



ISPIRT India COVID-19 SEIR Model

USE CASES: SCIENTISTS

Powered by data-led scientific rigor, the India COVID-19 SEIR Model delivers early infection trends for every district in India. The model is geared to help Indians from every walk of life plan life and work decisions around their region's projected caseload over the next 15-30 days. Hospitals can use the model to plan for a surge in demand for resources (beds, ICUs, ventilators); local and national level leaders across private and public sectors can use the model to decide how best to contain the spread of the disease and re-open safely; epidemiologists can use the model to define how different behavioral and environmental factors affect the disease transmission. The rest of us can use the model to simply be more informed. There are multiple approaches to using this model and we introduce a few in this blog post—the first in a series aimed at promoting scientific and modeling capability.

Until we turn the corner, the model delivers real-time data visualisation and predictions to a billion Indians and everyone else as a digital public good. We can all use it to bend India's curve. That's the ultimate use case, really -- where the model tells us where it's going and we, in turn, steer it in an entirely other direction. Models will change and that's a good thing. It means we are responding. The power of models and data science in this particular moment is the ability to assist a very scientific approach to scenario planning during an ongoing health care pandemic. The real outliers are no longer in the data, it's the actions we take based on what the data is telling us. We can turn the course of this pandemic and transform what this model tells us, every 24 hours. We are already watching the shape-shifting in real time. It's in your hands. Go on, try it.

USE CASE: EPIDEMIOLOGIST

Purpose:

1. Assess outbreak patterns across areas.
2. Isolate behavior patterns which inform infection rate.
3. Identify potential risk-factors of COVID-19.

User Flow:

1. User enters the website. Main page loads.
2. User clicks on “Live Model”. SEIR Model opens in a new tab.
3. User can now customise flow.



User filters districts by “Hospital beds needed (30 days)”

1. User filters districts by “Hospital beds needed (30 days)”.
2. User can identify top districts where infection rate is increasing.

User selects state by clicking on colored icons on country map

1. User selects a state by clicking on icon on country map.
2. User selects a district of interest within the selected state.
3. User uses toggle buttons in the Legend Key to understand data.

User filters districts by “R(t)”.

1. User filters districts by “R(t)”.
2. User can identify districts where rate of transmission of COVID-19 is high (typically > 1).

4. User uses data to isolate potential relationships between population’s behavior patterns in identified districts and infection trends.

USE CASE: DATA-SCIENTISTS

Purpose:

1. Understand the model's technical configurations.
2. Collaborate with iSPIRT to optimise the model further.
3. Utilise open-source technology architecture (once released) for independent purposes

User Flow:

1. User enters the website. Main page loads.
2. User clicks on "Tech Specs" / "Model Configuration" / "Model Assumptions" to understand technical configurations of model.
3. User clicks on "Live Model" to visualise learnings. SEIR Model opens in a new tab
4. User can now customise flow.



User analyses configurations and understands data.



User collaborates with iSPIRT to optimise model.



User builds technology software for independent uses.