**Wastewater-based surveillance for determination of SARS Coronavirus-2 prevalence in the Chico State University student resident hall population (2022)**

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Since its emergence in late 2019, the SARS-CoV-2 global pandemic has had devastating and far-reaching effects on human lives. The constant rise and fall of case numbers make it difficult to predict times of increased healthcare burden. Estimating case number increases relies heavily on evaluating trends in clinically reported cases. These data sets are often incomplete as they do not represent cases of asymptomatic infection and underestimate the infection burden in populations that are medically underserved. One potential solution to this problem is to utilize wastewater surveillance to monitor levels of SARS-CoV-2 viral RNA shed by infected individuals. Since RNA shedding has been demonstrated to begin prior to symptom presentation, wastewater surveillance can allow for early warning of impending case increases and ensures all that use the wastewater system will be counted, irrespective of symptom presentation or access to testing. In this surveillance study, trends in SARS-CoV-2 prevalence on CSU Chico's campus were evaluated by collecting and analyzing composite, bi-weekly wastewater samples from the effluent of nine campus residence halls by quantitative reverse transcription polymerase chain reaction (RT-qPCR) using primers designed to amplify the viral N1 gene. Viral RNA concentrations in the original wastewater sample were reported as genome copies per liter of wastewater (gc/L). Observed trends in RNA concentrations over time demonstrated the efficacy of campus preventative measures and have afforded a means to predict impending case increases within the on-campus resident population. Our results suggest an effective, more holistic approach to studying transmission rates and SARS-CoV-2 prevalence patterns. Data obtained from wastewater surveillance can be used to inform public health policy and help mitigate the effects of community-wide outbreaks. This project was funded by Higher Education Emergency Relief Funds to California State University, Chico.