OSB
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CoViz: California Covid 19 Visual Tracking Tool

A User Friendly Streamlit Dashboard That Aids Decision Making

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Introduction: Building a tool to understand COVID-19 at a regional level

The COVID-19 pandemic has highlighted the importance of constant and real-time disease surveillance to better control unprecedented local outbreaks. Early in the pandemic, the state of California came up with its own distinct phases for opening the economy and community activities. These phases were based on county-wide thresholds of daily COVID-19 incidence, test positivity, and availability of ICU beds in the county. While county-wide data is continuously available, a composite picture of a group of counties is not as easy to understand. Such information is especially useful for bigger organizations that serve regional communities, such as universities, corporate companies, or dense urban regions that are highly connected.

Data

The data was collected from 4 different sources.

1. Daily case data from the Center for Systems Science and Engineering (CSSE) at Johns Hopkins University
2. California State Pandemic Data Portal
3. Covid Act Now API which is a US Covid Tracker
4. California Department of Public Health

The data from Covid Act Now and CSSE JP repository are updated daily, while the other 2 sources are updated on a weekly basis.

The data covers daily cases, daily testing data, ICU beds covid rate, deaths, vaccination campaign, and health equity (covid effect on different race and age groups).

Streamlit Tool

First Tab: California Counties Covid Situation Dashboard

The dashboard illustrates the situation for selected counties (selected using a filter box).

Visual (A) helps decision makers in determining which reopening phase each county should follow depending on the weekly rolling mean of incidence per 100k. In the visual Phase 2: Initial re-opening: Current estimate of <25 cases per 100,000 population per day & Phase 3: Economic recovery: Current estimate of <10 cases per 100,000 population per day. Once the cases are below the threshold of each phase, the county can follow less restrictions and open more facilities to the county's residents.

Visual (B) shows a trend line (timeseries) of the of daily new cases since the beginning of the pandemic, important to identify any pattern.

Visual (C) shows a cumulative line chart of the number of cases vs the deaths due to covid 19, to compare the deaths with respect to cases.

Visual (D) shows the trendline for daily positive covid tests that helps in tracking the covid positivity test rates. It is important to track the testing that counties are doing to diagnose people with COVID-19 infection to gauge the spread of COVID-19 in the U.S. and to know whether enough testing is occurring. (Note: testing data is available only for a few counties in California). It also helps in answering these questions: What is the current level of SARS-CoV-2 (coronavirus) transmission in the community? Is the county doing enough testing for people who are getting infected?

The covid act now API provides more information highlights informational snippets related to positive test rates, ICU rooms rate occupied by covid patients, and overall covid risk for each county.

Second Tab: California Covid Situation Dashboard

Like the first tab but instead of counties the dashboard reflects the situation in California as a whole, giving a more general view.

Third Tab: Vaccination Campaign Dashboard

The vaccines dashboard provides summary and descriptive statistics about the vaccination campaign in California and each county, including the geographic mapping of vaccinated population percentage for each county.

Fourth Tab: Health Equity Dashboard

The dashboard shows the summary statistics that illustrate the disparities of the covid pandemic effects among different California's races and ethnicities. As well as showing how different age groups were infected and the number of deaths for each.

COVID-19 has highlighted existing inequities in health. Many of these inequities are the result of structural racism. One form this takes is the unequal distribution of and access to health care resources.

Committed to a California for All, the state is identifying communities most impacted and directing resources to address COVID-19 health inequities. Reducing COVID-19 risk in all communities is good for everyone, and California is committed to making it part of our reopening plan.

State public health leaders cannot address COVID-19 health inequities alone. A healthy California for everyone requires partnership with the private sector, local government, and community partners at all levels.

COVID-19 disproportionately affects California's low income, Latino, Black, and Pacific Islander communities, as well as essential workers such as those in health care, grocery, and cleaning services.

The dashboard shows the summary statistics that illustrate the disparities of the covid pandemic effects among different California's races and ethnicities.

Latino, Black, and Pacific Islander communities have been disproportionately affected by COVID-19. We have made some strides in addressing disparities within these communities, but we must do better. This data reflects the last 30 days.

Californians in crowded housing or transportation, and with less access to paid leave and other worker protections, have a higher risk of infection of COVID-19. Social determinants of health, such as food insecurity, lack of health insurance, and housing instability can increase the risk of poor outcomes. These social determinants of health are often the result of structural racism.

Fourth Tab: Overview of the whole streamlit tool

The overview tab gives the user information, hints, and tips about the data sources and how it was manipulated and calculated to come up with the results.