Policy Assist Dashboard (demo)

To enable a data-driven decentralized response to the COVID-19 pandemic

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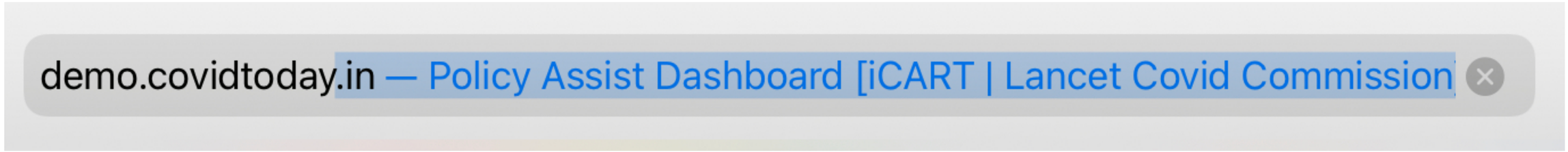


This demonstrator is

- based on the criteria and policy checklist in “Checklist: Containment Strategies for Reducing COVID-19 Cases in India” (by the Lancet COVID-19 Commission India Task Force) and
- built upon data backend systems derived from www.covidtoday.in (by the India COVID-19 Apex Research Team, iCART).

Objectives of this dashboard

To transform the Commission's checklist report into a real-time dashboard for the policymaker at the district level.

Automates the process of

> metrics estimation

> risk categorisation

> policy recommendation

Creates an open and upgradable interface that can be modified as evidence comes in.

How are the Metrics estimated

5 metrics are tracked

- **Daily cases per million**: 7 day moving avg
- **Daily cases growth rate**: evaluates growth rate based on today vs 14 day ago's value of 14-day moving avg of daily cases
- **Test positivity**: 14 day moving avg
- **Daily tests per million**: 14 day moving avg
- **ICU occupancy**: only latest day's data

- *Guidance used: "Track metrics based on preceding 2-week moving average (other than new cases which are tracked on 7-day moving average)"*

How is the Risk Category determined

- *Guidance used: "Categorize if 4 of 5 criteria apply, including (at a minimum): number of new cases, TPR, and % ICU beds unutilized"*

- The above three metrics then become **essential** metrics, ie, they have to be in the said category range; and additionally one of the two **non-essential** metrics has to be in the said category range for successful categorisation.

Metric	Green range	Yellow range	Red range
Daily cases per million	<20	20 to 100	>100
Daily cases growth rate	<2%	2 to 5%	>5%
Test positivity	<5%	5 to 10%	>10%
Daily tests per million	>140	<140	<140
ICU vacancy	>80%	40 to 80%	>80%

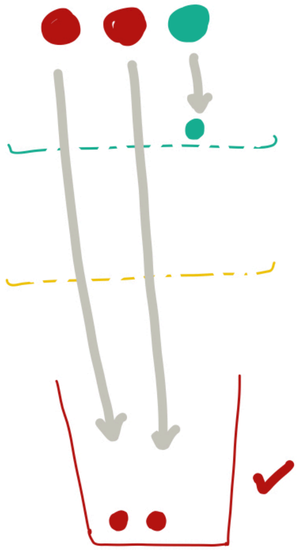
How is the Risk Category determined...

- The said criteria is implemented by an automated algorithmic approach using conditional logic in python.
- [AND], [OR] logic are used to determine whether the metrics' values fulfil a given risk criteria.
- "if **Cases per million** AND **Test positivity** AND **ICU vacancy** AND **[Cases growth rate** OR **Tests per million]"**
- Above logic is applied to thresholds for each category sequentially (red,yellow,green)
- The sequence (red to green, vs green to red) determines the 'approach'. Given these same criteria, three distinct approaches are possible- Conservative, Aggressive, and Middle path.

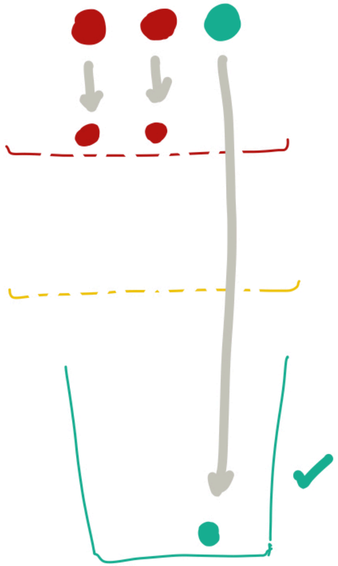
Comparing the three *approaches*

through a sketch visualisation

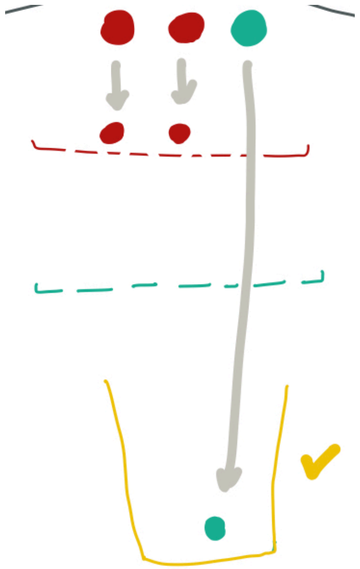
- The three balls represent the three ‘essential’ metrics. Only these three are included in this sketch for ease of representation. We assume for this example that two of the essential metrics are in red range and one is in green range.
- The leftmost sketch is the aggressive approach. Here, the algorithm foremost tests whether the metrics match green criteria (green sieve). Since they do not, it next tests for yellow criteria matching (yellow sieve). Since the metrics in the example do not pass the green and yellow criteria test, they are assigned to the ‘leftover bin’ of red category. Thus, whenever the metrics are in an ‘undecided combination’, they will be scored red, justifying the title of ‘aggressive approach’. Other two sketches can be understood in a similar fashion.
- **AGGRESSIVE.**



CONSERVATIVE.



MIDDLE PATH.

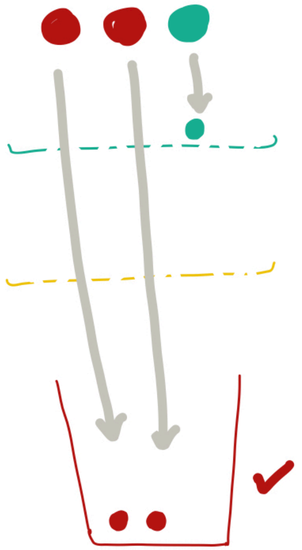


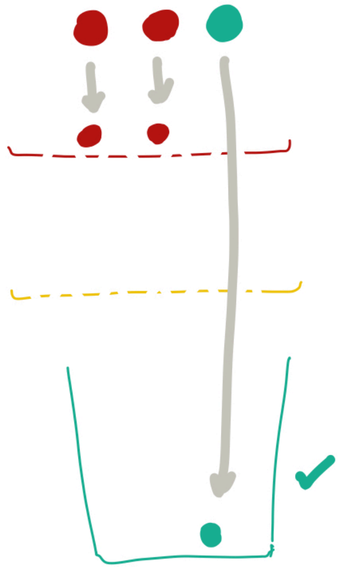
Comparing the three *approaches*

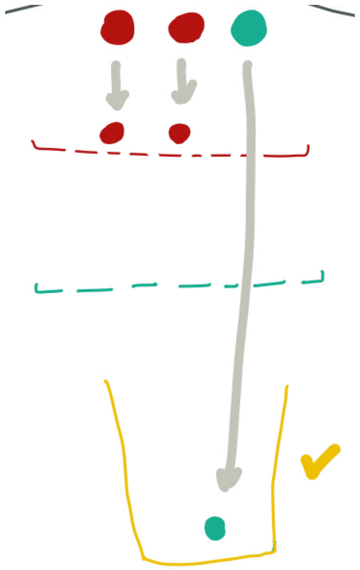
summarising the sketch visualisation

- **If the metric values pass any of the three category tests, it will be assigned the category whose criteria is strictly fulfilled. This remains same across all approaches.**
- **The three approaches differ only with respect to the category assigned in the case when the metric values can not pass the category test strictly for any category (undecided combination). In such a scenario, any 'undecided combination' will be graded as follows:**

• **AGGRESSIVE.**	**CONSERVATIVE.**	**MIDDLE PATH (*recommended*)**
• **Red.**	**Green.**	**Yellow.**



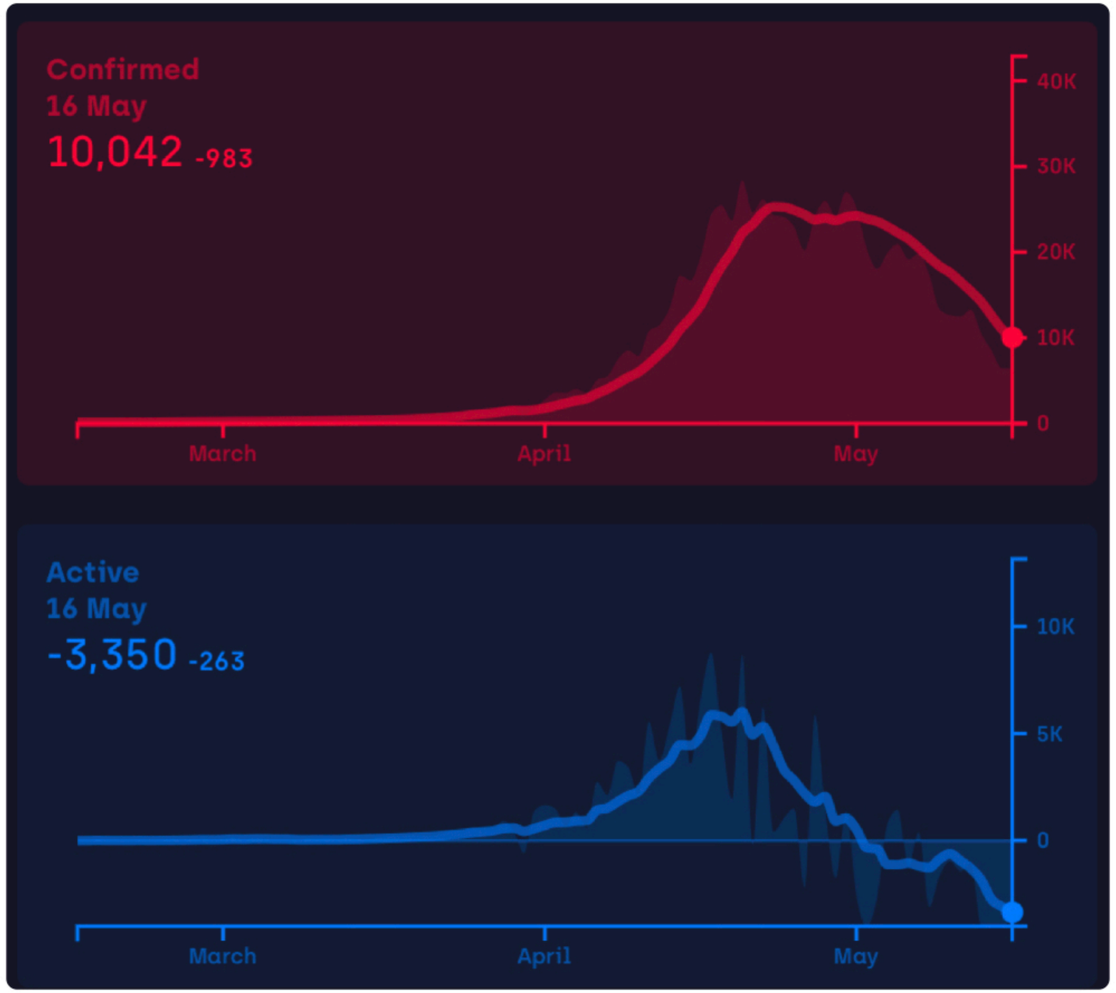




Comparing the three approaches with real data

For Delhi.

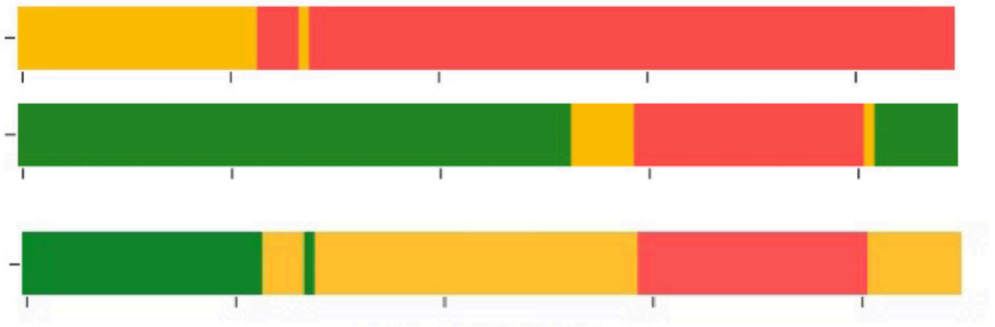
Note: since historical ICU data is not available, this slide shows historical categorisation using only four metrics and a suitably modified approach. Note that this may differ from the categorisation allotted when ICU data is included. The purpose is to give a comparison of the three approaches for scoring.



Aggressive

Conservative

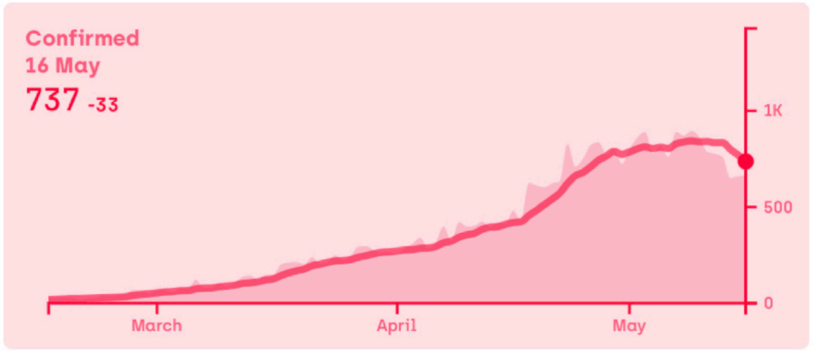
Middle path

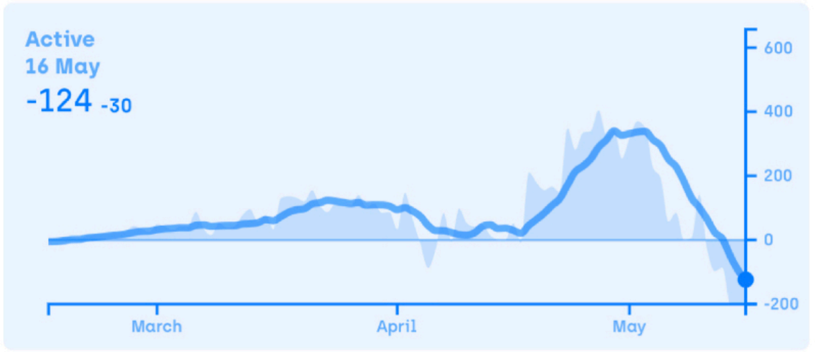


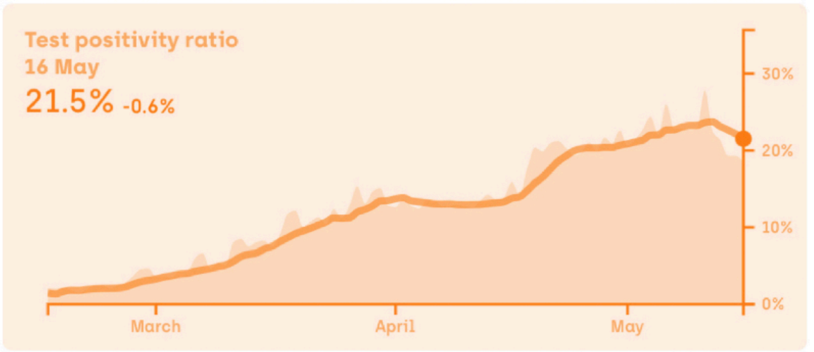
Comparing the three approaches with real data

For Chandigarh.

Note: since historical ICU data is not available, this slide shows historical categorisation using only four metrics and a suitably modified approach. Note that this may differ from the categorisation allotted when ICU data is included. The purpose is to give a comparison of the three approaches for scoring.



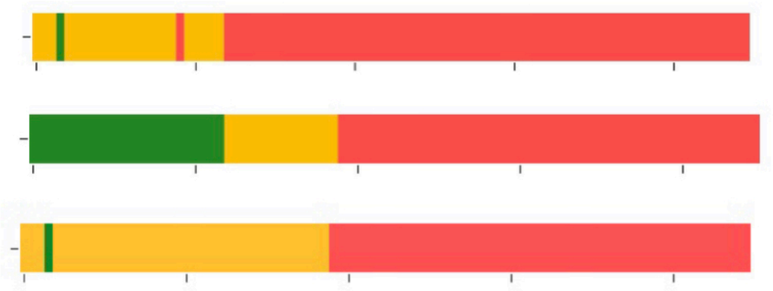




Aggressive

Conservative

Middle path



Acknowledgements

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Dr Mohak Gupta, MBBS, AIIMS Delhi

and the entire team at iCART.

Know more at www.theicart.in/about

Thank you!

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