



**SPRING 2024**

**Biochemistry and Molecular Biology  
Brown Bag Series**

**Lindsey Cruse**

**Master's Student**

*“Enteric virus wastewater surveillance: early  
detection, seasonality spikes, and trends in variants”*

**Tuesday, February 6, 2024**

**11:00 AM**

**Location 125 Medical Sciences Building**

**Lab: Ola Kolawole, Ph.D.**



Boonshoft  
**School of Medicine**  
WRIGHT STATE UNIVERSITY



<https://science-math.wright.edu/biochemistry-and-molecular-biology>

## **Abstract**

### **Enteric virus wastewater surveillance: early detection, seasonality spikes, and trends in variants**

Lindsey N. Cruse, Aquavee Madison, and Abimbola O. Kolawole

Wastewater-based epidemiology (WBE) has become very popular in determining early virus infections before major outbreaks. Coronavirus, along with other enteric viruses, infect the gastrointestinal epithelia in humans, leading to viral shedding in feces. There are a large variety of viruses that can be released in stool, and therefore, into the wastewater system. We currently use wastewater surveillance to monitor severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) trends in our lab by measuring SARS-CoV-2 genomes in wastewater samples using RT-qPCR. To extend this surveillance into monitoring other viruses, we developed multiplex systems that allowed the measurement of multiple viral genomes at the same time from a single nucleic acid template. Aside from SARS-CoV-2, we majorly detected the presence of astrovirus genomes, followed by norovirus. We did not detect any other viruses. Our data suggest that wastewater surveillance of multiple enteric viruses can show yearly trends, predominant viruses, and whether there could be any potential mixed infections occurring, therefore serving as a tool to detect possible outbreaks.