

An Interactive Shiny App of COVID-19 Data in Brazil

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The outbreak of infectious diseases, meaning, their appearance in regions not previously affected, requires the scientific community to produce knowledge on a large scale in order to apply measures for rapid control of the disease. In this line of thought, mathematical modeling in epidemiology stands out as a protagonist in the assessment of the dynamics of the disease and the reproduction of scenarios that envision alternatives for control. Our group developed a tool that can be used by researchers, managers, among others, so that they can manipulate and work with mathematical modeling and obtain estimates and scenarios for epidemiological issues of surveillance and control of COVID-19.

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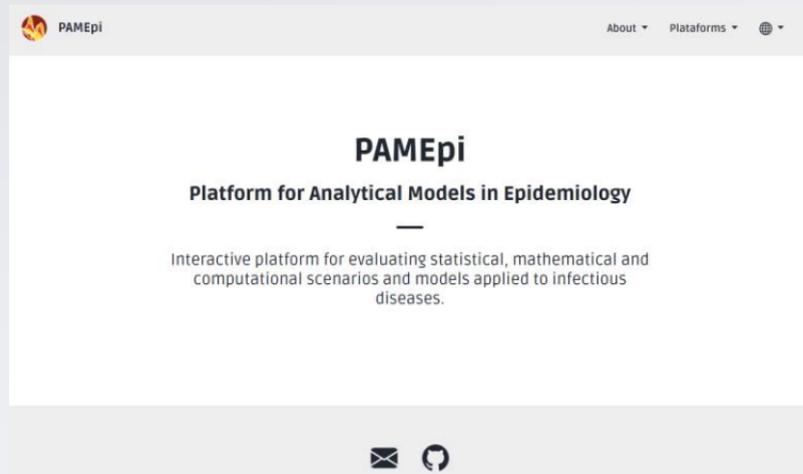


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Aim

The PAMEpi - COVID-19 intends to offer, in a robust way, a tool that can be used by researchers, managers and others in such a way that they can:

- **interact** with the different type of data about COVID-19 pandemic available in Brazil;
- **evaluate** the effect of measures taken on the epidemic curve of interest;
- make projections on short time scales (i.e., 7 - 10 days);
- **verify** the behavior of epidemic scenarios on long time scales (i.e., > 100 days);
- and access metrics influenced by the disease spread (as R_t) and social-economic factors, that **assist in the decision-making process**.



One can access the platform through this link [PAMEpi \(fiocruz.br\)](https://fiocruz.br/PAMEpi)

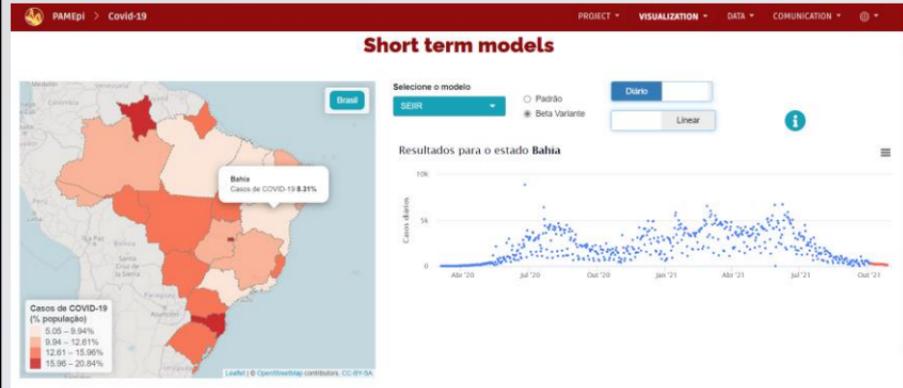
Methods

The platform has a pure html front-end. Most of the back-end is made with the R package Shiny. With the intend of bypass some limitations of the Shiny server our team developed modules for each visualization aim.

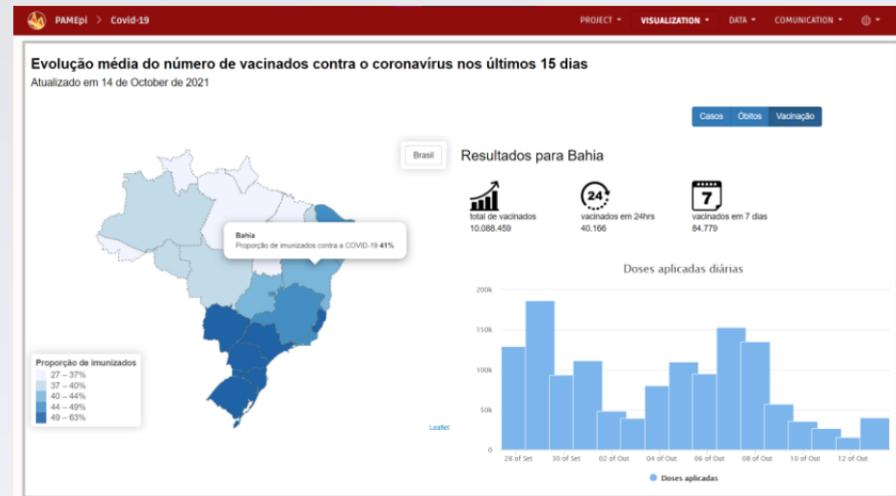
The first one allows exploring data visualization about the covid-19 pandemic. We display plots related to the time series of cases, deaths, hospitalizations, levels of vaccination, non-pharmaceutical enforcement and human mobility. This information can be accessed at the state, health region and municipality level.

The second part of the visualization concentrates on analyzing the models applied to follow up the non-linear course of the pandemic. We present a forecast of cases in the following days. Finally, we also show long term predictions, which is crucial to understand scenarios for the following years and better plan strategies to overcome the social-economic disruption the disease has created in society.

Results and Conclusions



Short term models



Covid situation in Brazil