

COVID 19: Wave 3: Global Trend Analysis & Projection

20 December 2021

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

Mission: Actively contribute towards Right to Health as a constitutional right of Indian citizens.

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

Project: Jeevan Raksha thanks General Insurance Council (GI Council) for sharing the monthly COVID Health Insurance claim data for our research and analytics purpose

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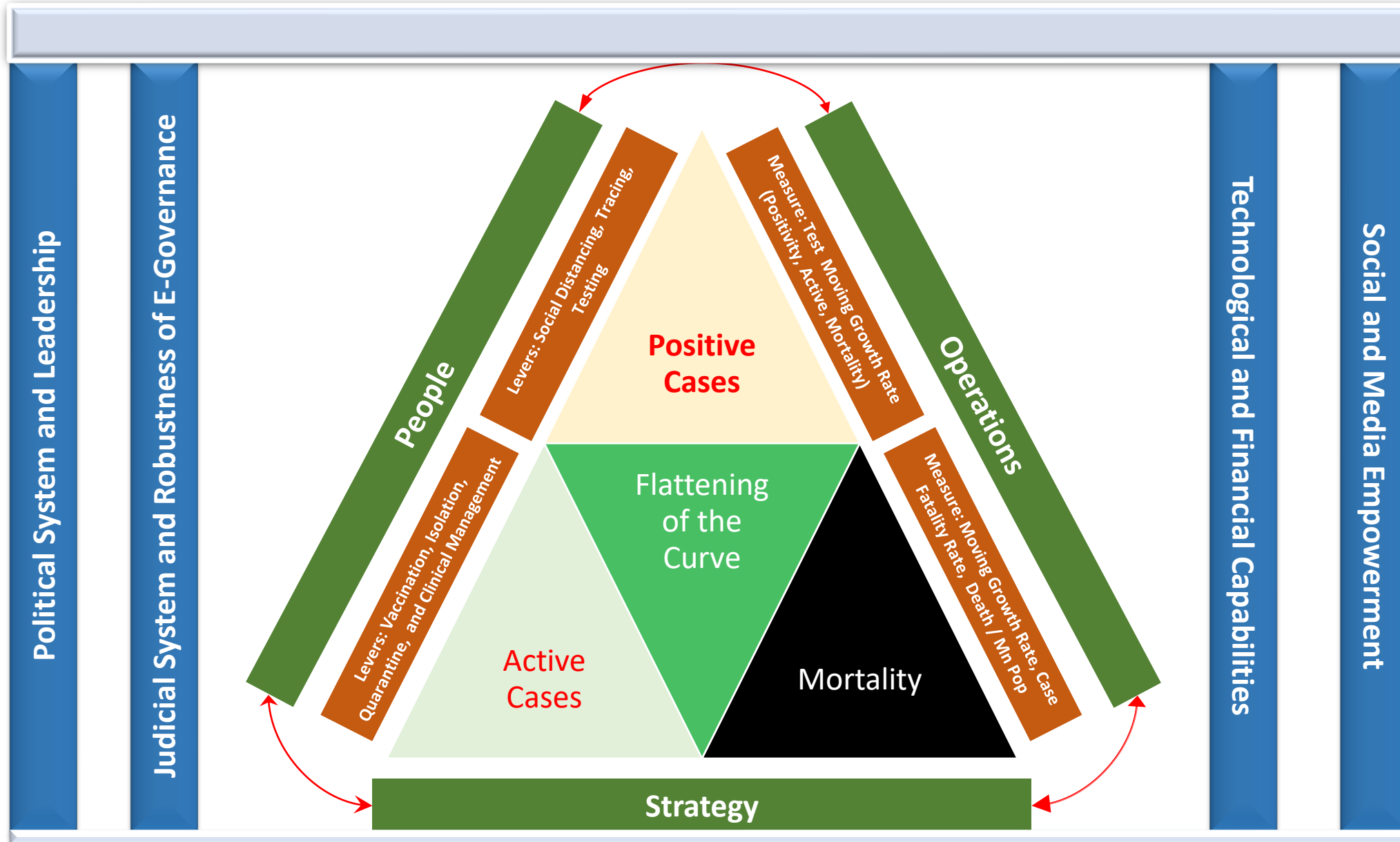
- Emerging Global COVID Pattern
 - COVID Pattern and Vaccination impact in Africa
 - COVID Vaccine Efficacy
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Annexures:

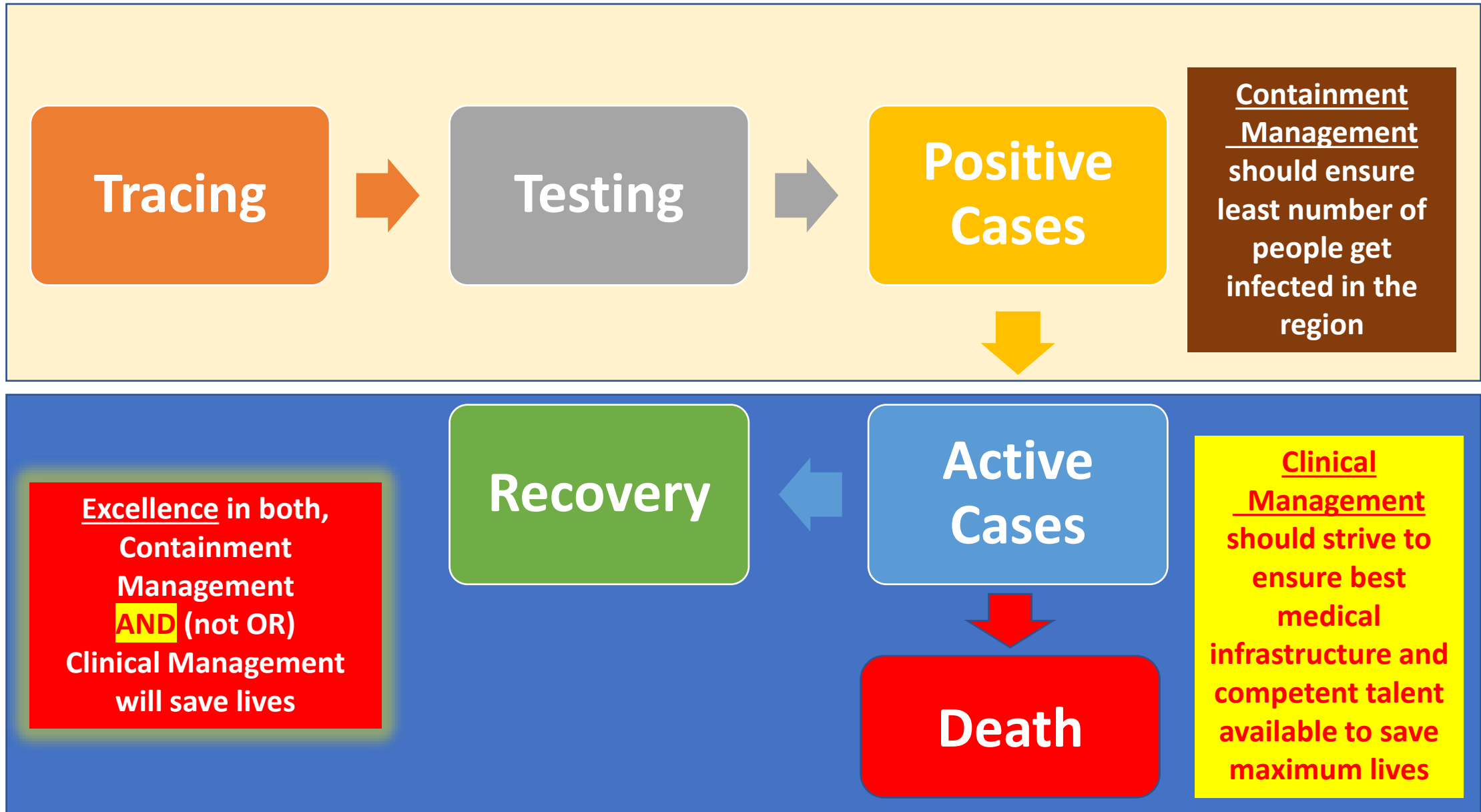
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Proxima Pandemic & Epidemic Management System (PPMS)

JEEVAN RAKSHA
PROTECTING LIVES

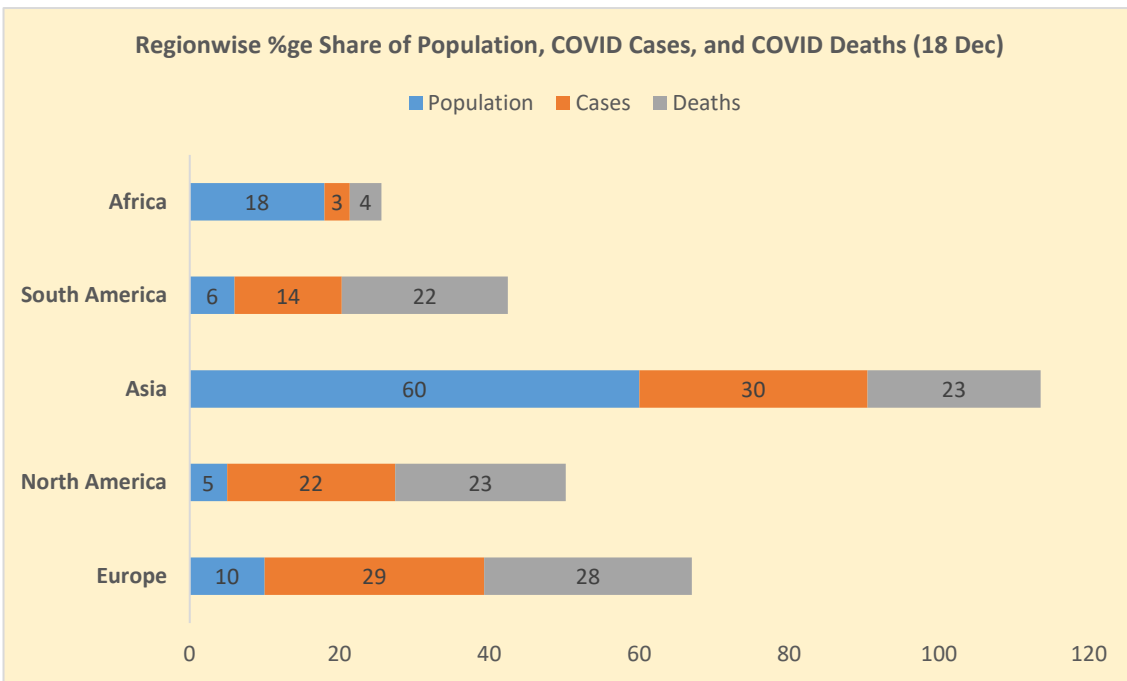


Qualitative and Quantitative Testing will determine the fate of the people



Africa: Rich in Natural Resources as well as Natural Immunity

- Out of 275 Mn COVID infected, tested, and treated people globally, only 3% (9.2 Mn) people are in Africa
- Unfortunately, over 5.3 Mn people have died so far due to COVID. globally. However in Africa, 0.22 Mn people have succumbed to COVID
- In many African countries, COVID vaccination is less than 3% of the total population, but last 2 weeks data of select African nations indicates that inspite of spike in new cases, mortality rate is relatively very low



Analysis of COVID Cases, Mortality, and Vaccination in select African Countries

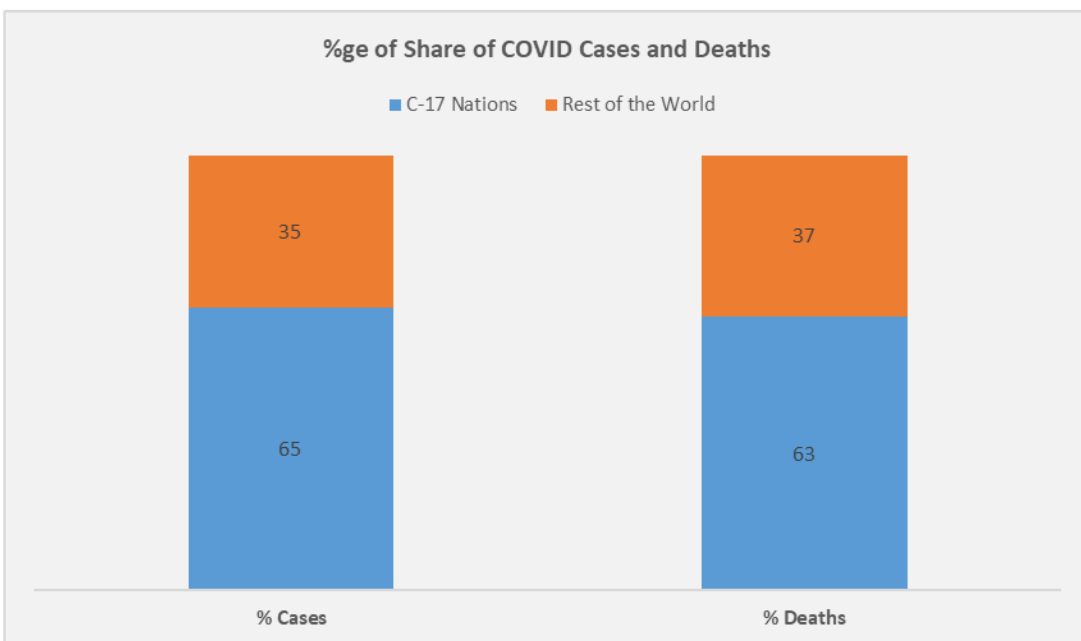
Select Africa Countries	% of Population Fully Vaccinated	Cases in the last 7 Days	Cases in the Preceding 7 Days	Moving Growth Rate (MGR) %	Deaths in the last 7 Days	Deaths in the Preceding 7 Days
Kenya	6.1	6201	726	754	7	11
Malawi	3.2	2182	264	727	4	0
Zambia	0	4513	665	579	9	2
Botswana	42	3774	788	379	4	2
Rwanda	32	829	180	361	0	1
Burundi	0	756	193	292	0	0
Mozambique	14	5955	1540	287	8	1
Ethiopia	1.2	2810	910	209	35	32
Nigeria	1.8	2496	420	494	3	1
Uganda	2.8	851	297	187	5	13
Namibia	13	4650	2633	77	4	4

Africa COVID Data validates 2 vital pattern:

- High Natural immunity is one of the key factor for relatively least impact of COVID
- Inspite of least inoculation for COVID, last few weeks data indicates that OMICRON is unlikely to increase the growth rate of severe cases / mortality.

C – 17 Nations: Contributes ~ 2/3rd of COVID Cases and Deaths

- 1st Wave, 2nd Wave, 3rd Wave..... COVID Surge, Recede, and Resurge is around these 17 nations. Future waves, in case if it happens, is likely to concentrate in these region only.
- There is no need to create HAVOC in other 200+ nations unnecessarily and terrorise the people by unilaterally putting ban on travel and restricting movement of the people which would severely affect the socio-economic activities

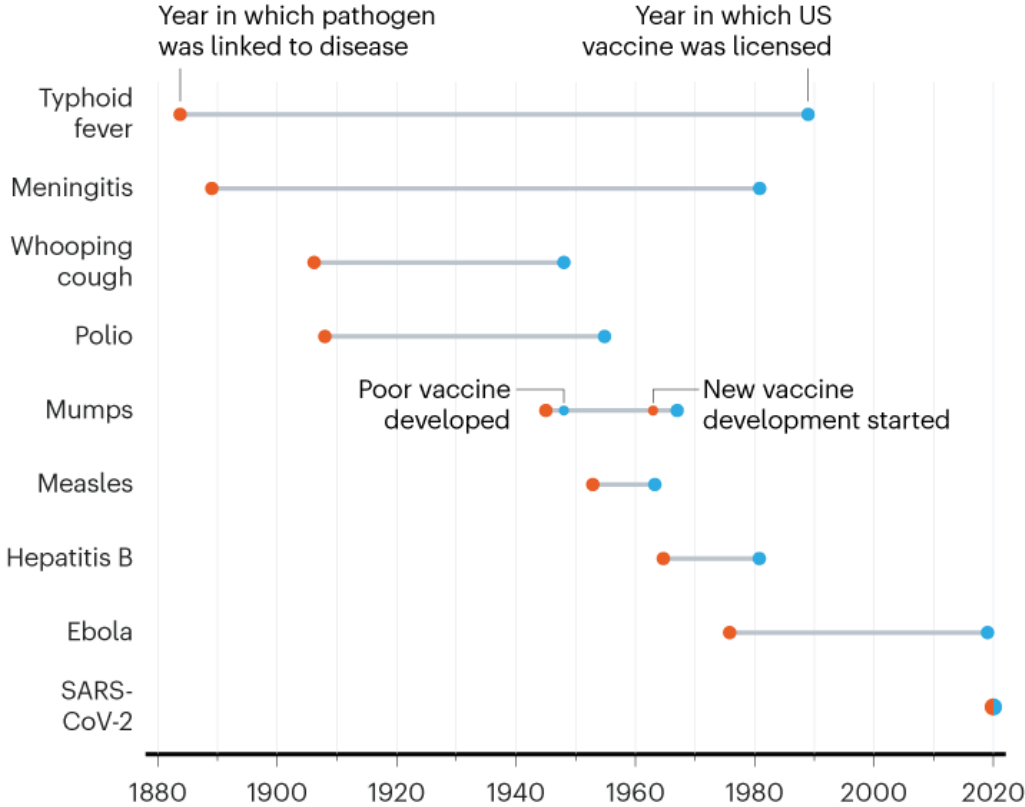


C-17 Nations: COVID Status as on 10th Dec 2021			
Nations	Cases	Deaths	CFR
USA	50693604	817301	1.6
India	34682614	459876	1.3
Brazil	22184824	616733	2.8
UK	10719165	146255	1.4
Russia	9956679	287180	2.9
Turkey	9002968	78778	0.9
France	8105785	120168	1.5
Germany	6463737	105931	1.6
Spain	5290190	88381	1.7
Indonesia	4258752	143923	3.4
Mexico	3911714	296186	7.6
South Africa	3112469	90080	2.9
Malaysia	2683523	30831	1.1
Thailand	2160780	21110	1.0
Canada	1827318	29897	1.6
Japan	1728410	18371	1.1
Israel	1349385	8210	0.6
C-17 Nations	178131917	3359211	1.9
Worldwide	269392648	5298138	2.0

COVID Vaccine Delivered in shortest span: Pre-mature deliveries are often defective!

VACCINE INNOVATION

Most vaccines take years to develop, but scientists created multiple vaccines for SARS-CoV-2 within a year.



©nature

Vaccine Impact: Europe Positive, Rest of the World - Least or Negative!

Efficacy of Sputnik, BioNTech & Moderna, Covishield & Covaxin need to be re-examined by independent and credible Global Experts

Positive Impact
Canada
France
Germany
Israel
Japan
Mexico
Spain
United Kingdom

Negative Impact
Brazil
Indonesia
Malaysia
Russia
Thailand

No Impact
India
South Africa
Turkey
USA

Vaccination Impact Analysis									
C-17 Nations (Collectively Contribute over 60% of COVID Cases & Deaths)	1st Wave: Upto 31st Dec 2020 (Pre- Vaccination Period)			2nd Wave: 1st Jan - 31st July 2021: ~25 - 50% of the Eligible Population are fully Vaccinated			3rd Wave: 1st Sept - 10 Dec 2021: ~50 - 100% of the Eligible Population are fully Vaccinated		
	Nations	Cases	Deaths	CFR	Cases	Deaths	CFR	Cases	Deaths
Brazil	7718847	194976	2.5	12161426	361461	3.0	2304551	60296	2.6
France	2459116	64780	2.6	3667903	47113	1.3	1978766	8275	0.4
India	10286329	150811	1.5	21368255	273573	1.3	3028030	35492	1.2
Russia	3159297	57019	1.8	3106576	101542	3.3	3690806	128619	3.5
UK	2482719	73621	3.0	3373227	56033	1.7	4863219	16601	0.3
USA	20629887	369906	1.8	15217949	260729	1.7	14845768	186666	1.3
Canada	581395	15606	2.7	849430	10992	1.3	396493	3299	0.8
Germany	1745518	34313	2.0	2031203	57858	2.8	2687016	13760	0.5
Israel	426469	3325	0.8	447549	3648	0.8	475367	1237	0.3
Indonesia	743198	22138	3.0	2666460	71981	2.7	849094	49804	5.9
Thailand	6884	61	0.9	590403	4796	0.8	1563493	16253	1.0
Malaysia	113010	471	0.4	1000262	8553	0.9	1570251	21807	1.4
Turkey	2208652	20881	0.9	3518393	30451	0.9	3275923	27446	0.8
Mexico	1413935	145195	10.3	1415508	95261	6.7	1082271	55730	5.1
Japan	230842	3414	1.5	682638	11770	1.7	814930	3187	0.4
Spain	1971003	50837	2.6	2494687	30701	1.2	824500	6843	0.8
South Africa	1063547	28921	2.7	1383907	43092	3.1	665015	18067	2.7

Key observations:

- **Sputnik:** %ge of population fully vaccinated in **Russia** has increased from 25% to 42% in the last 100 days. But **CFR** during the period is **3.5%**. Is Sputnik Effective?
- **Pfizer, Moderna:** USA has vaccinated 61% of its population, but CFR in the last 100 days is **1.3%**. No impact.
- **Covishield, Covaxin:** In India, CFR for last 100 days is 1.2%, almost same as pre-vaccination period. No impact

South Africa: So far no real benefit of vaccination, but presses the panic button by approving Booster Shots!

COVID 19: Wave 3: Global Projections: 11 December 2021 – 10 January 2022

The robust Analytics and Projection Module of PPMS enables to accurately predict the estimated number of new infected people in a Country / State / County / District during a 4-Week period.

As part of Project: Jeevan Raksha initiative, the Projection Module of PPMS was successfully tested and implemented during the 1st Wave of COVID in India. The Statewise projections were resoundingly successful. Many Indian State Governments acknowledged the effectiveness of the module in managing the Pandemic.

During the ongoing 3rd wave of the Pandemic, Data Scientists and Analysts at Proxima carried out pilot analysis of worldwide COVID data. The encouraging results led to the launch of COVID 19 Global Projection in September 2021 which has accuracy of 99% actual of Projected. This is a major breakthrough in enhancing the preparedness of the administration to effectively manage the Pandemic / Epidemic.

Proxima Pandemic and Epidemic Management System (PPMS) is the world's 1st Management System for Pandemic / Epidemic which effectively traces the changing pattern of virus spread in a region. It also accurately predicts the estimated number of additional infections and deaths during a particular period and region. This would immensely help the local administration to bring in appropriate interventions and reduce the mortality to the possible extent.

Globally, COVID Cases is likely to cross 288 Mn, ~ 19 Mn new cases

- ~ 19.2 Mn New cases by 10th January, USA, Germany, UK, and France is expected to contribute over 36%
- USA is expected to add over 2.3 Mn new cases, Germany 1.75 Mn, France 1.54 Mn, UK 1.36 Mn
- South Africa is expected to add ~ 0.55 Mn new cases
- Japan is expected to add least number of cases ~ 3100

COVID 19: 4th Monthly COVID Cases Projection: Worldwide, C-17 Nations, and Rest of the world: Period: 11 Dec - 10 Jan 2022 (+/-2%)											
C-17 Nations	Actual (11 September)	Projection (10 October)	Actual (10 October)	%ge Actual of Projected	Projection (10 Nov 21)	Actual (10 November)	%ge Actual of Projected	Projection (10 Dec 21)	Actual (10 December)	%ge Actual of Projected	Projection (10 January 22)
USA	41744465	46920000	45204373	96	47260000	47647745	101	50455000	50693604	100	53065000
India	33200877	34340000	33971604	99	34421600	34401670	100	34730000	34682614	100	34927000
Brazil	20974850	21425000	21575820	101	21925000	21911382	100	22242000	22184824	100	22349000
UK	7168115	8390000	8154306	97	9157000	9406001	103	10613500	10719165	101	12075000
Russia	7102625	7630000	7775365	102	8817000	8911713	101	10051700	9956679	99	10598000
France	6887791	7131500	7056511	99	7234000	7244040	100	7559000	8105785	107	9557000
Turkey	6613976	7425000	7444552	100	8299000	8315424	100	9140000	9002968	99	9421000
Spain	4907461	5055000	4973619	98	5011000	5038517	101	5136000	5290190	103	5653000
Indonesia	4158731	4316000	4227932	98	4252000	4249323	100	4260000	4258752	100	4263000
Germany	4071607	4497000	4329382	96	4664000	4875551	105	6006500	6463737	108	8217000
Mexico	3479999	3824000	3723235	97	3931000	3831259	97	3925000	3911714	100	3980000
South Africa	2848925	3013000	2912145	97	2934000	2924622	100	2930900	3112469	106	3670000
Malaysia	1940950	2600000	2339594	90	2537000	2522498	99	2663000	2683523	101	2800000
Japan	1614124	1900000	1710394	90	1727000	1724513	100	1730000	1728410	100	1731000
Canada	1538093	1675000	1658989	99	1763000	1739979	99	1812900	1827318	101	1936000
Thailand	1352953	1740000	1720919	99	2005000	1989473	99	2183000	2160780	99	2248000
Israel	1154286	1333000	1305510	98	1350000	1335885	99	1349400	1349385	100	1367000
C-17 Nations	150759828	163214500	160084250	98	167287600	168069595	100	176787900	178131917	101	187857000
Rest of the World	73852087	79385500	78648506	99	82580000	84051119	102	90212100	91260731	101	100818000
Worldwide	224611915	242600000	238732756	98	249867600	252120714	101	267000000	269392648	101	288675000

India is expected to add ~ 0.25 Mn New Cases

Globally, COVID Death toll is likely to cross 5.47 Mn

- Unfortunately, world is expected to witness over **0.17 Mn incremental COVID deaths 10th January**. ~60% of deaths are expected to occur in USA, Russia, and Germany.
- ~ 100K incremental deaths are expected to occur in USA (41200), Russia (41000), and Germany (17350)
- Japan is expected to witness only ~ 20 COVID deaths during the projected period, least among the analysed nations
- South Africa is expected to witness ~ 680 incremental COVID deaths

COVID 19: 3rd Monthly Mortality Projection: Worldwide, C-17 Nations, and Rest of the world: Period: 11 Nov - 10 Dec 2021 (+/-2%)												
C-17 Nations	% of Fully vaccinated Population	Actual (11 Sept 21)	Projection (10 Oct 21)	Actual (10 Oct)	%ge Actual of Projected	Projection (10 Nov 21)	Actual (10 Nov)	%ge Actual of Projected	Projection (10 Dec 21)	Actual (10 Dec)	%ge Actual of Projected	Projection (10 January 22)
USA	61	677018	740000	733575	99	771300	780236	101	820000	817301	100	858530
Brazil	65	585923	603000	601047	100	610350	610080	100	615250	616733	100	622900
India*	37	442350	450000	450814	100	455800	455893	100	459300	459876	100	462000
Mexico	51	266150	285000	282086	99	299400	290110	97	298000	296186	99	305100
Russia	42	191165	215000	216415	101	248800	250454	101	288250	287180	100	328100
Indonesia	38	138431	150000	142651	95	143750	143592	100	144000	143923	100	144120
UK	69	133988	138000	137735	100	140200	142338	102	148450	146255	99	149750
France	71	115442	119000	117052	98	117450	118056	101	119000	120168	101	125375
Germany	69	93095	94500	95033	101	95900	97599	102	103500	105931	102	123290
Spain	62	85290	88500	86778	98	87700	87617	100	88550	88381	100	90320
South Africa	26	84608	92500	88317	95	89850	89435	100	90500	90,080	100	90760
Turkey	60	59384	65600	66180	101	71750	72713	101	78000	78778	101	84360
Canada	77	27170	28200	28203	100	28650	29249	102	29950	29897	100	30670
Malaysia	78	19827	29700	27329	92	30000	29486	98	30750	30831	100	32320
Japan	78	16603	18500	17927	97	18600	18316	98	18500	18371	99	18390
Thailand	62	13920	19300	17,751	92	19900	19826	100	21275	21110	99	21980
Israel	62	7321	7900	7912	100	8500	8136	96	8250	8210	100	8270
C-17 Nations		2957685	3144700	3116805	99	3237900	3243136	100	3361525	3359211	100	3496235
Rest of the World		1672116	1769300	1750206	99	1784750	1845175	103	1964475	1938927	99	1976265
Worldwide		4629801	4914000	4867011	99	5022650	5088311	101	5326000	5298138	99	5472500

* Kerala (12826) and Bihar (2426) reconciled deaths excluded

Unfortunately, out of 0.23 Mn estimated incremental COVID deaths by 10 December, USA and Russia is likely contribute ~ 40,000 each

I am delighted and pleased to learn that your organization Jeevan Raksha is active & doing human work in the worst situation of COVID - 19, I appreciate & Express my feelings towards your trends and projection regarding COVID - 19. I wish to congratulate you and team vision for Jeevan Raksha project.

I wish you every success in your motto.

Thank You.

Shri Vinod L Chavda

Hon'ble Member of Parliament
Kutch-Morbi Constituency, Gujarat
17 June 2021

Thank you for sending your forecast. I am impressed that you have accurately forecast the growth in the last month. We will prepare for the scenario you have outlined for the next month.

Regards,

Shri T M Vijay Bhaskar IAS
Chief Secretary
Government of Karnataka
19 August 2020

**Amidst of OMICRON, India's COVID situation is likely to improve
NO ROOM for Complacency, robust Surveillance is critical to sustain**



3rd Wave: Zonewise: COVID Cases Growth Projection: 11 Dec - 10 Jan 2022 (+/- 2%)														
State	Vaccination Status			11-09-2021 (Actual Caseload)	Projected Caseload (10 Oct)	Actual Caseload (10 Oct)	%ge Actual of Projected	Projected Caseload (10 Nov)	Actual Caseload (10 Oct)	%ge Actual of Projected	Projected Caseload (10 Nov)	Actual Caseload (10 Dec)	%ge Actual of Projected	Projected Caseload (10 Jan)
	1st Dose (Cr)	2nd Dose (Cr)	Total Doses (Cr)											
Mega States	42.1	26.7	68.8	23399937	24441300	24083462	99	24451350	24448598	100	24753150	24707796	100	24905240
EAG States	36.1	24.2	60.3	7487296	7522180	7517145	100	7545400	7530086	100	7549920	7555713	100	7572300
NE States + Goa	0.9	0.7	1.6	636519	694075	689637	99	740350	717251	97	741140	732240	99	743100
Union Territories	0.5	0.4	0.9	238975	242645	241857	100	243080	243433	100	244985	245377	100	247050
Delhi	1.4	0.9	2.3	1438154	1439250	1439195	100	1440100	1440176	100	1441550	1441610	100	1443310
Total	80.9	52.8	133.7	33200881	34339450	33971296	99	34420280	34379544	100	34730745	34682736	100	34911000

3rd Wave: Zonewise: COVID Mortality Growth Projection: 11 Dec - 10 Jan 2022 (+/- 2%)														
State	Vaccination Status			11-09-2021 (Actual Deaths)	Projected Deaths (10 Oct)	Actual Deaths (10 Oct)	%ge Actual of Projected	Projected Deaths (10 Nov)	Actual Deaths (10 Oct)	%ge Actual of Projected	Projected Deaths (10 Dec)	Actual Deaths (10 Dec)	%ge Actual of Projected	Projected Deaths (10 Jan)
	Total Doses (Cr)	Full Dose (Cr)	Atleast 1 Dose (Cr)											
Mega States	42.1	26.7	68.8	313616	321126	321163	100	325287	325711	100	328590	328986	100	331000
EAG States	36.1	24.2	60.3	91942	92277	92363	100	92708	92603	100	92877	92770	100	92921
NE States + Goa	0.9	0.7	1.6	8682	9010	9141	101	9538	9412	99	9665	9668	100	9843
Union Territories	0.5	0.4	0.9	3027	3053	3058	100	3082	3076	100	3097	3096	100	3096
Delhi	1.4	0.9	2.3	25083	25083	25089	100	25093	25091	100	25091	25100	100	25110
Total	80.9	52.8	133.7	442350	450549	450814	100	455708	455893	100	459320	459620	100	461970
Reconciled Death Toll: Kerala 12826 and Bihar 2426												15252		
Commulative COVID Deaths in India including reconciled Deaths												474872		

India is expected to officially report ~ 0.22 Mn New COVID cases, and deaths ~ 2.3K new COVID deaths

UNDER-REPORTING is relatively high in November when compared with previous 2 months. For more details, refer Annexure 1

Mega States are expected to contribute ~ 0.22 Mn new COVID Cases, 90% of total projected new cases in India



- Kerala is expected to add ~ 100K new COVID Cases, 45% of India's total estimated new cases.
- Maharashtra, Tamil Nadu, and West Bengal are expected to add ~22 – 28K new COVID Cases
- Karnataka and Telangana are expected to add 7-8K new Cases

3rd Wave: Mega States: COVID Cases Growth Projection: 11 Dec - 10 Jan 2022 (+/- 2%)														
State	Vaccination Status			11-09-2021 (Actual Caseload)	Projected Caseload (10 Oct)	Actual Caseload (10 Oct)	%ge Actual of Projected	Projected Caseload (10 Nov)	Actual Caseload (10 Nov)	%ge Actual of Projected	Projected Caseload (10 Dec)	Actual Caseload (10 Dec)	%ge Actual of Projected	Projected Caseload (10 Jan)
	1st Dose (Cr)	2nd Dose (Cr)	Total Doses (Cr)											
Andhra Pradesh	3.7	2.7	6.4	2027650	2080000	2057252	99	2080000	2068718	99	2078600	2074552	100	2080000
Gujarat	4.6	3.8	8.4	825584	826150	826141	100	826750	826784	100	827750	828006	100	829900
Haryana	1.9	1.1	3.0	770626	771000	770993	100	771300	771355	100	771700	771966	100	772900
Himachal Pradesh	0.6	0.5	1.1	215437	220700	220479	100	223900	225165	101	228675	227859	100	229475
Jammu & Kashmir	0.96	0.8	1.7	326653	330250	330533	100	333000	333325	100	333325	338563	102	338565
Karnataka	4.6	3.3	7.9	2960131	2985000	2981027	100	2990000	2990528	100	3000000	2999785	100	3008600
Kerala	2.6	1.9	4.5	4334704	5100000	4794800	94	5000000	5027318	101	5225300	5187033	99	5286000
Maharashtra	7.7	4.5	12.2	6491179	6600000	6577872	100	6635000	6619329	100	6646300	6642372	100	6670000
Punjab	1.7	0.8	2.5	600970	602000	601876	100	602800	602618	100	603600	603674	100	605200
Tamil Nadu	4.7	2.8	7.5	2630592	2680000	2678265	100	2713300	2710756	100	2734400	2734034	100	2755800
Telangana	2.6	1.4	4.0	661006	668200	667887	100	672300	672823	100	676900	677954	100	685400
West Bengal	6.4	3.2	9.6	1555405	1578000	1576337	100	1603000	1599879	100	1626600	1621998	100	1643400
Mega States	42.1	26.7	68.8	23399937	24441300	24083462	99	24451350	24448598	100	24753150	24707796	100	24905240

UNDER-REPORTING: Insurance Claim (NON-Government) for COVID Treatment in Gujarat, Telangana, Tamil Nadu, Karnataka, and Maharashtra are abnormally high

Unfortunately, Mega States are expected to contribute ~ 2K new COVID Deaths, 90% of total projected new cases in India

Unfortunately,

- Kerala is expected to witness ~ 750 new COVID deaths, 1/3rd of India's total estimated new death.
- Maharashtra, Tamil Nadu, and West Bengal are expected to witness ~300 new COVID deaths
- Karnataka is expected to report less than 100 new COVID deaths

3rd Wave: Mega States: COVID Mortality Growth Projection: 11 Dec - 10 Jan 2022 (+/- 2%)														
State	Vaccination Status			11-09-2021 (Actual Deaths)	Projected Deaths (10 Oct)	Actual Deaths (10 Oct)	%ge Actual of Projected	Projected Deaths (10 Nov)	Actual Deaths (10 Oct)	%ge Actual of Projected	Projected Deaths (10 Nov)	Actual Deaths (10 Dec)	%ge Actual of Projected	Projected Deaths (10 Jan)
	1st Dose (Cr)	2nd Dose (Cr)	Total Doses (Cr)											
Andhra Pradesh	3.7	2.7	6.4	13970	14225	14254	100	14380	14398	100	14500	14462	100	14500
Gujarat	4.6	3.8	8.4	10082	10085	10086	100	10086	10090	100	10090	10098	100	10130
Haryana	1.9	1.1	3.0	9686	9710	9875	102	9905	10050	101	10050	10055	100	10055
Himachal Pradesh	0.6	0.5	1.1	3614	3700	3688	100	3750	3738	100	3885	3859	99	3900
Jammu & Kashmir	0.96	0.8	1.7	4411	4411	4426	100	4426	4445	100	4445	4490	101	4490
Karnataka	4.6	3.3	7.9	37472	37700	37885	100	38075	38123	100	38300	38255	100	38350
Kerala	2.6	1.9	4.5	22303	27250	26258	96	28350	28412	100	29600	29753	101	30500
Maharashtra	7.7	4.5	12.2	138061	139200	139542	100	140450	140430	100	140950	141223	100	141600
Punjab	1.7	0.8	2.5	16453	16500	16531	100	16590	16566	100	16600	16617	100	16680
Tamil Nadu	4.7	2.8	7.5	35119	35600	35783	101	36140	36238	100	36570	36586	100	36900
Telangana	2.6	1.4	4.0	3892	3920	3930	100	3960	3969	100	4000	4004	100	4030
West Bengal	6.4	3.2	9.6	18553	18825	18905	100	19175	19252	100	19600	19584	100	19865
Total	42.1	26.7	68.8	313616	321126	321163	100	325287	325711	100	328590	328986	100	331000

Estimated UNDER-Reporting of COVID Deaths in Mega States in November: ~ 3400
Gujarat (~500), Telangana (~1600), Haryana (~100), Tamil Nadu (~700), Karnataka (~180), and Maharashtra (350)

EAG States which have population of ~ 675 Mn is expected to add less than 20K New COVID Cases!



- Assam (~4700 cases) and Odisha (~7500 cases) are expected to contribute ~ 75% of total estimated new COVID cases in EAG States
- Jharkhand, Uttar Pradesh, Madhya Pradesh, Bihar, and Uttarakhand are expected to add less than 500 New COVID cases each

3rd Wave: EAG States: COVID Cases Growth Projection: 11 Dec - 10 Jan 2022 (+/- 2%)														
State	Vaccination Status			11-09-2021 (Actual Caseload)	Projected Caseload (10 Oct)	Actual Caseload (10 Oct)	%ge Actual of Projected	Projected Caseload (10 Nov)	Actual Caseload (10 Oct)	%ge Actual of Projected	Projected Caseload (10 Nov)	Actual Caseload (10 Dec)	%ge Actual of Projected	Projected Caseload (10 Jan)
	1st Dose (Crs)	2nd Dose (Crs)	Total Doses (Crs)											
Assam	2.2	1.3	3.5	594347	604500	604969	100	611000	612798	100	619550	618329	100	623000
Bihar	5.6	3.3	8.9	725806	726200	725996	100	726200	716451	99	716570	726288	101	726700
Chattisgarh	1.7	1.05	2.75	1004820	1005500	1005530	100	1006100	1006220	100	1006800	1007147	100	1008400
Jharkhand	1.7	0.9	2.6	348055	349000	348352	100	348800	348933	100	349500	349402	100	349900
Madhya Pradesh	5.2	4.2	9.4	792311	792550	792621	100	792850	792919	100	793150	793322	100	793800
Odisha	2.8	4.2	7	1015083	1036500	1031696	100	1051500	1044112	99	1055000	1051241	100	1058700
Rajasthan	4.4	2.9	7.3	954175	954400	954359	100	954450	954465	100	954500	955046	100	956000
Uttar Pradesh	11.8	5.8	17.6	1709512	1709750	1709954	100	1710500	1710222	100	1710550	1710517	100	1711000
Uttarakhand	0.7	0.5	1.2	343187	343780	343668	100	344000	343966	100	344300	344421	100	344800
Total	36.1	24.15	60.25	7487296	7522180	7517145	100	7545400	7530086	100	7549920	7555713	100	7572300

UNDER-REPORTING: Insurance Claim (NON-Government) for COVID Treatment in EAG States is relatively lower than Mega states, pleasant surprise

EAG States which have population of ~ 675 Mn is expected to reported ~ 150 New COVID Deaths!

Unfortunately,

- Assam (~50) and Odisha (~70) is expected to report ~ 75% of total estimated new COVID deaths in EAG States
- Bihar, Chattisgarh, Jharkhand, Madhya Pradesh, Rajasthan, Uttarakhand are expected to report **ZERO** COVID Deaths.

3rd Wave: EAG States: COVID Mortality Growth Projection: 11 Dec - 10 Jan 2022 (+/- 2%)														
EAG States	Vaccination Status			11-09-2021 (Actual Deaths)	Projected Deaths (10 Oct)	Actual Deaths (10 Oct)	%ge Actual of Projected	Projected Deaths (10 Nov)	Actual Deaths (10 Oct)	%ge Actual of Projected	Projected Deaths (10 Nov)	Actual Deaths (10 Dec)	%ge Actual of Projected	Projected Deaths (10 Jan)
	Total Doses (Cr)	Full Dose (Cr)	Atleast 1 Dose (Cr)											
Assam	2.2	1.3	3.5	5732	5825	5926	102	6050	6034	100	6100	6130	100	6180
Bihar	5.6	3.3	8.9	9658	9690	9661	100	9661	9661	100	9661	9664	100	9664
Chattisgarh	1.7	1.05	2.75	13558	13558	13570	100	13570	13586	100	13615	13594	100	13594
Jharkhand	1.7	0.9	2.6	5133	5133	5135	100	5135	5138	100	5138	5141	100	5141
Madhya Pradesh	5.2	4.2	9.4	10517	10517	10523	100	10523	10524	100	10524	10529	100	10529
Odisha	2.8	4.2	7	8137	8300	8302	100	8465	8401	99	8535	8431	99	8500
Rajasthan	4.4	2.9	7.3	8954	8954	8954	100	8954	8954	100	8954	8956	100	8956
Uttar Pradesh	11.8	5.8	17.6	22864	22890	22896	100	22925	22903	100	22925	22913	100	22945
Uttarakhand	0.7	0.5	1.2	7389	7410	7396	100	7425	7402	100	7425	7412	100	7412
Total	36.1	24.15	60.25	91942	92277	92363	100	92708	92603	100	92877	92770	100	92921

- Estimated UNDER-Reporting of COVID Deaths in EAG States in November: 1450
- Rajasthan: 200, Madhya Pradesh 500, Uttar Pradesh 540, Odisha 100, Jharkhand 40, Uttarakhand 30, and Chattisgarh 40

North East States: Projected COVID Cases and Deaths



3rd Wave: North-East States: COVID Cases Growth Projection: 11 Dec - 10 Jan 2022 (+/- 2%)														
State	Vaccination Status			11-09-2021 (Actual Caseload)	Projected Caseload (10 Oct)	Actual Caseload (10 Oct)	%ge Actual of Projected	Projected Caseload (10 Nov)	Actual Caseload (10 Nov)	%ge Actual of Projected	Projected Caseload (10 Nov)	Actual Caseload (10 Dec)	%ge Actual of Projected	Projected Caseload (10 Jan)
	1st Dose (Crs)	2nd Dose (Crs)	Total Doses (Crs)											
Arunachal Pradesh	0.08	0.06	0.14	53663	55100	54900	100	55400	55197	100	55340	55304	100	55400
Manipur	0.12	0.09	0.21	116607	122600	122003	100	127000	124250	98	126100	125478	100	126400
Meghalaya	0.1	0.08	0.18	77877	82400	82423	100	84300	83914	100	84725	84664	100	85225
Mizoram	0.07	0.06	0.13	69026	108700	105829	97	145450	126917	87	146000	137952	94	145000
Nagaland	0.07	0.05	0.12	30555	31500	31449	100	31900	31960	100	32200	32146	100	32225
Sikkim	0.05	0.05	0.1	30501	31700	31667	100	32150	32058	100	32450	32417	100	33225
Tripura	0.25	0.2	0.45	83520	84850	84253	99	84800	84588	100	85125	84904	100	85150
Total	0.74	0.59	1.33	461749	516850	512524	99	561000	538884	96	561940	552865	98	562625

3rd Wave: North-East States: COVID Mortality Growth Projection: 11 Dec - 10 Jan 2022 (+/- 2%)														
EAG States	Vaccination Status			11-09-2021 (Actual Deaths)	Projected Deaths (10 Oct)	Actual Deaths (10 Oct)	%ge Actual of Projected	Projected Deaths (10 Nov)	Actual Deaths (10 Oct)	%ge Actual of Projected	Projected Deaths (10 Nov)	Actual Deaths (10 Dec)	%ge Actual of Projected	Projected Deaths (10 Jan)
	Total Doses (Crs)	Full Dose (Crs)	Atleast 1 Dose (Crs)											
Arunachal Pradesh	0.08	0.06	0.14	269	290	280	97	280	280	100	280	280	100	280
Manipur	0.12	0.09	0.21	1807	1840	1885	102	1960	1940	99	2000	1987	99	2010
Meghalaya	0.1	0.08	0.18	1346	1475	1421	96	1510	1461	97	1500	1476	98	1510
Mizoram	0.07	0.06	0.13	233	285	354	124	475	456	96	515	513	100	575
Nagaland	0.07	0.05	0.12	634	660	671	102	700	692	99	725	699	96	730
Sikkim	0.05	0.05	0.1	377	405	388	96	388	400	103	400	405	101	405
Tripura	0.25	0.2	0.45	802	825	813	99	845	813	96	845	826	98	826
Total	0.74	0.59	1.33	5468	5780	5812	101	6158	6042	98	6265	6186	99	6336

Union Territories: Projected COVID Cases and Deaths



3rd Wave: Union Territories: COVID Cases Growth Projection: 11 Dec - 10 Jan 2022 (+/- 2%)														
State	Vaccination Status			11-09-2021 (Actual Caseload)	Projected Caseload (10 Oct)	Actual Caseload (10 Oct)	%ge Actual of Projected	Projected Caseload (10 Nov)	Actual Caseload (10 Oct)	%ge Actual of Projected	Projected Caseload (10 Nov)	Actual Caseload (10 Dec)	%ge Actual of Projected	Projected Caseload (10 Jan)
	1st Dose (Cr)	2nd Dose (Cr)	Total Doses (Cr)											
Andaman & Nichobar	0.03	0.03	0.06	7579	7600	7633	100	7665	7665	100	7665	7696	100	7725
Chandigarh	0.09	0.07	0.16	65145	65250	65279	100	65400	65371	100	65460	65618	100	65775
Dadra & Nagar Haveli	0.04	0.02	0.06	10672	10700	10675	100	10675	10682	100	10685	10686	100	10700
Ladakh	0.02	0.01	0.03	20600	20720	20852	101	20940	21087	101	21450	21792	102	22400
Lakshadweep	0.005	0.004	0.009	10350	10375	10365	100	10400	10365	100	10375	10405	100	10450
Puducherry	0.08	0.05	0.13	124629	128000	127053	99	128000	128263	100	129350	129180	100	130000
Total	0.265	0.184	0.449	238975	242645	241857	100	243080	243433	100	244985	245377	100	247050

3rd Wave: North-East States: COVID Mortality Growth Projection: 11 Dec - 10 Jan 2022 (+/- 2%)														
EAG States	Vaccination Status			11-09-2021 (Actual Deaths)	Projected Deaths (10 Oct)	Actual Deaths (10 Oct)	%ge Actual of Projected	Projected Deaths (10 Nov)	Actual Deaths (10 Nov)	%ge Actual of Projected	Projected Deaths (10 Dec)	Actual Deaths (10 Dec)	%ge Actual of Projected	Projected Deaths (10 Jan)
	Total Doses (Cr)	Full Dose (Cr)	Atleast 1 Dose (Cr)											
Puducherry	0.08	0.05	0.13	1820	1845	1846	100	1870	1863	100	1885	1877	100	1877
Ladakh	0.02	0.01	0.03	207	208	208	100	208	209	100	208	215	103	215
Dadra & NH	0.04	0.02	0.06	4	4	4	100	4	4	100	4	4	100	4
Chandigarh	0.09	0.07	0.16	816	816	820	100	820	820	100	820	820	100	820
Lakshadweep	0.005	0.004	0.009	51	51	51	100	51	51	100	51	51	100	51
Andaman & N	0.03	0.03	0.06	129	129	129	100	129	129	100	129	129	100	129
Total	0.3	0.2	0.4	3027	3053	3058	100	3082	3076	100	3097	3096	100	3096

Goa: Projected COVID Cases and Deaths



2nd Wave: Goa: COVID Cases Growth Projection: 11 Dec - 10 Jan 2022 (+/- 5%)														
State	Vaccination Status			11-09-2021 (Actual Caseload)	Projected Caseload (10 Oct)	Actual Caseload (10 Oct)	%ge Actual of Projected	Projected Caseload (10 Nov)	Actual Caseload (10 Oct)	%ge Actual of Projected	Projected Caseload (10 Nov)	Actual Caseload (10 Dec)	%ge Actual of Projected	Projected Caseload (10 Jan)
	1st Dose (Cr)	2nd Dose (Cr)	Total Doses (Cr)											
Goa	0.12	0.1	0.22	174770	177225	177113	100	179350	178367	99	179200	179375	100	180475

3rd Wave: North-East States: COVID Mortality Growth Projection: 11 Nov - 10 Jan 2022 (+/- 2%)														
Goa	Vaccination Status			11-09-2021 (Actual Deaths)	Projected Deaths (10 Oct)	Actual Deaths (10 Oct)	%ge Actual of Projected	Projected Deaths (10 Nov)	Actual Deaths (10 Oct)	%ge Actual of Projected	Projected Deaths (10 Nov)	Actual Deaths (10 Dec)	%ge Actual of Projected	Projected Deaths (10 Jan)
	Total Doses (Cr)	Full Dose (Cr)	Atleast 1 Dose (Cr)											
Goa	0.12	0.1	0.22	3214	3230	3329	103	3380	3370	100	3400	3482	102	3507

ANNEXURE: 1

COVID 19: Analysis of Statewise Insurance Claim (Non-Government) against total COVID cases and Deaths: October 2021

Health Insurance Claim (Non-Government) for COVID Treatment Analysis for the Month of October

Analysis of Reported COVID Cases and Insurance Claims (Non-Government) in Nov 21					
Zone	State	COVID Cases Reported in Nov 21	Insurance Claims for COVID Treatment (Non-Govt) in Nov 21	%	Estimated Number of COVID Deaths Under-Reported Deaths
EAG State	Uttar Pradesh	241	1484	616	9000
Mega State	Telangana	4531	20794	459	69000
EAG State	Madhya Pradesh	316	677	214	4500
Mega State	Haryana	457	822	180	2700
EAG State	Rajasthan	356	537	151	3600
Mega State	Gujarat	898	894	100	3000
Mega State	Tamil Nadu	24294	17843	73	60000
Mega State	Karnataka	7815	4935	63	16500
Mega State	Maharashtra	24580	10546	43	35000
EAG State	Jharkhand	480	147	31	
Mega State	Punjab	878	155	18	
EAG State	Chattisgarh	761	78	10	
Mega State	West Bengal	23175	2109	9	
EAG State	Odisha	7651	659	9	
EAG State	Assam	6207	444	7	
Mega State	Kerala	173157	4775	3	
Mega State	Himachal Pradesh	3089	12	0	
EAG State	Uttarakhand	1366503	67	0	
Pan India	Pan India	1645389	43534	3	203300
Delhi	Delhi	1064	-1343		
Mega State	Andhra Pradesh	6459	-19806		Reconciliation
EAG State	Bihar	125	-2512		

Analysis of Insurance Claim (Non-Government) for COVID Deaths: November

Analysis of Reported COVID Deaths and Insurance Claims (Non-Government) in Nov 21					
Zone	State	Deaths Reported in Nov 21	Insurance Claim in Nov 21	%	Estimated Number of COVID Deaths Under-Reported Deaths
Mega State	Gujarat	3	148	4933	490
EAG State	Rajasthan	1	30	3000	200
EAG State	Madhya Pradesh	4	68	1700	500
Mega State	Telangana	36	488	1356	1600
EAG State	Uttar Pradesh	11	82	745	540
Mega State	Haryana	5	33	660	100
Delhi	Delhi	7	36	514	110
EAG State	Jharkhand	2	6	300	40
Mega State	Tamil Nadu	365	319	87	700
EAG State	Odisha	25	19	76	100
EAG State	Uttarakhand	8	6	75	30
Micro State	Meghalaya	23	17	74	300
Mega State	Karnataka	129	94	73	180
Mega State	Maharashtra	781	558	71	350
EAG State	Chattisgarh	16	8	50	40
Mega State	Punjab	43	17	40	
Mega State	West Bengal	345	128	37	
Mega State	Kerala	1405	60	1	
EAG State	Assam	106	0	0	
Mega State	Himachal Pradesh	110	0	0	
Pan India	Pan India	3425	2117	62	5280

Mega State	Andhra Pradesh	69	-365	Reconciliation
EAG State	Bihar	2	-27	
Mega State	Jammu & Kashmir	-4432	0	

ANNEXURE: 2
COVID 19: WAVE 1: Projection and Actuals: Snapshot (August 2020 – January 2021)

COVID 19: Wave 1: Zonewise Projections and Actuals: Positive Cases and Deaths

30-Day COVID Cases Growth Projection																
Consolidated	16-Aug	12-Sep		%ge Actual of Projected	12-Oct		%ge Actual of Projected	12-Nov		%ge Actual of Projected	12-Dec		%ge Actual of Projected	12-Jan		%ge Actual of Projected
	Actuals	Projection	Actual		Projections	Actuals		Projections	Actuals		Projections	Actuals		Projections	Actuals	
Mega States	1852408	3245361	3279953	101	5229600	5002180	96	6503100	6025325	93	6800000	6712696	99	7235000	7155680	99
EAG States	538721	1146000	1065505	93	1765000	1681197	95	2115400	2027541	96	2315000	2306290	100	2523000	2465664	98
Micro States	32020	61400	66477	108	124700	113834	91	144100	142017	99	164100	159616	97	172600	166739	97
Union Territories	15424	34200	35722	104	59200	57342	97	72400	66713	92	76900	73308	95	78400	76841	98
Delhi	151928	185000	209748	113	330000	311188	94	400000	467028	117	675000	605470	90	660000	630892	96
Total	2590501	4671961	4657405	100	7508500	7165741	95	9235000	8728624	95	10031000	9857380	98	10669000	10495816	98

30-Day COVID Mortality Projection																
Consolidated	16-Aug	12-Sep		%ge Actual of Projected	12-Oct		%ge Actual of Projected	12-Nov		%ge og Actual of Projected	12-Dec		%ge og Actual of Projected	12-Jan		%ge og Actual of Projected
	Actuals	Projection	Actual		Projections	Actuals		Projections	Actual		Projections	Actual		Projections	Actual	
Mega States	39610	68268	61242	90	91525	85942	94	103605	98276	95	107500	106620	99	114500	112191	98
EAG States	5946	11325	10503	93	16950	16468	97	21480	20597	96	23500	23617	100	25785	25587	99
Micro States	185	345	555	161	1067	1076	101	1665	1501	90	1822	1772	97	2040	1920	94
Union Territories	170	389	539	139	1008	878	87	1110	1003	90	1128	1105	98	1275	1159	91
Delhi	4188	4700	4687	100	5500	5809	106	7000	7332	105	10300	9981	97	11500	10707	93
Total	50099	85027	77526	91	116050	110173	95	134860	128709	95	144250	143095	99	155100	151564	98

COVID 19: Wave 1: Mega States: Projections and Actuals: Positive Cases & Deaths



Mega States	16-Aug	12-Sep		%ge Actual of Projected	12-Oct		%ge og Actual of Projected	12-Nov		%ge og Actual of Projected	12-Dec		%ge og Actual of Projected	12-Jan		%ge og Actual of Projected
	Actuals	Projecti on	Actual		Projecti on	Actual		Projecti ons	Actual		Projecti ons	Actual		Projecti ons	Actual	
Andhra Pradesh	281817	580000	547686	94	875000	758951	87	900000	849705	94	900000	875025	97	890000	885234	99
Gujarat	77663	100000	110971	111	150000	152764	102	190000	184964	97	220000	226508	103	255000	253161	99
Haryana	46410	60000	88332	147	160000	143221	90	170000	193111	114	280000	251402	90	280000	265391	95
Himachal Pradesh	3993	7000	8784	125	17000	17578	103	25000	28183	113	50000	48951	98	70000	56596	81
Jammu & Kashmir	28021	50000	50712	101	100000	84031	84	100000	100968	101	120000	115626	96	125000	122764	98
Karnataka	219926	450000	440411	98	700000	717915	103	1000000	855912	86	925000	900214	97	930000	928806	100
Kerala	42885	90000	102255	114	200000	295133	148	660000	508257	77	660000	664633	101	785000	819766	104
Maharashtra	584754	1000000	1015681	102	1750000	1535315	88	1875000	1736329	93	1850000	1876699	101	1975000	1974488	100
Punjab	30041	62000	74616	120	150000	124535	83	150000	139869	93	160000	159579	100	175000	169479	97
Tamil Nadu	332105	520000	491571	95	675000	661264	98	820000	752521	92	810000	797693	98	825000	827614	100
Telangana	91361	91361	152602	NA	152600	213084	NA	213100	254666	120	290000	277151	96	295000	290309	98
West Bengal	113432	235000	196332	84	300000	298389	99	400000	420840	105	535000	519215	97	630000	562072	89
Total	1852408	3245361	3279953	101	5229600	5002180	96	6503100	6025325	93	6800000	6712696	99	7235000	7155680	99

Mega States	16-Aug	12-Sep		%ge Actual of Projected	12-Oct		%ge og Actual of Projected	12-Nov		%ge og Actual of Projected	12-Dec		%ge og Actual of Projected	12-Jan		%ge og Actual of Projected
	Actuals	Projecti on	Actual		Projecti on	Actuals		Projecti ons	Actual		Projecti ons	Actual		Projecti ons	Actual	
Andhra Pradesh	2562	6250	4779	76	7000	6256	89	7000	6837	98	7150	7052	99	7125	7133	100
Gujarat	2765	3000	3181	106	3600	3577	99	3900	3785	97	3950	4160	105	5500	4350	79
Haryana	528	700	932	133	1800	1592	88	2000	1979	99	2450	2710	111	3200	2964	93
Himachal Pradesh	18	25	70	280	175	246	141	375	405	108	650	793	122	1190	949	80
Jammu & Kashmir	527	1500	854	57	1300	1333	103	1700	1566	92	1800	1793	100	2060	1912	93
Karnataka	3832	6700	7067	105	11200	10314	92	12800	11474	90	12000	11939	99	12200	12149	100
Kerala	147	400	411	103	800	1026	128	2000	1797	90	2600	2595	100	3350	3348	100
Maharashtra	19749	31000	28724	93	44000	40514	92	48000	45682	95	49000	48139	98	50000	50151	100
Punjab	771	4000	2212	55	4800	3860	80	4800	4412	92	5200	5057	97	5800	5456	94
Tamil Nadu	5641	9000	8234	91	10500	10314	98	12200	11440	94	12150	11883	98	12200	12236	100
Telangana	693	693	950	137	950	1228	129	1230	1393	113	1550	1489	96	1525	1568	103
West Bengal	2377	5000	3828	77	5400	5682	105	7600	7506	99	9000	9010	100	10350	9975	96
Total	39610	68268	61242	90	91525	85942	94	103605	98276	95	107500	106620	99	114500	112191	98

COVID 19: Wave 1: EAG States: Projections and Actuals: Positive Cases & Deaths



EAG States	16-Aug	12-Sep		%ge Actual of Projected	12-Oct		%ge og Actual of Projected	12-Nov		%ge og Actual of Projected	12-Dec		%ge og Actual of Projected	12-Jan		%ge og Actual of Projected
	Actuals	Projectio n	Actual		Projectio n	Actuals		Projectio ns	Actual		Projectio ns	Actual		Projectio ns	Actual	
Assam	75559	165000	138339	84	215000	195304	NA	195400	209835	107	215000	214584	100	220000	216690	98
Bihar	101906	225000	155445	69	200000	197000	99	230000	225500	98	245000	242748	99	260000	257335	99
Chattisgarh	15045	25000	58643	235	145000	145247	100	225000	207740	92	265000	255761	97	300000	290813	97
Jharkhand	22672	50000	59040	118	110000	93035	85	115000	105493	92	112000	111366	99	115000	117088	102
Madhya Pradesh	44433	75000	83619	111	145000	148298	102	200000	180997	90	210000	222397	106	250000	249553	100
Odisha	57126	120000	143117	119	250000	254662	102	335000	305986	91	335000	323364	97	333000	332331	100
Rajasthan	59979	100000	99036	99	150000	161184	107	225000	219327	97	285000	289999	102	325000	313718	97
Uttar Pradesh	150061	365000	299045	82	500000	439161	88	520000	505424	97	565000	564132	100	610000	594175	97
Uttarakhand	11940	21000	29221	139	50000	47306	95	70000	67239	96	83000	81939	99	110000	93961	85
Total	538721	1146000	1065505	93	1765000	1681197	95	2115400	2027541	96	2315000	2306290	100	2523000	2465664	98

EAG States	16-Aug	12-Sep		%ge Actual of Projected	12-Oct		%ge og Actual of Projected	12-Nov		%ge og Actual of Projected	12-Dec		%ge og Actual of Projected	12-Jan		%ge og Actual of Projected
	Actuals	Projecti on	Actual		Projecti on	Actuals		Projecti ons	Actual		Projecti ons	Actual		Projecti ons	Actual	
Assam	182	400	430	108	900	826	NA	830	958	115	1050	1000	95	1030	1064	103
Bihar	515	1100	797	72	1100	955	87	1100	1167	106	1350	1317	98	1440	1443	100
Chattisgarh	134	525	518	99	1600	1286	80	2350	2527	108	3100	3084	99	3500	3517	100
Jharkhand	229	500	532	106	900	798	89	1000	917	92	1000	995	100	1030	1048	102
Madhya Pradesh	1094	1500	1691	113	2500	2645	106	3600	3065	85	3350	3391	101	3630	3726	103
Odisha	386	800	658	82	1000	1093	109	1500	1536	102	2000	1855	93	1975	1947	99
Rajasthan	862	1200	1207	101	1650	1665	101	2150	2032	95	2400	2568	107	2930	2739	93
Uttar Pradesh	2393	5000	4282	86	6600	6438	98	7700	7302	95	8000	8056	101	8650	8514	98
Uttarakhand	151	300	388	129	700	762	109	1250	1093	87	1250	1351	108	1600	1589	99
Total	5946	11325	10503	93	16950	16468	97	21480	20597	96	23500	23617	100	25785	25587	99

COVID 19: Wave 1: Micro States: Projections and Actuals: Positive Cases & Deaths



Micro States	16-Aug Actuals	12-Sep		%ge Actual of Projected	12-Oct		%ge og Actual of Projected	12-Nov		%ge og Actual of Projected	12-Dec		%ge og Actual of Projected	12-Dec		%ge og Actual of Projected
		Projectio n	Actual		Projectio n	Actual		Projectio ns	Actual		Projectio ns	Actual		Projectio ns	Actual	
Arunachal Pradesh	2658	4500	5825	129	11000	12367	112	19000	15701	83	17700	16504	93	16900	16782	99
Goa	11339	23500	23445	100	45000	38674	86	51000	45605	89	50000	49305	99	51500	51983	101
Manipur	4390	7500	7579	101	11000	13556	123	20000	21211	106	29000	27036	93	31500	28725	91
Meghalaya	1292	2250	3447	153	6000	7771	130	12400	10512	85	13300	12743	96	15000	13651	91
Mizoram	777	1600	1379	86	3700	2184	59	2600	3242	125	4300	4024	94	4200	4299	102
Nagaland	3340	7000	4946	71	10000	7240	72	9500	9615	101	10300	11676	113	14000	11997	86
Sikkim	1148	2000	2026	101	3000	3367	112	4600	4369	95	5500	5316	97	6000	5996	100
Tripura	7076	12200	17830	146	35000	28675	82	25000	31762	127	34000	33012	97	33500	33306	99
Total	32020	60550	66477	110	124700	113834	91	144100	142017	99	164100	159616	97	172600	166739	97

Micro States	16-Aug Actuals	12-Sep		%ge Actual of Projected	12-Oct		%ge og Actual of Projected	12-Nov		%ge og Actual of Projected	12-Dec		%ge og Actual of Projected	12-Jan		%ge og Actual of Projected
		Projectio n	Actual		Projectio n	Actual		Projectio ns	Actual		Projectio ns	Actual		Projectio ns	Actual	
Goa	98	240	276	115	525	511	97	750	656	87	800	705	88	730	749	103
Tripura	55	60	182	303	375	314	84	400	356	89	400	372	93	400	385	96
Manipur	13	20	44	220	100	93	93	150	207	138	300	322	107	415	365	88
Nagaland	7	9	8	89	10	13	130	40	50	125	60	68	113	100	84	84
Arunachal Pradesh	5	7	10	143	12	24	200	85	47	55	60	55	92	80	56	70
Meghalaya	6	7	24	343	30	64	213	90	98	109	100	125	125	155	143	92
Sikkim	1	1	11	1100	15	57	380	150	85	57	100	118	118	150	129	86
Mizoram	0	1	0	0	0	0	0	0	2	#DIV/0!	2	7	350	10	9	90
Total	185	345	555	161	1067	1076	101	1665	1501	90	1822	1772	97	2040	1920	94

COVID 19: Wave 1: Union Territories: Projections and Actuals: Positive Cases and Deaths



Union Territories	16-Aug	12-Sep		%ge Actual of Projected	12-Oct		%ge og Actual of Projected	12-Nov		%ge og Actual of Projected	12-Dec		%ge og Actual of Projected	12-Jan		%ge og Actual of Projected
	Actuals	Projectio n	Actual		Projectio n	Actual		Projectio ns	Actual		Projectio ns	Actual		Projectio ns	Actual	
Andaman & Nichobar	2306	6500	3494	54	4500	4023	89	4400	4507	102	5000	4805	96	5000	4966	99
Chandigarh	2009	3500	7292	208	17000	13264	78	15500	15543	100	18500	18572	100	20000	20378	102
Dadra & Nagar Haveli	1846	3200	2682	84	3500	3167	90	3500	3273	94	4400	3349	76	5400	3368	62
Ladakh	1909	3000	3228	108	4200	5151	123	7000	7211	103	10000	9138	91	10000	9634	96
Puducherry	7354	18000	19026	106	30000	31737	106	42000	36179	86	39000	37444	96	38000	38495	101
Total	15424	34200	35722	104	59200	57342	97	72400	66713	92	76900	73308	95	78400	76841	98

Union Territories	16-Aug	12-Sep		%ge Actual of Projected	12-Oct		%ge Actual of Projected	12-Nov		%ge Actual of Projected	12-Dec		%ge Actual of Projected	12-Jan		%ge Actual of Projected
	Actuals	Projectio n	Actual		Projectio n	Actual		Projectio ns	Actual		Projectio ns	Actual		Projectio ns	Actual	
Puducherry	106	270	365	135	750	565	75	650	607	93	650	619	95	650	639	98
Ladakh	10	15	38	253	45	64	142	90	89	99	100	123	123	150	128	85
Dadra & Nagar Haveli	2	4	2	50	3	2	67	30	2	7	3	2	67	25	2	8
Chandigarh	28	50	83	166	150	192	128	250	244	98	300	300	100	360	328	91
Andaman & Nichobar	24	50	51	102	60	55	92	90	61	68	75	61	81	90	62	69
Total	170	389	539	139	1008	878	87	1110	1003	90	1128	1105	98	1275	1159	91

ANNEXURE: 3
COVID 19: WAVE 2: Projection and Actuals: Snapshot (April 2021 – September 2021)

COVID 19: Wave 2: Zonewise Projections and Actuals: Positive Cases and Deaths

2nd Wave: Zonewise: COVID Cases Growth Projection: 11 April - 10 September 2021 (+/- 5%)																
Zones	11-Apr	11 May (Projection)	Actuals (10 May)	%ge Actual of Projected	June 10 (Projection)	Actual (10 Jun)	%ge Actual of Projected	Projection (Jul 10)	Actual (10 July)	%ge Actual of Projected	Projection (Aug 10)	Actual (10 Aug)	%ge Actual of Projected	Projection (Sep 10)	Actual (10 Sep)	%ge Actual of Projected
Mega States	9585959	12094000	15505145	128	20915000	20118020	96	21828000	21363256	98	22351500	22347007	100	23034650	23399937	102
EAG States	2938546	3963500	5829820	147	8295000	7108791	86	7465000	7328353	98	7489000	7438326	99	7485000	7487296	100
Micro States	117804	121700	148467	122	198500	243946	123	501000	480693	96	590250	580582	98	648850	636519	98
Union Territories	94770	115600	157010	136	231000	218805	95	239000	228930	96	234125	232633	99	235685	238975	101
Delhi	725197	1000000	1336218	134	1636218	1430433	87	1438000	1435030	100	1437300	1436852	100	1438250	1438154	100
Total	13462276	17294800	22976660	133	31275718	29119995	93	31471000	30836262	98	32102175	32035400	100	32842435	33200881	101

2nd Wave: Zonewise: COVID Mortality Growth Projection: 11 April- 10 September 2021 (+/- 5%)																
Zones	11-Apr	11-May	Actuals (10 May)	%ge Actual of Projected	June 10 (Projection)	Actual	%ge Actual of Projected	Jul 10 (Projection)	Actual (10 Jul)	%ge Actual of Projected	Aug 10 (Projection)	Actual (10 Aug)	%ge Actual of Projected	Sep 10 (Projection)	Actual (10 Sep)	%ge Actual of Projected
Mega States	126738	139250	172342	124	236700	248928	105	278250	287403	103	314095	303031	96	311015	313616	101
EAG States	28841	34875	54048	155	85450	80647	94	86250	85612	99	89765	89969	100	92115	91942	100
Micro States	1213	1213	1541	127	2580	3148	122	7000	7079	101	8000	8072	101	9005	8682	96
Union Territories	1285	1375	1832	133	2785	2819	101	3000	2966	99	3065	3002	98	3035	3027	100
Delhi	11283	12600	19663	156	27063	24748	91	25500	25012	98	25075	25068	100	25095	25083	100
Total	169360	189313	249426	132	354578	360290	102	400000	408072	102	440000	429142	98	440265	442350	100

COVID 19: Wave 2: Mega States: Projections and Actuals: Positive Cases & Deaths



2nd Wave: Mega States: COVID Cases Growth Projection: 11 April - 10 September 2021 (+/- 5%)																
Mega States	Actual (11 April)	Projection (10 May)	Actual (10 May)	%ge Actual of Projected	Projection (10 June)	Actual (10 June)	%ge Actual of Projected	Projection (10 Jul)	Actual (10 July)	%ge Actual of Projected	Projection (10 Aug)	Actual (10 Aug)	%ge Actual of Projected	Projection (10 Sep)	Actual (10 Sep)	%ge Actual of Projected
Andhra Pradesh	925401	1000000	1302589	130	1775000	1787883	101	2000000	1920178	96	2000000	1985182	99	2025000	2027650	100
Gujarat	347495	480000	692604	144	1000000	818895	82	830000	824200	99	826000	825085	100	825750	825584	100
Haryana	316881	390000	628615	161	1000000	764633	76	780000	769243	99	770000	770114	100	770700	770626	100
Himachal Pradesh	69686	84000	135782	162	250000	197438	79	210000	203563	97	208500	208616	100	220000	215437	98
Jammu & Kashmir	138390	165000	224898	136	325000	304866	94	330000	318469	97	325000	322771	99	325000	326653	101
Karnataka	1065290	1290000	1973683	153	3000000	2739290	91	3000000	2869320	96	2935000	2921049	100	2950000	2960131	100
Kerala	1167191	1300000	1967406	151	2600000	2688590	103	3000000	3053116	102	3530000	3586693	102	4000000	4334704	108
Maharashtra	3407245	4800000	5179929	108	6000000	5876087	98	6150000	6149264	100	6365000	6363442	100	6475000	6491179	100
Punjab	272772	360000	450674	125	700000	584785	84	618000	597469	97	602000	599573	100	601200	600970	100
Tamil Nadu	933434	1100000	1409237	128	2100000	2308838	110	2675000	2516011	94	2600000	2579130	99	2630000	2630592	100
Telangana	327278	405000	506988	125	640000	598611	94	650000	631218	97	650000	650353	100	662000	661006	100
West Bengal	614896	720000	1032740	143	1525000	1448104	95	1585000	1511205	95	1540000	1534999	100	1550000	1555405	100
Total	9585959	12094000	15505145	128	20915000	20118020	96	21828000	21363256	98	22351500	22347007	100	23034650	23399937	102

2nd Wave: Mega States: COVID Mortality Growth Projection: 11 April - 10 September 2021 (+/- 5%)																
Mega States	Actual (11 April)	Projection (10 May)	Actual (10 May)	%ge Actual of Projected	Projection (10 June)	Actual (10 Jun)	%ge Actual of Projected	Projection (10 Jul)	Actual (10 July)	%ge Actual of Projected	Projection (10 Aug)	Actual (10 Aug)	%ge Actual of Projected	Projection (10 Sep)	Actual (10 Sep)	%ge Actual of Projected
Andhra Pradesh	7300	7600	8791	116	10800	11763	109	12675	12986	102	13400	13564	101	13925	13970	100
Gujarat	4800	6100	8511	140	11000	9976	91	10200	10073	99	10100	10077	100	10100	10082	100
Haryana	3268	3600	5766	160	10650	8861	83	9500	9542	100	9800	9652	98	9675	9686	100
Himachal Pradesh	1102	1250	1925	154	3800	3344	88	3600	3474	97	3500	3521	101	3550	3614	102
Jammu & Kashmir	2034	2150	2847	132	4700	4143	88	4575	4356	95	4400	4392	100	4415	4411	100
Karnataka	12889	13600	19372	142	35000	32485	93	35600	35779	101	37275	36848	99	37470	37472	100
Kerala	4784	5200	5959	115	8000	10631	133	15000	14489	97	18770	18004	96	21925	22303	102
Maharashtra	57987	65000	77191	119	92000	103748	113	114000	125528	110	143400	134201	94	136580	138061	101
Punjab	7507	8750	10704	122	17500	15367	88	16600	16177	97	16500	16322	99	16370	16453	101
Tamil Nadu	12908	13450	15880	118	22300	28528	128	34500	33371	97	34700	34367	99	34500	35119	102
Telangana	1759	1900	2803	148	3700	3440	93	3700	3725	101	3850	3831	100	3915	3892	99
West Bengal	10400	10650	12593	118	17250	16642	96	18300	17903	98	18400	18252	99	18590	18553	100
Total	126738	139250	172342	124	236700	248928	105	278250	287403	103	314095	303031	96	311015	313616	101

COVID 19: Wave 1: EAG States: Projections and Actuals: Positive Cases & Deaths



2nd Wave: EAG States: COVID Cases Growth Projection: 11 April - 10 September 2021 (+/- 5%)																
EAG States	Actual (11 April)	Projection (10 May)	Actual (10 May)	%ge Actual of Projected	Projection (10 June)	Actual (10 Jun)	%ge Actual of Projected	Projection (10 Jul)	Actual (10 July)	%ge Actual of Projected	Projection (10 Aug)	Actual (10 Aug)	%ge Actual of Projected	Projection (10 Sep)	Actual (10 Sep)	%ge Actual of Projected
Assam	220310	228500	298171	130	400000	450201	113	550000	532084	97	606000	576149	95	595000	594347	100
Bihar	283229	375000	601650	160	850000	715730	84	730000	723147	99	726000	725279	100	727000	725806	100
Chattisgarh	443297	685000	863343	126	1150000	984950	86	1010000	997785	99	1010000	1003356	99	1006000	1004820	100
Jharkhand	139384	195000	292530	150	440000	342774	78	350000	346279	99	348000	347440	100	349000	348055	100
Madhya Pradesh	338145	485000	681478	141	930000	787175	85	800000	790152	99	791000	791980	100	792350	792311	100
Odisha	349561	375000	544873	145	825000	842461	102	1000000	937470	94	1000000	988997	99	1008000	1015083	101
Rajasthan	363793	480000	773194	161	1300000	948562	73	960000	953074	99	955000	953851	100	954350	954175	100
Uttar Pradesh	692015	1000000	1524767	152	2000000	1701072	85	1715000	1707225	100	1710000	1708812	100	1709900	1709512	100
Uttarakhand	108812	140000	249814	178	400000	335866	84	350000	341137	97	343000	342462	100	343400	343187	100
Total	2938546	3963500	5829820	147	8295000	7108791	86	7465000	7328353	98	7489000	7438326	99	7485000	7487296	100

2nd Wave: EAG States: COVID Mortality Growth Projection: 11 April - 10 September 2021 (+/- 5%)																
EAG States	Actual (11 April)	Projection (10 May)	Actual (10 May)	%ge Actual of Projected	Projection (10 June)	Actual (10 Jun)	%ge Actual of Projected	Projection (11 Jul)	Actual (10 July)	%ge Actual of Projected	Projection (10 Aug)	Actual (10 Aug)	%ge Actual of Projected	Projection (10 Sep)	Actual (10 Sep)	%ge Actual of Projected
Assam	1118	1150	1753	152	4000	3844	96	4700	4812	102	5620	5420	96	5800	5732	99
Bihar	1610	1700	3357	197	5100	9452	185	10375	9618	93	9700	9646	99	9680	9658	100
Chattisgarh	4899	8050	10742	133	15000	13285	89	13500	13475	100	13575	13544	100	13600	13558	100
Jharkhand	1213	1675	3982	238	7300	5081	70	5150	5119	99	5150	5130	100	5135	5133	100
Madhya Pradesh	4184	4750	6501	137	8850	8475	96	9050	9025	100	9100	10514	116	10535	10517	100
Odisha	1979	2000	2250	113	2750	3263	119	4275	4587	107	6460	6618	102	8200	8137	99
Rajasthan	2926	3150	5825	185	9800	8772	90	9100	8945	98	9875	8954	91	8975	8954	100
Uttar Pradesh	9152	10550	15742	149	23000	21597	94	22700	22693	100	22925	22775	99	22800	22864	100
Uttarakhand	1760	1850	3896	211	9650	6878	71	7400	7338	99	7360	7368	100	7390	7389	100
Total	28841	34875	54048	155	85450	80647	94	86250	85612	99	89765	89969	100	92115	91942	100

COVID 19: Wave 1: Union Territories: Projections and Actuals: Positive Cases and Deaths



2nd Wave: EAG States: COVID Cases Growth Projection: 11 April - 10 September 2021 (+/- 5%)																
Union Territories	Actual (11 April)	Projection (10 May)	Actual (10 May)	%ge Actual of Projected	Projection (10 June)	Actual (10 Jun)	%ge Actual of Projected	Projection (10 Jul)	Actual (10 July)	%ge Actual of Projected	Projection (10 Aug)	Actual (10 Aug)	%ge Actual of Projected	Projection (10 Sep)	Actual (10 Sep)	%ge Actual of Projected
Andaman & Nicobar	5190	5600	6398	114	7000	7197	103	7800	7492	96	7525	7548	100	7580	7579	100
Chandigarh	30743	40000	51070	128	80000	60928	76	63000	61823	98	62250	61992	100	62125	65145	105
Dadra & Nagar Haveli	4014	6000	9089	151	11000	10448	95	10700	10587	99	10700	10657	100	10685	10672	100
Ladakh	10780	12000	15429	129	18000	19475	108	21000	20186	96	20750	20407	98	20625	20600	100
Lakshadweep						9073	#DIV/0!	11500	10011	87	10400	10263	99	10420	10350	99
Puducherry	44043	52000	75024	144	115000	111684	97	125000	118831	95	122500	121766	99	124250	124629	100
Total	94770	115600	157010	136	231000	218805	95	239000	228930	96	234125	232633	99	235685	238975	101

2nd Wave: Union Territories: COVID Mortality Growth Projection: 11 April - 10 September 2021 (+/- 5%)																
Union Territories	Actual (11 April)	Projection (10 May)	Actual (10 May)	%ge Actual of Projected	Projection (10 June)	Actual (10 Jun)	%ge Actual of Projected	Projection (10 Jul)	Actual (10 July)	%ge Actual of Projected	Projection (10 Aug)	Actual (10 Aug)	%ge Actual of Projected	Projection (10 Sep)	Actual (10 Sep)	%ge Actual of Projected
Puducherry	691	720	1018	141	1700	1668	98	1760	1769	101	1800	1800	100	1825	1820	100
Ladakh	131	131	157	120	180	197	109	220	206	94	230	207	90	210	207	99
Dadra & Nagar Haveli	2	2	4	200	5	4	80	6	4	67	5	4	80	5	4	80
Chandigarh	399	460	575	125	800	783	98	810	809	100	830	811	98	813	816	100
Lakshadweep						42	#DIV/0!	44	49	111	50	51	102	52	51	98
Andaman & Nicobar	62	62	78	126	100	125	125	160	129	81	150	129	86	130	129	99
Total	1285	1375	1832	133	2785	2819	101	3000	2966	99	3065	3002	98	3035	3027	100

COVID 19: Wave 1: Micro States & Goa: Projections and Actuals: Positive Cases & Deaths



2nd Wave: North-East States: COVID Cases Growth Projection: 11 April - 10 September 2021 (+/- 5%)																
North-East States	Actual (11 April)	Projection (10 May)	Actual (10 May)	%ge Actual of Projected	Projection (10 June)	Actual (10 Jun)	%ge Actual of Projected	Projection (10 Jun)	Actual (10 July)	%ge Actual of Projected	Projection (10 Aug)	Actual (10 Aug)	%ge Actual of Projected	Projection (10 Sep)	Actual (10 Sep)	%ge Actual of Projected
Arunachal Pradesh	16882	17000	20575	121	25000	30492	122	37000	39563	107	56700	50605	89	58500	53663	92
Manipur	29496	29700	35778	120	50000	58081	116	80000	76820	96	106300	105424	99	120000	116607	97
Meghalaya	14274	15000	20129	134	35000	41100	117	58000	54155	93	68300	69769	102	79000	77877	99
Mizoram	4612	5200	7623	147	10500	14743	140	26000	23551	91	41200	45457	110	69600	69026	99
Nagaland	12405	12500	16283	130	21000	23350	111	28000	25898	92	29000	28811	99	31000	30555	99
Sikkim	6405	7400	9924	134	13000	18090	139	25000	22163	89	27750	28018	101	30500	30501	100
Tripura	33730	34900	38155	109	44000	58090	132	75000	69958	93	86000	80413	94	84600	83520	99
Total	117804	121700	148467	122	198500	243946	123	329000	312108	95	415250	408497	98	473200	461749	98

2nd Wave: Goa: COVID Cases Growth Projection: 11 April - 10 September 2021 (+/- 5%)																
Micro States	Actual (11 April)	Projection (10 May)	Actual (10 May)	%ge Actual of Projected	Projection (10 June)	Actual (10 Jun)	%ge Actual of Projected	Projection (10 Jun)	Actual (10 July)	%ge Actual of Projected	Projection (10 Aug)	Actual (10 Aug)	%ge Actual of Projected	Projection (10 Sep)	Actual (10 Sep)	%ge Actual of Projected
Goa	62304	77000	121650	158	190000	161153	85	172000	168585	98	175000	172085	98	175650	174770	99

2nd Wave: North-East States: COVID Mortality Growth Projection: 11 April - 10 September 2021 (+/- 5%)																
North-East States	Actual (11 April)	Projection (10 May)	Actual (10 May)	%ge Actual of Projected	Projection (10 June)	Actual (10 Jun)	%ge Actual of Projected	Projection (10 Jul)	Actual (10 July)	%ge Actual of Projected	Projection (10 Aug)	Actual (10 Aug)	%ge Actual of Projected	Projection (10 Sep)	Actual (10 Sep)	%ge Actual of Projected
Arunachal Pradesh	56	56	68	121	90	133	148	200	188	94	230	248	108	310	269	87
Manipur	376	376	489	130	930	925	99	1050	1258	120	1480	1664	112	1810	1807	100
Meghalaya	151	151	233	154	480	714	149	930	906	97	1160	1185	102	1550	1346	87
Mizoram	11	11	22	200	40	61	153	100	103	103	135	171	127	250	233	93
Nagaland	93	93	150	161	350	441	126	520	507	98	535	585	109	615	634	103
Sikkim	136	136	169	124	250	281	112	300	313	104	345	356	103	390	377	97
Tripura	390	390	410	105	440	593	135	750	709	95	855	768	90	820	802	98
Total	1213	1213	1541	127	2580	3148	122	3850	3984	103	4740	4977	105	5745	5468	95

2nd Wave: Goa: COVID Mortality Growth Projection: 11 August - 10 September 2021 (+/- 5%)																
Goa	Actual (11 April)	Projection (10 May)	Actual (10 May)	%ge Actual of Projected	Projection (10 June)	Actual (10 Jun)	%ge Actual of Projected	Projection (10 Jul)	Actual (10 July)	%ge Actual of Projected	Projection (10 Aug)	Actual (10 Aug)	%ge Actual of Projected	Projection (10 Sep)	Actual (10 Sep)	%ge Actual of Projected
Goa	848	900	1729	192	3125	2891	93	3150	3095	98	3260	3164	97	3260	3164	97

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> / <https://coronavirus.jhu.edu/>
<https://ourworldindata.org/covid-vaccinations>
2. The user of this presentation is advised to revalidate the shared data from authorised public Institutions and make appropriate interpretation and inferences and accordingly draw conclusion

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Thank you