

A048 Regional COVID-19 Virus Evaluation in Recrement (RECOVER) Project for Wastewater-Based SARS-CoV-2 Surveillance in Northern New England

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Introduction: As of mid-October 2020, the COVID-19 pandemic has infected over 7.5 million people and caused over 210,000 deaths in the United States. In our low-prevalence region of Maine, New Hampshire, and Vermont, over 16,000 people have been diagnosed with COVID-19 and more than 600 have died from the virus thus far. An early surveillance system for COVID-19 could provide early detection of the virus at a community level. SARS-CoV-2 viral RNA is shed in the stool of 45-50% of those infected with the virus. Viral RNA can be detected in community wastewater up to 7 days before people present for clinical care with COVID-19 symptoms. The detection of SARS-CoV-2 in wastewater could be used as an early warning signal for increased community transmission. Here we describe methods and preliminary results testing town municipality wastewater in Northern New England. **Methods:** Our RECOVER study includes collection of wastewater samples from ten municipality water treatment facilities. Municipal sites sent us at least 100mLs of raw or primary influent, 24-hour composite wastewater samples. 45mLs of wastewater was centrifuged for 30 minutes at 4600xg, then 2mLs of supernatant was tested for SARS-CoV-2 using the Abbott M2000 real time PCR assay. **Results:** The study has recruited ten municipal town sites and we have received a total of 115 wastewater samples from these sites. Using the M2000, we have detected positive SARS-CoV-2 in 26 samples (26/115 or 22.6%) with a mean Ct value of 28.18 (SD: 1.40, min: 26.11, max: 31.19). In addition, nine out of ten have had at least one positive result (9/10 or 90%), with two sites having high positivity rates of 61.5% (8/13) and 60% (6/10). **Conclusions:** The overarching goal of the RECOVER project is to optimize SARS-CoV-2 surveillance testing for certain communities in New Hampshire and Vermont by implementing robust wastewater testing. We have successfully detected SARS-CoV-2 RNA in samples from several municipalities in our region and are improving the sample concentration and detection methods.