

Flushed to a Testing Site with Dr. Roper and Dr. Sims

Abby Stewart

06/19/2020

Flushed to a Testing Site, with Dr. Roper and Dr. Sims

If you're in Utah, you might have heard about a coordinated effort with the University of Utah, BYU, and Utah State to identify COVID-19 traces in the wastewater. This study was able to accurately predict the recent Cache Valley outbreak in Hyrum a week before testing confirmed the cases.

This isn't the first time wastewater has been tested, though usually scientist aren't looking for viruses. Wastewater is tested for other pathogens and bacteria, such as e. Coli, as well as less dangerous substances, such as caffeine. While Roper was initially skeptical about the method of testing wastewater to detect outbreaks, the need in communities, as well as Sim's equipment and methods, convinced him. And the study has been wildly successful. Usually, studies like this take months to get results and progress farther than the initial study, but because of the success across the state, the application to extend the study to 40 waste treatment plants and continue testing to the end of the year has been approved.

But how is the virus getting into our wastewaters? The virus affects your epithelial cells, mainly the cells in your respiratory system, but in many patients, the virus can also be found in the cells lining their gastrointestinal tract. These cells begin shedding before the ones in your lungs, which is how the virus can be detected up to a week before symptoms begin to show.

With this new way of testing brings many questions – how small scale can we get? Could you pick up a specific person's DNA from the wastewater? Right now that's not the case, but that doesn't mean it's impossible. Already researchers are working on shrinking the scale

of their testing to help protect specific communities and buildings from outbreaks. As students come back to school, concern over the spread of COVID19 in dorms is at the front of everyone's minds. But hopefully, we will be able to detect the presence of the virus before symptoms begin to show, and these findings can – and already are – encouraging people to go get tested even when they are asymptomatic.

And if you're worried about all the COVID19 in our waste treatment plants, don't worry, the treatment of the water the virus doesn't seem to exit the water treatment plants at all.

```
<iframe src="https://open.spotify.com/embed-podcast/episode/7slkKgcyuslu8dMBvgD1WS" width="100%" height="232" frameborder="0" allowtransparency="true" allow="encrypted-media"></iframe>
```

Dr. Keith Roper is the Department Head for USU Biological Engineering. His research interests include nanotechnology, biotechnology, and photonics. He has worked with many national organizations, including the National Science Foundation, the American Institute for Medical and Biological Engineering.

Dr. Ron Sims is the Huntsman Environmental Research Center Co-Director. His research interests include Bioprocess Engineering, Sustainable Engineering, Wastes to Bioproducts, Biofilm Fundamentals and Engineering. He runs the Sustainable Waste-to-Bioprocess Engineering Center.

You can read the [Salt Lake Tribune article on the scientific trial](#).

