

COVID-19 Wastewater Sampling

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Why Sample Wastewater?

- Multiple States and Universities exploring the potential for using wastewater testing as a predictor
- Based on Biological Science, Engineering and Microbiological Principles
- SARS CoV viruses shed in fecal matter
 - Greatest in first 4-5 days of infection
 - Virus Cells shed up to two weeks
- Community Wastewater Collection Systems Intended Purpose

Why Sample Wastewater?

- Increased virus load translates to greater response in testing results
- Measures:
 - Asymptomatic
 - Pre-symptomatic
 - Symptomatic

North Dakota Testing Program

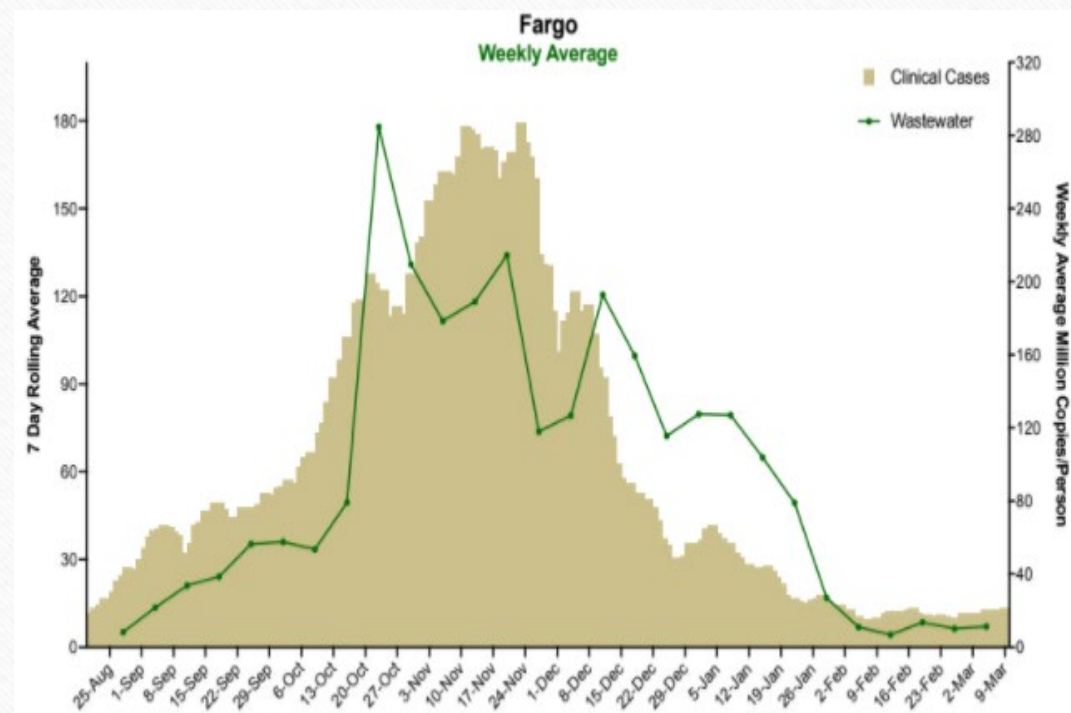
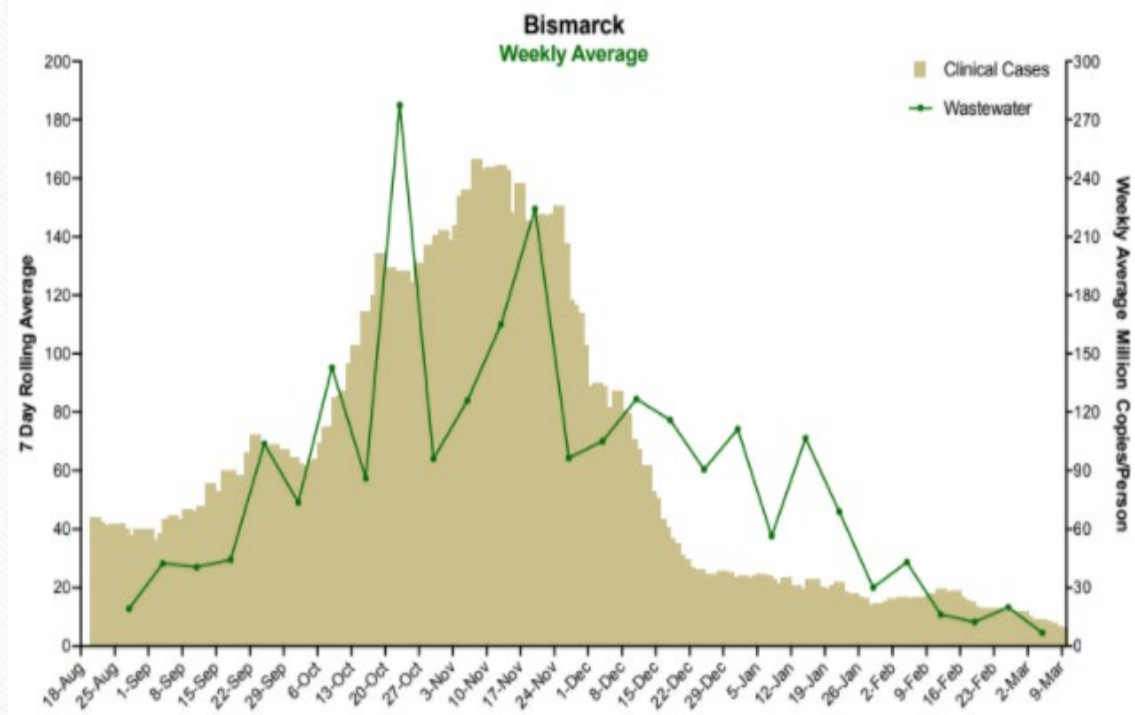
- NDDEQ and NDSU (Microbiology and Engineering Depts) Partnership
 - April 2020
 - First Testing Conducted July 2020 (Bismarck, Grand Forks and Fargo)
 - October 2020 Expanded testing to 21 Municipalities
 - Voluntary
 - Some expressed concerns relating to workforce availability or No interest
 - Project Sampling/Analysis covers 62 percent of States Population

Samples are to be taken with a composite sampler over a 24-hour period



A special sample bottle is used to minimize exposure in the Lab





Lessons Learned

- COV-2 can be detected and quantified in wastewater
- Identified Community Infection
- Data is sensitive to collection system design, sample location and use
- Potential to be used as another tool to identify community/statewide infection

Future Project

- Variant Testing
- Assist in determining Vaccine effectiveness
- Monitor for Virus Spike

Funding Needs

- Funding needed to keep sample collection and analysis active until June 30, 2021
- Desire to keep project active till end of year
 - Ongoing monitoring of virus response to vaccines
 - Ongoing monitoring of variant virus strains