

Evaluating COVID-19-Related Surveillance Measures for Decision Making

As the COVID-19 pandemic has continued to evolve, the types of data available have changed with the identification of new variants, the availability of COVID-19 vaccines, the introduction of new COVID-19 therapeutics, the reopening of the economy, and the relaxing of mitigation measures. Enhanced understanding of these data types can lead to more informed decisions. This policy brief provides an overview of the latest rapid expert consultation from the Societal Experts Action Network (SEAN) of the National Academies that provides guidance on new and updated COVID-19 data measures and surveillance strategies that decision makers can use to inform policy decisions.

COVID-19-Related Surveillance Measures for Decision Making

PERCENT POSITIVE COVID-19 CASES

The positivity rate, or percent positive, is the percentage of all coronavirus tests performed that are positive, divided by the total number of tests administered and multiplied by 100. These data reflect mainly test results gathered and reported by health departments, as results of at-home COVID-19 tests are largely unreported to public health officials. This measure is biased if used as an estimate of prevalence.

HOSPITALIZATIONS

These data reflect primary COVID-19 hospitalizations found on admission screening. While hospitalization data can indicate community transmission, the spread of newer variants with different characteristics may mean they do not always accurately reflect virus severity.

HOSPITAL STRAIN

Hospital strain measures the extent of use of hospital capacities (i.e., percentage of intensive care unit beds occupied, percentage of all beds occupied, and percentage of staff not on the job). This measure signals the ability of hospitals to provide adequate and appropriate services to all patients in need.

REPORTED CONFIRMED COVID-19 DEATHS

These data are a lagging indicator, reflecting prior positive cases and hospitalizations. However, they are an important factor in evaluating the disproportionate impacts of the pandemic across population subgroups, as they are an indicator of the burden of the pandemic.

VACCINATION RATES

A community's vaccination and booster dose rates help public health officials understand their population's level of protection and inform community actions regarding vaccine distribution and equity, which in turn can inform local decisions.

SEROPREVALENCE SURVEILLANCE

These are surveys that use serology testing to understand how the virus is spreading through a population over time. The surveys use blood tests to identify people in a population who have antibodies against SARS-CoV-2.

WASTEWATER SURVEILLANCE

This is a community-based approach that entails monitoring viral loads in wastewater samples, which can foreshadow increases or decreases in a community's diagnostic trends. Importantly, wastewater surveillance can capture viral shedding from asymptotically infected individuals.

GENOME SEQUENCE TESTING AND SURVEILLANCE

Genome sequencing analyzes virus samples to better understand how the virus mutates, transmits, and spreads. It can be used both to detect new and to monitor circulating variants.

NOWCASTING

Nowcasting is a disease surveillance method that helps combat delays in data reporting by estimating the number of occurred-but-not-yet-reported events.

For more information about SEAN, visit nationalacademies.org/SEAN.