COVID-19 TRACKER: INDIA

23 May 2021
This tracker\(^1\) has been developed by researchers at Cambridge Judge Business School and National Institute of Economic and Social Research, working with Health Systems Transformation Platform in India, as part of a pandemic monitoring series devoted to India and its states and union territories. It provides short term forecasts of the trajectory of the pandemic, identifying states and union territories that are at high risk of increases in infection incidence.

The forecasts are based on a structural time series model that uses historical data in estimation but adapts to the trend emerging in the most recent period. The model is described in Harvey and Kattuman (2021) “Time series models based on growth curves with applications to forecasting coronavirus”. *Harvard Data Science Review*, Special issue 1 - COVID -19.

*Newly reported COVID-19 cases in India are likely to decline to about 110,000 per day by 6 June 2021.*

*Almost all Indian states and union territories are on clear downward paths, but daily cases are forecast to increase in the North Eastern states of Manipur, Meghalaya, Mizoram, and Tripura. The filtered daily growth rates at the end of the observation period on 23 May imply new cases doubling times of 13 days for Meghalaya, 19 days for Tripura, 21 days for Mizoram and 41 days for Manipur. Odisha is likely to hold steady in the number of cases over the next two weeks. Tamil Nadu is likely to edge into a declining trend by early June.*

*Daily deaths attributed to COVID-19 in India are in gradual decline. The trend value of reported daily deaths is likely to be about 3,500 per day by 6 June 2021.*

Mean absolute percentage error of the forecasts of daily cases in India given in the 16 May tracker, for the week beginning 17 May 2021, is 6.5%. The accuracy of forecasts rely on the quality of the reported data. Changes in government pandemic policies and in transmission relevant social behaviour may cause realised numbers to depart from forecasts. Data have been volatile for Chandigarh, Delhi and Gujarat as well as for some smaller states and union territories, making their forecasts less accurate.

\(^1\) CJBS COVID-19 Tracker for India can be accessed at: [www.jbs.cam.ac.uk/covid-india](http://www.jbs.cam.ac.uk/covid-india)

The companion spreadsheet contains all the estimates and forecasts.

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Daily Covid-19 cases in India: Forecast

Forecasts of daily new cases for the period 24 May 24 to 6 June, 2021, based on data till 23 May 2021.

The filtered trend in the growth rate of daily new cases. Final date: 23 May 2021.
Daily Covid-19 deaths in India: Forecast

Forecasts of daily deaths over the period 24 May 24 to 6 June, 2021, based on data till 23 May 2021.

The filtered trend in the growth rate of daily deaths. Final date: 23 May 2021.
Daily growth rate of cases
Trend value on 23 May 2021
Daily growth rate of deaths:
Trend value on 23 May 2021
Daily Cases forecast: States and Union territories

Andhra Pradesh

New Cases

Date

Apr 15
May 01
May 15
Jun 01

Growth rate of daily cases

Date

Apr 15
May 01
May 15
Jun 01
Puducherry

New Cases

Apr 15  May 01  May 15  Jun 01

Date

Growth rate of daily cases

Apr 15  May 01  May 15  Jun 01

Date
Notes

Data: COVID-19 confirmed cases and deaths data are sourced from COVID19-India API: https://api.covid19india.org/


Forecast accuracy: When estimated with data up to May 16, the mean absolute percentage error of the forecasts of cases for India over the 7 day period, May 17-23, is 6.6%. Forecast accuracy will in general be lower for the smaller states / union territories. It is important to pay attention to the confidence intervals around the forecasts. The coverage of the confidence intervals presented is 68%, implying there is 16% probability of the upper bound being exceeded.

New cases: growth rate. The filtered trends presented for daily growth rates of cases are estimated using the Kalman filter, applied to the observed series. The method filters out day of the week effects and random noise to reveal the underlying signal. Unlike methods such as the moving average, this method adapts the trend to changes in real time and characterises underlying patterns of surges or attenuations that are hidden in the volatile series. The method is described in the papers listed above.


The accuracy of forecasts rely on the quality of the published data. Further, changes in government pandemic policies and in transmission relevant social behaviour will realised numbers to depart from forecasts.

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