Wastewater Surveillance for Northern, Remote, or Isolated (NRI) Communities

Public Health Agency of Canada's National Microbiology Laboratory Branch

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PROTECTING AND EMPOWERING CANADIANS
TO IMPROVE THEIR HEALTH

The NRI Initiative

➢ In response to the COVID-19 Pandemic, PHAC/NML created the **Northern, Remote and Isolated (NRI)** Initiative to increase accessibility to diagnostic testing for SARS-CoV-2 in communities across Canada.

"We can't just be sitting back and waiting for a sample to arrive in the laboratory … We've had to come up with new strategies where we can engage the community and individuals within the community — essentially take the laboratory outside of the laboratory."
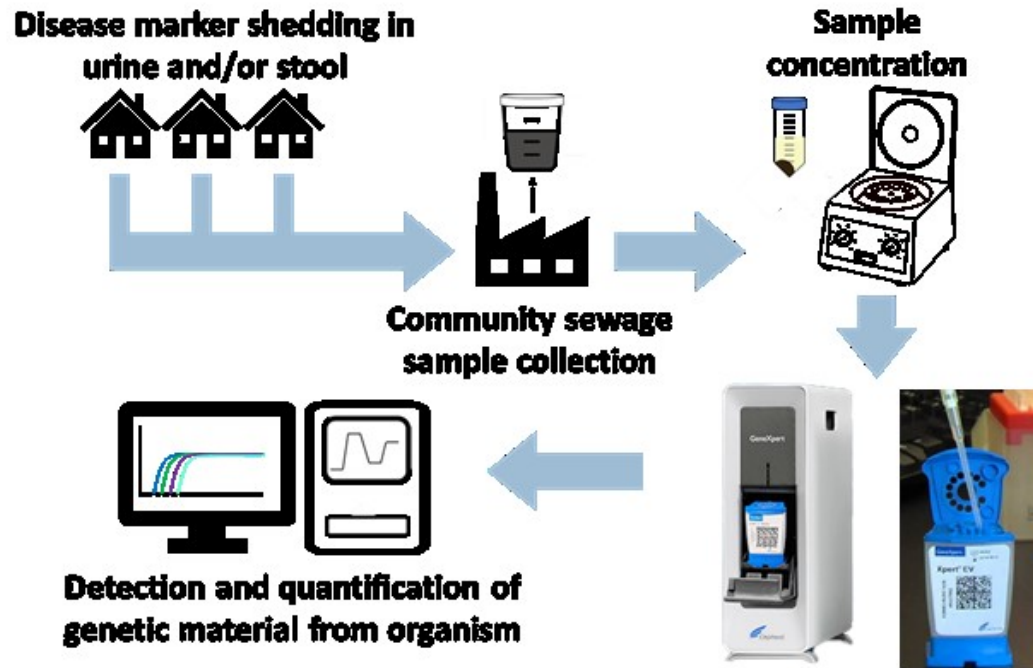- Paul Sandstrom, Director

➢ NRI communities/peoples have historically experienced obstacles and challenges with accessing health care services.
  o Test results can take weeks → delays in diagnosis and treatment, contact tracing and public health action

PHAC/NML definition of NRI:

Any community/group who experiences barriers to equitable healthcare due to geography, socioeconomic status, cultural beliefs, or discrimination
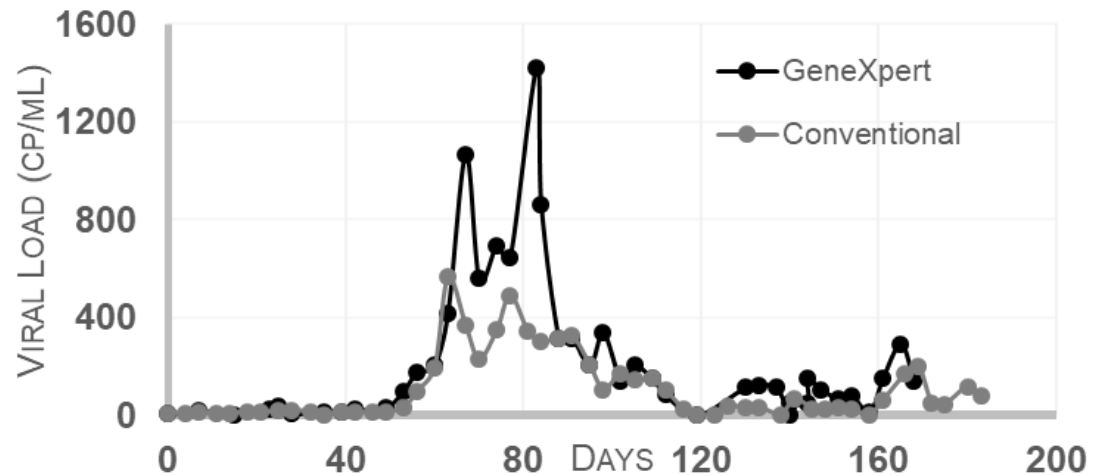
Using the GeneXpert System in NRI Communities

- The GeneXpert (a clinical test device for SARS-CoV-2 and other pathogens) provides a solution for wastewater testing in remote settings. It has a similar level of performance to the laboratory-developed wastewater test performed at PHAC.
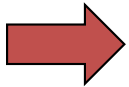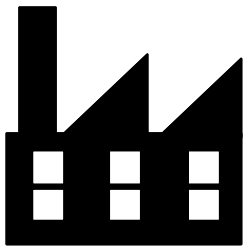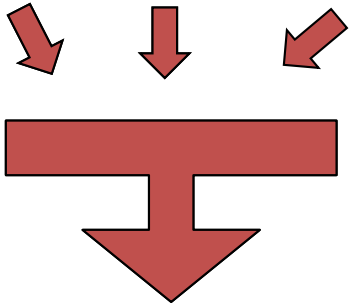- Work is in collaboration with the National Wastewater Surveillance Laboratory
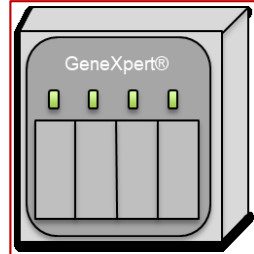
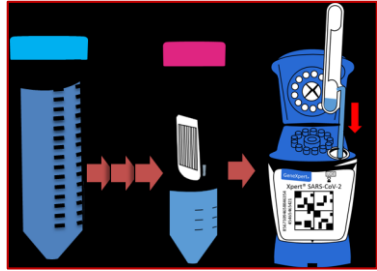(Head: Dr. Chand Mangat – See right)

Steps for community-based surveillance using the GeneXpert.
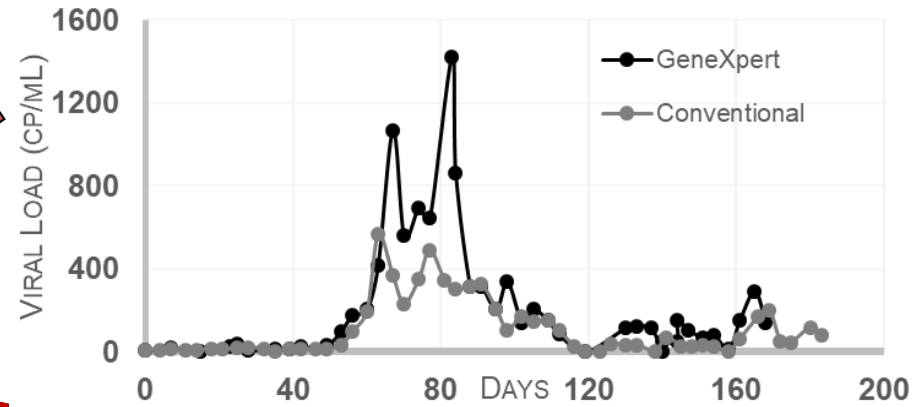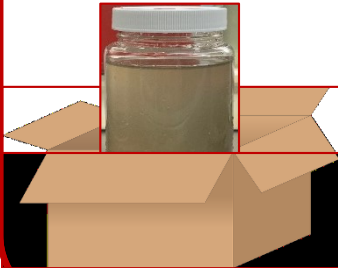

Results from GeneXpert system is similar to laboratory developed wastewater tests (above).

Time to result:
3 hours

GeneXpert®

Time to result:
1-2 weeks

Supporting Community-Led Wastewater Surveillance

The goal is to support communities interested in wastewater surveillance as a public health tool:

- Wastewater data can be used by communities to guide public health decisions or for event planning
- Process can be empowering, especially when in combination with on-site diagnostic testing
- Communities below have chosen to self-identify in media

https://www.creehealth.org/news/wastewater-testing-covid-19-pilot-project-chisasibi

Supporting Community-Led Wastewater Surveillance

A Sensitive and Rapid Wastewater Test for SARS-COV-2 and Its Use for the Early Detection of a Cluster of Cases in a Remote Community

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https://www.creehealth.org/news/wastewater-testing-covid-19-pilot-project-chisasibi

Key Contacts at PHAC

- National Oversight
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  - Dr. Michael R. Mulvey, Chief, OH-Wastewater Surveillance
- Laboratory methods, VoC qPCR, QA/QC, WW-AMR
  - Dr. Chand S. Mangat, Head, OH-Wastewater Surveillance, chand.mangat@phac-aspc.gc.ca
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Useful links:

https://health-infobase.canada.ca/covid-19/wastewater/ - National Dashboard