

How a Wastewater Based Epidemiology academic initiative was migrated to a County public health laboratory to allow a focus on surveillance of SARS-CoV-2 in underserved communities.

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Wastewater Based Epidemiology (WBE) can be used as a rapid, sensitive, and cost efficient surveillance system for the SARS-CoV-2 in cities, neighborhoods, campuses, and buildings. Over the last 2 years, our academic laboratory has refined a qPCR protocol that uses WBE to detect as few as 100 gene copies per 1 liter of wastewater from campus buildings. Our lab group samples from specific locations on campus and maintains an active comparison to the twice weekly composite sample from a wastewater treatment facility that serves the city of San Bernardino. Early in our laboratory program, our team decided that our university academic laboratory should mobilize to help build the county public health system to run WBE on its own. For a sustainable program and seamless data pipeline, the county public health laboratory should be equipped to handle the larger volume of wastewater samples from the underserved neighborhoods, skilled nursing facilities and detention facilities in the largest U.S. county. This poster describes the challenges and wins of our unique campus wide monitoring system that we built to monitor the pandemic and as a model for an ideal surveillance strategy for the county. The sampling, partners, lab protocols, GIS strategy, and data pipeline are described as we partnered with the county for the opportunity to serve the many vulnerable populations within a five mile radius of our campus. This poster focuses on the application of a sampling strategy to hard to reach neighborhoods where conventional autosamplers can not be used. We developed a passive sampling method that can be used by the county to collect samples without removing the sewer maintenance covers.

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