

## Letters

### Beyond wastewater surveillance: refining environmental pathogen detection in the built environment

We enjoyed reading the article by Berry and colleagues,<sup>1</sup> and agree that expanded surveillance systems are needed for effective and equitable public health policy moving forward. The authors highlighted that wastewater surveillance has been an innovative public health tool and can detect early transmission of SARS-CoV-2 in the community. We agree and believe that additional environmental testing using the built environment can play a complementary role.

Our team has validated a method of environmental sampling for SARS-CoV-2 in which the floor is swabbed and then processed using quantitative polymerase chain reaction.<sup>2</sup> Our initial study showed that the hospital SARS-CoV-2 burden is reflected in built environment samples, particularly from floors.<sup>2</sup> These findings have been replicated; in 1 study, the researchers found that there was a 67-fold higher odds of detecting SARS-CoV-2 from the floor than other surfaces in the built environment.<sup>3</sup> Floors likely act as a sink and collect the droplets and aerosols produced by people infected with SARS-CoV-2. Swabbing the floor is simple and takes about 30 seconds per swab. The swab is then processed in the laboratory using standard approaches.<sup>2</sup> In contrast to wastewater surveillance, our approach has greater spatial resolution, fewer logistical challenges (e.g., does not require access to sewage), minimal up-front costs and does not require installation of equipment or a device for the building.

We have since expanded our network to include schools, daycares, university buildings and long-term care homes across Ontario (<https://cube-ontario.github.io/>). Our data from a prospective study of 10 long-term care homes over a 10-month period show that detection of SARS-CoV-2 on floors is strongly associated with outbreaks and rising detection of SARS-CoV-2; predating an outbreak by days and sometimes weeks.<sup>4</sup> Long-term care homes are particularly relevant for environmental sampling because many residents of long-term care homes may not use the toilet owing to incontinence.

Our team, in partnership with CoVaRRNet (<https://covarnet.ca/coronavirus-in-the-urban-built-environment-cube-community-wide-built-environment-surveillance-for-sars-cov-2-and-variants/>), are expanding the number of sites we are swabbing and will also include genomic testing to identify new variants. Our data and the available literature suggest that environmental surveillance may have an important role to play in pathogen surveillance, especially for areas where wastewater surveillance is impractical or prohibitively expensive.

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