

Building laboratory capacity for surge testing and pandemic response



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CATEGORY: **Epidemiology and Laboratory Capacity (ELC)**

The Southern Nevada Health District Public Health Laboratory has used funding to enhance staffing and infrastructure to improve test turnaround time and overall capacity for COVID-19 testing. The laboratory is now better prepared for ongoing testing needs for not only COVID-19, but also other public health threats.

At the peak of the Omicron surge (the highest demand to date), SNPHL was able to test over 10,000 samples per week, and still readily meet the 48-hour result delivery target.



The “What”

As community demands for COVID-19 testing surged, the Southern Nevada Health District Public Health Laboratory (SNPHL) infrastructure and staffing were inadequate to handle the volume of tests requested and to provide results needed in a timely fashion. As Epidemiology and Laboratory Capacity for the Prevention and Control of Emerging Infectious Diseases (ELC) funding became available, SNPHL was able to build capacity and implement strategies to increase testing volume, throughput, and quality assurance of results and result delivery. Increased capacity was accomplished mainly through hiring additional staff, increasing shift coverage and additional laboratory hours of operation, acquiring additional sample handling and testing instrumentation, and building out spaces in the laboratory to house the new testing staff and instrumentation purchased.

The “So What”

With each subsequent "wave" of COVID-19 infection in the community, SNPHL was able to test more samples and reduce turnaround times simultaneously (Figure 1). At the peak of the Omicron surge (the highest demand to date), SNPHL was able to test over 10,000 samples per week between January 3, 2022 and January 17, 2022, and still readily meet the 48-hour result delivery target. Meeting this result delivery target allowed the epidemiology team to maintain and communicate timely surveillance statistics, and to implement disease investigation and prevention activities as quickly as possible.



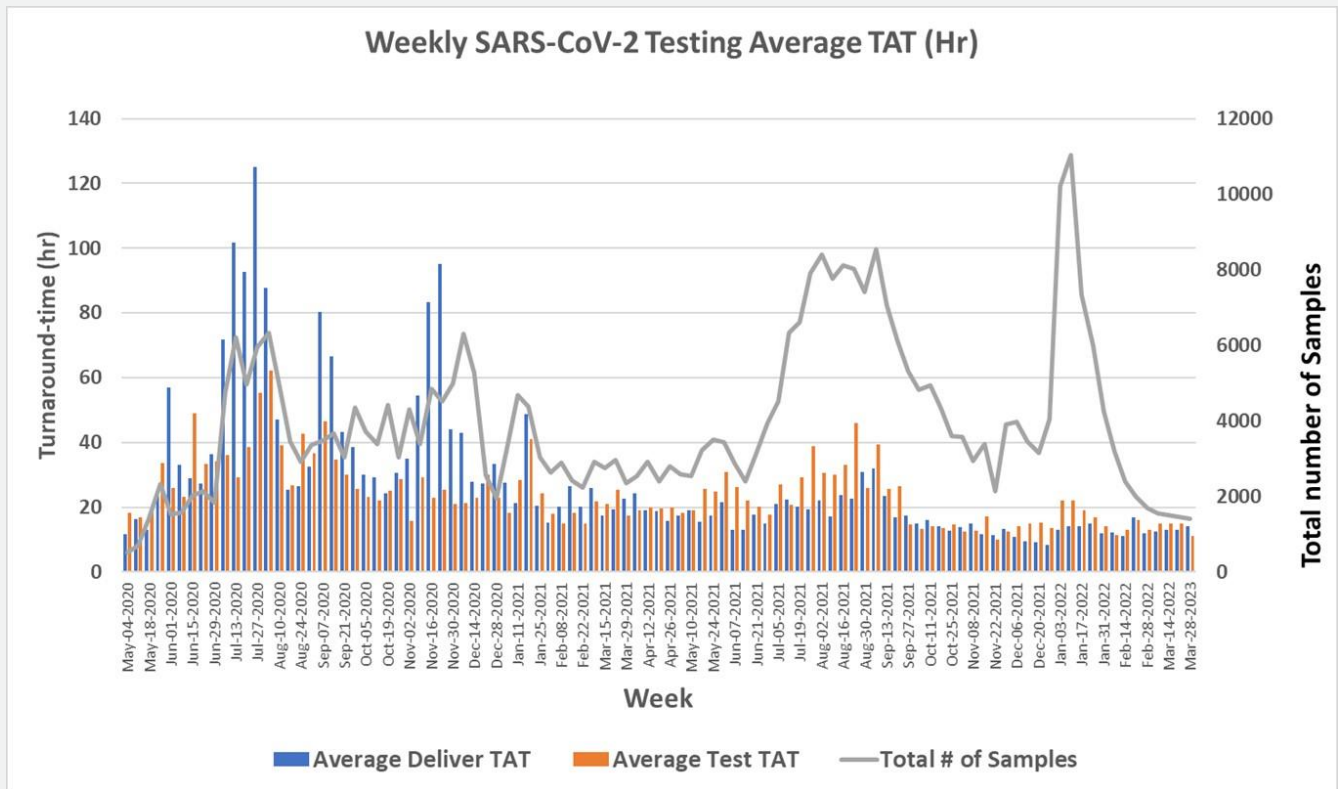


Figure 1. Average SARS-CoV-2 samples submitted and test turnaround times at the Southern Nevada Health District Public Health Laboratory by week, May 2020 – March 2023.

The “Now What”

Many of the staff hired in the initial phases of the pandemic remain with SNPHL and have gone on to attain licensure and certification skills to work in other departments and specializations within the laboratory, including the Whole Genome Sequencing department and respiratory virus surveillance programs for other pathogens of interest such as Influenza. Equipment and systems procured to enhance and build capacity have broad utility and are flexible enough to allow for other surge responses if needed. It is critical that future ELC funding be sustained so that this infrastructure remains in place and can be leveraged to serve public health interests for many years to come.

Key contributors to this project Dr. Horng-Yuan Kan, Southern Nevada Health District (SNHD); all SNHD clinic staff; and SNPHL personnel involved in COVID-19 pandemic response and surge testing activities.