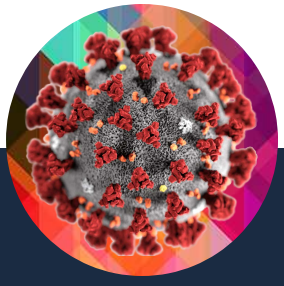
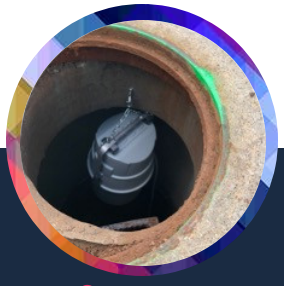
Case Study

EASTERN MICHIGAN UNIVERSITY

Preventing COVID-19 Spread Using A Sophisticated Residence Hall Sewage Surveillance and Early Warning Detection at EMU



COVID-19 in Sewer System



Strategic Sampling

Logistics & Lab Testing

Smart Analytics & Dashboard

Student Safety & Health

Background

EMU is a public research university with a student population of over 16,000 and strong athletic program. There are 2,000 students in the residence halls and like many colleges across the US that have opened in the midst of the pandemic, the university has developed a COVID-19 plan that includes extensive safety strategies and tactics.

Challenge

The challenge for University leadership is how to detect asymptomatic or spread of COVID-19 in residence halls so early actions can be taken to prevent super-spreader events.

Solution

EMU has partnered with Aquasight to implement its sewage surveillance program CEWS on campus. The program is an integral part of the EMU COVID-19 response.

"Wastewater testing is another important method to track the prevalence of COVID-19 on our campus. The results of the tests will help us pinpoint any concerning trends and expand individual testing among specific populations as necessary."

JAMES SMITH, Ph.D.

President, Eastern Michigan University

CEWS™

AQUASIGHT
REAL-TIME INTELLIGENCE

"Aquasight worked with EMU administration to quickly develop a testing strategy and protocol. Within 3 weeks the locations were identified, monitoring units installed, and results were being reported. The rapid response of the Aquasight team provided EMU a proactive picture of the COVID-19 virus across the campus, which when coupled with other efforts, supported the administration's COVID-19 response and reduced the risk of a broader spread on campus."

MIKE VALDES, CFO, Eastern Michigan University

EMU Leadership Relied On CEWS for a Fast Start, Daily Decision Making & Excellent Results

Rapid Implementation

Launched in Three Weeks, The Program Provides 48 hours Results Turnaround

A turnkey sewage surveillance program "CEWS" was installed and was running live in three weeks. This included site selection, installation of samplers, programming and optimization, flow testing, set up of logistics and supplies, lab capacity, CEWS lab data management, smart analytics and a digital dashboard. A simple yet powerful metric - Minimum Peak Shedding Cases (MPSC) which measures magnitude of minimum peak shedders within each residence hall was integral part of smart analytics.

Eleven strategic sites were selected that covered most of the on-campus housing and twice a week testing was performed at each of these sites. Results were turned around in under 48 hours with instantaneous update to Smart Analytics and the CEWS dashboard. A team designated to review the CEWS data as part of the University's response met twice a week to review the CEWS smart analytics program. They utilized this information in combination of other internal data sources to make strategic decisions regarding the COVID-19 response on campus.

Results

CEWS Early Warnings Correlate with COVID-19 Clinical Cases

- EMU has one of the lowest known on-campus COVID-19 positive count in Michigan, which is a result of an excellent student discipline, and the University's safe planning and strategies.
- Single asymptomatic case was identified in a residence hall using CEWS and was validated with clinical testing preventing a super-spreader event.
- A strong signal was observed a week in advance in another residence hall and the signal was tracked in the residence hall reserved for isolation as the COVID-19 students moved.
- CEWS estimates on peak shedders were ahead of clinically tested positive cases.

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