



Kansas Wastewater Surveillance of COVID-19 Genetic Markers

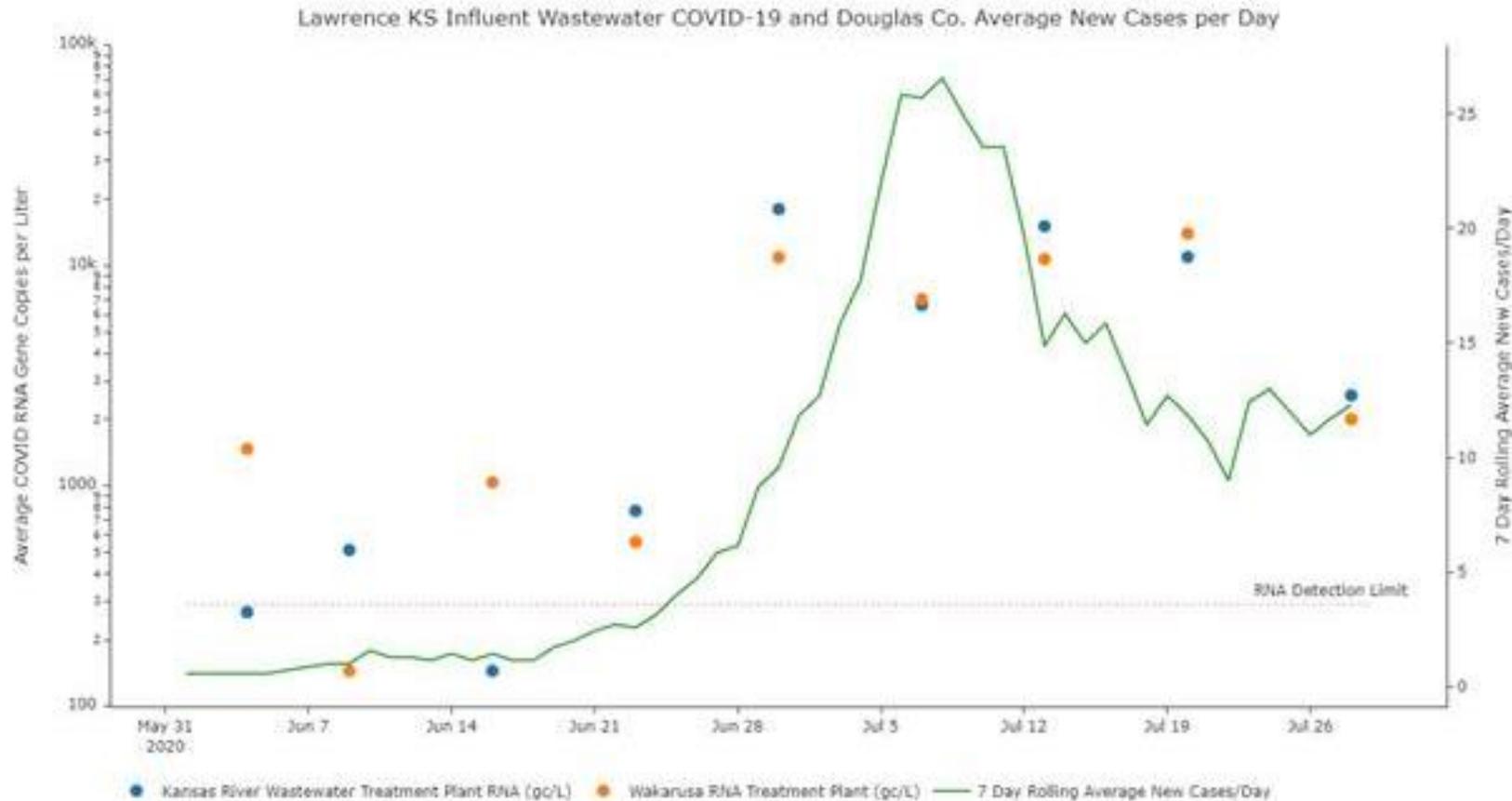
- In early April, news from East Coast told of studies in Massachusetts and the Netherlands of using wastewater to sample for genetic markers of the SARS-CoV-2 virus
- Results indicated that the amount of viral genetic material found in the wastewater suggested the extent of infection within the community was far greater than what reported positive cases.
- Wastewater surveillance is not new; used for community tuberculosis screening and opioid monitoring
- KDHE – Division of Public Health asked Bureau of Water if such an approach would work in Kansas

- BOW asked KU Department of Civil and Environmental Engineering if they had to capacity to test the concept
- KU indicated they had RNA extraction capabilities and PCR technology that could perform the task
- In late April, KDHE coordinated collection of wastewater entering treatment works at 12 POTWs in ten towns in five eastern Kansas counties.
- CDC guidance stated virus present if Both N1 and N2 markers were detected

- Larger cities, Lawrence, Topeka, Paola, Ottawa had positive results
- Smaller towns: Lecompton, Rossville, Hillsdale, Pomona had negative or inconclusive results
- Lawrence had positive at Kaw WW Plant; negative at Wakarusa WW Plant
- Brown County – 0 or 1 positive case, but Hiawatha and Everest showed positive detects in wastewater

- Six cities in Western Kansas with low reported positive cases were sampled in July and August
- Oberlin, Lincoln and Russell showed strong evidence of viral presence
- Oakley, Kingman and Goodland showed weak or no presence of virus
- Early September reported cases rose for Russell, but not Oberlin and Lincoln
- Early September reported cases remained flat for Goodland and Oakley, but rose significantly in Kingman

Lawrence and National results suggest one-week lead between WW detect and rise in reported positive cases



KDHE partnering with Patterson Family Foundation on two initiatives this fall, continued scientific evaluation of utility of this effort to support public health

1. Sampling wastewater in largest town or county seat of each of the 95 rural Kansas counties – October to Thanksgiving
 - a. Establishes baseline of rural extent of virus
 - b. Repeat sampling anticipated in January – February
 - c. Potential hot counties or clusters of counties
 - d. Investigate more frequent sampling or more towns sampled within selected counties

2. Weekly sampling of wastewater systems in Johnson and Wyandotte counties in November – December
 - a. Early Warning of next wave of virus re-emergence in Metro – KC (gateway to State)
 - b. Examination of social and economic influence of virus emergence and spread
 - c. Repeat sampling in February – March and May – June



Thomas C. Stiles
Bureau of Water, KDHE

785-296-6170

Tom.stiles@ks.gov