

# COVID-19 Wastewater Sampling

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Environmental Quality

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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

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## Why Sample Wastewater?

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

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## 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

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



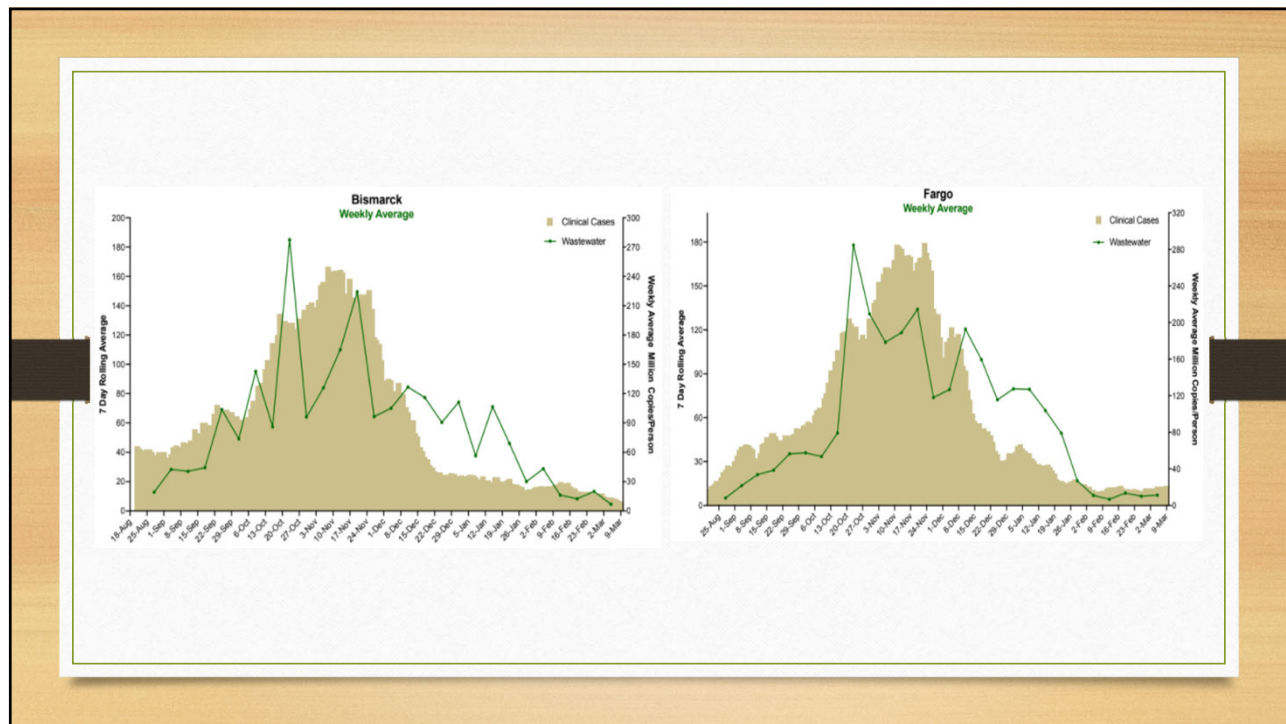
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A special sample bottle is used to minimize exposure in the Lab



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## 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

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## Future Project

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

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## Funding Needs

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- 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

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