

# How far we have come: A Tennessee COVID-19 surveillance system evaluation



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CATEGORY: Enterprise Approach to Data Systems Modernization

Tennessee assessed the rapid evolution of their surveillance system structure forced by the pandemic to help steer improvements and preparedness efforts in advance of the next large-scale response. This assessment has provided a better understanding of their landscape for them to build upon moving forward in their modernization journey.

## The “What”

Epidemiologists, emergency planners, and policy makers had long planned for a large-scale respiratory epidemic prior to 2020. However, when SARS-CoV-2 arrived in the United States, efforts by public health to leverage existing systems to conduct surveillance faltered due to the unprecedented scale of the pandemic. The routine but relatively archaic methods of monitoring and reporting cases of communicable diseases could not handle the abundance of COVID-19 cases.

Modernization of surveillance systems in Tennessee had to occur at an accelerated rate to keep up with the high volume of case reports.

After three years of the pandemic, there is an opportunity to assess the rapid evolution of the surveillance system structure forced by the magnitude of the pandemic. This assessment is necessary to help steer improvements and preparedness efforts in advance of the next large-scale response. This surveillance system evaluation followed CDC’s Updated Guidelines for Evaluating Public Health Surveillance Systems to provide a high-level summary of the progression of COVID-19 surveillance in Tennessee. Emphasis was placed on highlighting the challenges, solutions, and recommendations for future responses.

The evaluation encompasses five of the nine attributes outlined in the CDC guidelines: data quality, flexibility, simplicity, stability, and timeliness. Key stakeholder interviews, a user survey, and data gathering across various surveillance teams were used to assess these five attributes. Due to the complexity of COVID-19 surveillance and the end of universal case investigation in February of 2022, this evaluation focuses specifically on lab reporting and processing between 2020 and 2022.



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## The “So What”

The evaluation provided a comprehensive view of the evolution of lab reporting and data modernization over three years of the pandemic. By collecting information across surveillance teams, a better understanding of the entire system was documented and shared across the Communicable and Environmental Diseases and Emergency Preparedness Division (CEDEP) at the Tennessee Department of Health (TDH).

Although most individuals at the health department assisted with COVID-19 surveillance at some point over the last three years, an understanding of the exchange and transformation of lab data was not generally known. The newfound awareness of modernized data processes is spurring change in other infectious disease programs at TDH to create more robust systems across the department. Additionally, TDH is currently using the findings from this evaluation to update the emerging and novel disease outbreak preparedness and response plans.

The COVID-19 pandemic overwhelmed our existing systems despite pandemic preparedness plans. Tennessee is learning from those challenges and updating response plans so that public health is better prepared for the next large-scale epidemic or pandemic.

## The “Now What”

Data modernization is an ongoing process. The surveillance system and informatics teams are actively working to increase interoperability between state and federal systems. At the state level, this means onboarding medical and laboratory facilities for electronic laboratory reporting.

During the pandemic, accelerated onboarding of facilities was conducted for COVID-19 only. Now efforts are being refocused to onboard facilities to electronically report all reportable disease conditions. At the federal level, reporting processes

are being streamlined through message mapping guides and other automated systems.

In general, automation is also being incorporated across surveillance systems. The use of code automation is streamlining laboratory reporting processes, data quality checks, and data reporting. In addition, preparedness plans are creating new protocols and procedures for handling the initiation of future outbreak responses with modernized processes established during the COVID-19 pandemic.