

Monitoring for SARS-CoV-2 in Michigan Communities

Via Wastewater Surveillance Joan B. Rose, Michigan State University rosejo@msu.edu

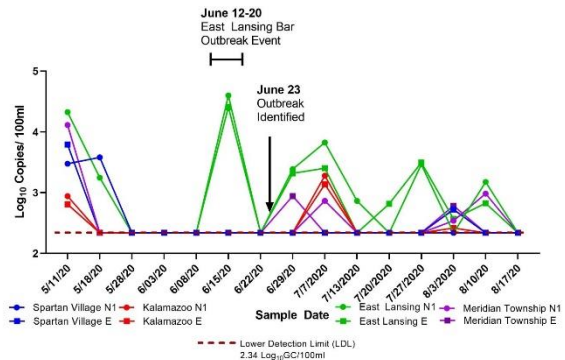
Rationale: Monitoring for viruses in sewage has been ongoing for 70 years. Using the same primers and PCR approaches that are used to screen individuals, scientists and engineers around the world are monitoring wastewater to provide a view of COVID 19 community infection.

Motivation: The promise to assist the state of Michigan track and manage the spread of the COVID 19 is bringing advanced environmental health laboratories, utilities, cities and public health together. The ability to provide a widespread view of the disease increase the confidence as the state opens up and resumes various activities, particularly the opening of schools.

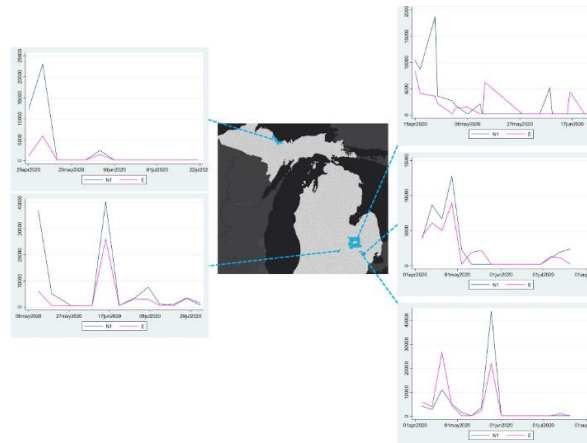
Linking to Interventions: Sewage provides a window to view the infection in the community that has the potential to assist in public health decision making. The **Calibration of virus levels in wastewater to health cases allows one to:** 1) Target testing, contact tracing and quarantine; 2) Identify hot spots, providing information on racial and economic disparity and providing early warnings (potential seasonal outbreaks) for health care response; 3) Address opening and closing of businesses and schools and 4) Address vaccination programs.

The goals: to assist wastewater utilities in the State of Michigan to establish monitoring programs for SARS-CoV-2 in wastewater to serve as a window into cases in the community via a collaboration with EGLE, MDHHS and the state network of PCR laboratories. Table 1 lists Utilities have been working with the Rose Laboratory and are currently or will soon be monitoring. Figure 1. Shows virus data from MSU populations, E. Lansing and Meridian and Fig 2 (prepared by Dr. Amber Pearson, MSU) levels of the virus in wastewater from various communities.

Figure 1. MSU Sanitary Sewer SARS-CoV-2 N1 and E Gene Results



Utilities
Genesee
Macomb (collaboration with Dr. David Szlag Oakland University)
Manistee Little River Band of Ottawa Indians Utility Department
Marquette
Michigan State University
Oakland
Warren



Dr. Tami Sivy is also monitoring in Saginaw Bay. There are a number of other communities throughout Michigan now involved with 18 labs established (Dr. Shannon Briggs, EGLE and Dr. Erin Dreelin, MSU).