



FACTSHEET

UPDATES ON WASTEWATER SURVEILLANCE PROGRAMME

Background

1 Singapore is an early adopter of wastewater surveillance, which is being explored in various countries around the world for monitoring the COVID-19 situation. It is a non-intrusive strategy that complements clinical testing in monitoring the spread of COVID-19. The National Environment Agency (NEA) is conducting wastewater surveillance at more than 400 sites, including workers' dormitories, student hostels, welfare and nursing homes, and residential areas across Singapore. As the COVID-19 virus may be found in stools or respiratory discharges of infected individuals, including those with mild or no symptoms, the testing of wastewater provides an indication of COVID-19 transmission in the community.

Application of Wastewater Surveillance

2 Since February 2020, the National Environment Agency's (NEA) wastewater surveillance coverage has progressively expanded across the country. From a modest eight sites in May 2020, 440 sites across Singapore are being monitored today, with 150 sites distributed across the heartlands, i.e. residential areas and town centres in Singapore, and the remaining sites at workers' dormitories, student hostels, and welfare homes. We have achieved a testing capacity of 4,000 samples per week, providing comprehensive and timely coverage across Singapore.

3 This surveillance approach has supported Singapore's COVID-19 response through several waves of COVID-19 resurgences, including the Inter-Agency Task Force's¹ effort in managing the COVID-19 situation among workers in dormitories in 2020², and in monitoring residential sites at risk of COVID-19 transmission for early case detection in 2021³. NEA brought wastewater testing to the workers' dormitories in the early phase of the pandemic which helped to assess the situation and guide decisions on individual testing. The monitoring subsequently expanded to student hostels, nursing homes, as well as at residential sites. Wastewater surveillance also helped to reduce the risk of community transmission by facilitating early detection of cases in neighbourhoods such as Tampines, Hougang, Yishun and Bukit Merah.

¹ Inter-Agency Taskforce to Support Foreign Workers and Dormitory Operators in managing COVID-19. Led by the Ministry of Manpower and supported by the Ministry of Health, the National Environment Agency, the Singapore Armed Forces, the Singapore Police Force, Migrant Workers' Centre and other agencies.

² Visit this link to find out more about how wastewater testing supported the dedicated efforts at workers' dormitories: <https://www.nea.gov.sg/media/news/news/index/nea-leads-scientific-team-in-wastewater-surveillance-trials-for-assessment-of-covid-19-transmission>.

³ Wong, J., Tan, J., Lim, Y., Arivalan, S., Hapuarachchi, H., Mailepessov, D., Griffiths, J., Jayarajah, P., Setoh, Y., Tien, W., Low, S., Koo, C., Yenamandra, S., Kong, M., Lee, V. and Ng, L., 2021. Non-Intrusive Wastewater Surveillance for Monitoring of a Residential Building for COVID-19 Cases. *Science of The Total Environment*, 786, p.147419.

Transiting to a COVID-19 resilient nation

4 As Singapore transits to a COVID-19 resilient nation, the monitoring of COVID-19 viral fragments in wastewater continues to play an important role. The focus of wastewater has shifted from early case detection to attaining situational awareness. The data alerts premises owners or operators of the situation, thereby prompting calibration of public health measures. Wastewater surveillance also provides an indication of the prevailing infection rate and the transmission of new variants in the community. It provides objective information on whether infections among the population are increasing or decreasing, independent of the population's health seeking behaviour and prevailing clinical test protocols.

5 Besides contributing to Singapore's management of the COVID-19 pandemic, further research and development will allow the wastewater surveillance system to be used for monitoring other infectious disease threats. The surveillance programme is thus an important tool to safeguard public health in Singapore in the long term.

Support from Partners

6 NEA's wastewater surveillance programme is also supported by HTX (Home Team Science and Technology Agency), National Water Agency PUB, Singapore Centre for Environmental Life Sciences Engineering (SCELSE), Nanyang Technological University (NTU), and National University of Singapore (NUS).

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