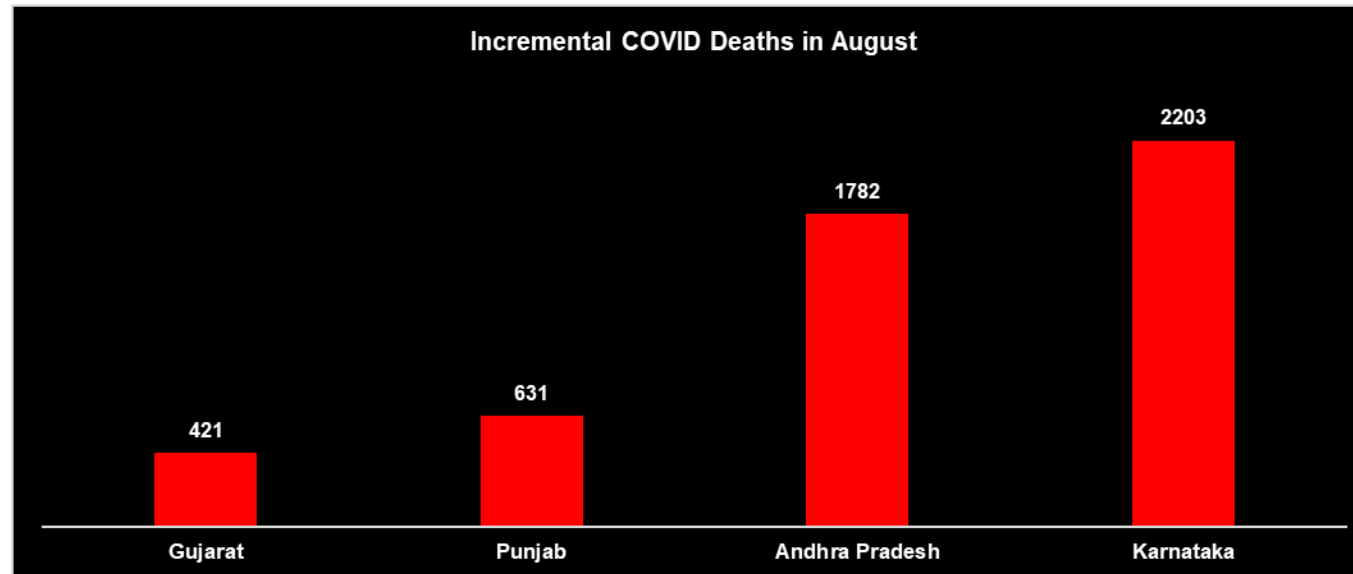
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4. Analysis of 50 districts in Andhra Pradesh, Gujarat, Karnataka, and Punjab having 30-Day Fatality Moving Growth Rate of over 100%, in other words districts having shortest double period for mortality.
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Changes in Absolute value gives limited insight on the actual COVID scenario in a state

Holistic review gives more clarity on the progress achieved so far

In August:
Punjab witnessed 61% of its total mortality; Andhra Pradesh 56%; Karnataka 48%
Gujarat 15%

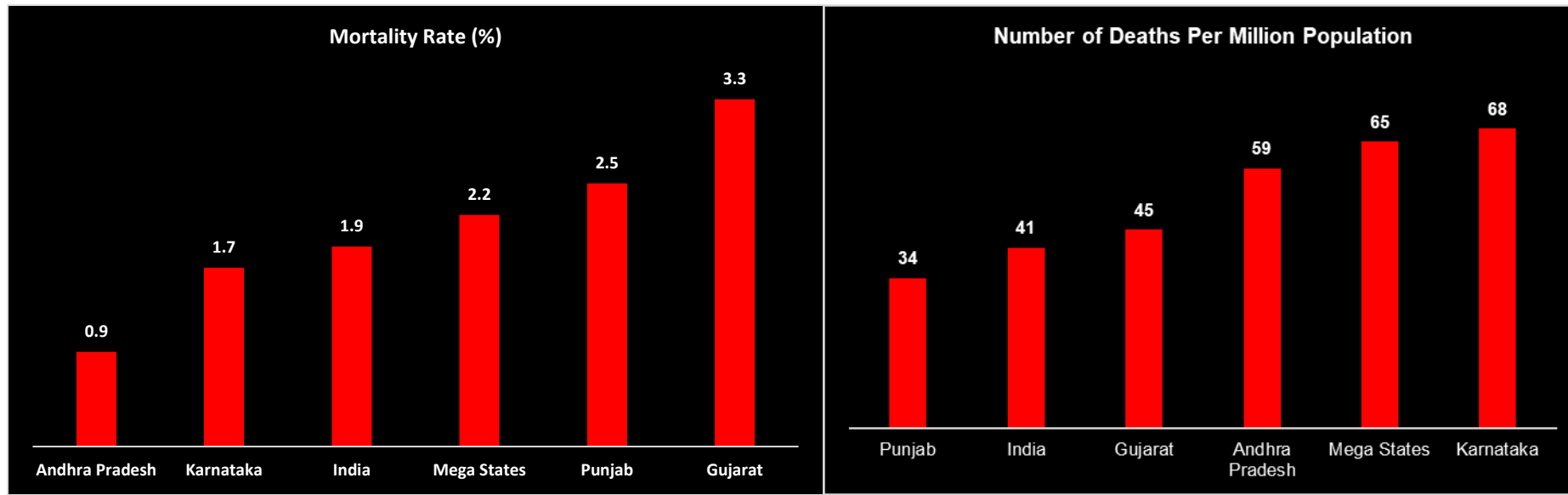


Total Number of Deaths	
Punjab	1036
Gujarat	2881
Andhra Pradesh	3189
Karnataka	4615

Each of the above 4 states are relatively made some progress in controlling the pandemic, there are concerning areas too !!

Mortality Rate (MR) and Death Per Million Population (DPM) reflects the quality of Testing and clinical management of the state

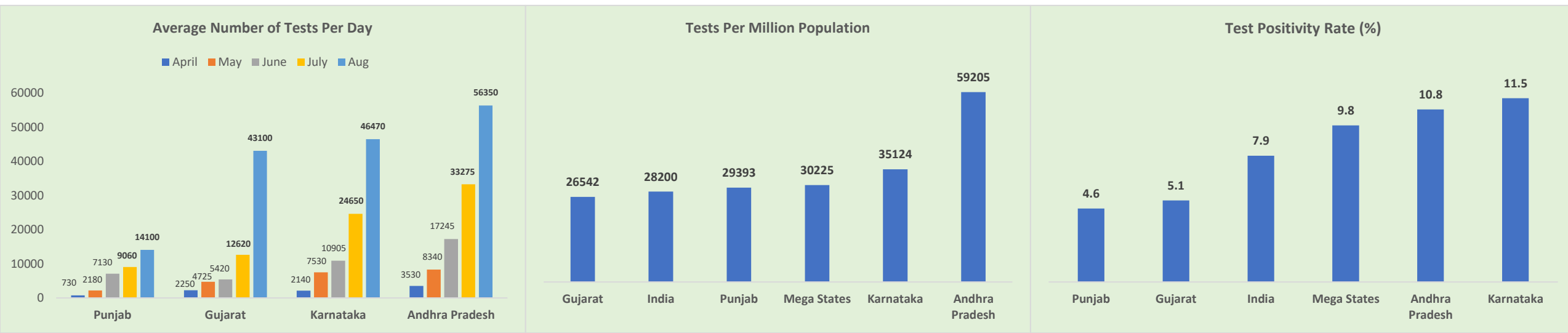
- Andhra Pradesh inspite of surge in COVID cases has managed to maintain relatively lower MR and DPM
- Gujarat is having highest MR (3.3%) amongst the mega states which include Maharashtra (3.27%)
- In August, Punjab DPM has gone up 2.6 times when compared to the beginning of the month. It has increased from 13 to 34
- In August, Karnataka DPM has almost doubled from 36 to 68



Time, Quantity, and Quality of Testing directly impacts the mortality rate



- Andhra Pradesh is testing twice of national average Tests Per million population (TPM). However, 10.8% of Test Positivity Rate (TPR) against national average TPR of 7.9% indicates the high velocity and wide spread of the virus in the state
- Punjab TPR even though has increased from 2.9% to 4.6%, it is still relatively amongst the states having least TPR in the mega states zone
- Karnataka is having the 2nd highest TPR (11.5%) in the mega states zone after Maharashtra (18.8%)
- Gujarat has increased average testing per day from 12620 to 43,000, 3.5 times



Proxima Pandemic Management System (PPMS)

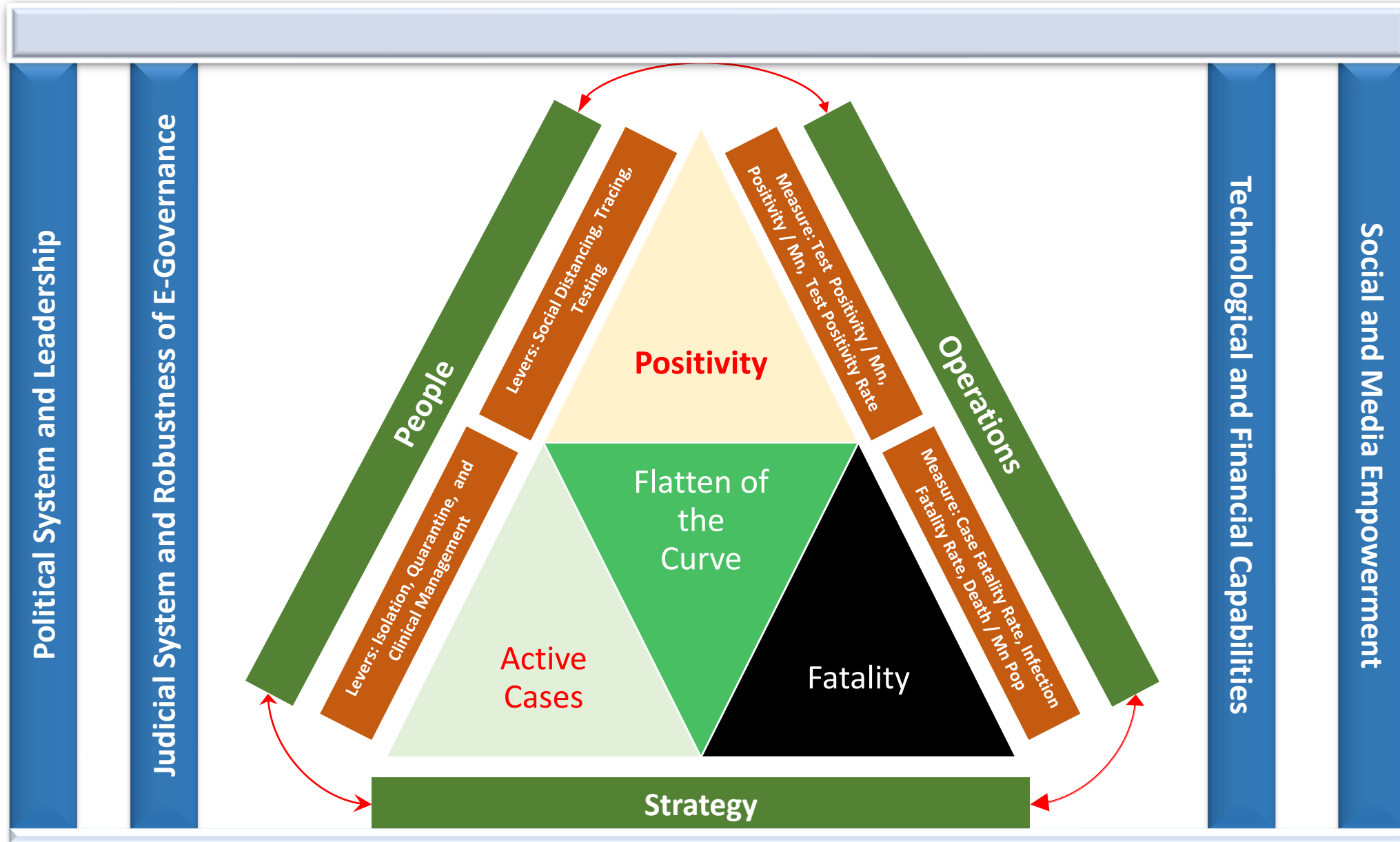
In an Pandemic / Epidemic, the virus spreads linearly and rapidly. The strategy to manage and flatten the growth of the virus depends on various systematic and unsystematic drivers.

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 mortality growth rate increases.
- The flattening of the curve of virus growth will happen only when 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 Pandemic Management System

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Proxima Virus Spread Assessment Matrix (VAM)

Number of deaths is the single most critical measure of Performance of various interventions initiated by the central and state administration in its fight against the Pandemic.

Case Fatality Rate (CFR) or Mortality Rate (**MR**) and Number of Death Per Million Population (**DPM**) measures the outcome of administration efforts.

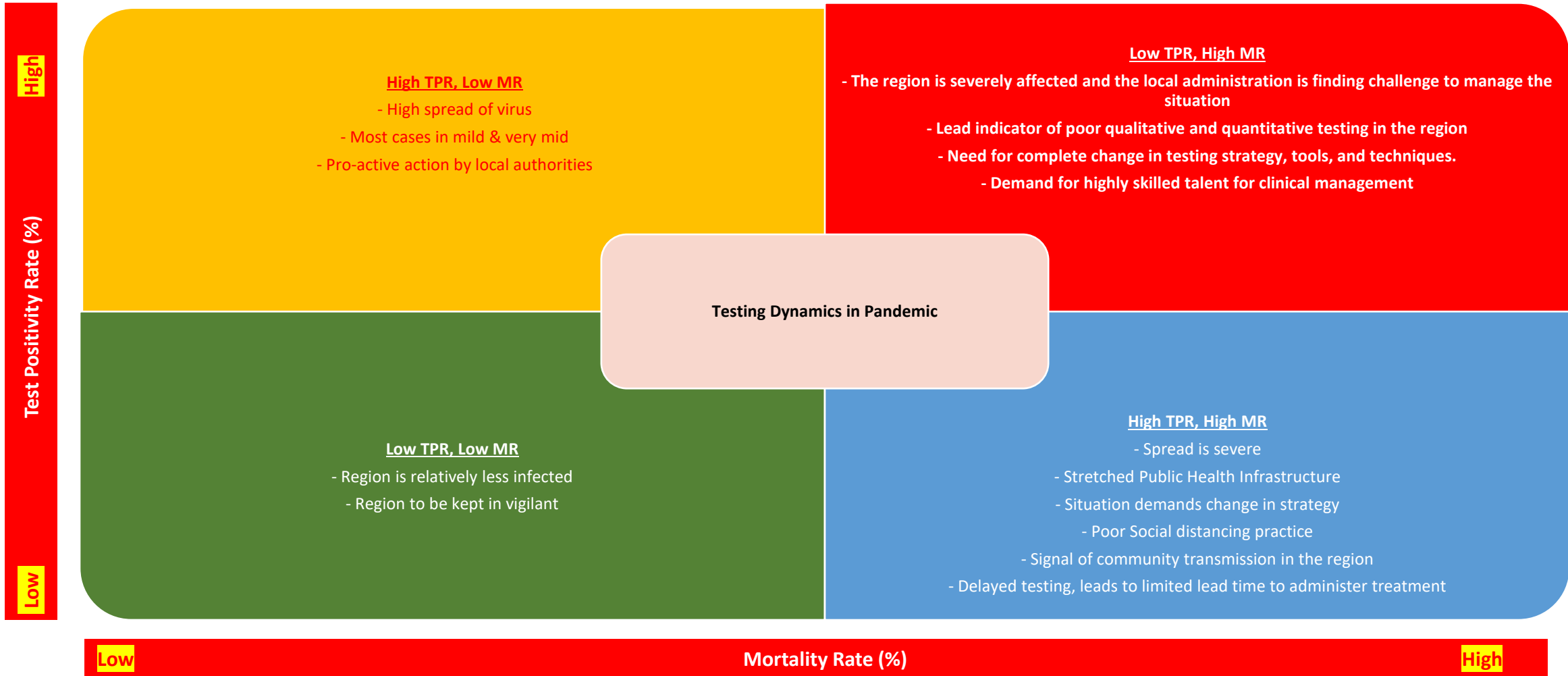
Test Positivity Rate (**TPR**) indicates the level of spread of virus in a country / state / districts.

The effectiveness of state administration could be measured based on the position of the state / districts on the Proxima Virus Spread Assessment Matrix.

The state / district in the Low TPR and Low MR quadrant indicates high performance, and state / district in Low TPR and High MR indicates poor performance.

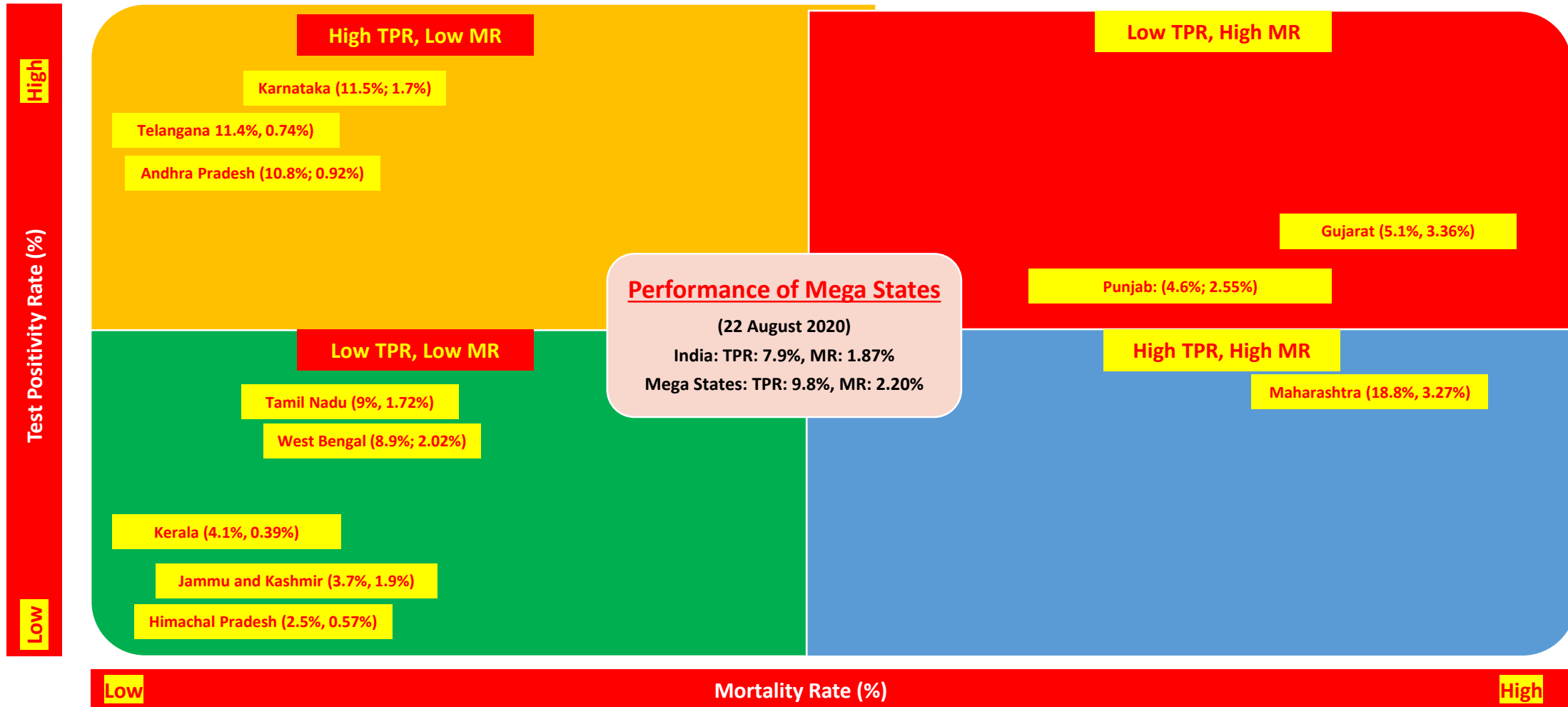
Proxima Virus Spread Assessment Matrix (VAM)

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



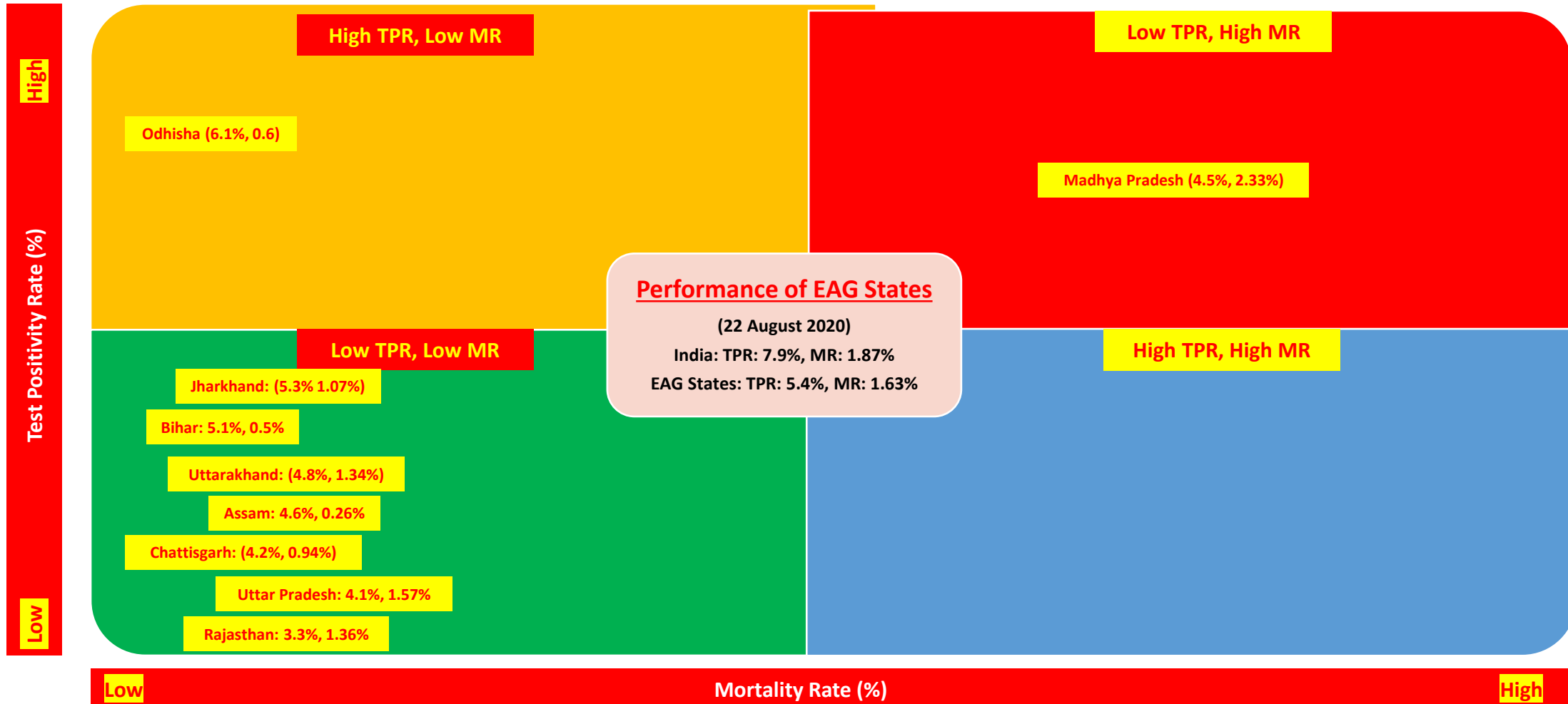
Plotting of Mega States Performance on VAM

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



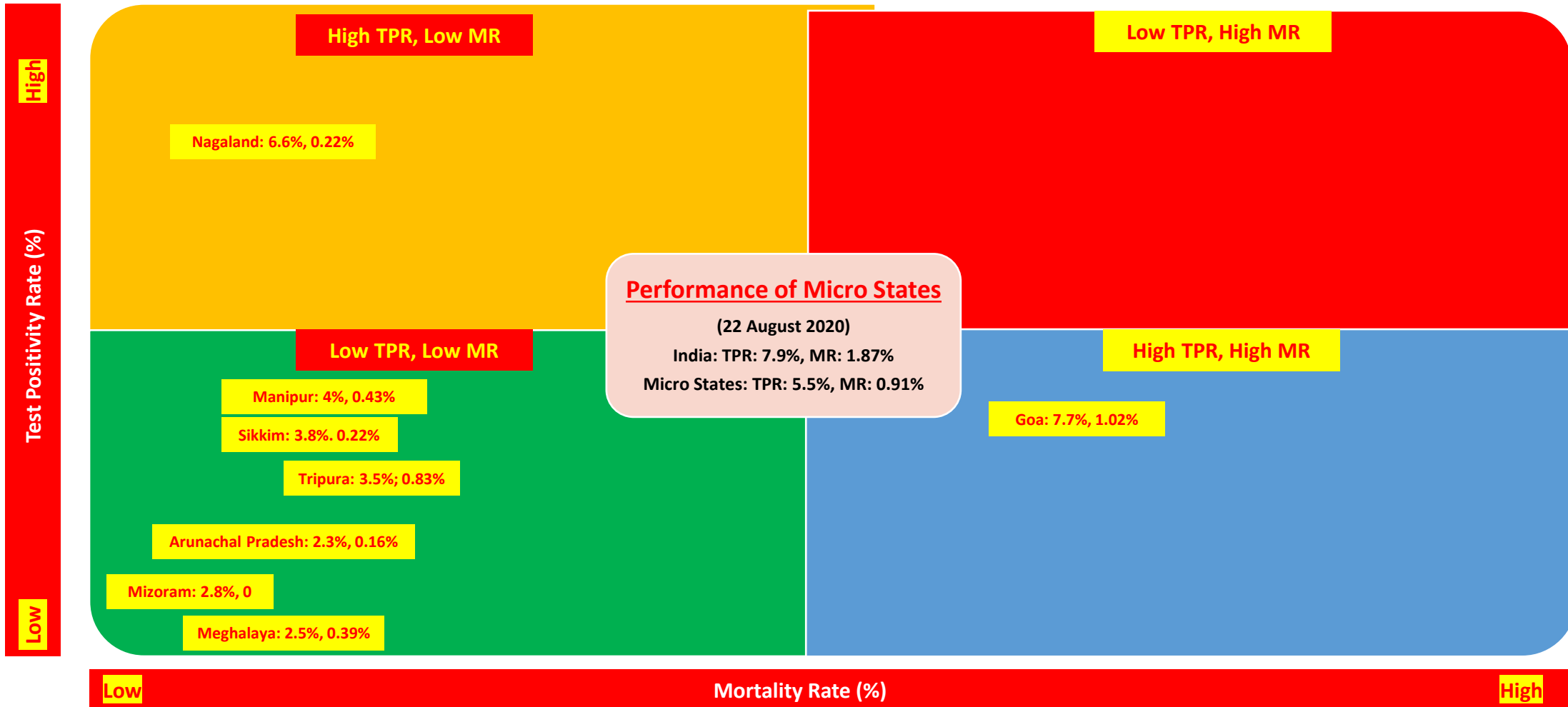
Plotting of EAG States Performance on VAM

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



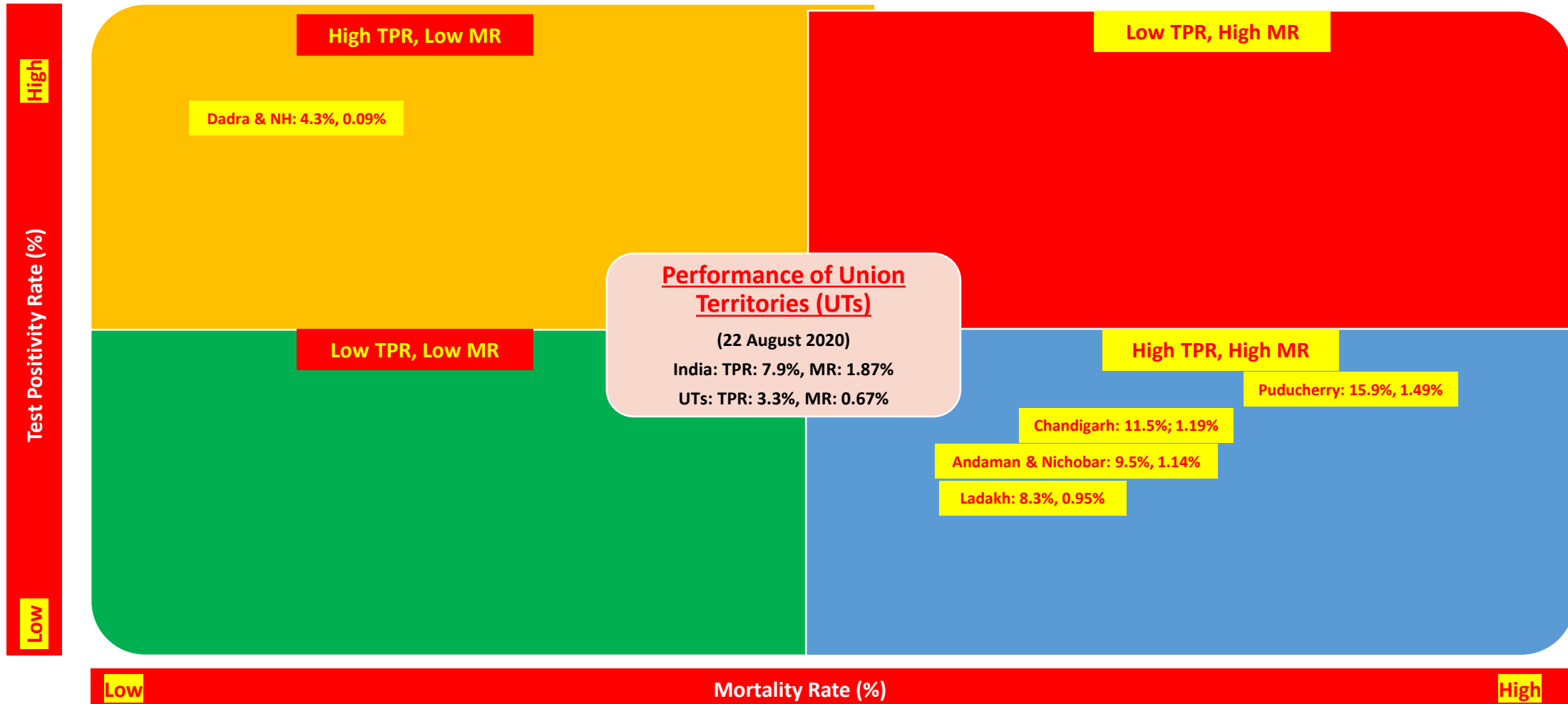
Plotting of Micro States Performance on VAM

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



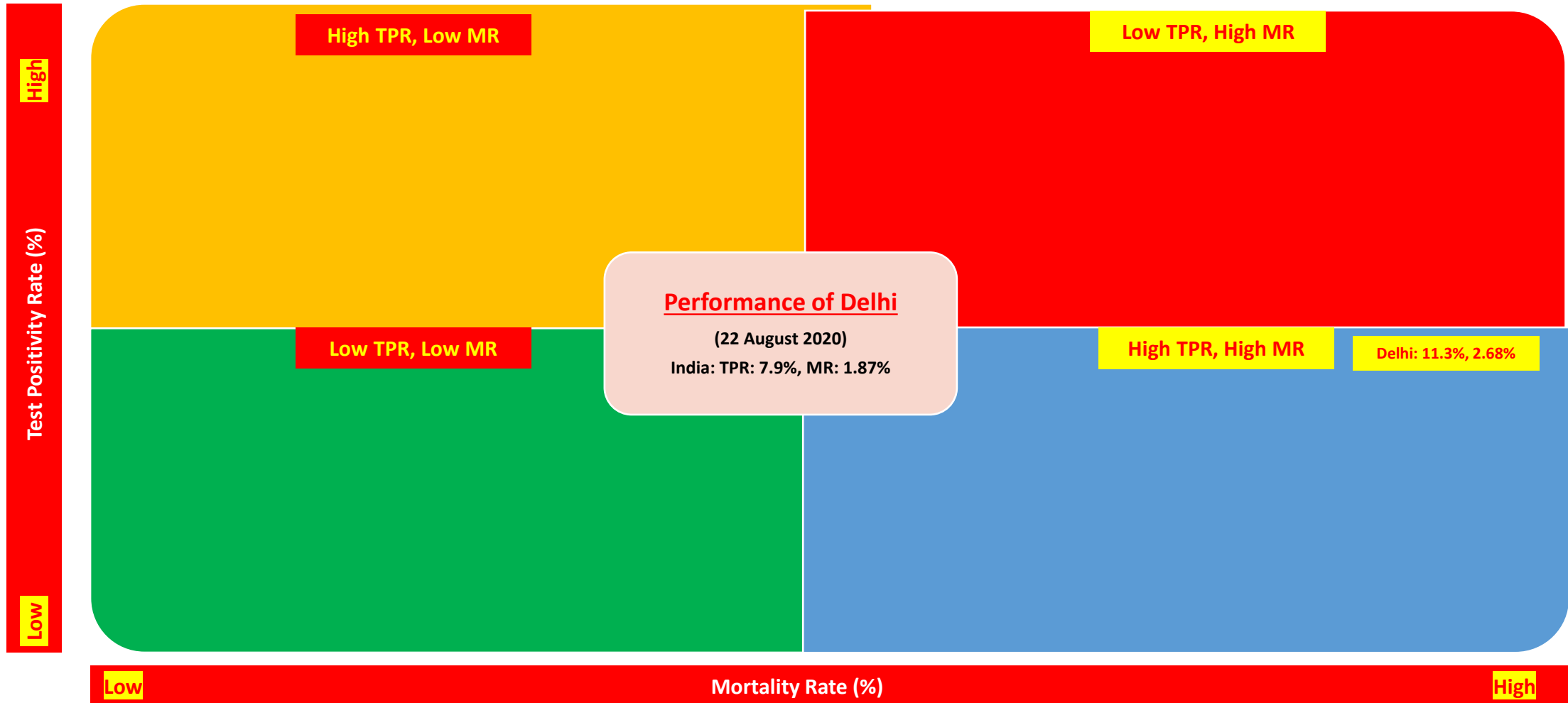
Plotting of Union Territories Performance on VAM

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



Plotting of Delhi Performance on VAM

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



Andhra Pradesh: Snapshot of Districts having highest 30-Day Fatality Moving Growth Rate (FMGR) %



Mega States
 Test Positivity
 Rate (TPR):
 9.8%
 Mortality
 Rate (MR):
 2.2%

Andhra Pradesh : Districts having over 100% 30 Day Mortality Moving Growth Rate						
Distict	Deaths as on (01 Aug)	Deaths (As on 22 Aug)	30D:FMGR *	MR	TPR	TPM
S.P.S. Nellore	44	201	357	0.94	11	67486
Y.S.R. Kadapa	44	151	243	0.75	10	72854
Prakasam	65	214	229	1.37	9	52981
Chittoor	114	317	178	1.1	12	59894
Srikakulam	74	197	166	1.08	7	96185
West Godavari	97	242	149	0.83	13	55881
Vizianagaram	58	137	136	0.89	11	59715
Guntur	141	328	133	1.1	11	57285
Anantapur	54	273	128	0.8	14	58807
Visakhapatnam	113	239	112	0.81	13	53606

Mega States
 Tests Per
 Million
 Population
 (TPM):
 30225

Key observations:

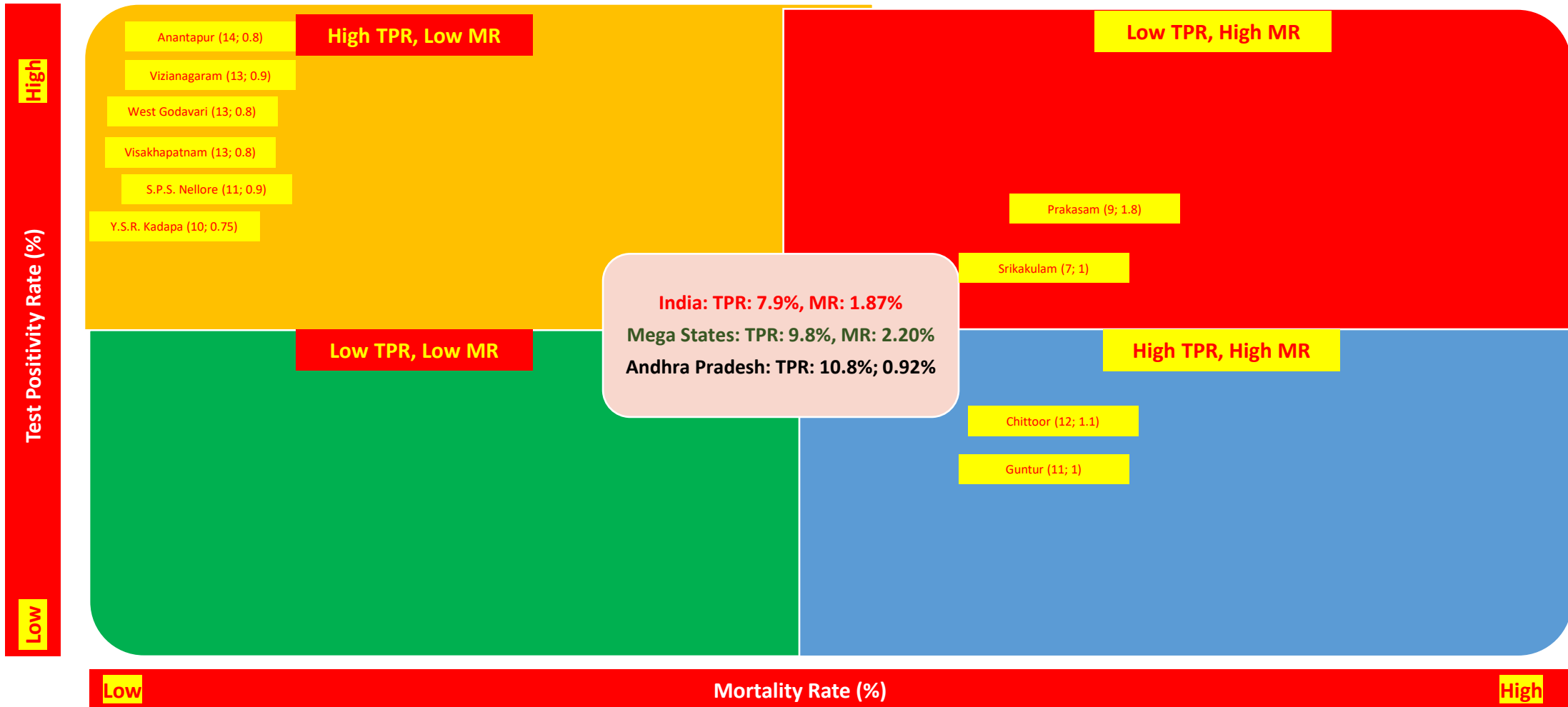
- Andhra Pradesh witnessed incremental 1495 deaths in August, 47% of total COVID deaths in the state. This has contributed towards doubling of Death Per Million population (DPM) in August from 26 to 59.
- Even though the state has high Test Positivity Rate (TPR), the state has relatively lower Mortality Rate (MR). Therefore, all the above districts except Srikakulam are in the **High TPR and Low MR** quadrant.
- Many Districts in Andhra Pradesh have tested 2-3 times higher than the national average testing per million population.
- In August, TPR in Andhra Pradesh has increased from 7.5% to 10.8%. This indicates that there is an immediate need to revisit the containment process which seems to be weak.

Suggested Focus areas for September:

- Andhra Pradesh 30-Day Fatality MGR is 127% much higher than the national MGR of 52%. This clearly shows that Critical care services in almost all districts are heated-up and immediate efforts need to be made to increase the capacity to reduce the surge in mortality in the coming weeks.

Andhra Pradesh: VAM: Districts above 100% 30-Day Moving Growth Rate (MGR)

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



Gujarat: Snapshot of Districts having highest 30-Day Fatality Moving Growth Rate (FMGR) %

Mega States
Test Positivity
Rate (TPR):
9.8%
Mortality
Rate (MR):
2.2%

Gujarat : Districts having highest 30 Day Mortality Moving Growth Rate						
Distict	Deaths as on (01 Aug)	Deaths (As on 22 Aug)	30D:FMGR (%)	CFR	TPR	TPM
Tapi	1	3	200	1.23	2	17472
Rajkot	30	75	150	1.95	6	49663
Junagadh	11	24	118	1.59	4	13634
Morbi	6	13	117	1.76	5	16765
Jamnagar	12	24	100	1.31	4	19629
Gir Somnath	4	8	100	0.98	5	17744

Mega States
Tests Per
Million
Population
(TPM):
30225

Key observations:

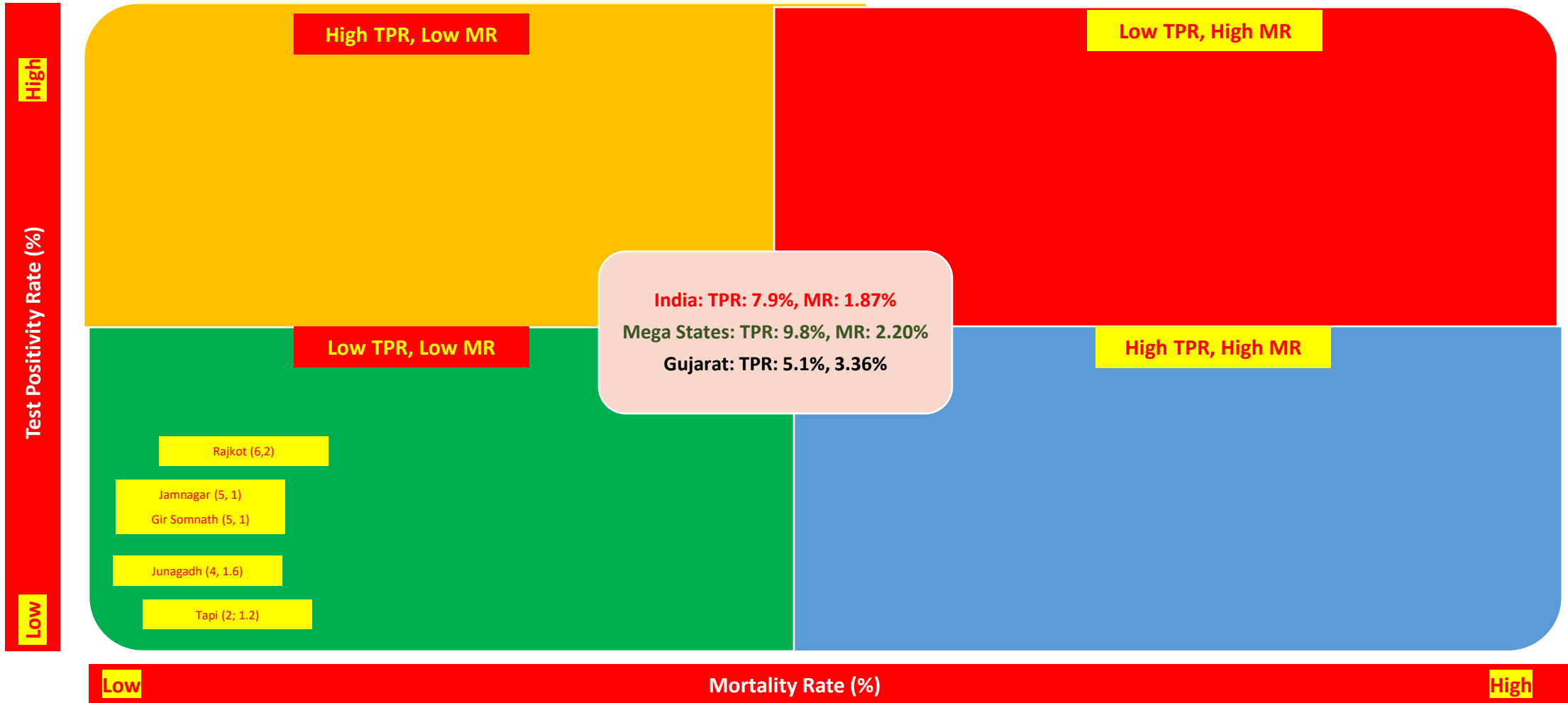
- Gujarat Mortality Rate (MR) of 3.3% is highest in the country when compared with all states and UTs.
- In August, Gujarat has shown overall good performance in terms of reduction in TPR from 7.9% to 5.1%, Testing has been doubled from 12300 to 26500; and witnessed 83 deaths in August, least among the other 3 analysed states
- The sustenance of Gujarat performance depends on reduction in MR in the coming weeks.

Suggested Focus areas for September:

- Gujarat 30-Day Fatality MGR is 17%. The administration need to try to bring the fatality MGR of the above districts to the state MGR rate.

Gujarat: VAM: Districts above 100% 30-Day Moving Growth Rate (MGR)

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



Punjab: Snapshot of Districts having highest 30-Day Fatality Moving Growth Rate (FMGR) %

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Punjab : Districts having highest 30 Day Mortality Moving Growth Rate						
Distict	Deaths as on (01 Aug)	Deaths (As on 22 Aug)	30D:FMGR	CFR	TPR	TPM
Fatehgarh Sahib	2	18	800	2.07	4	37656
Shahid Bhagat Singh Nagar	3	15	400	2.7	3	35276
Fazilka	1	5	400	0.79	3	16180
Patiala	28	103	268	2.19	16	15562
Ferozepur	6	21	250	1.48	6	11729
Bathinda	5	17	240	1.01	5	22470
S.A.S. Nagar	15	47	213	1.83	9	29659
Ludhiana	99	304	207	3.4	9	28582
Tarn Taran (Khadoor Sahib)	10	28	180	4.27	3	32137
Moga	5	13	160	1.17	3	32137
Kapurthala	12	30	150	3.65	3	32263
Barnala	6	15	150	1.71	5	29386
Rupnagar	4	10	150	1.53	2	50100
Sri Muktsar Sahib	2	5	150	0.81	3	21510
Sangrur	28	69	146	3.7	5	21146
Jalandhar	54	125	131	2.47	8	28994

Mega States

Tests Per
Million
Population
(TPM):
30225

Mega States
Test Positivity
Rate (TPR):
9.8%
Mortality
Rate (MR):
2.2%

Key observations:

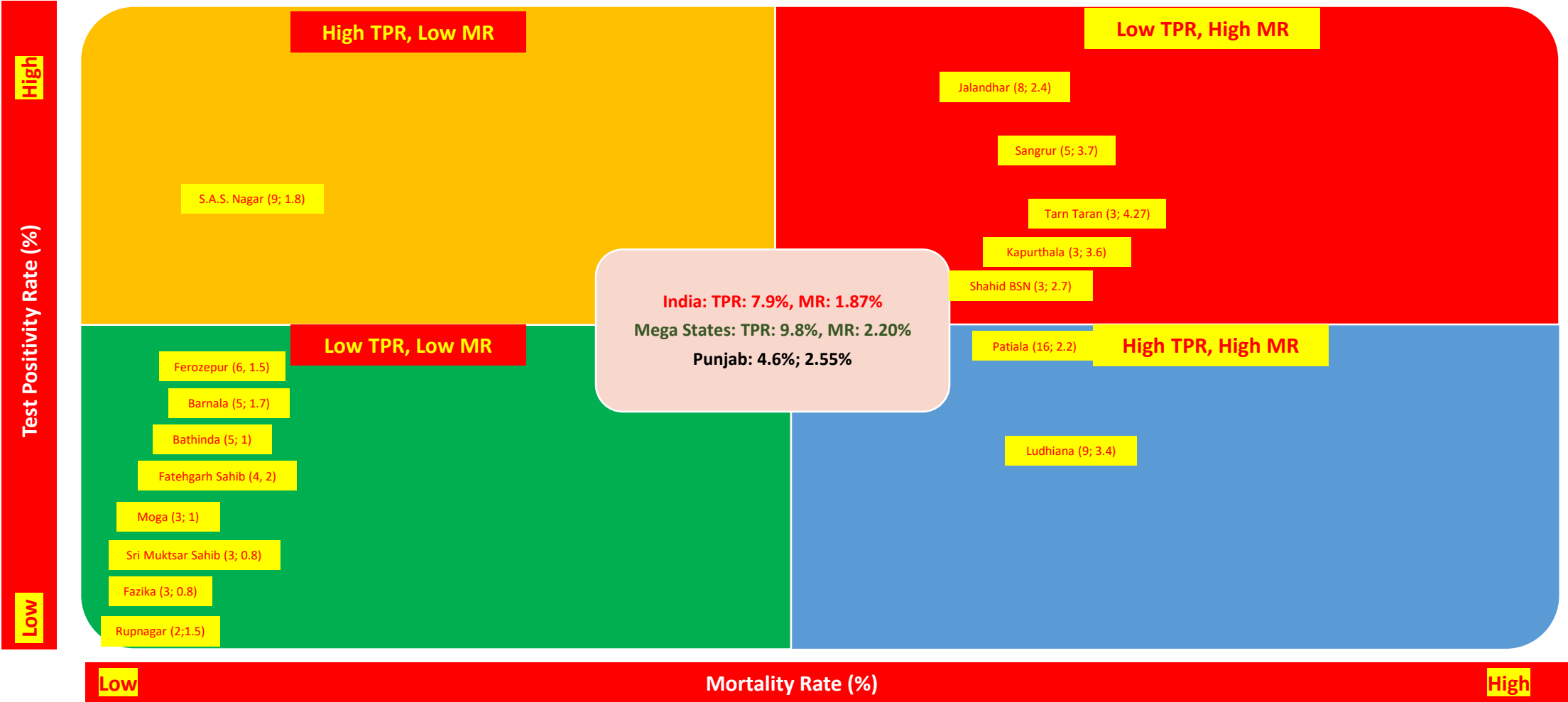
- Amongst the Mega states Zone, Punjab Mortality Rate (MR) 2.55% is above the national MR of 1.87% and Mega States MR of 2.2%. On the other hand, Punjab is among the states which has lower TPR (4.6%), the national TPR is 7.9% and Mega States TPR is 5.4%. Thus, Punjab is in a concerning quadrant of **Low TPR and High MR**. This indicates that the slower and lesser testing during previous months has allowed the virus to spread faster and wider.
- Punjab testing per million population (**TPM**) is 29393, whereas several districts such as Fazilka, Patiala, Ferozepur, Bathinda, Sri Muktsar Sahib, and Sangrur are testing far lesser than the state and national average.
- Above mentioned districts contributes to 86% of the total deaths in Punjab

Suggestion for September:

- Punjab's current 30-day Fatality MGR is 156%, 3 times higher than the average of national and mega states. Try to atleast double the recovery rate in COVID Health Centres and COVID Hospitals group of patients.

Punjab: VAM: Districts above 100% 30-Day Moving Growth Rate (MGR)

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



Karnataka: Snapshot of Districts having highest 30-Day Fatality Moving Growth Rate (FMGR) %

Karnataka: Districts having highest 30 Day Mortality Moving Growth Rate						
Distict	Deaths as on (01 Aug)	Deaths (As on 22 Aug)	30D:FMGR	CFR	TPR	TPM
Koppal	21	90	329	2.01	TDNP *	TDNP *
Mandya	11	42	282	1.03	TDNP	TDNP
Chamarajnagar	7	26	271	1.29	TDNP	TDNP
Raichur	25	74	196	1.28	TDNP	TDNP
Davanagere	52	153	194	2.25	TDNP	TDNP
Ballari	75	211	181	1.22	17	40651
Shivamogga	31	86	177	1.44	12	27842
Haveri	25	69	176	2.12	TDNP	TDNP
Chikkamagaluru	21	56	167	1.99	TDNP	TDNP
Hassan	61	149	144	2.57	TDNP	TDNP
Udupi	35	82	134	0.82	TDNP	TDNP
Tumakuru	52	116	123	2.89	TDNP	TDNP
Mysuru	151	320	112	2.6	16	25224
Bengaluru Rural	10	21	110	0.53	17	23614
Vijayapura	35	73	109	1.32	TDNP	TDNP
Belagavi	74	154	108	1.57	13	16047
Dakshina Kannada	148	303	105	2.99	12	39385

* TDNP: Testing Data Not Published

Key Observations:

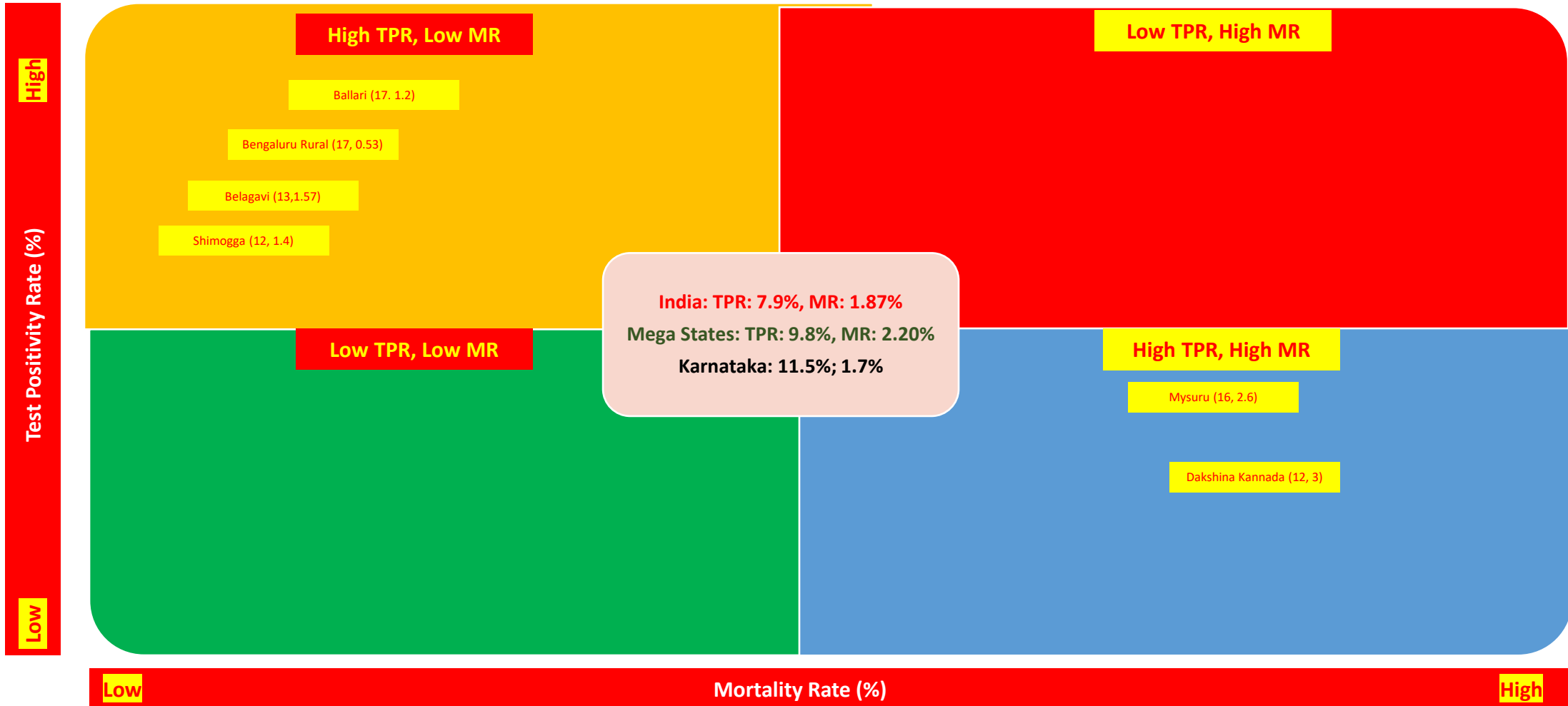
- Witnessed highest surge in mortality (2203) surge in August. The above districts contributed 54% of the total incremental increase in deaths in August. However, the 30-Day FMGR has dropped from 292% to 91%, which means the double period of absolute value has increased.
- The MR has marginally reduced from 1.8% to 1.7%, this could be the effect of ramp-up in testing, increase from 20500 to 35000 tests per million population

Suggestion for September:

- The initiatives taken in July has resulted in reducing the growth rate of both, positivity and mortality. Need to continue with the plan and try to improve further.

Karnataka: VAM: Districts above 100% 30-Day Moving Growth Rate (MGR)

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



Lack of adequate skilled Medical Professionals is one of the key factor for increase in mortality

Andhra Pradesh
Critical Patient to Pulmonologist Ratio
67 : 1

Andhra Pradesh: Analysis of Availability of Pulmonologists in the districts having higher fatality				
Districts	Active Cases	Estimated Critical Patients (5%) (rounded off)	Pulmonologists	Critical Patients to Pulmonologists Ratio
Chittoor	9938	500	5	100 : 1
Guntur	7237	350	8	40 : 1
Vizianagaram	7115	350	0	0
Visakhapatnam	6080	300	17	17:01
Prakasam	6069	300	1	300 : 1
Anantapur	5978	300	2	150 : 1
Srikakulam	5958	300	2	150 : 1
West Godavari	5464	275	0	0
Y.S.R. Kadapa	4940	247	2	123 : 1
S.P.S. Nellore	4679	240	10	24 : 1

Districts	Incremental Deaths in August
S.P.S. Nellore	157
Y.S.R. Kadapa	107
Prakasam	149
Chittoor	203
Srikakulam	123
West Godavari	145
Vizianagaram	79
Guntur	187
Anantapur	219
Visakhapatnam	126

Gujarat
Critical Patient to Pulmonologist Ratio
13: 1

Gujarat: Analysis of Availability of Pulmonologists in the districts having higher fatality				
Districts	Active Cases	Estimated Critical Patients (5%) (rounded off)	Pulmonologists	Critical Patients to Pulmonologists Ratio
Rajkot	1584	80	7	11 : 1
Jamnagar	400	20	3	7 : 1
Junagadh	263	13	0	0
Morbi	236	12	0	0
Gir Somnath	148	7	0	0
Tapi	19	1	0	0

Districts	Incremental Deaths in August
Tapi	2
Rajkot	45
Junagadh	13
Morbi	7
Jamnagar	12
Gir Somnath	4

Lack of adequate skilled Medical Professionals is one of the key factor for increase in mortality

Karnataka: Analysis of Availability of Pulmonologists in the districts having higher fatality				
Districts	Active Cases	Estimated Critical Patients (5%) (rounded off)	Pulmonologists	Critical Patients to Pulmonologists Ratio
Ballari	6064	300	0	0
Mysuru	4682	235	12	20 : 1
Belagavi	3965	200	0	0
Udupi	2963	150	6	25 : 1
Shivamogga	2856	140	1	140 : 1
DK Kannada	2328	115	8	14 : 1
Davanagere	1895	95	5	19 : 1
Hassan	1843	90	0	0
Mandya	1629	80	0	0
Yadgir	1553	80	0	0
Raichur	1355	70	2	35 : 1
Haveri	1249	60	0	0
Tumakuru	1191	60	2	30 : 1
Koppal	1172	60	0	0
Chikkamagaluru	972	50	0	0
Vijayapura	813	40	0	0
Bengaluru Rural	649	30	NA	NA
Chamarajnagar	532	25	0	0

Districts	Incremental Deaths in August
Mysuru	169
Dakshina Kannada	155
Ballari	136
Davanagere	101
Hassan	88
Belagavi	80
Koppal	69
Tumakuru	64
Shivamogga	55
Raichur	49
Udupi	47
Haveri	44
Vijayapura	38
Chikkamagaluru	35
Mandya	31
Yadgir	24
Chamarajnagar	19
Bengaluru Rural	11

Karnataka

Critical Patient to Pulmonologist Ratio

52 : 1

Lack of adequate skilled Medical Professionals is one of the key factor for increase in mortality



Punjab
Critical Patient to Pulmonologist Ratio
10 : 1

Punjab: Analysis of Availability of Pulmonologists in the districts having higher fatality				
Districts	Active Cases	Estimated Critical Patients (5%) (rounded off)	Pulmonologists	Critical Patients to Pulmonologists Ratio
Ludhiana	3867	200	12	17 : 1
Jalandhar	1829	90	18	5 : 1
Patiala	1629	80	17	5 : 1
S.A.S. Nagar	1405	70	6	12 : 1
Ferozepur	878	45	1	45 : 1
Bathinda	816	40	5	8 : 1
Moga	497	25	0	0
Barnala	475	25	1	25 : 1
Sangrur	464	25	5	5 : 1
Fatehgarh Sahib	302	15	0	0
Kapurthala	274	15	3	5 : 1
Sri Muktsar Sahib	265	15	0	0
Fazilka	231	12	1	12 : 1
Rupnagar	216	10	0	0
Tarn Taran	176	10	0	0
S.B.S Nagar	112	6	0	0

Districts	Incremental Deaths in August
Ludhiana	205
Patiala	75
Jalandhar	71
Sangrur	41
S.A.S. Nagar	32
Tarn Taran (Khadoor Sahib)	18
Kapurthala	18
Fatehgarh Sahib	16
Ferozepur	15
Shahid Bhagat Singh Nagar	12
Bathinda	12
Barnala	9
Moga	8
Rupnagar	6
Fazilka	4
Sri Muktsar Sahib	3

About Project: Jeevan Raksha

Project: Jeevan Raksha is a initiative of Proxima which focuses on Advocacy, Analytics, and Awareness in the area of healthcare.

Mission: Actively contribute towards **Right to Health** as constitutional right of Indian citizen

Project: Jeevan Raksha has been in the forefront of providing sharper analytical insights on emerging pattern of COVID 19 in India to the Central / State Government administrations and general public. The contribution is appreciated by many state Governments.

Project: Jeevan Raksha acknowledges the technical support and guidance of Indian Medical Association (**IMA**) and Public Health Foundation of India (**PHFI**)

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.

For more details, send email to:

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Thank you